



CURRICULUM
MD GASTROENTEROLOGY
(2025)

RAWALPINDI MEDICAL UNIVERSITY

PREFACE



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

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

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Section I
PREAMBLE

Introduction

1.1: Definition of the Specialty

The program of MD Gastroenterology of Rawalpindi Medical University is conducted with a goal to produce Gastroenterologists who can provide quality GI & Hepatology care to meet the needs of patients both now and in the future, and who can contribute to the field of Gastroenterology through participation in research. Residency Curriculum provides essential intellectual and clinical information (the scope covers cognition, skills and attitudes) that are necessary for a Gastroenterologist.

1.2.1 Mission Statement of University



Mission Statement

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

Vision and Values

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

1.2.2 Mission of Gastroenterology Residency Programme

The mission of the MD Gastroenterology Residency Program at Rawalpindi Medical University is to passionately educate our trainees, instilling in them the knowledge and skills of Gastroenterology as imparted by our esteemed predecessors. We aim to equip our trainees with comprehensive expertise in Gastroenterology, ensuring proficiency in both diagnostic and therapeutic procedures. We actively support and contribute to the research mission of our Gastroenterology Department, advancing knowledge at both clinical and research levels to benefit the nation and the world. We are dedicated to translating the latest scientific advancements into clinical practice, enhancing our understanding of GI & Hepatology diseases and ensuring patients receive the most up-to-date and scientifically sound care. Our commitment extends beyond our hospitals and clinics, as we promote GI health and well-being in communities locally, nationally, and internationally. As dedicated ambassadors of the Rawalpindi Medical University MD Gastroenterology Residency Program, we uphold its values and vision throughout our professional careers.

1.3: RULES AND REGULATIONS

1.3:1 Eligibility Criteria

- i. For admission in MD Gastroenterology course, the candidate shall be required to have:
 - MBBS degree
 - Completed one-year House Job
 - Registration with PMDC
 - Passed Entry Test conducted by the University & aptitude interview by the Institute concerned
- ii. Exemptions: A candidate holding FCPS Int. Medicine/MRCP/Diplomat ABIM shall be exempted from Entrance and Midterm Examinations and shall be directly admitted for Exit Examination, subject to fulfillment of requirements for the examination.

1.3:2 Number of Residents

The minimum number of residents in an accredited five-year program is ten in total or two per year.

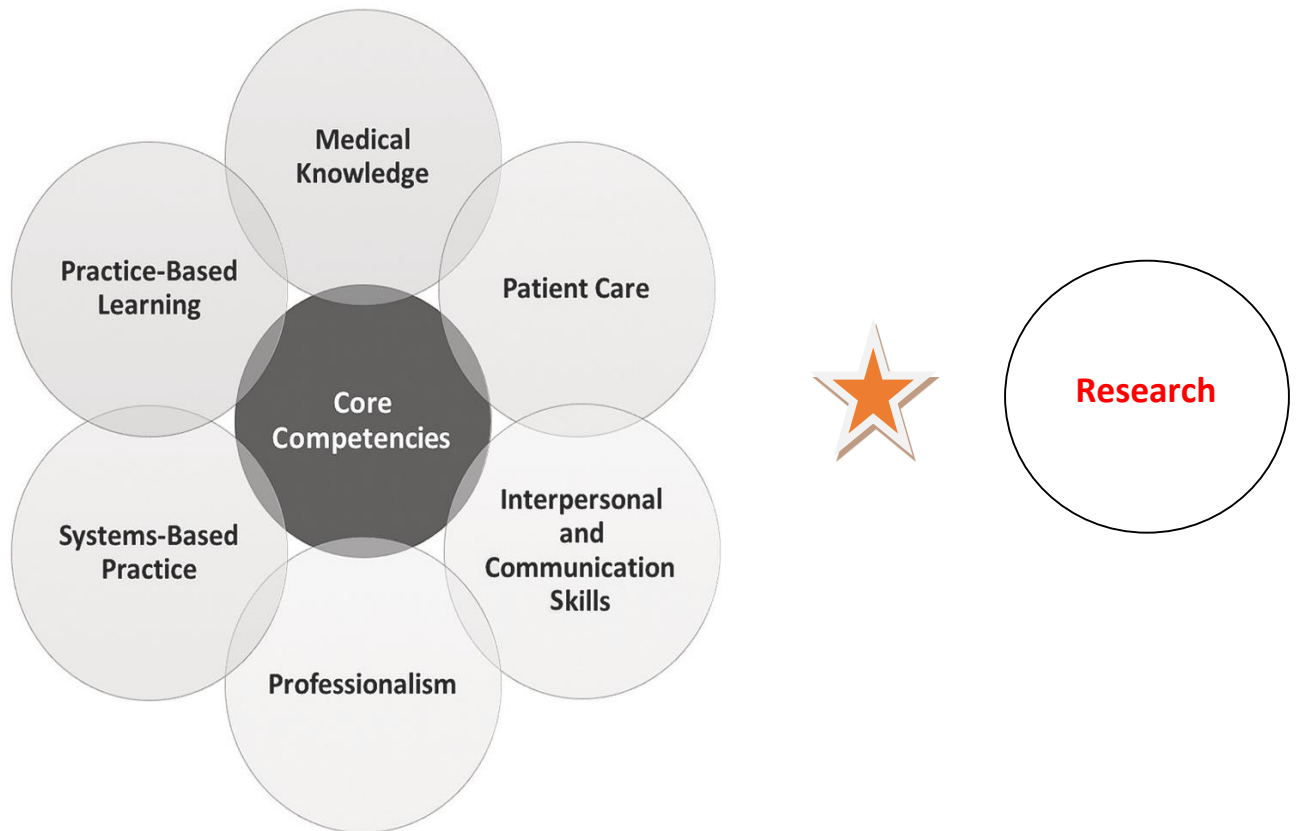
For a thorough understanding of the rules and regulations, please refer to the “Policy and Procedure Manual (PPM) of the Post graduate residency of Level III Programme provided by SHC & ME.(Assess the manual via the following link)

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

1.4 Core Competencies

The curriculum MS Orthopedic Surgery of Rawalpindi Medical University, Rawalpindi is derived from **Accreditation Council for Graduate. Medical Education (ACGME)** which is competency / performance-based system competencies.

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



7TH Core competence in RMU residents will be research

Distribution of weightage among various desired competencies of RMU Gastroenterology curriculum:

1. Medical knowledge	40%
2. Patient care	
3. Interpersonal & communication skills	40%
4. Professionalism	
5. Practice based learning	10%
6. System based learning	
7. Research	10%

Detailed Description of Core Competencies

1. Medical Knowledge

- Demonstrate a thorough understanding of biomedical, clinical, and cognate sciences and apply this knowledge to patient care.

2. Patient Care

- Residents are expected to provide patient care compassionately, effectively for the promotion of health, prevention of illness, treatment of disease and end of life decisions.
- Gather accurate, essential information from all sources, including interviews, physical examinations, medical records, and diagnostic/therapeutic procedures.
- Make informed recommendations about preventive, diagnostic and therapeutic options, 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 general surgery.

3. Interpersonal and Communication Skills

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

4. 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.

5. Practice-Based Learning and Improvement

- Residents are expected to be able to use scientific evidence, 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.
- Develop error prevention skills and critical thinking leading to prevention of cognitive dispositions to respond.

6. 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.

7. Research

- To develop advanced clinical knowledge and skills necessary for specialized patient care.
- To foster research and innovation in medical practices, improving diagnosis and treatment outcomes. To foster research and innovation in medical practices, improving diagnosis and treatment outcomes.

1.5 GENERAL FRAMEWORK OF THE PROGRAMME:

Below is the frame work of the MD Gastroenterology Programme of the Rawalpindi Medical University

Training Year	Module Name	Duration	Exams	Research
1st & 2nd	General Medicine	18 Months	In training assessment year 1	One Disease Statistical Review
	Rotations	Durations: 6 months Cardiology (2 months) Dermatology (2months) ICU (2 months)	MTA (on completion of 2 years of medicine training)	
3rd	Gastroenterology	12 months	In training assessment 3rd year	Synopsis Topic& Submission to IRF/ ERB - BASR Approval

4 th	Gastroenterology	12 months	In training assessment 4 th year	Data Collection / Data Analysis / Thesis Writing
5 th	Gastroenterology Rotations	6 months Duration: 6 months Radiology (2 months) Liver Transplant (2 months) Histopathology (1 month) GI Oncology (1 month)		Thesis Completion Certification (DME) / BASR - Thesis Approval
			FTA	Thesis Submission

1.5.1: Duration of Educational Program

The duration of MD Gastroenterology course shall be four (5) years consisting of structured training in a recognized department under the guidance of an approved supervisor. The course is structured in two phases:

Phase I is structured for the 1st and 2nd calendar year in **General Internal Medicine**. Residents entering this will require closely supervised training in basic examination methods and techniques and should rapidly be introduced to the basic principles of Int. Medicine and the management of general outpatients and accident and emergency Int. Medicine patients. In their second year, Residents will be expected to take a larger role in medical wards, emergency and outpatients, where they will benefit from special clinics also. The training units should therefore provide a broad-based training in internal medicine and exposure to the common subspecialties. The candidate shall undertake didactic and interactive training in Basic Internal Medicine including, Cardiology, Pulmonary, Nephrology, Neurology, Dermatology, Psychiatry, Endocrinology, Hematology and Rheumatology, Behavioral Sciences, Biostatistics & Research Methodology. At the end of 1st year an SEQ based examination will be conducted. At the end of 2nd year **Mid-Term examination** shall be held, comprising of 2 MCQ based question papers and Clinical OSCE.

Phase II is structured for 3rd, 4th and 5th calendar years in MD Clinical Gastroenterology.

The candidate shall undergo clinical training to achieve educational objectives of MD

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. The Resident should see sufficient patients in emergency, outdoor (clinics) and indoor, to develop competency and fluency in managing patients of all common acute and chronic Gastroenterology & Hepatology disorders as well as having some exposure and proficiency in managing less common and rare conditions. Resident will be required to develop basic skill in diagnostic and therapeutic endoscopy. Endoscopy skill experience should be developed as indicated by the learning outcomes in the curriculum. During residency of basic Gastroenterology proficiency, it is envisaged that resident may gain some expertise in subspecialties like pancreatic-biliary, IBD, motility disorders, advanced Hepatology and Nutrition.

At the end of 3rd & 4th year an MCQ based end of year examination will be conducted. The candidate will have to achieve sufficient clinical and research capability during this phase so as to qualify his **FTA** for the award of degree.

1.5.2: DISTRIBUTION OF TEACHING AND TRAINING HOURS:

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

Weekly Training Hours

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

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

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

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

Training hours of five-year residency program

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

No. of weeks in one year of Training	Training hours in one year of Training	Total Training hours in five-year residency programme
48 weeks	48 x 88 = 4224 hours	5 x 4224= 21, 120 hours

1.5.3: Sponsoring Institution

Rawalpindi Medical University

Program Personnel and Resources

1.5.4: Program Director

The program director is the Chairman of Gastroenterology department of Rawalpindi Medical University.

1.5.5: Faculty

The faculty involved in the teaching process of the Gastroenterology residents comprises of:

1. Professor
2. Associate Professor
3. Assistant Professor
4. Senior Registrars

All the faculty members of the department are appointed as per the rules and regulations of PMDC.

1.5.6: Other Program Personnel

The qualified members of allied sciences of the Gastroenterology department:

1. Endoscopy Charge Nurse
2. Radiology technologist,

They aid in the training of the residents in the relevant fields.

1.5.7: Resources:

Out-patient Department

The outpatient area/ GI specialty clinics of hospital have a well-equipped Ambulatory Learning Environment for residents who are supervised by senior registrars/ Faculty member. The patients are examined in detail in a methodic manner and cases are explained to the residents. The treatment strategies outlined by the residents is supervised by the senior faculty members. The trainees are also provided with ample opportunities of clinical clerkship with senior consultants.

Emergency Department

Emergency management of gastroenterology cases is essential for equipping gastroenterology residents with the skills to handle critical situations like GI bleeding, pancreatitis, and bowel obstructions etc. It ensures prompt decision-making, improves patient outcomes, and prepares residents to act swiftly in life-threatening emergencies. Additionally, it fosters collaboration with different departments and healthcare teams and strengthens overall clinical readiness.

Endoscopy Suite

Gastroenterology department equipped with basic and advance endoscopy center, where state of the art facilities for all kind of GI & Hepatology procedures including, diagnostic & therapeutic upper and lower GI endoscopy, ERCP, EUS, Spyglass cholangioscopy, Fibroscan and GI motility studies.

The residents have access to all the available diagnostic and therapeutic equipment's according to their curriculum requirements.

Inpatients:

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

1.6 Objectives of the Curriculum

AIM

The aim of the five-year MD Gastroenterology program is to train residents to acquire the competency of a specialist in the field of Gastroenterology so that they can become proficient teachers, researchers, and clinicians in their specialty after completion of their training.

GENERAL OBJECTIVES

1. **Broad Experience:** Provide a comprehensive experience in Gastroenterology, highlighting its interrelationship with other medical disciplines.
2. **Medical Knowledge and Clinical Skills:** Enhance medical knowledge, clinical skills, and competence in diagnostic and therapeutic GI & Hepatology procedures.
3. **Professional Preparation:** Prepare residents for higher specialization in Gastroenterology, equipping them with the necessary professional requirements.
4. **Professional Attitude and Communication:** Cultivate the correct professional attitude and enhance communication skills towards patients, their families, and other healthcare professionals.
5. **Community Sensitivity:** Enhance sensitivity and responsiveness to community needs and the economics of healthcare delivery.
6. **Critical Thinking and Research:** Promote critical thinking, self-learning, and interest in research and development of patient services.
7. **Evidence-Based Practice:** Encourage the practice of evidence-based medicine and critical appraisal skills.
8. **Continuous Education:** Instill a commitment to continuous medical education and professional development.
9. **Holistic Training:** Provide broad training in medicine and in-depth training in Gastroenterology, enabling residents to acquire competence in the diagnosis, investigation, and treatment of acute and chronic Gastroenterology disorders..
10. **Emergency Management:** Develop competence in managing acute Medical and GI emergencies and in identifying medical problems for timely referral to appropriate care.
11. **Patient Management:** Enhance skills in inpatient and outpatient management of GI & Hepatology problems, including referrals to other specialties when necessary.
12. **Leadership and Teamwork:** Develop leadership skills to manage patient care in ward and work closely with healthcare teams.
13. **Community Collaboration:** Encourage the development of communication and collaboration skills with the community for healthcare delivery.

14. **Critical Appraisal:** Foster skills in the critical appraisal of new methods of investigation and treatment.
15. **Self-Learning:** Promote self-learning and commitment to staying updated in all aspects of Gastroenterology.
16. **Innovation and Teaching:** Encourage contributions to the advancement of knowledge in Gastroenterology through research and teaching.
17. **Future Training:** Acquire professional competence in training future Gastroenterology residents.

Specific Learning Objectives

(A) Medical Knowledge

1. Develop a basic understanding of core Gastroenterology concepts.
2. Interpret etiology, pathophysiology, clinical manifestations, disease course, prognosis, investigation, and management of common gastroenterology diseases.
3. Stay updated on the scientific basis and recent advances in Gastroenterology.
4. Recognize the spectrum of clinical manifestations and interaction of multiple medical diseases in patients.
5. Interpret the psychological and social aspects of GI & Hepatology illnesses.
6. Effectively use and interpret investigations and special diagnostic procedures.
7. Critically analyze the efficacy, cost-effectiveness, and cost-utility of treatment modalities.
8. Ensure patient safety and risk management.
9. Conduct medical audits and quality assurance.
10. Apply ethical principles and address medico-legal issues related to gastroenterology illnesses.
11. Stay informed on evidence-based medicine and its implications for diagnosis and treatment.
12. Familiarize with different care approaches and healthcare facilities.
13. Appreciate patient safety and clinical risk management.
14. Be aware of the cost-effectiveness and risk-benefits of advanced treatment modalities.
15. Interpret administration and management concepts for a general medical unit.

(B) Skills

1. Take detailed patient histories and gather relevant data to develop diagnostic and management plans.
2. Record comprehensive initial histories, physical examinations, follow-up notes, and deliver oral presentations.

3. Elicit abnormal physical signs and interpret their significance.
4. Relate clinical abnormalities to pathophysiologic states and diagnose diseases.
5. Select relevant investigations and diagnostic and therapeutic procedures.
6. Interpret basic and advanced laboratory data related to Gastroenterology disorders.
7. Understand routine laboratory and ancillary tests, including sensitivity, specificity, pre-test probability, and Bayes' theorem.
8. Formulate differential diagnoses using scientific evidence and clinical judgment.
9. Assess the risks, benefits, and costs of treatment options and involve patients in decision-making.
10. Perform essential ophthalmic procedures competently, including technical proficiency in informed consent, indications, contraindications, interpretations, and handling complications.
11. Learn additional procedural skills based on the training environment and practice expectations.
12. Perform basic, diagnostic, and therapeutic GI & Hepatology procedures.
13. Develop competence in managing acute and chronic Gastroenterology problems.
14. Present clinical problems and literature reviews in grand rounds and seminars.
15. Build good communication skills and interpersonal relationships with patients, families, and healthcare professionals.
16. Mobilize appropriate resources for patient management at different stages of Gastroenterology illnesses.
17. Diagnose and manage GI & Hepatology emergencies and complex cases with unusual presentations.
18. Implement strategies for preventive care and early detection of diseases in collaboration with primary and community care doctors.
19. Interpret medical statistics and critically appraise published work and clinical research.
20. Practice evidence-based learning with reference to research and scientific knowledge.
21. Recognize the cost-effectiveness of treatment modalities.
22. Identify key information resources and utilize medical literature to expand knowledge and search for answers to medical problems.

(C) Attitudes

1. Prioritize the well-being and restoration of patients' health.
2. Develop empathy and rapport with patients and their relatives.
3. Aspire to be a team leader in total patient care involving nursing and allied medical professionals.
4. Recognize the cost-effectiveness of investigations and treatments.

5. Respect patient privacy, confidentiality, and the sanctity of life.
6. Interpret informed consent, advanced directives, and the physician-patient relationship.
7. Appreciate the psychological and socio-economic effects of diseases on patients.
8. Stay updated with advances in Internal Medicine and other Specialties.
9. Refer patients to appropriate specialties timely.

1.7 SPECIFIC LEARNING OUTCOMES

Topics To Be Taught	Learning Objectives	Teaching Methods	Assessment
	Student should be able to know:		
1. History Taking (Knowledge)	<ul style="list-style-type: none"> ▪ To progressively develop the ability to obtain a relevant focused history from increasingly complex patients and challenging circumstances ▪ To record accurately and synthesize history with clinical examination and formulation of management plan according to likely clinical evolution ▪ Recognizes the importance of different elements of history ▪ 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)	<ul style="list-style-type: none"> • Identify and overcome possible barriers (eg cognitive impairment) to effective communication • Manage time and draw consultation to close appropriately. 	Bedside teaching in wards and outpatient Departments	mini-CEX

	<ul style="list-style-type: none"> • Supplement history with standardized instruments or questionnaires when relevant • Manage alternative and conflicting views from family, careers and friends • Assimilate history from the available information from patient and other sources • Recognize and interpret the use of nonverbal communication from patients and careers • Focus on relevant aspects of history 		
3. History Taking (Attitude)	<ul style="list-style-type: none"> • Show respect and behave in accordance with Good Medical Practice 	Bedside teaching in wards and outpatient departments	ACAT mini-CEX
4.Clinical Examination (knowledge)	<ul style="list-style-type: none"> ▪ To progressively develop the ability to perform focused 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 ▪ Recognize constraints to performing physical examination and strategies that may be used to overcome them ▪ Recognize the limitations of physical examination and the need for adjunctive forms of assessment to confirm diagnosis 	Bedside teaching in wards and outpatient departments	CBD mini-CEX ACAT

5. Clinical Examination	<ul style="list-style-type: none"> • Perform an examination relevant to the presentation and risk factors that is valid, targeted and time efficient • Recognize the possibility of deliberate harm in vulnerable patients and report to appropriate agencies • Interpret findings from the history, physical examination and mental state examination, appreciating the importance of clinical, psychological, religious, social and cultural factors • 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) 	Bedside teaching in wards and outpatient departments	CBD mini-CEX ACAT
(Skills)			
6. Clinical Examination (Attitude)	<ul style="list-style-type: none"> • Show respect and behaves in accordance with Good Medical Practice 	Bedside teaching in wards and outpatient departments	CBD, mini CEX MSF
7. Time Management and Decision Making	<ul style="list-style-type: none"> • To become increasingly able to prioritize and organize clinical and clerical duties in order to optimize patient care. To become increasingly able to make appropriate clinical and clerical decisions in order to optimize the effectiveness of the clinical team resource 	Bedside teaching in wards and outpatient departments	ACAT CBD
8. Decision Making And Clinical Reasoning	<ul style="list-style-type: none"> • To progressively develop the ability to formulate a diagnostic and therapeutic plan for a patient according to the clinical information available • To progressively develop the ability to prioritize the diagnostic and therapeutic plan • To be able to communicate the diagnostic and therapeutic plan appropriately 	Bedside teaching in wards	ACAT CBD mini-CEX

ASSESSMENT FRAMEWORK OF MD GASTROENTEROLOGY TRAINING PROGRAM

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

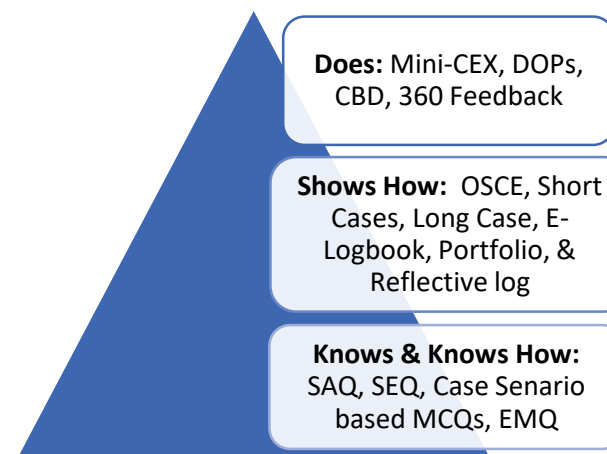


Figure: List of various assessment tools which are employed for both summative and formative evaluations throughout the five year MD Gastroenterology training program.

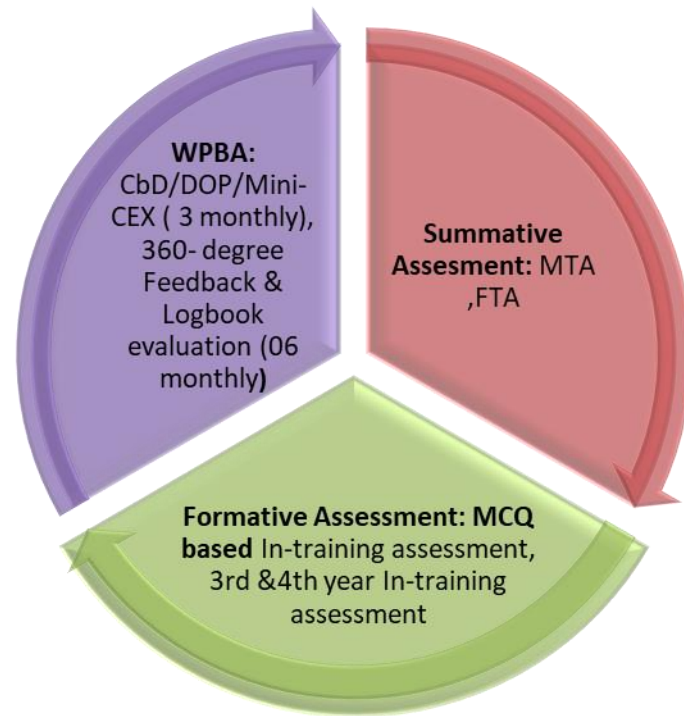


Figure: Assessment model of five-year MD Gastroenterology training program.

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

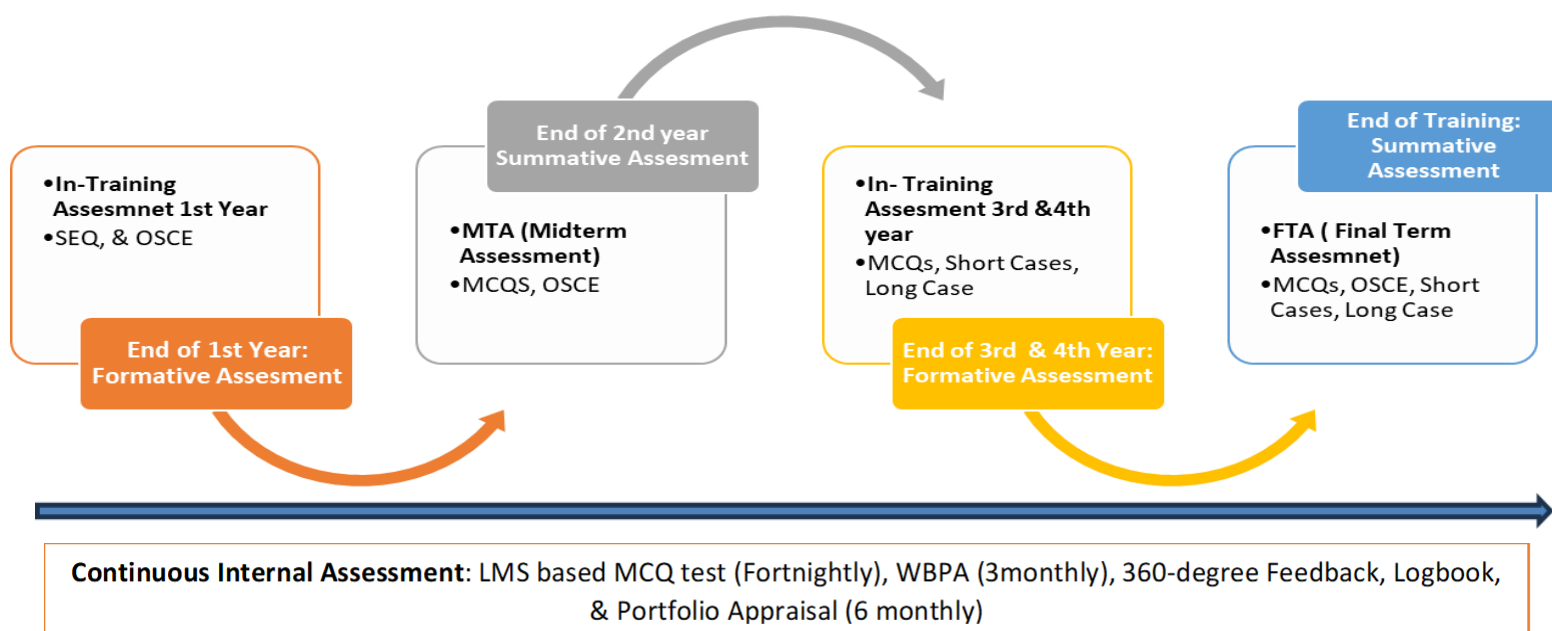
1: **Formative Assessment:** Conducted throughout the residency to monitor progress, formative assessment provides residents with actionable feedback to help refine their clinical skills and knowledge.

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

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

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

Figure: Assessment schedule of 5 year MD Gastroenterology training



Continuous Internal Assessment (CIA)

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

Number of Assessments during MD Gastroenterology Residency

SR NO.	Name of Assessments	Type of Assessment	Total Assessment time			Workplace based Assessment	Assessment Time
			Assessment Time	Formative Assessment Time	Summative Assessment Time		
1	1 st Year (In training Assessment)	Formative	1 hours and 50 minutes	6 hours and 10 minutes	11 hours and 25 minutes	*In house assessment (5 days every 2 months per year)	5 x 6 = 30 hours per year
2	2 nd Year (Midterm Assessment)	Summative	4 hours and 15 minutes			LMS based assessment (2 hours after every 2 weeks)	2 x 12 = 24 hours per year
3	3 rd Year (In training Assessment)	Formative	2 hours and 10 minutes			Daily bedside assessment (1 hour per day)	1 x 223= 233 hours per year
5	4 th Year (In training Assessment)	Formative	2 hours and 10 minutes			Daily bedside assessment (1 hour per day)	1 x 223= 233 hours per year
4	FTA (Final Term Assessment)	Summative	7 hours and 10 mins			Total assessment time in four years	287 x 5 = 1435

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

Total Assessment time of five-year MD Gastroenterology Residency Programme:

Training Year	Formative Assessment time	Summative Assessment time	Workplace based Assessment
1	1 hour 50 minutes		287
2		4 hours 15 minutes	287
3	2 hours 10 minutes		287
4	2 hour 10 minutes		287
5		7 hours 10 minutes	287
Total	6 hours 10 minutes	11 hours 25 minutes	1435 hours

Training
hours vs
Total
Assessment

hours:

Ratio of Training hours to assessment hours	Grand total Training hours 21, 120 hours	Grand Total Assessment hours 1452 hours & 35 minutes
	14.5: 1	

SECTION II
i. CORE CURRICULUM

Table of Contents of First Two years Medicine Clinical Training

S No.	Contents	
1.	History Taking (Knowledge)	Y-1
2.	History Taking (Skills)	Y-1
3.	History Taking (Attitude)	Y-1
4.	Clinical examination (knowledge)	Y-1
5.	Clinical examination (skills)	Y-1
6.	Clinical examination(Attitude)	Y-1
7.	Time management and decision making	Y-1
8.	Decision making and clinical reasoning	Y-1
9.	General objectives of the clinical training	Y-1
10.	General internal Medicine	Y-1 & 2
	Approach to short of breath	Y-1
	Approach to chest pain	Y-1
	Approach to anemia	Y-1
	Approach to jaundice	Y-1
	Approach to Gastrointestinal bleed	Y-1
	Approach to seizures	Y-1
	Approach to acute confusion	Y-1
	General management of poisoning	Y-1
	Approach to Ascites	Y-1
11.	Cardiology	Y-2
12.	Infectious diseases	Y-1
13.	Emergency medicine	Y-1
14.	Critical Care Unit	Y-1
15.	Coronary Care Unit	Y-2
16.	Pulmonology	Y-1
17.	Ambulatory medicine	Y-1 & 2

18.	Endocrinology	Y-1
19.	Dermatology	Y-2
20.	Gastroenterology	Y-2
21.	Nephrology	Y-2
22.	Neurology	Y-2
23.	Haem-oncology	Y-2
24.	Rheumatology	Y-2
25.	Radiology	Y-2
26.	Psychiatry	Y-2
27.	Geriatric medicine	Y-2
28.	General Management of poisoning	Y-1

Curriculum for First Two Years Internal Medicine

COMMON CLINICAL DISORDERS			
Approach to short of Breath	<p>When a patient presents with shortness of breath a trainee should demonstrate knowledge of the clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for common causes.</p> <ul style="list-style-type: none"> • Life threatening causes of breathlessness <ul style="list-style-type: none"> • Airway Obstruction • Acute severe asthma • Acute exacerbation of COPD • Pulmonary oedema • Tension pneumothorax • Acute presentations of Ischaemic heart disease • Acute severe left ventricular failure • Dysrhythmia • Pulmonary embolus • Cardiac tamponade • Metabolic acidosis 	<p>Presentation Interactive Lecture LGD</p>	<p>MCQs, SEQs, Short case</p>
Approach to chest Pain	<p>When a patient presents with chest pain a trainee should demonstrate knowledge of the clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for common causes.</p> <ul style="list-style-type: none"> • Life threatening causes of chest pain <ul style="list-style-type: none"> ○ Myocardial infarction ○ Dissecting aortic aneurysm 	<p>Large class format Interactive lecture</p>	<p>MCQs, SEQs, Long case, & Short case</p>

	<ul style="list-style-type: none"> ○ Pulmonary emboli ○ Tension pneumothorax ○ Oesophageal rupture • Clinical features of: <ul style="list-style-type: none"> ○ Cardiac chest pain ○ Chest pain caused by respiratory disease and oesophageal rupture ○ Chest pain caused by gastrointestinal disease ○ Chest wall pain ○ Functional chest pain 		
Approach to anemia	<ul style="list-style-type: none"> • Define Anemia • Different Classifications of anemia • Causes of different types of anemias • Clinical features of anemia • Specific features of different anemias • Normal values of hematological parameters • Basic investigations in anemia • Specific investigation in different types of anemias • Treatment options in different anemia 	Presentation LGD Lecture	MCQs, SEQs, OSCE, Long case, & Short case

Approach to jaundice	<p>When a patient presents with jaundice a trainee should demonstrate knowledge of the life-threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes</p> <ul style="list-style-type: none"> • Incubation and prodromal phase • Clinical features, investigations and management • Virus-specific • Toxic hepatitis • Autoimmune • Acute liver failure 	<p>Presentation Interactive Lectures LGD</p>	<p>MCQs, SEQs, OSCE, Long case, & Short case</p>
Approach to Gastrointestinal bleed	<p>When a patient presents with gastrointestinal bleeding a trainee should demonstrate knowledge of the life-threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes</p> <ul style="list-style-type: none"> • Understanding of the initial assessment and stabilization of patients with GI bleeding • Understanding of haemovigilance and blood transfusion protocols • Upper gastrointestinal bleeding including <ul style="list-style-type: none"> ○ Peptic ulcer Disease ○ Gastritis ○ Esophageal varices ○ Mallory-Weiss tears ○ Gastrointestinal cancers ○ Inflammation of the gastrointestinal lining from ingested material • Lower gastrointestinal bleeding including <ul style="list-style-type: none"> ○ Diverticular disease ○ Gastrointestinal cancers 	<p>Large class format Interactive lecture Presentations</p>	<p>MCQs, SEQs, OSCE, Long case, & Short case</p>

	<ul style="list-style-type: none"> ○ Inflammatory bowel disease (IBD) ○ Infectious diarrhoea ○ Angiodysplasia ○ Polyps ○ Haemorrhoids and anal fissures 		
Approach to Seizures	<p>When a patient presents with seizures a trainee should demonstrate knowledge of the life threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.</p> <ul style="list-style-type: none"> • Causes <ul style="list-style-type: none"> ○ Unprovoked seizures/epilepsy ○ Seizures associated with metabolic, toxic and system illness ○ Cerebral hypoxia ○ Seizures associated with drugs and toxic substances • Management <ul style="list-style-type: none"> ○ Emergency supportive treatment ○ Anticonvulsant treatment ○ Work up of first presentation with seizure ○ Understand driving implications for patients with seizures 	<p>Large class format Interactive lecture Presentations</p>	<p>MCQs, SEQs, Long case, & Short case</p>

Acute confusion	<p>When a patient presents with delirium or acute confusion a trainee should demonstrate knowledge of the life-threatening causes, clinical feature, classifications, appropriate investigations and necessary management, including indications for urgent referral, for the common causes.</p> <ul style="list-style-type: none"> • Clinical features of acute confused state- differentiating delirium, dementia, depression and psychosis • Causes of delirium • Use of screening instruments for delirium and/or cognitive impairment • Clinical features of acute delirium • Clinical features of acute functional psychosis • Causes of confused state associated with alcohol abuse- delirium tremens, Wernicke's encephalopathy • Drug induced/related confusion/delirium • Bacterial meningitis, Viral encephalitis • Subarachnoid haemorrhage/ subdural haematoma 	<p>Presentation Interactive Lectures SGD</p>	<p>MCQs, SEQs, OSCE, Long case,</p>
General Management of Poisoning	<ul style="list-style-type: none"> • 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 	<p>Large class format (interactive lecture)</p>	<p>MCQs, SEQs, Long case, & Short case</p>

	Role of psychiatric evaluation		
Approach to Ascites	<ul style="list-style-type: none"> • What is ascites, its causes, and pathophysiology • Clinical features, investigations (SAAG analysis included), management, complications, and outcome depending on cause • 	Presentation, SGD	MCQs, SEQs, Long case, & Short case

PSYCHIATRY				
LEARNING OBJECTIVES	TOPICS TO BE TAUGHT	TIME ALLOCATION	TEACHING METHODS	DESIRED SOFT SKILLS ACQUISITION
<ul style="list-style-type: none"> To discuss the community psychological aspect of health To understand Bio-Psycho- Social Model To enlist Psychological Aspect of Diseases To illustrate pathophysiology of stress To summarize methods of stress management To state Psychological Aspects of Pain To recognize & report Psychological Aspects of Aging 	1. Community Psychological Aspect of Health & Bio- Psycho-Social Model	2 hrs. session with 10 minutes ice breaker activity	Large class format (interactive lecture)	<ul style="list-style-type: none"> Listening skills Recording skills enhancement of visual memory
	2. Psychological Aspect of Disease, Stress and its Management	2hrs. session 10 minutes ice breaker activity	seminar in which students would make power point presentations on given topics	<ul style="list-style-type: none"> Presentation skills Computer skills enhancement of visual memory
	3. Psychological Aspects of Pain	2 hrs. session with 10 minutes ice breaker activity	Large class format (interactive lecture)	<ul style="list-style-type: none"> Listening skills Recording skills enhancement of visual memory
	4. Psychological Aspects of Aging	2 hrs. session with 15 minutes group discussion break and 10 minutes ice breaker activity	Large class format (interactive lecture)	<ul style="list-style-type: none"> Listening skills Recording skills enhancement of visual memory

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, tubule interstitial 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. **Musculoskeletal 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
<ul style="list-style-type: none"> 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, 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> The resident should learn when to call a sub-specialist for evaluation and management 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 complaints to promote the patient's welfare. The resident should provide effective 	<ul style="list-style-type: none"> The resident should use feedback and self-evaluation in order to improve performance. The resident should read pertinent 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 	<ul style="list-style-type: none"> The resident's ability to answer directed questions and to participate in attending rounds. The resident's presentation of patient history and physical exam, where attention is given to differential diagnosis and pathophysiology. When time permits, residents may be assigned short topics to present at attending grounds. These will be examined for completeness, accuracy, organization and the Residents understanding of the topic. The resident's ability to apply the information learned from attending round sessions to the patient care setting.

but also with their co-workers. <ul style="list-style-type: none"> • Residents are encouraged to develop leadership in teaching and supervising interns and medical students. • Actively participate in all phases of patient care. Residents are encouraged to read on related topics, to share new learning with their colleagues and to keep their fund of knowledge up-to-date. • Learn to use the computer for literature searches, to read and analyze scientific articles. 		appearance at all times.	education and counseling for patients. <ul style="list-style-type: none"> • The resident must write organized legible notes. • The resident must communicate any patient problems to the attending staff in a timely fashion. 	should use in format ion provided by senior residents and attending from rounds and consultations to improve performance and enhance learning	The residents interest level in learning.
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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.

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:

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.
- Brady arrhythmias

- 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, cardio vascular collapse
 - Syncope, light headedness

Procedure Skills

- Advanced cardiac life support Cardiopulmonary resuscitation
- Endotracheal intubation
- Central venous access

- Hemodynamic monitoring (Pulmonary Artery Catheterization)
- Thoracentesis
- Arterial cannulation

Interpretation of Clinical and Laboratory Tests

- Ambulatory ECG monitoring
- Echocardiography
- Cardiac markers

Teaching Strategies:

- Outpatient evaluation at cardiology clinic
- bedside teaching rounds
- learning through monitoring of the stress tests
- Exposure to Echo cardiograms
- Exposure to Nuclear cardiology studies
- daily interpretation of ECGs
- Didactic lectures
- Seminars
- Problem based learning
- Case based learning

- Grand round
- Journal club
- 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
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<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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, 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> ② The PGT should use feedback and self-evaluation in order to improve performance ② The PGT should read the required material and articles provided to enhance learning ② The PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases. 	<ul style="list-style-type: none"> • 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 completeness, accuracy, organization, and the PGTs' Understanding of the topic. • The PGT's ability to apply the information learned in the didactic
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<p>patients who have been seen in consultation.</p> <ul style="list-style-type: none"> • Out-patient cardiac care. • Differential diagnosis of chest pain 		<p>colleagues, and support staff.</p> <ul style="list-style-type: none"> • The PGT must maintain a professional appearance at all times 	<p>write organized and legible notes</p> <ul style="list-style-type: none"> • The PGT must communicate any patient problems to the staff in a timely fashion 		<p>sessions to the patient care setting.</p> <ul style="list-style-type: none"> • The PGT's interest level in learning.
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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

Management of common Infectious Clinical problems

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
9. Transplant infections
10. Nosocomial infections
11. Infections in special hosts
12. 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 MPIC

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 MPICT

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 Required Other 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
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 maintain a 	<ul style="list-style-type: none"> 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 <p>PGT should arrange the elements of patient's report in a systematic manner to be useful for both patients and</p>	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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

	<p>pertinent</p> <ul style="list-style-type: none"> • Understanding that patients have the right to either accepts or decline recommendations made by the physician • Education of the patient 	<p>professional appearance at all times</p> <p>PGT should understand how personal and cultural characteristics impact the efforts to control spread of communicable diseases</p>	<p>consultant</p> <p>PGT should establish rapport with patients</p> <p>PGT should be able to health educate and counsel the patients</p> <p>PGT should write legible and organized consultation notes</p> <p>PGT should clearly present problem to the consultants & infectious diseases conferences</p>		
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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 another 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 cardioversion
- 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
- ICP measurement
- Venous cut down
- Thoracentesis
- ICD tube placement

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. Endo tracheal 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. 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-cardio graphic, 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
<ul style="list-style-type: none"> • 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' 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<p>PGT should learn when to call a subspecialist to manage patient with medical / surgical emergencies</p> <p>PGT should clearly present the cases to staff in organized way</p> <p>PGT should be able to establish rapport with patients</p> <p>PGT should listen to the patient's complaints for patient's welfare</p> <p>PGT should effectively educate & counsel</p>	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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		staff & patients • PGT should have		interesting cases	
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Understanding that patients have the right to either accept 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 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. Basics of conventional mechanical ventilation.
4. Initial Management of acute myocardial ischemia.
5. Acute renal failure - diagnosis and treatment.
6. Acute endocrinologic emergencies.
7. Acute lung injury.
8. Sepsis and the sepsis syndrome.
9. Acute treatment of cardiac arrhythmias.
10. Management of acute gastrointestinal bleeding.
11. Management of common neurologic emergencies.
12. 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: vasopressors / 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
- 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
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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 sever always: • 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.
<p>appropriate use of daily progress notes in patient follow-up, and the need for frequent reevaluation of the unstable patient.</p>		<ul style="list-style-type: none"> • 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

1. Formal presentation of the new admissions.
2. ICU Rounds
3. Diagnostic and treatment strategies are discussed at the bedside.
4. Didactic Lectures
5. Reading assignments
6. Literature searches
7. Noon conferences
8. Skill teaching in ICU settings
9. 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. Basics of conventional mechanical ventilation.
3. Understand cardiovascular hemodynamics in a wide range of disease states.
4. Management of congestive heart failure and cardiogenic shock.
5. Basics of conventional mechanical ventilation.
6. Management of acute myocardial ischemia.
7. Acute treatment of cardiac arrhythmias.

Procedural Skills:

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

Attributes Required Other than Knowledge

Patient Care	Practice Based Learning Improvement	Professionalism
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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 sever always: • 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 autopsyin 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 bed side.
- Didactic lectures
- Reading assignments
- Literature searches
- interactive seminars
- Grand rounds
- problem based learning
- case based learning
- skill teaching in CCU 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 & Wilkins

Pulmonology

Educational Purpose

To give a basic view of pulmonary diseases to GI trainees, 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.

Common 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

- Thoracocentesis (EPA-4)
- Bronchoscopy (EPA-1)

Interpretation of Clinical and Laboratory Procedures

- Pulmonary Function Tests (EPA-4)
- Thoracocentesis (EPA-4)
- Needle biopsy of pleura(EPA-1)
- Bronchoscopy
- Chest intubation (EPA-2)

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
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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

<p>avoiding such problems in the future</p> <ul style="list-style-type: none"> • PGT must assist in development of systems' improvement if problems are identified 	<p>relevant to the patient's pulmonary status. Other sources of information may be used, when pertinent</p> <ul style="list-style-type: none"> • Understanding that patients have the right to either accept or decline recommendation 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 	<ul style="list-style-type: none"> • 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 	<p>patient's complaints for patient's welfare</p> <ul style="list-style-type: none"> • 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 	<p>articles related to interesting cases</p>	<p>PGT to apply the information to the patient care setting</p> <ul style="list-style-type: none"> • interest level of PGT in learning
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Suggested Readings

1. John B. West, Andrew M. Luks. West's respiratory physiology: The Essentials. 10th Edition. WoltersKluver.
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 ACCPC on sensus 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 7guidelines.
- **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
<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The resident should learn when to call a subspecialist for evaluation and management of 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. 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 include pulmonary clinic, Hematology 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 ° 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 al 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 hypocalcaemia, adrenal cortex hyper- and hypo function, hyper- and hyponatremia, certain manifestations of pituitary tumors, disorders of mineral metabolism, and hyperlipidemias.
2. Recognize Type 1 from Type 2DM
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 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 Hyperkalemia (focus on primary hyperparathyroidism) and Hypokalemia.
12. 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 2DM
- 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, thyroiditisetc)
- Thyroid hormone therapy

- Hypothyroidism: primary vs. secondary hypothyroidism
- Diagnosis and management
- Thyrotoxic storm and myxedema coma
- Euthyroid sick syndrome
- Pheochromocytoma:
- Approach to adrenal diseases
- Adrenal insufficiency
- Cushing's disease
- Hypocalcaemia and hypercalcaemia
- Osteoporosis, osteopenia, vitamin D deficiency
- Hypopituitarism including pituitary tumors:
- Prolactinomas and Acromegaly
- Hirsutism
- Polyendocrine autoimmune syndromes

Common Clinical Presentations

- Blood lipid disorders
- Goiter (diffuse, nodular)
- Hirsutism
- Hypertension refractory to primary therapy
- Hypotension
- abnormalities in serum electrolytes, calcium, phosphate, or glucose
- Mental status changes
- Osteopenia
- Polyuria, polydipsia
- 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
- Micro albuminuria
- 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
<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<p>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.</p>	<ul style="list-style-type: none"> 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.

<ul style="list-style-type: none">Identify signs and symptoms of thyrotoxicosis and				
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<p>hypothyroidism. The resident will be taught perform an adequate examination of the thyroid gland and this will be specifically demonstrated during this rotation.</p> <ul style="list-style-type: none"> • 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. 		<p>consider the needs of patients, families, colleagues, and support staff.</p> <ul style="list-style-type: none"> • The resident must maintain a professional appearance at all times. 	<p>patient's complaints to promote the patient's welfare.</p> <ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
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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 of Internal Medicine, McGraw-Hill publisher
2. Section on endocrine-metabolic disease in Cecil’s Textbook of Medicine, 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
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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 anytime.
- 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:

1. Mandatory Reading: Fitzpatrick T. *Color Atlas and Synopsis of Clinical Dermatology*
2. MKSAP booklet on Dermatology
3. 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: 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
- Viral hepatitis
- Chronic liver disease and Cirrhosis, its Common Clinical Presentations

- Abdominal distention
- Abdominal pain
- Abnormal liver function test
- Anorectal discomfort, bleeding, or pruritus
- Anorexia, weight loss
- Ascites
- Diarrhea
- Fecal incontinence
- Food intolerance
- Gastrointestinal bleeding
- 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, cholestasis, 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
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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 to identify 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 Common Disorders

- Acute renal failure
- Chronic renal failure
- Primary & secondary glomerulopathies
- Tubulo-interstitial disorders
- Obstructive nephropathy (acute & chronic)
- Hereditary nephropathy (Polycystic kidney disease, AL port's syndrome)
- Diabetic nephropathy
- Lupus nephritis
- Nephritic syndrome
- Acid base disorders
- Fluid & electrolytes imbalances

- Kidney biopsy indications
- Dialysis
- Kidney transplantation

Procedural Skills

- Ultrasonography(EPA-2)
- Hemodialysis access interventions(EPA-1)

Interpretation of Clinical and Laboratory Procedures

- Renal Function Tests(RFTs) (EPA-4)
- Renal biopsy(EPA-3)
- Renal Ultrasonography(EPA-3)

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 communications 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
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> PGT should be able to answer directed questions & participate in case management PGT presentation s on assigned short topics will be assessed for completeness accuracy,

<p>use of cost effective medicine</p> <ul style="list-style-type: none"> • 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 	<p>previous medical records and extraction of information relevant to the patient's renal status.</p> <p>Other sources of information may be used, when pertinent</p> <ul style="list-style-type: none"> • Understanding that patients have the right to either accept or decline recommendations made by the physician • Education of the patient 	<p>therapy, vaccination and preventive measures</p> <ul style="list-style-type: none"> • 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 	<p>rapport with patients</p> <ul style="list-style-type: none"> • 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 	<p>literature search tools in the library to find appropriate articles related to interesting cases</p>	<p>organization & understanding of topic</p> <ul style="list-style-type: none"> • Ability of PGT to apply the information to the patient care setting • interest level of PGT in learning
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Suggested Readings

1. Murray Longmore. Oxford Handbook of Clinical Medicine and Oxford Assess and Progress: Clinical MedicinePack. 2014.
2. Douglas C.Eaton. John Pooler. Vanders Renal Physiology, 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 GI residents formal instruction, clinical experience, and 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 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 electro diagnostic studies (EEG's and EMG's)
9. Utilizing laboratory data to complete topographic and etiologic diagnoses
10. Defining pathophysiologic mechanisms of disease processes
11. Formulating plan for investigation and management

12. Understanding main neurological manifestations of systemic diseases.
13. Identifying emergencies and need for expert assistance

Content of Required knowledge:

Common Clinical Disorders:

- Headache
- Inflammatory meningeal and encephalitic lesions
- Epilepsy
- Syncope
- Weakness and Paralysis
- Transient Ischemic Attacks
- Stroke
- Intracranial and Spinal Space-Occupying Lesions.
- Pseudo tumor Cerebri
- Selected Neurocutaneous Diseases
- Movement Disorders
- Dementia
- Myelopathies in AIDS
- Sub-acute Combined Degeneration of the Spinal Cord.
- Wernicke's Encephalopathy
- Stupor and Coma
- Motor Neuron Diseases
- Peripheral Neuropathies

- Disorders of Neuromuscular Transmission
- Myopathic Disorders
- Periodic Paralysis Syndrome

Common Clinical Presentations

- Abnormal speech
- Confusion
- Disturbed gait or coordination
- Dizziness, vertigo
- Headache
- Radiculopathy
- Loss of consciousness
- Seizure
- Tremor
- Weakness/paresis (generalized, localized)

Procedure Skills

- Tensilon (edrophonium chloride) test(optional) (EPA-1)
- Lumbar Puncture (EPA-4)

Ordering and Understanding Tests

- Anticonvulsant drug levels(EPA-3)
- Carotid Doppler echo scans(EPA-2)
- Computed tomography, magnetic resonance imaging of central nervous system(EPA-3)
- Electroencephalography, evoked potentials (visual, auditory, sensory)(EPA-2)
- Electromyography, nerve conduction studies(EPA-2)

- Muscle biopsy(EP-1)
- Pyelography(EPA-1)
- Screen for toxins, heavy metals

Attributes Required Other Than Knowledge:

System based learning	Professionalism	Interpersonal Communication Skills and	Practice Based Learning Improvement	Evaluation of Medical Knowledge
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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

<p>knowledgeable on the use of cost effective medicine</p> <ul style="list-style-type: none"> Residents will assist in development of systems of improvements to correct identified problems. 		<ul style="list-style-type: none"> 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. 		<p>more than their share and demonstrate interest, and enthusiasm in learning</p>
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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 assigned admitted patients as their own until patients are released.
- Didactic lectures
- Case based learning
- Problem based learning
- Interactive seminars
- Small group discussion
- Clinic- pathological conference
- Neurology Grand Round given by visiting professors.
- Short presentation 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 evaluation 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. Gilman, 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; McGraw-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-Oncologic Diseases

A. Common Haematologic Disorders

1. Anemias
 - Iron deficiency anemia
 - Thalassemia's
 - Aplastic anemia
 - Haemolytic anemia
 - Sickle cell anemia
 - Pernicious anemia

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 colon
- CA lung

E. Common Para-neoplastic Syndromes

- Hypercalcemia
- SIADH
- Eaton Lambert
- Ectopic ACTH

Procedural Skills

- Bone marrow aspiration (EPA-1)
- Lumbar puncture (EPA-4)
- Peripheral blood smears (EPA-2)

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 communications 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
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> PGT should learn when to call a subspecialist to manage patient with hematologic /oncologic problem PGT should clearly present the cases to staff in organized way PGT should be able to establish rapport with patients 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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

<ul style="list-style-type: none"> • PGT should recommend the drugs available in hospital pharmacy • Bed bureau should be informed for bed issue • PGT must assist in development of systems' 	<p>patient's hematologic status. Other sources of information may be used, when pertinent</p>	<p>medical errors and should learn how to avoid mistakes in future</p> <ul style="list-style-type: none"> • PGT should 	<ul style="list-style-type: none"> • PGT should listen to the patient's complaints for patient's welfare • PGT should effectively educate & counsel 	<p>tools in the library to find appropriate articles related to interesting cases</p>	<p>of topic</p> <ul style="list-style-type: none"> • Ability of PGT to apply the information to the patient care setting • interest level of PGT in learning
<p>improvement if problems are identified</p>	<ul style="list-style-type: none"> • Understanding that patients have the right to either accepts or decline recommendations made by the physician • Education of the patient 	<p>be responsible and timely in consulting with staff & patients</p> <ul style="list-style-type: none"> • PGT should have professional appearance at all times • PGT should 	<p>patients</p> <ul style="list-style-type: none"> • PGT should not down all complaints of patients in organized manner • PGT should timely communicate pt's problem to the staff 		

Suggested Readings

1. Hoff brand's Essential Haematology, 7th Edition. October 2015, ©2016,Wiley-Blackwell.
2. Dacie and Lewis Practical Haematology, 12th Edition By Barbara J. Bain, Copyright2017
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 Mono articular arthritis
- Rheumatoid arthritis
- Systemic lupus erythematosus (SLE)
- Scleroderma
- Anti-phospholipid syndrome
- Sero negative arthropathies
- Crystal induced arthritis(Gout)
- Vasculitis

Interpretation of Clinical and Laboratory Procedures

- X-ray and other imaging techniques(EPA-2)
- Lab tests
- soft tissue and joint injections(EPA-1)
- biopsy procedures such synovial or muscle biopsies(EPA-2)
- musculoskeletal ultrasound
- synovial fluid aspirations(EPA-2)
- synovial biopsy(EPA-1)

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
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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

<ul style="list-style-type: none"> • 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 	<p>extraction of information relevant to the patient's rheumatologic status. Other sources of information may be used, when pertinent</p> <ul style="list-style-type: none"> • Understanding that patients have the right to either accept or decline recommendations made by the physician • Education of the patient 	<p>Measures</p> <ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<p>find appropriate articles related to interesting cases</p>	<ul style="list-style-type: none"> • Ability of PGT to apply the information to the patient care setting • interest level of PGT in learning
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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. Basics aspects of medical radiation exposure and protection
5. Newer neuroimaging techniques for cerebral diseases and conditions
6. 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 MS Disease
6. Radiological findings of Chest diseases
7. Radiological findings of Liver diseases
8. Basics of CT scan, interpretation & diagnosis of common diseases
9. 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
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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' 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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. <ul style="list-style-type: none">• The resident must maintain a professional appearance at all times.	certain settings	radiological studies.
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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
9. Case based learning
10. Journal club meeting
11. Self-directed learning
12. Clinic pathological conferences

Assessment:

- OSCE
- MCQs
- SEQs

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.
- 10) 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. Green Baum. New York: Wiley,c1982.
- 4) Videodisc: Head and neck, GI, GU Ultrasound files
- 5) LearningRadiology.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. Evaluate for psychopathologic processes in patients with concomitant medical conditions.
7. 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. Discuss the liaison process and its utility within the hospital setting.
14. Understand the use of non-organic treatments, including brief psychotherapy, behavioral management techniques, family interventions and psycho education.

Content of Required Knowledge:

Common Clinical Disorders

- Psychiatric assessment.
- Substance use disorders.
- Delirium, dementia and other cognitive disorders
- Geriatric psychiatric disorders
- Psychiatric problems associated with hospitalization and medical disorders
- 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
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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
- 11) Problem based learning
- 11) Case based learning
- 12) Journal club meeting
- 13) 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 fillout 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:

- **Mandatory Reading:**

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

- **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
<ul style="list-style-type: none"> To discuss the community psychological aspect of health To understand Bio-Psycho-Social Model To enlist Psychological Aspect of Diseases To illustrate pathophysiology of stress To summarize methods of stress management To state Psychological Aspects of Pain To recognize & report Psychological Aspects of Aging 	1. Community Psychological Aspect of Health & Bio-Psycho-Social Model	2 hrs session with 10 minutes ice breaker activity	Large class format (interactive lecture)	<ul style="list-style-type: none"> Listening skills Recording skills enhancement of visual memory 	MC Qs 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	<ul style="list-style-type: none"> Presentation skills Computer skills enhancement of visual memory 	MC Qs SEQs
	3. Psychological Aspects of Pain	2hrs session with 10 minutes ice breaker activity	Large class format (interactive lecture)	<ul style="list-style-type: none"> Listening skills Recording skills enhancement of visual memory 	MC Qs 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)	<ul style="list-style-type: none"> Listening skills Recording skills enhancement of visual memory 	MC Qs 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
	Adult immunizations
	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 thrombus

Gastrointestinal

GE reflux, Gastroenteritis/acute diarrhea Constipation Hemorrhoids

Renal& Urology	UTI, Hematuria
In continence, 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

Immunology

Systemic Cancer care

Infectious Diseases HIV Tuberculosis Malaria

Dermatology

Pressure Ulcer Actinic keratosis Seborrheic

keratosis Dermatitis Tinea Varicella zoster Hypothyroidism Hyperlipidemia Obesity Hyperthyroidism
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) (EPA-4)
- Life Expectancy Estimate
- Geriatric Depression Scale (GDS)

- Nutritional Status Assessment(EPA-2)
- 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 communications 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
<ul style="list-style-type: none"> • 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 assisting 	<ul style="list-style-type: none"> • 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. <p style="text-align: right;">Other sources of information may be used, when pertinent</p>	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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	<p>Understanding that patients have the right to either accepts or decline recommendations made by the physician</p> <p>Education of the patient</p>	<p>be responsible and timely in consulting with staff & patients</p> <p>PGT should have professional appearance at all times</p> <p>PGT should</p>	<p>patients</p> <p>PGT should listen to the patient's complaints for patient's welfare</p> <p>PGT should effectively educate & counsel patients</p> <p>PGT should not down all complaints of patients in organized manner</p> <p>PGT should timely communicate pt's problem to the staff</p>		
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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

SECTION II

ii. GASTROENTEROLOGY 3RD YEAR, 4TH YEAR AND 5TH YEAR

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 RY3, RY4 and RY5 respectively.
- Program would be evaluated throughout the course with continuous internal assessment as well as at the end of program

Training in Gastroenterology MD program will provide opportunities for Residents to develop clinical

- Competence in the field of gastroenterology, including: Gastroenterology, GI endoscopy, Hepatology, gastrointestinal Oncology, Surgery, Radiology and Pathology. While this is a subspecialty program, training will emphasize the trainee function in 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 outpatient, inpatient and emergency setting and clinical rotations.
- The training program will provide access to basic and clinical sciences necessary to develop the skills to practice Gastroenterology and Hepatology.
- The training program will be designed to teach critical analysis and reasoning relative to clinical and investigative problems in Gastroenterology and Hepatology.
- The training program will be designed to teach both cognitive and technical aspects of gastrointestinal endoscopy.
- The training program will provide 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 resident’s interest.

- At least 30 months will be devoted entirely to clinical gastroenterology, approximately 30 % of which will be related to liver diseases.
- The third year of Gastroenterology residency training will stress independent clinical and Basic endoscopic work, access to advanced Endoscopic therapeutics training.
- Training in liver transplantation and pediatric gastroenterology will also be encouraged.

Out Patient Clinic

The resident will examine and treat 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 population, 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, long-term 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 placed on following those patients into the procedure area. As with general outpatient clinic rotation, the resident will examine and treat 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 resident's 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.

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 evaluate 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 physical examination 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 of 3rd, 4th and 5th year training.

Third Year:

- a. Esophagogastroduodenoscopy, minimum of 100 supervised studies.
- b. Biopsy of the mucosa of the esophagus, stomach, small bowel and colon minimum 5 supervised studies each site
- c. Sigmoidoscopy & left sided colonoscopy -Minimum of 50 supervised colonoscopies.
- d. Esophageal dilations-Minimum 10 supervised studies.
- e. Percutaneous endoscopic gastrostomy -Minimum of 5 observer studies
- f. Moderate sedation -Completion to competence
- g. Summary of evaluations showing adequate predominance in each of the six core competencies

Fourth Year:

- a. Esophagogastroduodenoscopy -Minimum of 100 (including variceal bleed hemostasis) supervised & independent studies.
- b. Biopsy of the mucosa of the esophagus, stomach, small bowel and colon -Minimum 10 each supervised & independent studies each site.
- c. Colonoscopy -Minimum of 50 supervised colonoscopies and 5 assisted polypectomies.
- d. Esophageal dilations -Minimum 15 supervised studies.
- e. Percutaneous endoscopic gastrostomy -Minimum of 5 assisted studies
- f. Non-variceal hemostasis -Minimum 5 assisted studies.
- g. Observed advanced endoscopic procedures like ERCP, EUS. Minimum of 30.
- h. Summary of evaluations showing adequate performance in each of the six core competencies

Fifth Year:

- a. Esophagogastroduodenoscopy - Minimum number to be performed 150 independent studies and demonstrates competence.
- b. Biopsy of the mucosa of the esophagus, stomach, small bowel and colon, independent and demonstrate competence.
- c. Colonoscopy with polypectomy -Minimum of 100 supervised colonoscopies and 10 assisted & supervised polypectomies studies and demonstrate competence.
- d. Esophageal dilations -Minimum 15 supervised studies and demonstrate competence
- e. Percutaneous endoscopic gastrostomy -Minimum of 5 assisted & 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 50.
- i. Summary of evaluations showing adequate performance in each of the six core competencies.

The milestones in Gastroenterology for the general gastroenterologist in training are divided into three general areas: Routine Inpatient, Outpatient and Urgent Inpatient (Emergency). 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 abdomen

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-I** 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-I** will be able to assess and triage outpatient 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 outpatient 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 Training 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 sub competency 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 (HISTORY TAKING)

Level 1	Level 2	Level 3	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	Independently selects and interprets diagnostic tests, with adjustments based on cost effectiveness and	Interprets subtleties of diagnostic test results to improve patient care
		Preferences	patient preferences	

Patient Care 3: Procedures Cognitive Components

Level 1	Level 2	Level 3	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 2: Patient Management in Gastrointestinal and Liver Disease				
Level 1	Level 2	Level 3	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 4: Procedures: Technical Components

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

Systems-Based Practice 2: System Navigation for Patient-Centered Care

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of care Coordination	Coordinates care of patients in routine clinical situations effectively using the roles of the Interprofessional teams	Coordinates care of patients in complex clinical situations, effectively using the roles of interprofessional teams	Role models effective coordination of patient-centered care among different disciplines and Specialties	Analyzes the process of care coordination and leads in the design and implementation of Improvements
Identifies key elements for safe and effective transitions of care and hand-offs	Performs safe and effective transitions of care/hand-offs in routine clinical situations	Performs safe and effective transitions of care/hand-offs in complex clinical situations	Role models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems, including outpatient Settings	Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes
Demonstrates basic knowledge of population and community health needs and disparities	Identifies specific population and community health needs and inequities for the local Population	Uses local resources effectively to meet the needs of a patient population or community	Tailors individual practice to provide for the needs of a specific population or Community	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	Level 3	Level 4	Level 5
Identifies key components of the complex health care system (e.g., hospital, skilled nursing facility, finance, personnel, technology)	Describes how components of a complex health care system are interrelated, and how this impacts patient care	Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency)	Manages various components of the complex health care system to provide efficient and effective patient care and transitions of care	Advocates for or leads systems change that enhances high-value, efficient, and effective patient care and transitions of care
Describes basic elements of health payment systems (e.g., government, private, public, uninsured care) and practice models	Distinguishes specialty-specific elements of health payment systems (e.g., office, endoscopy, inpatient)	Engages with patients in shared decision making, informed by each patient's payment model(s)	Leads and advocates for practice and population with consideration of the limitations of each patient's payment model	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	Level 3	Level 4	Level 5
Demonstrates how to	Articulates clinical	Locates and applies the	Critically appraises and	Coaches others to
access and use available	questions and elicits	best available evidence,	applies evidence even	critically appraise and
evidence and incorporate	patient preferences and	integrated with patient	in the face of	apply evidence for
patient preferences and	values to guide evidence-	preference, to the care of	uncertainty and	complex patients, and/or
values to take care of a	based care	complex patients	conflicting evidence to	participates in the
routine patient			guide care, tailored to	development of guidelines
			the individual patient	

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth

Level 1	Level 2	Level 3	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	Level 3	Level 4	Level 5
Demonstrates professional behavior in routine situations	Demonstrates professional behavior in complex or stressful Situations	Identifies and demonstrates insight into potential triggers for lapses in professional Behavior	Acts to prevent lapses in professional behavior in themselves and in Others	Coaches others when their behavior fails to meet professional Expectations
Demonstrates knowledge of the ethical principles underlying informed consent, confidentiality, and related topics	Recognizes the need to seek help in managing and resolving straightforward ethical Situations	Recognizes the need to seek help in managing and resolving complex ethical situations	Recognizes and uses appropriate resources for managing and resolving ethical situations as needed (e.g., ethics consultations, literature review, risk management/legal consultation)	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	Level 3	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	Level 3	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	Level 3	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 patient need and context	Verifies patient's/family's understanding of the clinical situation to optimize effective Communication	With guidance, uses shared decision making to align patient's/family's values, goals, and preferences with treatment options to make a personalized care plan	Independently uses shared decision making to make a personalized care plan	Role models shared decision making in patient/family 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
<p>Respectfully receives a consultation request</p> <p>Uses language that values all members of the health care team</p>	<p>Clearly and concisely responds to a consultation request</p> <p>Communicates effectively with all health care team members, including inpatient and outpatient Providers</p>	<p>Checks understanding of primary team when providing consultation recommendations</p> <p>Uses active listening to adapt communication style to fit team needs</p>	<p>Coordinates recommendations from different members of the health care team to optimize patient care and resolve conflicts over recommendations</p>	<p>Role models flexible communication strategies that value input from all health care team members, resolving conflict when needed</p>

Interpersonal and Communication Skills 3: Communication within Health Care Systems

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

Course Contents (GI Course Content)

Diseases of Esophagus and Stomach

Biliary disorders
Pancreatic diseases
Liver diseases
Intestinal diseases
IBD
GI Malignancies
Motility and Functional Disorders
Pediatric gastroenterology
Geriatric gastroenterology
G I Endoscopy preparation and complications
Nutrition
GI & Liver Diseases in Pregnancy
Miscellaneous
Artificial Intelligence in Gastroenterology & Hepatology
Mapping of different Gastroenterology section

Details of Gastrointestinal course contents

Diseases of Esophagus and Stomach	<p>During residency, trainees should gain an understanding of the following:</p> <ol style="list-style-type: none"> 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 hyper gastrinemia in both hyper secretory and achlorhydric states; trainees should also gain an understanding of the mechanisms involved in the development of secondary hyper gastrinemia 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 <i>H. pylori</i> infection in acid-peptic diseases; an understanding of the properties of <i>H. pylori</i> infection, including its epidemiology and pathophysiology, such as factors specific to the organism (e.g., the Cag A protein), factors specific to the host (e.g., interleukin polymorphisms), and factors specific to the environment (e.g., diet and ant secretory 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 analogues, prokinetic 	<p>Large group format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Seminars Conferences Outpatient evaluation in clinic</p> <p>Endoscopy Lab Hands on training</p>	<p>MCQs & SEQs OSCE, Long case Short case WPBA</p> <p>DOPS</p>
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	<p>agents, and antibiotics.</p> <ol style="list-style-type: none"> 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. Etiopathogenesis, investigations and management of Zenker's Diverticulum, Esophageal stenosis, tracheo esophageal 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	<p>During residency, trainees should gain an understanding of the following:</p> <ol style="list-style-type: none"> 1. Basic embryology and anatomy of the biliary tree and congenital structural anomalies, including duplications and cysts. 2. Hormonal and neural regulation of bile flow and gallbladder function. 3. Physiology of bile secretion and its derangement in cholestatic disorders. 4. Cholelithiasis—epidemiology, etiology, clinical manifestations and complications, treatment modalities. 5. Other disorders of the bile ducts, including recurrent pyogenic cholangitis, parasitic and opportunistic infections. 6. Other inflammatory disorders of the gallbladder such as a calculous cholecystitis. 7. Neoplastic diseases of the gallbladder, bile duct and ampulla 8. Motility disorders including gallbladder dyskinesia, sphincter of Odd dysfunction. 	<p>Large group format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Conferences Outpatient evaluation in clinic MDM</p> <p>Radiology Rotation</p>	<p>MCQs & SEQs OSCE Long case Short case WPBA</p>

	<p>9. Principles of evaluation and treatment of common clinical syndromes:</p> <ol style="list-style-type: none"> Cholestasis RUQ and “biliary-type” pain Incidental findings on radiographic testing <p>10. Radiographic evaluation of the biliary tree: basic principles, utility and lesion recognition:</p> <ol style="list-style-type: none"> U/S CT MRI Scintigraphic techniques MRCP <p>Principles, utility, and complications of biliary surgery. Primary and secondary sclerosing cholangitis</p>		
Pancreatic Disorders	<p>During residency, trainees should gain an understanding of the following:</p> <ol style="list-style-type: none"> The embryological development and anatomy of the pancreas and pancreatic duct system and congenital disorders such as pancreas divisum, annular pancreas. The physiological processes involved in pancreatic exocrine secretion of digestive enzymes, water and electrolytes. The types of digestive enzymes secreted by the pancreas, their mechanisms of activation and their roles in the digestive process. The factors that protect the pancreas from auto digestion. The epidemiology, etiology, pathophysiology, natural history, and management of acute pancreatitis in all spectra of severity and its complications. The epidemiology, etiology, pathophysiology, natural history, and management of chronic pancreatitis with particular emphasis on management of exocrine insufficiency and chronic pain. The epidemiology, etiology, natural history, and management of pancreatic cancer and its complications. 	<p>Large group format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Conferences Outpatient evaluation in clinic MDM</p> <p>Radiology Rotation</p>	<p>MCQs & SEQs OSCE Long case Short case WPBA</p>

	<ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> a. U/S 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 trypsinogen-like immunoreactivity, etc.) serum tumor markers (e.g., CA 19-9), radiological and endoscopic imaging studies (see Training in Endoscopy and Training in Radiology), indirect tests of pancreatic secretory function, direct tests of secretory function (e.g., secretin and secretin/cholecystokinin stimulation tests, test meals), duodenal drainage with analysis for biliary crystals, fine-needle aspiration of pancreatic masses, and analysis of cytology in endoscopic aspirate of pancreatic juice. 10. Principles and practice of nutritional support for patients with both acute and chronic pancreatitis. 11. Pancreatic tumors (hereditary) 12. Auto immune pancreatitis 13. Chronic pancreatitis : <ol style="list-style-type: none"> Medical management Endoscopic management Surgical management 		
Liver Diseases	<ol style="list-style-type: none"> 1. Significant knowledge about genetic markers of liver disease, immunology, virology, and other pathophysiological mechanisms of liver injury; the basic biology and pathobiology of the liver and biliary systems as well as a thorough understanding of the diagnostic and treatment of a broad range of hepatobiliary disorders. 2. Skill in the performance of a limited number of diagnostic and 	<p>Large class format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Conferences Seminars</p>	<p>MCQs & SEQs OSCE Long case Short case</p>

	<p>therapeutic procedures.</p> <p>3. An appreciation of the indications and use of a number of diagnostic and therapeutic procedures that are needed to manage hepatobiliary disorders.</p> <p>During the training period, comprehensive teaching of the following subjects is essential:</p> <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> a. Acute hepatitis: viral, toxic, drug-induced etc. b. Acute liver 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, 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. Non viral 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 α1-anti trypsin 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. 	<p>Outpatient evaluation in clinic</p> <p>MDM</p> <p>Radiology rotation</p> <p>Pathology rotation</p> <p>Liver transplant rotation</p>	
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	<ul style="list-style-type: none"> 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 immune suppressive 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 Pediatric Gastroenterology). Liver imaging modalities, including interpretation of computed tomography, magnetic resonance-based techniques (magnetic resonance imaging, magnetic resonance angiography, magnetic resonance cholangiography), hepatic angiography, and ultrasound(including Doppler evaluation of hepatic vasculature). 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 		
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Intestinal Diseases	<p>During residency, trainees should gain an understanding of intestinal common infections & disorders, including the following:</p> <ol style="list-style-type: none"> 1. The mechanisms of inflammation 2. Elements of the mucosal defense system (including the mucosal immune system and the components of intestinal barrier function) 3. The composition and function of normal enteric flora (including 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., <i>Clostridium difficile</i>) <p>Clinical skills should include a familiarity with the following diagnostic and histopathologic studies (see Training in Pathology):</p> <ol style="list-style-type: none"> 1. Microscopic examination of stool: fecal leukocytes and ova and parasites 2. Culture of stool, intestinal fluid, and mucosal biopsy specimens (specimen collection, handling, special stains, and 	<p>Large class format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Seminars Outpatient evaluation in clinic</p> <p>Pathology rotation</p>	<p>MCQs & SEQs Long case Short case WPBA</p>

	<p>media)</p> <ol style="list-style-type: none"> 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) 		
	<p>During residency, trainees should be able to assess the broad range of gastrointestinal symptoms and signs of illness in immune suppressed patients and be able to differentiate AIDS-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 immune suppressed 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.</p> <p>Within the biliary system, trainees should be capable of evaluating causes of hepatomegaly, abnormal liver test results (infections, neoplasia, drugs), and the interaction of hepatitis viruses and HIV; distinguish AIDS cholangiopathy and cholecystitis; and assess indications for liver biopsy.</p>		<p>MCQs & SEQs OSCE Long case Short case</p>

	<p>AIDS-associated pancreatic disorders, including causes of pancreatitis (infectious, neoplastic, toxic), the implications of hyperamylasemia, and the nutritional evaluation of pancreatic disorders in patients with AIDS (assessment of nutritional status and development and implementation of nutritional therapies, including enteral and parenteral) should be incorporated (see Training in Nutrition).</p> <ul style="list-style-type: none"> • Trainees should be able to determine the cause of and prescribe a rational treatment plan for common opportunistic and neoplastic conditions in a cost-effective and humanitarian fashion. • HIV/AIDS related Hepatic and GI tract manifestation. • Hepatico-pancreatic manifestations/complications • 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	<p>During residency, trainees should gain an understanding of IBD, common infections & disorders, including the following:</p> <ul style="list-style-type: none"> ▪ Recognition of clinical and laboratory features (including serum antibody testing) of intestinal inflammation that may aid in differentiating between Crohn's disease and ulcerative colitis. ▪ Distinction between the signs of intestinal inflammation from those of secretory and osmotic diarrhea and from symptoms of irritable bowel syndrome. ▪ Differentiation of chronic idiopathic IBD from other specific entities, such as acute self-limited (infectious) ileitis and colitis, drug or radiation induced colitis, ischemic bowel disease and diverticulitis. ▪ Understanding the indications for and interpretation of serologic, 	<p>Large class format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Seminars Outpatient evaluation in clinic MDM</p> <p>Pathology rotation</p>	<p>MCQs & SEQs OSCE Long case Short case WPBA</p>

	<p>endoscopic, radiological, histological, and microbiological studies used in the diagnosis and evaluation of patients with IBD.</p> <ul style="list-style-type: none"> ▪ Understanding the cost-benefit and risk-benefit ratios for endoscopic and radiological procedures used to diagnose, define disease extent and severity, and to assess complications of ulcerative colitis and Crohn's disease. ▪ Recognition of different presentations of IBD, including the pediatric manifestations, anorectal complications, and inflammatory versus fistulizing versus fibro stenotic patterns of Crohn's disease, and be able to recognize these various presentations on history taking and physical examination. ▪ Recognition and management of the intestinal (hemorrhage, obstruction), extra intestinal (ocular, dermatologic, musculoskeletal, hepatobiliary, urinary tract), and nutritional complications of ulcerative colitis and Crohn's disease. ▪ Understanding the influence of IBD on pregnancy and of pregnancy on IBD and acquire knowledge on the safe use of IBD medications during pregnancy. ▪ Recognition and management of the adverse effects of medicines used in the treatment of IBD, including the role of measuring serum enzyme (thiopurine methyltransferase) and 6-mercaptopurine metabolite levels in conjunction with the use of immune modulators. ▪ 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 paucities after ileo-anal anastomoses) and Crohn's disease (including the differentiation and management of postoperative diarrhea). 	Surgery rotation	
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	<ul style="list-style-type: none"> ▪ Sensitivity to psychosocial influences as well as the consequences of IBD on patients and on family dynamics. ▪ Capability of developing a therapeutic plan commensurate with disease extent severity for both ulcerative colitis and Crohn's disease. ▪ Understanding the indications, contraindications, and pharmacology of nonspecific therapies, including new biologic therapies, anticholinergic agents, anti-diarrheal, and bile salt sequestrants; oral and topical amino salicylates; parenteral, enteral, and rectal corticosteroids; and immune suppressants (purine analogues and methotrexate) antibiotics and probiotics used in relevant clinical situations. ▪ Understanding the impact of antibodies to biologic agents and how to prevent, diagnose, and manage immunogenicity to biological agents. <ul style="list-style-type: none"> • 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, Collagenous Lymphocytic, Pseudomembranous colitis (PMC) • IBD – ileostomies, Colostomies, Pouches and anastomoses. 		
GI Malignancies	<p>During residency, trainees should gain an understanding of IBD, common infections & disorders, including the following:</p> <ul style="list-style-type: none"> • 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 	<p>Small group discussion Bed side teaching Case Base discussion Problem based learning Outpatient evaluation in clinic Pathology rotation Radiology rotation MDM Oncology rotation</p>	<p>MCQs & SEQs Long case Short case WPBA</p>

	<p>approaches to the genetic diagnosis of FAP, HNPCC, and other rarer polyposis syndromes. They should recognize the clinical characteristics of these diseases, the distinctions among the familial forms of cancer, the specific diagnostic and screening tests for each, and the rational approaches to their treatment.</p> <ul style="list-style-type: none"> • Learn the principles of neoplastic growth as they relate to therapy, including endoscopic treatment as well as traditional surgical approaches. A complete understanding of the management of premalignant conditions is necessary. • Become familiar with the pathological interpretation of tissue biopsies (endoscopic and percutaneous) and have a thorough working knowledge of the management of dysplastic lesions. They must understand the distinctions among the varieties of colorectal polyps and their management. • Learn the principles of chemotherapy for gastrointestinal cancer and radiation treatment for early and advanced tumors. They must understand the initial management of those patients in whom the diagnosis of gastrointestinal cancer has just been made. <p>Understand how to counsel patients who have had gastrointestinal neoplasia and how to manage patients who inquire about them about 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.</p> <ol style="list-style-type: none"> 1. Become familiar with the technical considerations in the therapy of colorectal adenomas and carcinomas. They should be thoroughly experienced in colonoscopic polypectomy of pedunculated and sessile polyps and ablative therapies for sessile lesions. Trainees must understand the capabilities and limitations of endoscopic mucosectomy for early gastrointestinal cancers. 2. Understand the appropriate surveillance and surveillance intervals for patients at high risk for developing cancer and those in whom premalignant epithelium has already been detected. 		
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	<ul style="list-style-type: none"> • Gain additional experience, for those who desire advance training, in the placement of endoscopic stents, laser ablation, photodynamic therapy, endoscopic 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 tumor. • Develop a sound knowledge of etiology, pathogenesis, diagnosis, treatment and training of benign and malignant liver tumor. 		
Motility and Functional Disorders	<p>To diagnose and treat motility and functional disorders effectively, trainees in gastroenterology must attain knowledge and understanding of the following</p> <ul style="list-style-type: none"> • Organization of the contractile apparatus of the gastrointestinal tract including smooth muscle and interstitial cells of Cajal. • Anatomy and physiology of the enteric nervous system: fasting and postprandial programs of motility and secretion. • Anatomical and physiological basis of visceral afferent signaling, including vagal and spinal pathways, neurobiology of pain signaling, and visceral sensitization. • Brain gut interactions and the bio psychosocial continuum. • Pharmacology of agents modulating motility and sensation, including prokinetic drugs, antidiarrheal, 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, no cardiac chest pain. • Physiology and pathophysiology of gastro esophageal reflux, singultus, and belching. 	<p>Large group class Bed side teaching Case Base discussion Problem based learning Outpatient evaluation in cline Skill lab(Motility disorders lab) Radiology rotation</p>	<p>MCQs & SEQs OSCE Long case Short case</p>

	<ul style="list-style-type: none"> • Organization and control of gastric motor activity and physiology of gastric emptying, gastroparesis and post-surgical gastric syndromes, non-ulcer dyspepsia. • Small bowel physiology, congenital and acquired disorders of small bowel motility, including diabetes, scleroderma, and pseudo obstruction. • Colonic and defecatory physiology and pathophysiology, colonic inertia, anorectal and pelvic outlet, floor disorders, irritable bowel syndrome, and diverticular disease. • Motility of the biliary tract, Sphincter of Oddi dysfunction, and gallbladder dyskinesia • Systemic disorders affecting gastrointestinal motility (diabetes mellitus, scleroderma, 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. • Functional abdominal syndromes <p>During residency, trainees of adult gastroenterology should gain an understanding of the following</p> <ul style="list-style-type: none"> ▪ Neonatal jaundice, and cholestasis ▪ IBD related issues in pediatric population ▪ Eosinophilic disorders ▪ Viral hepatitis (including Metabolic liver disorders) ▪ AIH 		
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<p>Pediatric Gastroenterology</p>	<ul style="list-style-type: none"> ▪ Malabsorption (CD) ▪ GI Bleed ▪ Common pediatric gastrointestinal problems: <ul style="list-style-type: none"> 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. <p>During residency, trainees should gain an understanding of the general Issues:</p> <ul style="list-style-type: none"> • Impact of age on presentation, diagnosis and treatment of important gastrointestinal conditions. • Impact of depression and dementia on presentation 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 	<p>Large group class Bed side teaching Case Base discussion Problem based learning Outpatient evaluation in clinic</p>	<p>MCQs & SEQs OSCE Long case Short case</p>
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<p>Geriatric Gastroenterology</p>	<p>During residency, trainees should gain an understanding of the following:</p> <p>Endoscopes and accessories used in Gastroenterology. Sterilization of G I endoscopes and instruments. Other electrosurgical instruments knowledge, their use and complications in endoscopy.</p> <ul style="list-style-type: none"> ▪ Appropriate recommendation of endoscopic procedures based on findings from personal consultations and in consideration of specific indications, contraindications, and diagnostic, therapeutic alternatives. ▪ Performance of specific procedures safely, completely, and expeditiously. ▪ 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 the patient. ▪ Anticoagulants, antiplatelet agents and GI endoscopy ▪ Safe and appropriate use of moderate sedation. 	<p>Large group class Bed side teaching Skill lab</p>	
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G I Endoscopy Preparation and Complications			MCQs DOPS
Nutrition	<p>During residency, trainees should gain an understanding of normal nutrition, its requirement in chronic diseases and cancers of gastrointestinal & hepatology disorders, including the following:</p> <ul style="list-style-type: none"> ○ Basic principles of nutrient requirements, ingestion, digestion, absorption, and metabolism in the healthy and diseased gut. ○ Assessment of nutritional status, including specific nutrient deficiencies and excesses, protein energy malnutrition, and obesity. ○ Metabolic response to starvation and the pathophysiological effects of malnutrition. ○ Metabolic response to illness and injury and nutrient requirements during stress states. ○ Indications for nutrition support. ○ Implementation and management of nutritional therapy, including modified diets, enteral tube feeding, and parenteral nutrition. ○ Pathophysiology and clinical management of obesity. ○ Ethical and legal issues involved in provision and withdrawal of nutrition support. ○ 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. 	<p>Bed side teaching Case Base discussion Problem based learning Outpatient evaluation in cline</p>	<p>MCQs & SEQs Long case</p>

	<ul style="list-style-type: none"> 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. <p>Complications of parenteral and enteral nutrition including mechanical, gastrointestinal, infectious and metabolic.</p> <p>Monitoring guidelines for parenteral and enteral nutrition.</p> <p>Nutrition in specific Gastrointestinal conditions</p> <p>Liver Diseases (cirrhosis and HCC). Pancreatitis (Acute and chronic). IBD, Obesity, Critical illness. Cancers and Diverticular diseases.</p>		
GI & Liver Diseases in Pregnancy	<p>During residency, trainees should gain an understanding of the following:</p> <ul style="list-style-type: none"> GI and liver changes in normal pregnancy. Effect of preexisting 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 	<p>Bedside teaching Large class format (Interactive lecture) Case based discussion.</p>	<p>MCQs & SEQs OSCE Long case</p>

	<ul style="list-style-type: none"> • Pharmacokinetics and interactions of medications during pregnancy and breast feeding with potential harm to fetus. • Nutritional requirements • Rectal prolapse, hemorrhoids, fecal incontinence 		
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ENDOSCOPY TRAINING CURRICULUM

1: Objectives of Endoscopy Training: Upon completion of training in GI endoscopy, trainees should be prepared to

- Appropriately recommend endoscopic procedures as indicated by the findings of consultative evaluation, with explicit understanding of accepted specific indications, contraindications, and diagnostic/therapeutic alternatives.
- Perform procedures safely, completely, and expeditiously, including possessing a thorough understanding of the principles of conscious sedation/analgesia techniques, the use of anesthesia assisted sedation where appropriate, and pre procedure clinical assessment and patient monitoring.
- Correctly interpret endoscopic findings and integrate them into medical or endoscopic therapy.
- Identify risk factors for each procedure, understand how to minimize each, and recognize and appropriately manage complications when they occur.
- Acknowledge the limitations of endoscopic procedures and personal skills and know when to request help.
- Understand the principles of quality measurement and improvement.

2: Training Department

A properly equipped endoscopy department for training having the following facilities.

A: Simulation Lab

B: Teaching Endoscopic Video Library

C: Separate Endoscopy Rooms for Basic and Advanced procedures.

D: Endoscopy Nurses and Ancillary Staff

E: Endoscopy Disinfection Room

F: Conference Room Equipped with IT facilities

G: Endoscopy Video Recording and Reporting Facilities

3: Training Faculty

Endoscopy Program Director and Associate Director

Trained Endoscopist to Supervise and Provide Hands on Training

4: Training Curriculum

The endoscopy trainee must be competent in understanding and practical implication of the following:

1. The indications, limitations, and contra- indications of endoscopic procedures.
2. Procedure complications and their management.
3. The principles of safe sedation/analgesia techniques and patient monitoring and when to consider alternate forms of anesthesia.
4. Medical, Radiological, and Surgical alternatives to endoscopic therapy.
5. Issues of informed consent and medical ethics as pertains to GI endoscopy (as in the evaluation of gastrostomy and cancer palliation candidates).
6. Skills for critical assessment of new techniques and endoscopic scientific literature.
7. Incorporating endoscopic findings into overall patient management.
8. Preparation of endoscopy reports and communication with referring providers and other members of the care team.
9. Quality measurement and continuous quality improvement.

5: Training Process:

There will be a three-year program of hands on practical training under the mentorship of expert endoscopic trainers.

Initially, a trainee will see the endoscopy procedures videos followed by training on simulators and may observe procedures in endoscopy lab, followed by first attempting only the diagnostic or less technically demanding aspects of a procedure. At this stage, under constant supervision, trainees will learn key principles of anatomy and scope manipulation and practice basic techniques such as esophageal and

pyloric intubation and retroflexion of the scope tip. They will also practice sedation techniques, begin to learn basic recognition of normal and abnormal endoscopic findings, learn integration of findings into a plan of treatment, and develop skills for writing and appropriate documentation of endoscopic findings.

As experience grows, the trainee will progress to performing the entire procedure and attempting therapeutic interventions.

The trainee is expected to progress through stages of decreasing supervision, extending from the initial phase of complete supervision through a period of partial supervision, in which the trainee is deemed competent to perform a procedure with reasonable safety and patient comfort.

In the latter phase, the trainer is available to view pertinent findings and assist when problems arise.

5: Evaluation Policy

The evaluation of a trainee's progress in endoscopic skill acquisition will objectively be done by DOPS score, and its continues

Through out the duration of the training program. The endoscopy training director supervises the process, but all trainers must participate. During this whole process the trainee will be given feedback after DOPS to improve his or her technical as well as cognitive skills. Ultimate assessment of trainee achievement rests with the expert opinion of the endoscopy training director, based on both subjective and objective measures.

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

Procedures	Total
Esophagogastroduodenoscopy including biopsy	400
Treatment of Non-Variceal hemorrhage (10 actively bleeding)	25
Treatment of Variceal hemorrhage (25 actively/ recently bleeding)	200
Esophageal dilation (guide wire 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	10
Sphincterotomy and stone extraction	10
Biliary stenting	5
Motility study	20

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 is RMU MD GI residency requirement to excel competency.

Map for Upper GI Tract Goal

UPPER GI TRACT			
Sections and Outcomes	Learning Opportunity	Assessment Period	Assessment Method
Oesophageal Diseases including Dysphagia, Reflux and Non-Cardiac Chest Pain			
Diagnose the cause of chest pain	CBD, PBL, SGD, Presentation	By end of year 3	OSCE, MCQs, SEQs Long case, WPBA
Arrange appropriate investigations	CBD, SGD, Presentation	By end of year 3	OSCE, MCQs, SEQs
Be aware of Ph monitoring, motility studies and endoscopy	Skill Lab. SGD,	By end of year 3	DOPS, MCQs, OSCE
Manage cases of esophageal dysmotility and upper GI disease	CBD, SGD, Presentation, seminar	In year 4-5	DOPS, OSCE, Short & Long cases
Upper Abdominal Pain/Dyspepsia			
Identify appropriate investigations for upper abdominal pain	CBD, SGD, Presentation, Seminar	By end of year 3	MCQs, SEQs
Present a differential diagnosis for cases of upper abdominal pain - Identify success of treatment and recognize complications such as gastric outlet obstruction, perforation and bleeding	CBD, SGD, Presentation, Seminar	By end of year 3	WPBAs, Short case
Identify success of treatment and recognize complications such as gastric outlet obstruction, perforation and bleeding	CBD, SGD, Presentation, Seminar	By end of year 3	MCQs, SEQs,
Diagnose and treat dysmotility type symptoms	Interactive small group lecture, Presentation,	By end of year 3	MCQs, SEQs
Nausea and Vomiting			
Diagnose and manage upper gastrointestinal symptoms	Interactive small group lecture, Presentation,	By end of Year 3	CBD, Short & Long cases
Present differential diagnoses for cases presenting with nausea and Vomiting	CBD, SGD, Interactive lecture	By end of year 3	CBD, Short & Long cases
Upper GI Tract Functional Disorders			
Diagnose functional disorders and initiate symptomatic treatment for Upper GI	CBD, SGD, Interactive lecture	By end of year 3	MCQs, SEQs
Knowledge of the principles of neurogastroenterology and gastrointestinal motility, including functional conditions	Interactive lecture, Presentation, symposium	By end of year 3	MCQs, SEQs
Explain psychological factors to a patient and the role of psychological/pharmacological therapies	CBD	By end of year 3	CBD
Upper GI Tract Premalignant Conditions			
Make a timely and accurate clinical assessment of patients with premalignant conditions, select appropriate investigations and refer to the specialist multi-disciplinary team	Interactive small group lecture, Presentation,	In year 4-5	CBD, MCQs, OSCE, Short & Long cases

Identify the risk, manage surveillance protocols and be aware of treatments in patients with: <ul style="list-style-type: none"> • Barrett's esophagus • Atrophic gastritis • H. pylori infection • Previous gastric cancer • Family history of gastric cancer • Polyposis syndromes 	Interactive small group lecture, Presentation, symposium, seminar	In year 4-5	MCQs, SEQs, Long case, OSCE
Gastric and Esophageal Cancer			
Assess, investigate and stage upper GI cancers	Interactive small group lecture, Presentation, symposium, seminar	In year 4-5	MCQs, SEQs, Long case, OSCE
Communicate the cancer diagnoses as part of a multidisciplinary team	CBD	By end of year 3	CBD,
Work with patient to make decisions regarding treatment modalities for upper GI cancers	CBD , Presentation, symposium	In year 4-5	MCQs, Long case
Upper Gastrointestinal Bleeding			
Diagnose and manage upper gastrointestinal bleeding	Interactive small group lecture, Presentation, CBD, PBL	By end of year 1 AND In year 4-5	MCQs, SEQs, OSCE Long case, DOPS
Recognize, assess and manage shocked patients	Direct Observation, SGD, Interactive lecture	By end of year 1 AND In year 4-5	MCQs, SEQs, OSCE ACA
Refer for urgent endoscopy for diagnosis and treatment of bleeding	Direct Observation, SGD, Interactive lecture	By end of year 1 AND In year 4-5	MCQs, SEQs, OSCE ACA,
Perform urgent endoscopy for diagnosis and treatment of bleeding	Direct Observation,	In year 4-5	DOPS, ACA

Undertake endoscopic diagnosis and recommend treatment with thermal or other methods as appropriate for bleeding from vascular anomalies	Direct Observation	In year 4-5	OSCE, DOPS,
Clinical and Laboratory Tests of GI and Function			
Chose esophageal, gastric and anorectal function tests appropriate to the patient and interpret results - Including esophageal pH monitoring, esophageal and anorectal motility/manometry, gastric emptying studies	Direct Observation, SGD, Interactive lecture, seminar, symposium	By end of year 3	M C Q s , E S Q s O S C E
Choose appropriate tests for malabsorption and interpret results - Including SeHCAT, lactose tolerance test, H2 breath test, faecal elastase	CBD, SGD, Interactive lecture, seminal, symposium	By end of year 3	CBD, MCQs, ESQs, QSCE
Choose appropriate tests for inflammation and interpret results - Including serological and nuclear medicine testing e.g. Tc WBC scans, PET scans, interpretation of FCP, CRP, and other inflammatory markers	SGD, Interactive lecture, Presentation	By end of year 3	CBD, MCQs, ESQs, OSCE
Basic interpretation of plain x-rays of abdomen, barium studies of GI tract CT, MRI and ultrasound, endoscopic ultrasound (EUS)	CBD, Direct Observation, Presentation, interactive lecture	In year 4-5	CBD, OSCE, MCQs
Pancreas and Biliary tree			
Investigate pancreatic structure and function and instigate medical or surgical treatment	CBD, Direct Observation, Presentation, interactive lecture	by end of year 3	CBD, MCQs, SEQs
Investigate a patient with severe abdominal pain and increased amylase	CBD, Direct Observation, Presentation, interactive lecture	Year 3	CBD, MCQs, SEQs
Assess the severity of acute pancreatitis and its potential complications	CBD, Direct Observation, Presentation, interactive lecture	By end of year 3	CBD, MCQs, SEQs
Manage acute pancreatitis, including indications for urgent endoscopic retrograde cholangiopancreatography (ERCP)	CBD, Direct Observation, Presentation, interactive lecture PBL, Bed side learning	In year 4-5	CBD, MCQs, SEQs Long case
Diagnose and manage recurrent acute and chronic pancreatitis	CBD, Direct Observation, Presentation, interactive lecture PBL, Bed side learning	By end of year 3-4	CBD, MCQs, SEQs Long case
Diagnose and initiate management of a patient presenting with a pancreatic mass	CBD, Direct Observation, Presentation, interactive lecture PBL, Bed side learning	In year 4-5	CBD, MCQs, SEQs Long case, short case, OSCE
Discuss the management options for treatment of pancreatic adenocarcinoma	CBD, Direct Observation, Presentation, interactive lecture PBL, Bed side learning	In year 4-5	CBD, MCQs, SEQs Long case, short case, OSCE

Map for Lower GI Tract Goal

LOWER GI TRACT			
Sections and Outcomes	Learning Opportunity	Assessment Period	Assessment Method
Abdominal Pain			
Investigate, diagnose, and manage abdominal pain	CBD, Direct Observation, Presentation, interactive lecture PBL, Bed side learning	By end of year 3	CBD, MCQs, SEQs, OSCE
Elicit and interpret abdominal signs including an acute abdomen, order investigations correctly and recommend medical or surgical treatment	Presentation, interactive lecture PBL, Bed side learning	Year 3	MCQs, SEQs, OSCE
Treat and refer abdominal pain, Engage in a multidisciplinary approach to pain	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning	By end of year 3	CBD, MCQs, SEQs, OSCE
Change in Bowel Habits and related Functional Disorders			
Investigate and differentiate functional and non-functional causes of change in bowel habits	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning	By end of year 3-4	CBD, MCQs, SEQs, OSCE, Long case
Investigate with blood tests, stool examination, endoscopy and radiology as appropriate	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning	By end of year 3-4	CBD, MCQs, SEQs, OSCE, Long case
Differentiate infective diarrhea (viral, bacterial and protozoal) from secretory and osmotic diarrhea (inflammatory bowel disease, neoplasia)	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning	By end of year 3	CBD, MCQs, SEQs, OSCE, Long case
Order and interpret investigations and give appropriate specific or symptomatic treatment including use of antispasmodics, dietary fiber and constipating agents	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning	By end of year 3-4	CBD, MCQs, SEQs, OSCE, Long case
Explain IBS and discuss the role of symptomatic treatments for IBS to a Patient. Explain psychological factors to a patient and the role of psychological/ pharmacological therapies	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning	By end of year 3	CBD, MCQs, SEQs, OSCE, Long case
Rectal Bleeding, Perianal Fistulae and Anorectal Disorders			
Manage rectal bleeding - be able to examine patients with rectal bleeding, flexible sigmoidoscopy, colonoscopy and undertake appropriate action	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 3-4	CBD, MCQs, SEQs, OSCE, Long case, DOPS
Manage perianal fistula, hemorrhoid, fissure - be able to investigate including use of MRI, give medical treatment and liaise with surgical colleagues when necessary	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 3-4	CBD, MCQs, SEQs, OSCE, Long case,
Colorectal Cancer and Premalignant Lesions			
Assess, investigate and stage lower GI cancers and make appropriate decisions regarding treatment modalities	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 3-4	CBD, MCQs, SEQs, OSCE, Long case,
Diagnose and manage colonic polyps	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	In year 4-5	CBD, MCQs, SEQs, OSCE, Long case, Short case
Diagnose and manage familial variants of colon cancer, including surveillance for extracolonic malignancies	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	In year 4-5	CBD, MCQs, SEQs, OSCE, Long case, Short case
Identify potential genetic cancer syndrome and appropriate referral for genetic testing and surveillance	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	In year 4-5	CBD, MCQs, SEQs, OSCE, Long case, Short case

Participate in a multidisciplinary meeting to develop a management plan	Number of Cases	By end of year 3	Cases
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Inflammatory Bowel Disease (IBD)			
Sections and Outcomes	Learning Opportunity	Assessment Period	Assessment Method
General Understanding of IBD and its Diagnosis			
Diagnose UC and CD	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 3	CBD, MCQs, SEQs, OSCE, Long case, Short case
Order and interpret different diagnostic modalities including serology, endoscopy, histopathology, stool analysis and radiology for establishing a diagnosis of IBD and providing assessments of patients throughout their disease course	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning, seminar, symposium	By end of year 4-5	CBD, MCQs, SEQs, OSCE, Long case, Short case, OSCE
Communicate effectively with patients, educating them about their disease course and potential treatments	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 3-4	CBD, MCQs, SEQs, OSCE, Long case,
Actively engage with the multi-disciplinary team (MDT) and involve members of the MDT including surgeon in a timely manner to maximize patient care.	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 4-5	CBD, MCQs, SEQs, OSCE, Long case,
Treatment Options and Individualized Care			
Prescribe appropriate therapy, demonstrating an applied knowledge of up to date evidence and guidelines	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 4-5	CBD, MCQs, SEQs, OSCE, Long case,
Recognize the need for, and make appropriate changes to, treatment escalation or stopping medical therapy	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 4-5	CBD, MCQs, SEQs, OSCE, Long case, OSCE
Recognize the urgency of treating acutely sick patients, including early multidisciplinary team involvement, particularly surgeons	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 4-5	CBD, MCQs, SEQs, OSCE, Long case, OSCE
Clearly communicate the clinical situation and treatment options to patients and family	CBD,PBL, Bed side learning	In year 4-5	CBD
Regularly screen for and manage disease and treatment related side effects including infections, bone mineralization and the psychosocial complications of IBD and its treatments	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	In year 4-5	CBD, MCQs, SEQs, OSCE, Long case, OSCE
IBD and Multidisciplinary Team			
Discuss cases with other specialties including surgeons, and other healthcare professionals. Participate in an IBD MDT effectively	Direct Observation,CBD, PBL,Bed side learning	By end of year 4-5	CBD, MCQs, SEQs, OSCE,
Surgery and IBD			
Make surgical referrals for the appropriate operation	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 4-5	CBD, MCQs, SEQs,
IBD and Nutrition			
Elicit a dietary history in a patient with IBD. Liaise with dieticians and other healthcare professionals to ensure that all patients have appropriate nutritional support	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	By end of year 4-5	CBD, MCQs, SEQs, OSCE, Long case

Be able to use enteral and parenteral nutrition appropriately to support patients with IBD		In year 4-5	CBD, MCQs, SEQs,
	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,		
Reproductive, Sexual Health, Pregnancy and Lactation			
To describe treatment amendments required during pregnancy and Lactation	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	In year 4-5	CBD, MCQs, SEQs,
To provide appropriate counselling regarding the impact of disease activity, treatment and surgery on fertility, pregnancy and lactation for IBD patients and their partner	CBD, Direct Observation, Presentation, interactive lecture ,PBL, Bed side learning,	In year 4-5	CBD, MCQs, SEQs, OSCE, Long case
Psychosocial Aspects of IBD			
To demonstrate patient interview skills to ascertain the psychosocial impact for patients living with IBD and supports patients appropriately to minimize interruptions to their IBD care	CBD	By end of year 4-5	CBD,OSCE,Long case

Nutrition Goal

ABSORPTION AND NUTRITION			
Sections and Outcomes	Learning Opportunity	Assessment Period	Assessment Method
Malabsorption, Anorexia and Weight Loss			
Investigate symptom patterns in weight loss	CBD, interactive lecture,presentation, didactic lecture, PBL	By end of year 3	CBD, OSCE, Long case, MCQs
Diagnose and manage patients with malabsorption, anorexia and weight Loss	CBD, interactive lecture,presentation, didactic lecture, PBL	By end of year 3-4	CBD, OSCE, Long case, MCQs, SEQs
Investigate symptom patterns in weight loss			
Detect fluid and electrolyte deficiency, malnutrition and micronutrient Deficiency, Investigate malnutrition and plan treatment	CBD, interactive lecture,presentation, didactic lecture, PBL	By end of year 3-4	CBD, OSCE, Long case, MCQs, SEQs, short case
Management of ileostomy complications	CBD, interactive lecture,presentation, PBL	By end of year 4-5	OSCE, MCQs
Evaluation of Anemia			
Diagnose and manage anemia	CBD, interactive lecture,presentation, didactic lecture, PBL	By end of year 3	CBD, OSCE, Long case, MCQs, SEQs, short case
Recognize iron deficiency, plan appropriate GI investigations, and give necessary treatment	CBD, interactive lecture,presentation, didactic lecture, PBL	By end of year 3	CBD, OSCE, Long case, MCQs, SEQs, short case
Nutritional Support			
Be able to assess malnutrition	nteractive lecture,presentation, didactic lecture, seminar	By end of year 3	MCQs, SEQs,
Choose appropriate route for nutritional support, insert appropriate feeding lines, supervise their use and prescribe appropriate IV and enteral feeding regime	CBD, interactive lecture,presentation, didactic lecture, PBL	By end of year 3-4	CBD, OSCE, Long case, MCQs, SEQs,
Determine when inserting PEG feeding tube is appropriate – Manage PEG and its complications	Direct Observation, PBL,	In year 5	MCQs, SEQs, OSCE

Map for Hepatology Goal

HEPATOLOGY			
Sections and Outcomes	Learning Opportunity	Assessment Period	Assessment Method
Cirrhosis			
Resident Know how to follow up patients with compensated cirrhosis, screen for complications such as HCC and adjust care and advice according to disease progression	CBD, interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3-4	CBD, OSCE, Long case, MCQs, SEQs, short case
Identify patients with ascites and know when to institute a low salt diet, diuresis, paracentesis and shunt procedures or transplant as required	CBD, interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3-4	CBD, OSCE, Long case, MCQs, SEQs, short case
Resident Know how to recognize, diagnose and treat spontaneous bacterial Peritonitis	CBD, interactive lecture, presentation, didactic lecture, PBL, seminar,	By end of year 3	CBD, OSCE, Long case, MCQs, SEQs, short case
Know when to screen for varices and be familiar with up to date primary and secondary prophylaxis of bleeding	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3	CBD, OSCE, Long case, MCQs, SEQs, short case
Recognize early symptoms and signs of hepatic encephalopathy and work with the patient and family to treat appropriately and give advice with regard to lifestyle modification	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3	CBD, OSCE, Long case, MCQs, SEQs, short case
Portal Hypertension and Complications			
Resident understand the pathophysiology, natural history and prognosis of portal hypertension	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3	CBD, OSCE, Long case, MCQs, SEQs, short case
To know the appropriate therapeutic management of portal hypertension and its complications, including ascites, encephalopathy, bleeding varices and HRS but also less common complications such as hepatopulmonary and portopulmonary syndromes	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3-4	CBD, OSCE, Long case, MCQs, SEQs, short case
NAFLD/ MAFLD			
Resident demonstrate an ability to take a relevant history, perform examination and organize appropriate investigations	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3-4	CBD, OSCE, Long case, MCQs, SEQs, short case
Use and interpret non-invasive algorithms to assess hepatic fibrosis, select appropriate techniques for evaluation of NASH/MASH and fibrosis, select appropriate monitoring to assess disease progression and when liver biopsy is appropriate,	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 4-5	CBD, OSCE, Long case, MCQs, SEQs, short case
Identify patients who are appropriate candidates for liver transplant Assessment	interactive lecture, presentation, didactic lecture, PBL,	By end of year 4-5	CBD, OSCE, Long case, MCQs, SEQs, short case
Hepatitis B			

Resident identify patients with acute hepatitis B and ascertain the severity of their illness and appropriate intervention	interactive lecture, presentation, didactic lecture, PBL,	By end of year 3	CBD, OSCE, MCQs, SEQs,
Discuss the different phases of chronic hepatitis B infection with a clear understanding of serological results and advise on the risks of transmission to close contacts	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	CBD, OSCE,Long case, MCQs, SEQs, short case
Understand and discuss the indications for therapy in both HBeAg positive and HBeAg negative hepatitis and the potential influence of viral load on decision to treat	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	CBD, OSCE,Long case, MCQs, SEQs, short case
Hepatitis C			
Resident define chronic hepatitis C and describe its natural history and prognosis, Demonstrate the ability to take a relevant history and organize appropriate investigations	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3	CBD, OSCE,Long case, MCQs, SEQs, short case
Appreciates the social stigma attached to hepatitis C and the psychosocial problems often encountered in considering therapy and makes appropriate referral to psychiatric	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3	Cases
Hepatitis A and E			
Diagnose and advise with regard to acute hepatitis A and E infections, Liaise with public health as appropriate to enable them to contact trace Recognise and advise of the treatment of prolonged cholestasis which can be associated with hepatitis A,	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3	OSCE,Long case, MCQs, SEQs, short case
Be familiar with the role of and indications for vaccination against hepatitis A & E, Understand the importance of Hepatitis E infection in vulnerable Populations	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3	MCQs, SEQs,

Recognize chronic manifestations of HEV infection and how this may require therapy in certain cases	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	MCQs, SEQs,
Alcohol-related Liver Diseases			
Resident demonstrate ability to take a detailed alcohol history, perform examination and organize appropriate investigations	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Understand and demonstrate the clinical evidence and results of investigations for the range of liver disease due to alcohol, including fatty liver, alcoholic hepatitis and cirrhosis	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Demonstrate ability to look after inpatients with alcoholic hepatitis and manage complications such as kidney injury and Understand how alcohol can impact and be a cofactor with other liver diseases and know how to advise and treat accordingly,	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Know when to refer patients with ALD to other disciplines as liaison psychiatry, social work and other medical disciplines as may be required, eg neurology or cardiology, Work with patients and their supports to devise a personalized plan for their care including appropriate medical care Select appropriate patients for liver transplant assessment	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 4-5	OSCE,Long case, MCQs, SEQs, short case
Haemochromatosis			
Identify patients who fulfil the criteria for a diagnosis of HH, know when it is appropriate to request genetics for haemochromatosis. Discuss the prevalence of haemochromatosis and	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case

the clinical significance of inherited mutations,			
Investigate for liver disease, diabetes, cardiac and joint disease, recognize that patients with cirrhosis due to HH require life-long follow up and screening for HCC and other complications of cirrhosis,	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 4-5	OSCE,Long case, MCQs, SEQs, short case
Perform venesection safely and effectively, and identify patients who are appropriate candidates for phlebotomy, devise local protocols and referral pathways for safe and effective venesection and follow up of patients with HH	Number of Cases	By end of year 5	Cases
Recognize the causes of a high ferritin in patients who may not have underlying liver disease and order appropriate investigations and iron studies to differentiate hyperferritinaemia due to inflammation, or other liver diseases or causes	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Know how to advise patient and relatives about appropriate diet and Demonstrate an ability to explain requirement for family screening	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Autoimmune Liver Disease			
Resident can interpret results of antibody and other serological tests consistent with a diagnosis of AIH	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Know when to biopsy patients and how to interpret histology consistent with AIH, Treat patients with AIH for their liver disease and other common complications such as fatigue, joint pains and osteoporosis	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Have a knowledge of and know side effects of all drugs commonly prescribed for AIH especially steroids, including budesonide, azathioprine, MMF, and tacrolimus	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Cholestatic Liver Disease			
Resident should know what investigations are required to diagnose PBC: serology, imaging and when biopsy may be required	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Discuss with medical therapy with ursodeoxycholic acid, how to optimize dosage and when to move to alternative options such as obetocholic acid or fibrates if response to ursodeoxycholic acid alone is unsatisfactory	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 3-4	OSCE,Long case, MCQs, SEQs, short case
Know when to request MRCP and liver biopsy in the diagnosis of PSC, Interpret the results of MRCP, EUS and ERCP and recognize the limitations and complications of common diagnostic procedures and subsequent imaging follow up for these patients because of the higher risk of liver and biliary malignancy	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 4-4	OSCE,Long case, MCQs, SEQs, short case
Resident should be able to advise patients different agents for itch due to cholestasis such as topical agents, cholestyramine, rifampicin and naltrexone, Monitor for complications such as osteoporosis and know when to use calcium, vitamin D and other therapies for bone disease, Be aware of fat malabsorption, Know when patients with PBC and PSC are likely to benefit from liver Transplantation	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 4-5	OSCE,Long case, MCQs, SEQs, short case
Drug Induced Liver Disease			
Maintain a high index of suspicion for DILI and know how to rule out other causes of liver disease. importance of a comprehensive drug history in any patient with liver disease, with regard to all prescribed medications, over the counter preparations and remedies	interactive lecture, presentation, didactic lecture, PBL, seminar , conferences	By end of year 4-5	OSCE,Long case, MCQs, SEQs, short case

and the timing with regard to liver injury, commonly used substances that can cause DILI and the specific damages these can cause			
Know what investigations are required, including the need for timely liver biopsy, antidotes where available e.g. N-acetylcysteine and when referral for transplantation is necessary	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3-4	OSCE, Long case, MCQs, SEQs, short case
Malignant Liver Tumours: HCC			
Understand the epidemiology, risk factors, pathology, prevalence and range of presentations of HCC, Discuss the appropriate investigation and staging of disease with reference to international criteria	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3-4	OSCE, Long case, MCQs, SEQs, short case
Knowledge of treatment options for when to refer to centers for specialized treatment (ie transplant, locoregional treatment, systemic chemo/immunotherapy, etc).	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences, transplant rotation	In year 4-5	OSCE, Long case, MCQs, SEQs, short case
Malignant Liver Tumors: Cholangiocarcinoma			
Discuss the epidemiology, pathology and clinical presentation of bile duct tumors, Recognize the presentation of biliary tumors arising de novo or in the context of PSC	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences, transplant rotation	In year 4-5	OSCE, Long case, MCQs, SEQs, short case
Plan of investigations including CT, MRI scanning, brush cytology, intra ductal cholangioscopy and biopsy, Awareness of referral for treatment to appropriate centers (i.e. surgical resection, chemo/radiation therapy, and in some instances consideration for transplant).	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences transplant rotation,	In year 4-5	OSCE, Long case, MCQs, SEQs, short case
Liver Transplantation			
Discuss the indications for liver transplantation, appropriate timing of referral for assessment, and outcomes after transplantation	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences transplant rotation,	In year 4-5	Teaching Attendance
Acute Liver Failure			
Discuss the causes and pathophysiology of acute liver failure, Identify those patients with acute liver failure potentially suitable for emergency liver transplantation	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences transplant rotation,	By end of year 4-5	Cases
Pregnancy-Associated Liver Disease			
Discuss the spectrum of liver diseases that can complicate pregnancy, Demonstrate awareness of the various manifestations of pregnancy-associated liver disease including obstetric cholestasis	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences transplant rotation,	By end of year 4-5	OSCE, Long case, MCQs, SEQs, short case
Management of pregnancy in chronic liver disease patients (pre- natal counselling, optimization of disease control, discussion regarding family planning – including when too high risk, e.g. portal hypertension) and safety profile of medications in pregnancy.	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences transplant rotation,	By end of year 4-5	CBD
Vascular Liver Disease			
Recognize and investigate Budd Chiari syndrome, including imaging, coagulation abnormalities and to organize best therapy including anticoagulation, shunt procedures or Transplantation	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences transplant rotation,	In year 4-5	OSCE, Long case, MCQs, SEQs, short case
Demonstrate knowledge of the causes of portal vein thrombosis and appropriate investigations to explore intra-abdominal sepsis, tumors including HCC, and coagulation abnormalities	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	In year 4-5	OSCE, Long case, MCQs, SEQs, short case
Nutrition and Liver Disease			
Resident should be able to identify and assess patients accurately for malnutrition	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3-4	MCQs, SEQs

knowledge of dietary requirements for patients with active liver disease, while stable and while recovering from decompensation, Understand the importance of certain diets e.g. low salt diet and be able to advise patients appropriately	interactive lecture, presentation, didactic lecture, PBL, seminar, conferences	By end of year 3-4	MCQs, SEQs
Palliative Care			
Identify patients who would benefit from palliative care intervention, understand which symptoms and conditions are helped by the introduction of palliative care measures esp. pain, cough, and dyspnea	interactive lecture, presentation, didactic lecture,	By end of year 3-4	Cases
Demonstrate skill in discussing with patient and family when palliative care is appropriate and how it will help them with their quality of life, recognize when patients are unlikely to recover from a complication of liver disease.	interactive lecture, presentation, didactic lecture,	By end of year 3-4	Teaching Attendance

SECTION III

TEACHING AND LEARNING STRATEGIES

Inpatient Services

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 evaluate 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.

Outpatient Experiences

The resident will examine 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 population, allowing the resident to learn how to manage outpatients in various settings patterns. Patients are followed for their active problems or referred back to the primary physician. When appropriate, long-term follow up will be continued through the resident continuity clinic. 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.

Mandatory Workshops

Hands-on training will be provided through mandatory workshops on:

- 1) Research Methodology
- 2) Advanced Life Support
- 3) Communication Skills
- 4) Computer & Internet Skills
- 5) Clinical Audit

Core Faculty Lectures (CFL)

Core faculty lectures will focus on monthly themes covering various specialty topics. Lectures will incorporate active learning techniques such as buzz groups.

Journal Club Meeting (JC)

Residents will present and critically evaluate research articles, highlighting applicable results for clinical practice.

Case-Based Learning

Small groups will engage in case-based learning. This method emphasizes problem-solving skills and integrated knowledge.

Grand Rounds (GR)

Grand rounds will feature speakers from local, regional, and national training programs, presenting topics from the broad spectrum of topics.

Clinico-pathological Conferences

Weekly CPC, using case methods, these conferences will involve discussing differential diagnosis, diagnostic data, and final diagnoses.

Clinical/surgical Audit Based Learning

Residents will participate in quality improvement processes by reviewing patient care against explicit criteria and implementing necessary changes.

Peer-Assisted Learning

Residents will engage in peer-assisted learning, providing opportunities for reinforcement, responsibility, self-confidence, and development of teaching and communication skills.

Mortality meeting (MM)

In weekly MM adverse outcomes, not necessarily resulting in death, will be discussed and thoroughly reviewed.

Skills Workshops

Conduct skills workshops on Endoscopic techniques, diagnostic procedures, and equipment handling. Provide opportunities for students to practice and receive feedback on their skills.

Multidisciplinary Team-based Learning

Collaborate with other healthcare professionals to simulate a multidisciplinary team approach to patient care. Encourage students to understand the roles of different team members and practice effective communication and teamwork.

Simulation Training

Utilize simulation training tools and platforms to provide a realistic and safe environment for students to practice complex procedures skill. Incorporate simulation scenarios that mimic challenging clinical situations to enhance decision-making skills.

E-learning and Online Resources

Integrate e-learning modules, online resources, and virtual simulations to supplement traditional teaching methods. Provide access to online databases, journals, and educational videos to support self-directed learning. Encourage use of digital library available at RMU.

SECTION IV

WORKSHOPS

WORKSHOPS

WORKSHOPS (3 hours each for 2-5 days)

S.NO	NAME OF THE WORKSHOP	LEARNING OBJECTIVES	TOPICS TO BE COVERED
1.	Biostatistics & Research Methodology (4 days)	<ul style="list-style-type: none"> To understand the basics of Bio-Statistics To critique why research is important? To discuss the importance of Selecting a Field for Research To prepare oneself for Participation in National and International Research To prepare oneself for Participation in Pharmaceutical Company Research To interpret the importance of research ideas & Criteria for a good research topic To discuss Ethics in Health Research To learn to write a Scientific Paper To learn to make a Scientific Presentation To learn to make a purposeful literature search 	<ol style="list-style-type: none"> Introduction to Bio-Statistics Introduction to Bio- Medical Research Why research is important? What research to do? <ol style="list-style-type: none"> Selecting a Field for Research Drivers for Health Research Participation in National and International Research Participation in Pharmaceutical Company Research Where do research ideas come from Criteria for a good research topic Ethics in Health Research Writing a Scientific Paper Making a Scientific Presentation & Searching the Literature

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

		<ul style="list-style-type: none"> • To learn to manage a conflict resolution • To learn to break a bad news • To discuss the importance of Medical Ethics, Professionalism and Doctor-Patient Relationship Hippocratic Oath • To learn to take an informed consent • To illustrate the importance of confidentiality • To summarize Ethical Dilemmas in a Doctor's Life 	6. Breaking Bad News 7. Medical Ethics, Professionalism and Doctor-Patient Relationship Hippocratic Oath 8. Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-maleficence and Justice) 9. Informed Consent and Confidentiality 10. Ethical Dilemmas in a Doctor's Life
4.	Synopses Writing	<ul style="list-style-type: none"> • Introduction to Synopsis Writing and Research Question Development <ul style="list-style-type: none"> • Understand the purpose and structure of a research synopsis. • Learn to develop a clear and concise research question. • Literature Review and Methodology <ul style="list-style-type: none"> • Master techniques for conducting a literature review. • Understand how to design a robust research methodology • Writing the Synopsis and Managing References <ul style="list-style-type: none"> • Learn to write each section of a research synopsis. • Understand the importance of proper citation and reference management. • Peer Review and Finalizing the Synopsis 	Introduction to Synopsis Writing: <ul style="list-style-type: none"> ○ Definition and importance of a research synopsis. ○ Key components of a synopsis: title, abstract, introduction, objectives, methodology, and timeline. ○ Differences between a synopsis, proposal, and full research paper. Developing a Research Question: <ul style="list-style-type: none"> ○ Characteristics of a good research question: clarity, specificity, and feasibility. ○ Techniques for formulating research questions: PICOT framework, FINER criteria. ○ Refining and narrowing down research questions. Conducting a Literature Review: <ul style="list-style-type: none"> ○ Purpose and scope of a literature review. ○ Strategies for searching academic databases and identifying relevant literature.

		<ul style="list-style-type: none"> • Learn the peer-review process and its importance. • Finalize and polish the research synopsis. 	<ul style="list-style-type: none"> ○ Synthesizing information and identifying research gaps. ○ Referencing and citation management. <p>Designing the Research Methodology:</p> <ul style="list-style-type: none"> ○ Types of research designs: qualitative, quantitative, and mixed methods. ○ Selection of appropriate study design based on the research question. ○ Sampling techniques, data collection methods, and data analysis plans. ○ Ethical considerations in research design. <p>Writing the Synopsis:</p> <ul style="list-style-type: none"> ○ Title and Abstract: <ul style="list-style-type: none"> ▪ Crafting a clear and informative title. ▪ Writing a concise abstract that summarizes the research. ○ Introduction: <ul style="list-style-type: none"> ▪ Background and rationale for the study. ▪ Stating the research problem and objectives. ○ Methodology: <ul style="list-style-type: none"> ▪ Detailed description of the research design, data collection, and analysis. ○ Timeline and Budget: <ul style="list-style-type: none"> ▪ Creating a realistic timeline for the research. ▪ Estimating and justifying the research budget. ○ References: <ul style="list-style-type: none"> ▪ Citing sources accurately and compiling a reference list. <p>Reference Management:</p> <ul style="list-style-type: none"> ○ Tools for managing references (e.g., EndNote, Mendeley, Zotero).
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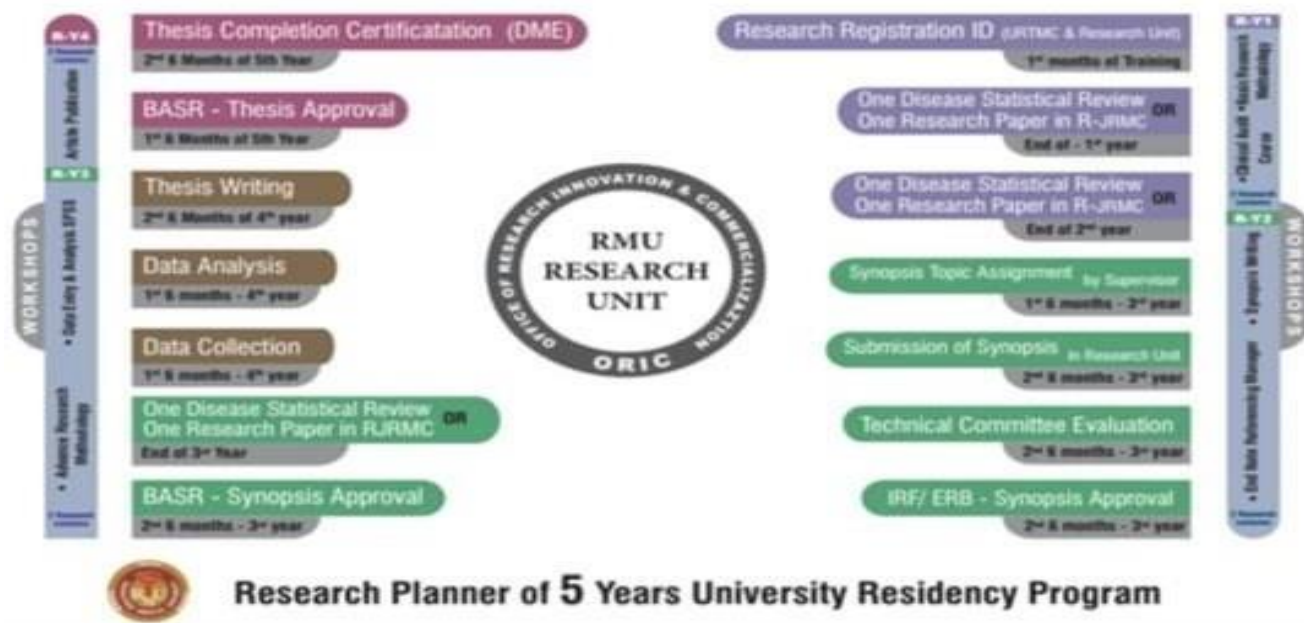
			<ul style="list-style-type: none"> ○ Proper citation styles (e.g., APA, MLA, Vancouver). <p>Peer Review Process:</p> <ul style="list-style-type: none"> ○ Importance of peer review in research. ○ How to provide constructive feedback. ○ Reviewing and critiquing peer synopses. ○ Incorporating feedback to improve the synopsis. <p>Finalizing the Synopsis:</p> <ul style="list-style-type: none"> ○ Editing and proofreading techniques. ○ Ensuring clarity, coherence, and conciseness in writing. ○ Checking for completeness and adherence to guidelines. ○ Preparing the final document for submission.
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5.	Cardiac First Response	<ul style="list-style-type: none"> • Introduction to Cardiac Emergencies and Basic Life Support (BLS) <ul style="list-style-type: none"> • Understand the types and signs of cardiac emergencies. • Learn the fundamentals of Basic Life Support (BLS). • Automated External Defibrillator (AED) Use and Advanced Life Support (ALS) <ul style="list-style-type: none"> • Gain proficiency in the use of an Automated External Defibrillator (AED). • Understand the basics of Advanced Life Support (ALS). • Scenario-Based Training and Team Dynamics <ul style="list-style-type: none"> • Apply knowledge and skills in realistic, scenario-based training. • Understand the importance of effective team dynamics during a cardiac emergency. • Advanced Skills and Final Assessment <ul style="list-style-type: none"> • Learn advanced skills for managing cardiac emergencies. • Demonstrate competency through a final assessment. 	<ol style="list-style-type: none"> 1. Introduction to Cardiac Emergencies: <ul style="list-style-type: none"> ○ Overview of cardiac emergencies: heart attack, cardiac arrest, angina, and arrhythmias. ○ Recognizing symptoms and risk factors. ○ The importance of timely intervention and the concept of the "golden hour." 2. Basic Life Support (BLS): <ul style="list-style-type: none"> ○ Principles of BLS: ensuring scene safety, assessing responsiveness, and calling for help. ○ Steps of BLS: airway, breathing, and circulation (ABC). ○ Hands-on practice: chest compressions, rescue breaths, and using a barrier device. 3. Automated External Defibrillator (AED): <ul style="list-style-type: none"> ○ Function and importance of an AED in cardiac emergencies. ○ Step-by-step instructions on how to use an AED. ○ Safety precautions and troubleshooting common issues. ○ Hands-on practice with AED simulators. 4. Introduction to Advanced Life Support (ALS): <ul style="list-style-type: none"> ○ Overview of ALS and its components. ○ The role of medications and advanced airway management. ○ Introduction to ECG interpretation for identifying cardiac rhythms. ○ Coordination and communication in a resuscitation team. 5. Scenario-Based Training: <ul style="list-style-type: none"> ○ Simulated cardiac emergencies with real-time response. ○ Role-playing various scenarios: out-of-hospital cardiac arrest, in-hospital cardiac arrest, and post-resuscitation care. ○ Debriefing and feedback sessions to identify strengths and areas for improvement. 6. Team Dynamics in Cardiac Emergencies: <ul style="list-style-type: none"> ○ Importance of teamwork and clear communication.
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			<ul style="list-style-type: none"> ○ Roles and responsibilities of team members during a resuscitation effort. ○ Strategies for effective leadership and coordination. ○ Hands-on practice with team drills and role assignments. <p>7. Advanced Skills:</p> <ul style="list-style-type: none"> ○ Advanced airway management: intubation and supraglottic airway devices. ○ Intravenous (IV) access and medication administration. ○ Post-resuscitation care: monitoring and stabilizing the patient. ○ Review of ACLS algorithms and protocols. <p>8. Final Assessment:</p> <ul style="list-style-type: none"> ○ Practical exam: simulated cardiac emergency scenarios to assess BLS, AED, and ALS skills. ○ Written exam: testing knowledge of cardiac emergency management, BLS, and ALS protocols. ○ Feedback and discussion on performance. ○ Certification for participants who meet competency standards.
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SECTION V

RESEARCH AND THESIS WRITING



For residency program research work on synopsis and thesis writing starts from entry into university by getting registration ID number from the research unit. It has been structured in 06 monthly & annual time scale goals. Essential steps are included in eligibility criteria of yearly, midterm and final assessments. Compulsory workshops have been designed to train residents along the pathway of research conduction. The charts below show the structure and timeline description of the tasks required.

Framework of research curriculum

Clinical Audit /Disease Statistical Review	Y1
Basic Research Methodology	Y1
Research lectures	Y1
Synopsis Writing	Y3
Referencing Manager	Y3
Research lectures	Y3
Advance Research Methodology	Y4
Data Entry & Analysis SPSS	Y4
Thesis writing workshop	Y4/5
Writing an Article / Publications	Y5
Research lectures	Y5

Research milestones

Milestone	Timeline	
Research registration Id	1 st Month	Y1
Single disease statistical review / 1 paper in RJRMC	Before end of year 1	Y1
Single disease statistical review / 1 paper in RJRMC	Before end of year2	Y2
Synopsis topic assignment	1 st 06 month	Y3
Technical committee evaluation	Last 06 month	Y3
IRF/ERB synopsis approval	Last 06 month	Y3
BASAR synopsis approval	Last 06 month	y3
Single disease statistical review / 1 paper in RJRMC	Before end of year 3	Y3
Data collection	1 st 06 month	Y4
Data analysis	Last 06 month	Y4
Single disease statistical review / 1 paper in RJRMC	Before end of year 4	Y4
Thesis writing	1 st 06 month	Y5
BASAR thesis approval	Last 06 month	Y5
Thesis completion certificate from DME	Last 06 month	Y5

Research Work Assessment

Submission of Synopsis and Thesis

1. The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on RMU website.
2. Synopsis of research project should be submitted and approved by the end of the 3rd year of MD program.
3. The minimum duration between approval of synopsis and submission of thesis shall be one year, but the thesis cannot be submitted later than 8 years of enrolment.
4. Thesis shall be submitted by the candidate duly recommended by the Supervisor.
5. The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.
6. The research thesis will be submitted along with the fee prescribed by the University.

Thesis Assessment

1. Gastroenterology candidates admitted in MD course shall appear in thesis evaluation component of the FTA after completion of 5th years of their training course.
2. Only those candidates shall be eligible for thesis evaluation who have passed Midterm Examination and Oral & Practical/ Clinical component of Exit Examination.
3. The examination shall include thesis evaluation with defense.
4. The Vice Chancellor shall appoint three external examiners for thesis evaluation, preferably from other universities and from abroad, out of the panel of examiners approved by the Advanced Studies & Research Board. The examiners shall be appointed from respective specialty.

5. The thesis shall be sent to the external examiners for evaluation, well in time before the date of defense examination and should be approved by all the examiners.
6. After the approval of thesis by the evaluators, the thesis defense examination shall be held within the University on such date as may be notified by the Controller of Examinations. The Controller of Examinations shall make appropriate arrangements for the conduct of thesis defense examination in consultation with the supervisor, who will co-ordinate the defense examination.
7. The thesis defense examination shall be conducted by two External Examiners who shall submit a report on the suitability of the candidate for the award of degree. The supervisor shall act as coordinator.

Section- 5B

Research Curriculum

INTRODUCTION

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

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

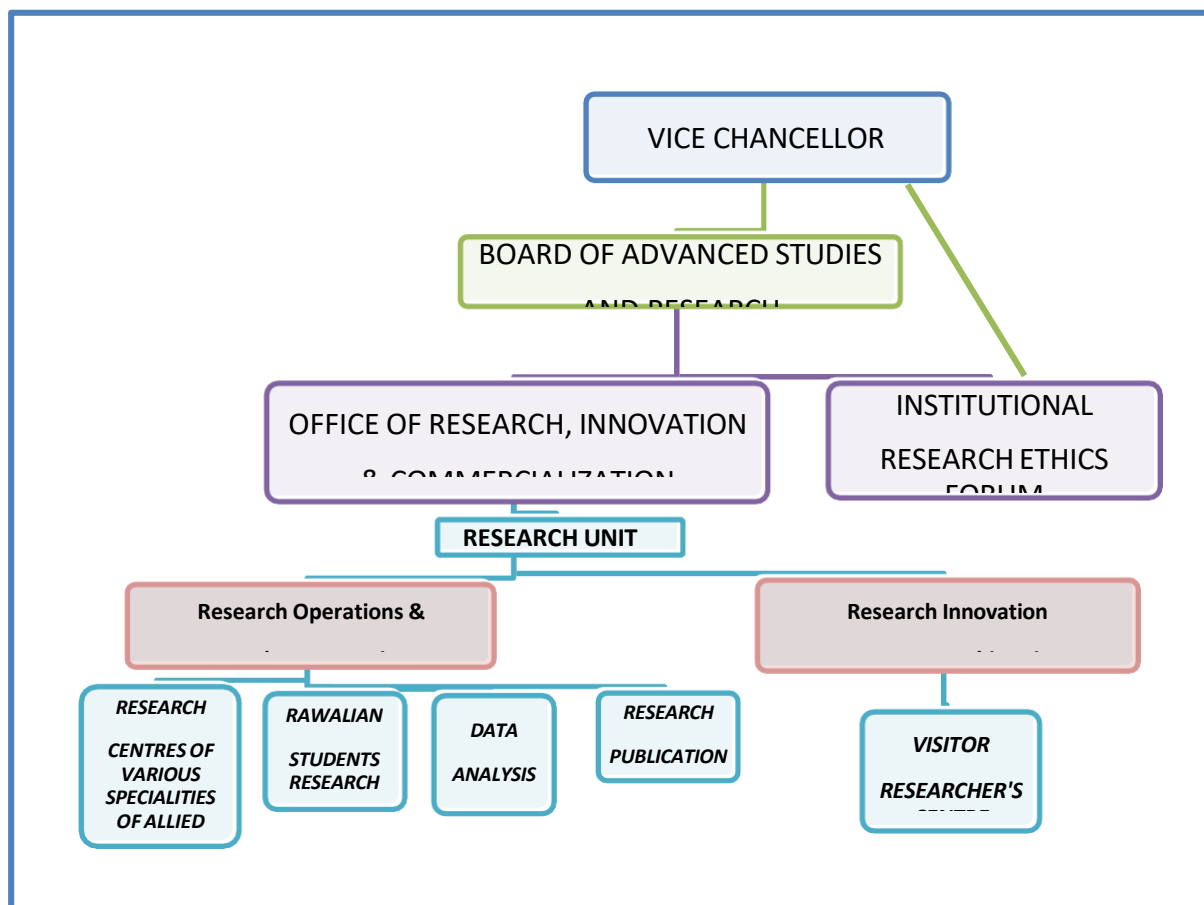
In the following document post graduate trainees would refer to all MD/MS/CPSP Post graduate trainees for Fellowship programme, generally in the text, but wherever there will be demarcation of the activities of MD/MS and CPSP post graduate fellowship trainees, it will be specified for each accordingly.

ORIENTATION SESSION FOR TRAINEES:

- I. At the beginning of the research course, an orientation session or an introductory session of one-hour duration will be held, organized by Director, Deputy Directors of ORIC (Office of Research Commercialization and Innovation) of RMU to make trainees acquainted to the research courses during four years post graduate training, the schedule of all scholarly and academic activities related to research and the assessment procedures.
- II. Trainees will also be introduced to all the facilitators of the course, organizational structure of ORIC and the terms of references of corresponding authorities (Annexure 1) 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.
- V. By the end of the orientation session, *Baseline competency assessment Performa's* will be administered, after their informed written consent, to assess baseline knowledge, attitudes

and skills of the trainees, regarding research and its various aspects. These Performa's will not only enable the trainees and the trainers to have a comprehension of their existing status of proficiencies in research that they can compare with the *end of training competency assessment Performa's*, for their self evaluation. Apart from other aspects, they will also be requested to mention their expectations from the research training course and also regarding any area/s in research that they will prefer and prioritize to learn and according to their feedback those aspects will be incorporated into the course or they will be guided either individually or in groups with special emphasis. The information gathered through those baseline Performa's will be kept confidential for each trainee and will be scores to reckon their status so that it can be quantitatively referred to and compared to the *end of training competency assessment Performa's*

Figure 1. MODEL OF RESEARCH AT RAWALPINDI MEDICAL UNIVERSITY



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

RESEARCH COURSE OF FIRST POST GRAUDATION TRAINING YEAR

R-Y1

PURPOSE OF R-Y1 RESEARCH COURSE:

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

LEARNING OUTCOMES OF R-Y1 RESEARCH COURSE

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

1. Discuss the value of research in health service in helping to solve priority problems in a local context.
2. Identify, analyse and describe a research problem
3. Review relevant literature and other available information
4. Formulate research question, aim, purpose and objectives
5. Identify study variables and types
6. Develop an appropriate research methodology
7. Identify appropriate setting and site for a study

8. Calculate minimally required sample size for a study.
9. Identify sampling technique, inclusion and exclusion criteria
10. Formulate appropriate data collection tools according to techniques
11. Formulate data collection procedure according to techniques
12. Pre-test data collection tools
13. Identify appropriate plan for data analysis
14. Prepare of a project plan for the study through work plans and Gantt charts
15. Identify resources required for research and means of resources
16. Prepare a realistic study budget in accordance with the work plan.
17. Critically appraise a research paper of any national or international journal.
18. Present research papers published in various national and international journals at journal club.
19. Prepare a research proposal independently.
20. Develop a strategy for dissemination and utilisation of research results.
21. Can efficiently plan and conduct a clinical audit in their own respective clinical units.
22. Familiarization with application Performa for submission of a research proposal to BASR or IREF.
23. Familiarization with format of presentations and procedure of presentation and defence of a research proposal to BASR or IREF.
24. 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. RESEARCH WORKSHOPS:

Research will be taught to the trainees during first year of training in two Research methodology workshop titled as Basic Research Methodology Workshop and a Workshop on Undertaking a clinical Audit. The former workshop will comprise of three days' duration while later will be of one-day duration, that will be conducted using combination of 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 workshops 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 RMU. 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.

Course content of Basic Research Workshops:

- i. The course materials of Basic research workshop 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.

Modules of the Basic Research Methodology Workshop:

The details of the course module of basic research workshop along with the tentative time frame work, teaching strategies, content and objectives/Learning outcomes of each module are displayed in table 1.

9. TABLE 1.A. MODULAR SESSIONS OF BASIC RESEARCH METHODOLOGY WORKSHOP OF YEAR 1 OF TRAINEES OF POST GRADUATE TRAINEES/MD SCHOLARS OF RMU

SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
DAY 1 SESSION 1 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by both individual exercise & Group exercise	A.Introduction to health systems research B. Identifying and Prioritizing Research Problems	<ul style="list-style-type: none"> • Describe the purpose, scope and characteristics of health systems research • Identify criteria for selecting health-related problems to be given priority in research
DAY 1 SESSION 2 <i>Duration:30 minutes</i>	Lecture through power point presentation followed by Individual exercise	Analysis and statement of problem & Introduction to Literature review	<ul style="list-style-type: none"> • 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.
DAY 1 SESSION 3 <i>Duration: 45minutes</i>	Lecture through power point presentation followed by Individual exercise & Take home assignment	Literature review Referencing systems; Vancouver & Harvard referencing systems	<ul style="list-style-type: none"> • 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>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
DAY 1 SESSION 4 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by Individual exercise & Take home assignment	Literature review Referencing managing systems	<ul style="list-style-type: none"> • 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.
DAY 1 SESSION 5 <i>Duration:30 minutes</i>	Lecture through power point presentation followed by Individual exercise & Take home assignment	Plagiarism	<ul style="list-style-type: none"> • 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
DAY 1 SESSION 6 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by Individual exercise	Formulation of research objectives	<ul style="list-style-type: none"> • State the reasons for writing objectives for a research project. • Define and describe the difference between general and specific objectives. • Define the characteristics of research objectives. • Prepare research objectives in an appropriate format.

SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
DAY 1 SESSION 7 <i>Duration:30 minutes</i>	Lecture through power point presentation followed by Individual Assignment	Formulation of Hypothesis for a research	<ul style="list-style-type: none"> • State the reasons and scenario for formulating research hypothesis. • Define and describe the types difference between one sided and two sided hypotheses. • Formulate Null hypothesis and Alternate hypothesis in an appropriate format. • Identify importance of hypothesis testing and to identify type I & type II errors.
DAY 1 SESSION 8 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by a group exercise.	Research methodology; Variables and Indicators	<ul style="list-style-type: none"> • Define what study variables are and describe why their selection is important in research. • State the difference between numerical and categorical variables and define the types of scales of measurement. • Discuss the difference between dependent and independent variables and how they are used in research designs. • Identify the variables that will be measured in a research project and development of operational definitions with indicators for those variables that cannot be measured directly.
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>

DAY 2 SESSION 9 <i>Duration: 45 minutes</i>	Lecture through power point presentation followed by individual exercise.	Research methodology; Study types	<ul style="list-style-type: none"> • Describe the study types mostly used in HSR. • Define the uses and limitations of each study type. • Describe how the study design can influence the validity and reliability of the study results. • Identify the most appropriate study design for a study.
DAY 2 SESSION 10 <i>Duration:30 minutes</i>	Lecture through power point presentation followed by individual exercise.	Data collection techniques	<ul style="list-style-type: none"> • 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.
DAY 2 SESSION 11 <i>Duration:45 minutes</i>	Lecture through power point presentation Followed by group exercise.	Data collection tools	<ul style="list-style-type: none"> • Prepare data-collection tools that cover all important variables.
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>

DAY 2 SESSION 12 <i>Duration:30 minutes</i>	Lecture through power point presentation	Sampling	<ul style="list-style-type: none"> • 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.
DAY 2 SESSION 13 <i>Duration:45 minutes</i>	Lecture through power point presentation Group exercises	Sampling	<ul style="list-style-type: none"> • 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.
DAY 2 SESSION 14 <i>Duration:20 minutes</i>	Lecture through power point presentation	Plan for Data Entry , storage and Statistical Analysis	<ul style="list-style-type: none"> • 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. • Introduction to Statistical Package of Social Sciences.
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>

			<ul style="list-style-type: none"> • 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.
DAY 3 SESSION 15 <i>Duration: 50 minutes</i>	Lecture through power point presentation and individual exercises	Pilot and project planning	<ul style="list-style-type: none"> • 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. <p>Determine the various tasks and the staff needed for a research project and justify any additional staff (research assistants, supervisors) apart from the research team, their recruitment procedure, training and supervision.</p> <ul style="list-style-type: none"> • Prepare a work schedule, GANTT chart and staffing plan for the project proposal.
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>

DAY 3 SESSION 16 <i>Duration: 25 minutes</i>	Lecture through power point presentation and individual exercises	Budgeting for a study	<ul style="list-style-type: none"> • 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
DAY 3 SESSION 17 <i>Duration: 30 minutes</i>	Lecture through power point presentation.	<ul style="list-style-type: none"> • Project administration • Plan for dissemination • Research ethics & concepts of protection of human study subjects 	<ul style="list-style-type: none"> • 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.
DAY 3 SESSION 18 <i>Duration: 20 minutes</i>	Lecture through power point presentation	Differences between original articles, short communication, case reports, systematic reviews and meta-analysis	<ul style="list-style-type: none"> • Differentiate between original articles, short communications, case reports, systematic reviews and meta-analysis
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>

DAY 3 SESSION 19 <i>Duration:30 minutes</i>	Lecture through power point presentation and group exercises	Writing a Case report	<ul style="list-style-type: none"> • 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
DAY 3 SESSION 20 <i>Duration: 45 minutes</i>	Lecture through power point presentation and group project	Critical Appraisal of a research paper	<ul style="list-style-type: none"> • 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.
DAY 3 SESSION 21 <i>Duration:30 minutes</i>	Lecture through power point presentation and individual exercises	<ul style="list-style-type: none"> • Making effective power-point presentations • Making effective poster presentations • Presenting a research paper 	<ul style="list-style-type: none"> • 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. <p>Can effectively and confidently make a power-point presentation of a research paper published in any national or international journal.</p> <ul style="list-style-type: none"> • Can formulate a poster of a research paper published in any national or international journal.

TABLE 1.B. CONTENT OF WORKSHOP OF CLINICAL AUDIT FOR YEAR 1 TRAINEES OF POST GRADUATE TRAINEES/MD SCHOLARS OF RMU

WORKSHOP TIMINGS	TEACHING STRATEGY	TOPIC OF WORKSHOP	OBJECTIVES OF WORKSHOP <i>i.e. BY THE END OF COURSE THE TRAINEES SHOULD BE ABLE TO;</i>
ONE DAY WORKSHOP OF 6 HOURS DURATION	Lectures through power point presentation followed by individual and group exercises	Undertaking a clinical audit.	<ul style="list-style-type: none"> • 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 • Understand clinical audit process. • Decide exactly why particular audit is conducted and what is to be achieved through carrying out the audit. • Determine, how clinical audit relates to other activities related to accountability for the quality and safety of patient care. • Select the right subject for audit & to use evidence of good practice in designing clinical audits. • 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. • Understand how to handle data protection issues related to clinical audit & how to use statistics for analyzing and presenting findings of data collection • Apply principles and strategies for taking action to achieve changes in clinical practice & to recognize ethics issues related to clinical audit. • Review clinical audit findings & to prepare clinical audit reports.

Minimal Attendance of Research Workshops:

The trainees must attend both of the Research workshops mentioned above, during year 1 and attendance will be duly recorded and monitored in each session of workshop and any participant

missing even a single day of workshop without any valid reason will not be issued certificate of the workshop. It will be mandatory for such trainee or any of those missing the workshop due to any valid reason or illness, to attend the workshop in next year with the next batch.

Assessment of individual and group exercises:

- i. The quality, correctness and completeness of the individual as well as group exercises conducted during the workshops will be assessed during the workshops, 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 scored by the facilitators who had taken the session.

B. *PARTICIPATION IN JOURNAL CLUB SESSIONS*

- i. The journal club of every department will comprise of an academic meeting of the head of department, faculty members, trainees and interneers at departmental level.
- ii. The purpose of journal club will be to collectively attempt to seek new knowledge through awareness of current and recent research findings and also to explore best current clinical research and means of its implementation and utilization.
- iii. Apart from the teaching sessions of the trainees should attend the journal club sessions of the departments and should attempt to actively participate in them too.
- iv. One journal club meeting must be organized in the department in every two months of the year and its attendance by the trainees will be mandatory.
- v. The journal club meeting will be chaired by the Dean of specialty.

- vi. The purpose of participation of the trainees in journal club will be to enhance their scientific literacy and to have optimal insight of the relationship between clinical practice and evidenced-based medicine to continually improve patient care.

Format of Journal Club Meetings:

- i. In a journal club meeting, one or two research paper/s published in an indexed national or international journal, selected by the Dean of the department will be presented by year 2 trainees; R-Y2 trainees.
- ii. The research paper will be presented through power-point and the critical appraisal of the paper will follow it.
- iii. The topic will also be discussed in comparison to other evidences available according to the latest research.
- iv. The year one trainee i.e. R-Y1 trainee will only participate in the journal club and will not present during first year of training. He/she will be informed regarding the selected paper one and a half month prior to the meeting and should do extensive literature search on the topic and also of the research paper that will be presented in meeting.
- v. The trainees should actively participate in question & answer session of the journal club meeting that will be carried out following the presentation of the critical appraisal of the research paper. It will be compulsion for each R1 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

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

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

Assessment of Trainees for Journal Club sessions:

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

C. *OBSERVATION OF MONTHLY MEETING OF INSTITUTIONAL RESEARCH*

ETHICS COMMITTEE (IREF) OF RMU

- i. In order to provide exposure to R-Y1 trainees regarding standard operational procedures and protocols of the research activities of Rawalpindi Medical University, each R-Y1 trainee

should attend at least two monthly meetings of the Institutional Research Ethics Committee of RMU and should observe the proceedings of the meeting.

- ii. He/she will be informed by the research associates of ORIC about the standard procedures of application to IREF step wise including guidance regarding how an applicant should access the RMU website and download the application Performa and then how to electronically fill it in for final submission. They will also be provided format of presentation for their future presentations at IREF meetings.

Minimal Attendance of IREF meetings by R-Y1 trainee:

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

Assessment of Trainees for participation in the IREF meetings:

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

***D. NOMINATION OF THE SUPERVISOR OF THE TRAINEE FOR THE
DISSERTATION PROJECT***

- i. During the first year of training, the supervisor of each trainee must be nominated within first six months. The Dean of the specialty will decide the nomination of the supervisor for the post graduate trainee as well as MD scholars.
- ii. A meeting will be held in the middle of the year, in June preferably, that will be attended by all heads of the departments and the Dean. The list of all the first year trainees and the available supervisors in each department will be presented by respective heads of each department in meeting. All of the eligible trainees and supervisors will also be around for brief interviews during the meeting.
- iii. The head of departments, prior to interviews of the trainees and supervisors, will inform the Dean in the meeting, their own personal observation of the level of performance, talent personality and temperament of both the trainees and the supervisors. Based on their consideration of the compatibility of both eligible trainees and the supervisors, Head of departments (HOD's) will recommend or propose most suitable supervisors for each trainee after eloquent discussions and justifications.

- iv. The Dean will then call each trainee individually to inform him/her the suggested Supervisor for him/her and will also give right and time for objection or reservation in nomination, if any. The Dean will seek the trainee's final consent and then after asking the trainee to leave the meeting room, will call the supervisor for final consent.
- v. If the supervisor will also be willing to happily supervise the trainee, then the Dean will finally approve the nomination.
- vi. A tentative list will be issued by the office of the Dean, within three days of the meeting, copied to the HOD's and the trainees and supervisors.
- vii. Both the trainees and the supervisors will be given two weeks to challenge the nominations, in case either of the two have any qualms or objections regarding the nominations. They will also be given right to personally approach the Dean for any request for change. In case of any objection, the Dean will make changes in consultation with the HOD's, after final consent and satisfaction of both trainee and supervisor
- viii. The final revised list of nominations will be then issued by the office of Dean and will be sent to the Board of Advanced studies and Research of RMU (BASR).
- ix. The Board of Advanced studies and Research of RMU will issue final approval of the list and the Vice chancellor will endorse the nominations as final authority.
- x. During the last few months of the first year of training, the trainees and supervisors will be advised by the Dean, to get familiar with each other and try to identify their abilities to efficiently and successfully work together as a team, especially during the project of Clinical Audit, mentioned in next section.
- xi. In case of any issues, either of both will have right to request any change in nomination to the Dean, till last week of first year of training. The Dean will then consider the case and will seek modification in nomination from the BASR.
- xii. After completion of first year of training, no substitution in nomination will be allowed. In case of any serious incompatibility between the trainee and the supervisor, the issue will be brought to the Vice chancellor directly by the Dean as a special case, who will make the final decision accordingly, as the final authority.
- xiii. As regards the MD scholars, the external supervisors will also be nominated and those nominations will be made by Vice chancellor of RMU in consultation with the Dean of specialty. The consent of the trainees and supervisors will follow the same protocol as specified above and the final list of nominations will then be submitted to BASR for final approval.

- xiv. After finalization of nominations a letter of agreement of supervision will be submitted by the trainee to the office of Dean, including consent and endorsement of both trainee and the internal and/or external supervisor, with copies to HOD, ORIC and BASR.
- xv. The supervisor and the trainee will be bound to meet on weekly basis exclusively for research activity with documented record of the activity done during the meeting in the log book.

E. *UNDERTAKING A CLINICAL AUDIT PROJECT*

- i. During ninth month of training year 1; R-Y1 the head of department will form groups of trainees, either two or three trainees in one group (along with each supervisor of each trainee), depending on the total number of trainees available in that respective first year.
- ii. These groups will undertake clinical audits on various aspects of the department as a project assignment, on one topic assigned to each group by the Dean and Heads of Departments.
- iii. If the group will 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 the workshop of Clinical Audit conducted within in first eight months 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 mandatory group project of year R-Y1. 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. *ROTATION OF THE TRAINEES AT ORIC:*

- i. All MD/MS trainees will attend *one week's rotation* during year 1 at the Research Unit, Office of Research Innovation and commercialization (ORIC) of RMU.
- ii. For the rotations, the trainees will be allocated batches by ORIC, comprising of 20 to 25 trainees per batch. The Deans' of the specialties will formulate these batches during the first year, to include only one trainee from each department for rotation in a batch, so that the the clinical and academic activities of that department are not effected.
- iii. This one week for each of the batches of the trainees will be scheduled in a manner, that four days of that week will be expended in the research workshops (3 days for the Basic Research Methodology Workshop and one day for the workshop on Undertaking a clinical Audit). For the remaining 2 working days the trainees will receive individual or group consultations by the staff members of ORIC (that are director, deputy directors/managers, research associates, statistician and/or publication in charge) according to their own requirements or preferences, regarding any topic or aspect of Research.
- iv. Regular attendance register will be maintained at ORIC to record the physical presence of the trainees. In case any trainee will require a leave or becomes absent during workshop days, the rules specified for the attendance of workshops, already in a previous section, will be applicable. Whereas for the remaining two days of consultations and individual/group learning, the trainees must be present and in case of any emergency or illness he/she must attend with any other batch but with a settlement and permission of the Director ORIC, in writing.
- v. As regards the CPSP post graduate trainees they will not have to do the rotations during their training period but will follow all others activities as specified. However, they can visit ORIC, as per appointment schedule that will be given by ORIC, for their individual consultations, in any area of research.

G.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 workshops of the trainee that will be 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 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.
- ix. The research portfolio will assist the trainees to reinforce the importance of strategic thinking as a way to understand their context and look to the future. By having a recorded insight of the individual achievements, weaknesses and strengths, the trainee will be able to maximize his/her talent and potential of all the activities and projects of research with an aim of further progression in career development.

H. OVERALL ASSESSMENT OF PERFORMANCE OF TRAINEES FOR YEAR 1

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

I. 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. ***Self evaluation of the trainees at the baseline:*** All the trainees will be handed over *Baseline competency assessment Performa's* during the orientation session that will comprise of questions related to the baseline knowledge, attitude and proficiencies of the trainees regarding various aspects of Research and its methodologies. These Performa's will not only enable the trainees and the trainers to have a comprehension of their existing status of proficiencies in research but also they can compare it with their *end of training competency assessment Performa's*, for self evaluation. Apart from other aspects, they will also be requested to mention their expectations from the research training course and also regarding any area/s in research that they will prefer and prioritize to learn and according to their feedback those aspects will be incorporated into the course or they will be guided either individually or in groups with special emphasis.
- ii. ***The feedback of trainees*** will include structured evaluation of each workshop through structured and anonymous feedback forms/questionnaire that will be regularly distributed amongst the trainees. Anonymity will ensure an honest and unbiased response. They will be requested to provide their feedback regarding various aspects of teaching sessions eg content, medium used, facilitators performance and knowledge, extent of objectives

attained etc through Likert scale. They will mark, through their personal choice without any pressure or peer consultation, one particular category amongst five scales specified ranging from 1-5, 1 representing the poorest quality while 5 representing excellence. Apart from this structured assessment, open ended questions will also include an in depth perspective and insight. Similarly, an overall annual feedback questionnaire will also be rotated amongst trainees.

- iii. ***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.
- iv. ***Three focus group discussions;*** one of the R-Y1 trainees, second of the facilitators and third of the supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement.
- v. ***The research portfolio*** will be checked and endorsed by the supervisor and the Director of ORIC.
- vi. ***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.

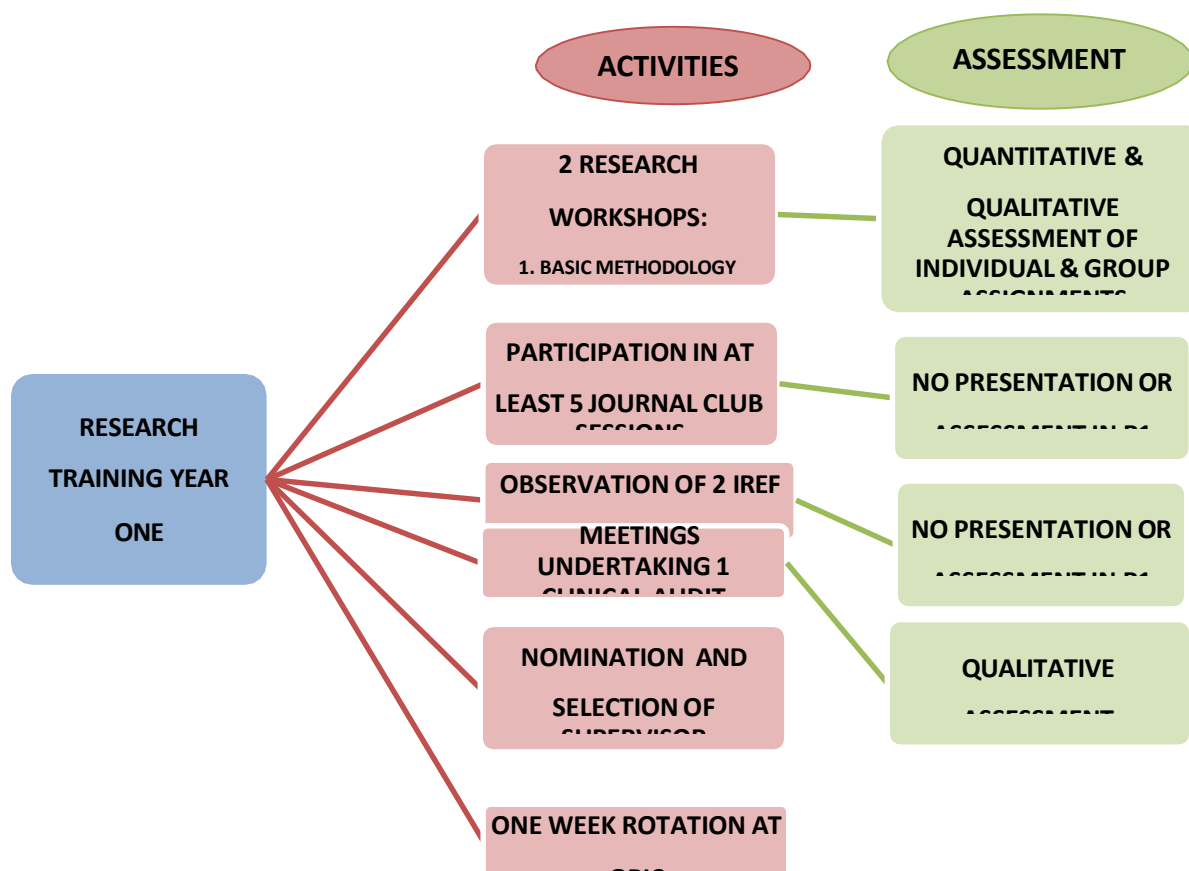
J. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 1

- 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 ie R-Y2 of Research course catering the post graduate trainees.

A. ADVANCED RESEARCH METHODOLOGY WORKSHOP:

Basic and advanced Biostatistics and Epidemiological concepts will be taught to the trainees through following methods in three days' workshop. Each session of workshop 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.

The facilitators of this workshops will be staff members of Office of Research Innovation and commercialization (ORIC) of RMU 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 workshop:

- i. During year 2 i.e. R-Y2, Advanced research methodology workshop will be conducted in three days.
- ii. Each session of workshop will comprise of a didactic lecture delivered initially, to attain the mentioned learning outcomes. Each didactic lecture will be delivered using the power-point medium that will be followed by 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 day of workshop, take home individual assignment/s will be given to trainees, that too preferably individually rather than in groups, that will be duly evaluated and marked by facilitators later.

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 modules of workshop:

The details of the sessions of the Advanced research workshop during year two R-Y2 along with the tentative time frame work, teaching strategies, content of workshop curriculum and objectives/Learning outcomes of each sessions are displayed in table 2.

TABLE 2. CONTENT OF ADVANCED RESEARCH METHODOLOGY OF YEAR 2 OF TRAINEES OF POST GRADUATE TRAINEES/MD SCHOLARS OF RMU

SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
DAY 1 SESSION 1 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by individual exercise and Take home individual assignments	<ul style="list-style-type: none"> • Introduction to Biostatistics • Description of Variables • Numerical methods of Data summarization (Manual as well as through Statistical Package of Social Sciences) 	<ul style="list-style-type: none"> • Describe the purpose, scope and importance of Biostatistics in Health systems research • Identify basic four steps of Biostatistics. • Introduction to Statistical Package of Social Sciences (SPSS). • 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).
DAY 2 SESSION 2 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by individual exercises & Take home individual assignments.	Graphical presentation of data	<ul style="list-style-type: none"> • 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 STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES

TIMINGS			<ul style="list-style-type: none"> • <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
DAY 1 SESSION 3 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by Individual exercise & Take home assignment	Cross- tabulation of quantitative data	<ul style="list-style-type: none"> • 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.
DAY 1 SESSION 4 <i>Duration:50 minutes</i>	Lecture through power point presentation followed by Individual exercise & Take home assignment	Measures of Association based on risk	<ul style="list-style-type: none"> • 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.
DAY 1 SESSION 5 <i>Duration:30 minutes.</i>	Lecture through power point presentation followed by Individual exercise & Take home assignment	Confounding and methods to control confounding	<ul style="list-style-type: none"> • 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. • 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>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
DAY 1 SESSION 6 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by Individual exercise & Take home individual assignments	Basic statistical concepts; Measure of dispersion and confidence Intervals	<ul style="list-style-type: none"> • 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.
DAY 2 SESSION 7 <i>Duration:45 minutes</i>	Lecture through power point presentation	Hypothesis testing for a research	<ul style="list-style-type: none"> • State the concept of hypothesis testing. • Define and describe the types difference between one sided and two sided hypotheses. • Formulate Null hypothesis and Alternate hypothesis in an appropriate format. • Identify importance of hypothesis testing and to identify type I & type II errors.
DAY 2 SESSION 8 <i>Duration:30 minutes</i>	Lecture through power point presentation followed by a Take home individual assignment.	Tests of Significance	<ul style="list-style-type: none"> • 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>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
DAY 2 SESSION 9	Lecture through power point	Determining difference	<ul style="list-style-type: none"> • Decide when to apply the chi-square test. • Calculate chi-square values.

<i>Duration:45 minutes</i>	presentation followed by an individual exercise & a Take home individual assignment.	between two groups- categorical data Paired & unpaired observations	<ul style="list-style-type: none"> • 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.
DAY 2 SESSION 10 <i>Duration:45 minutes</i>	Lecture through power point presentation followed by an individual exercise & Take home individual assignment.	Determining difference between two groups- numerical data Paired & unpaired observations	<ul style="list-style-type: none"> • 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. <p>Decide when to apply the independent and dependent t test and calculate its values.</p> <ul style="list-style-type: none"> • 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>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>

DAY 2 SESSION 11 <i>Duration: 30 minutes</i>	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)	<ul style="list-style-type: none"> • 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.
DAY 3 SESSION 12 <i>Duration: 45 minutes</i>	Lecture through power point presentation followed by an individual exercise	Determining Correlation between variables	<ul style="list-style-type: none"> • 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.
DAY 3 SESSION 13 <i>Duration: 45 minutes</i>	Lecture through power point presentation followed by an individual exercise	Regression Analysis	<ul style="list-style-type: none"> • 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>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>

DAY 3 SESSION 14 <i>Duration: 30 minutes</i>	Lecture through power point presentation and individual exercises	Diagnostic Accuracy of a test	<ul style="list-style-type: none"> • Identify what is a diagnostic accuracy of a test compared to gold standard tests. • Identify what are true positives, true negatives, false positive and false negatives in a diagnostic testing. • Calculate Sensitivity, specificity, Positive and negative predictive values of a diagnostic test using standard formulae.
DAY 3 SESSION 15 <i>Duration: 45 minutes</i>	Lecture through power point presentation and individual exercises	Writing a research paper	<ul style="list-style-type: none"> • 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.
DAY 3 SESSION 16 <i>Duration: 30 minutes</i>	Lecture and individual exercises	Writing a dissertation	<ul style="list-style-type: none"> • 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 Advanced Research Workshop:

The trainees must attend the Advanced Research workshop during year 2 and attendance will be duly recorded and monitored for each session of workshop and any participant missing even a single day of workshop without any valid reason will not be issued certificate of the workshop. It will be mandatory for such trainee or any of those missing the workshop due to any valid reason or illness, to attend the workshop in next year with the next batch.

Assessment of individual exercises:

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

Assessment of individual; take home tasks/assignments:

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

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

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

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

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

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

- iv. The MD scholars will also have to submit one research dissertation, in specialty field, to Rawalpindi Medical University, so they will also submit one research proposal for the dissertation till end of second year of training.

- v. Whatever is the post graduation academic scenario; the trainee must decide the research question/s under the guidance of the supervisor till third month of R-Y2 and hence decide the final title of the research project/s.
- vi. During these first three months of R-Y2, the trainee under guidance of the supervisor and ORIC will do extensive review of the literature, relevant to topic. He/she will do online as well physical search of printed, Journal articles, reports, books, conference papers, dissertations, Research and program reports- published/ unpublished. He/she will also access the libraries of Rawalpindi medical University, repositories of various institutions.
- vii. The trainee will also consult the research Associates and Deputy Directors at the ORIC for the feasibility of the research question and any modification. The trainees will be encouraged to preferably select research questions that will be better answered through cross sectional comparative, analytic and experimental study designs instead of simple descriptive cross sectional or case series design. Descriptive cross sectional, exploratory or case series design will be allowed only in special cases when the research question will deal with an exceedingly significant and priority issue, not addressed previously even though published work either locally/nationally or internationally.
- viii. Once the research question and topic is finalized with mutual understanding of the supervisor, trainee will submit the selected topic to the Head of Department and Dean of specialty.
- ix. The Dean of the specialty will give approval of the topic after scrutiny and will confirm that there is no duplication of the topic in the department, after consultation with HOD's.
- x. Then the Dean will finalize the list of the topics of research proposals of all trainees during fourth month of R-Y2 and will submit the list to BASR.
- xi. BASR will give the final approval of all topics within same month.
- xii. For the post graduate trainees following aforementioned option B (Publication of two original research articles in any CPSP recognized journals, being first author, as requisite to FCPS degree) must submit their topics (already approved from BASR) to CPSP for its approval. Once the topics are approved by CPSP, they will initiate research proposal development for these research projects that they will publish as original articles.
- xiii. Once the trainee gets the approval of the topic/s from all concerned authorities, the formal write up of proposal/s must be initiated within fifth month of R-Y2 in consultation with supervisor and the research associates of ORIC for guidance in methodology.

- xiv. The research proposal/s will be brief outline of trainees' future research project/s (approx of 1000-1500 words) and must comprise of the following topics:
1. Title of research project.
 2. Introduction and rationale (with Vancouver/Harvard in text citations)
 3. Research aim, purpose and objectives
 4. Hypothesis, if required according to the study design.
 5. Operational Definitions
 6. Research Methodology:
 - a) Setting
 - b) Study Population
 - c) Study Duration
 - d) Study Design
 - e) Sampling: *Sample size with statistical justifications, sampling technique, inclusion criteria & exclusion criteria.*
 - f) Data Collection technique/s
 - g) Data Collection tool/s
 - h) Data Collection procedure
 - i) Plan for Data entry & Analysis
 7. Ethical Considerations
 8. Work plan/Gantt chart
 9. Budget with justifications
 10. Reference list according to the Vancouver referencing style
 11. Annexure (*including data collection tool or Performa, consent form, official letters, scales, scoring systems and/or any other relevant material*)
- xv. The research proposal should be completed in eighth month of R-Y2 and should also be reviewed and finalized by the Supervisor of the trainees.
- xvi. The finalized research proposal will be reviewed by publication in charge of ORIC for plagiarism through turn-it-in soft ware. Any proposal that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission. Only when the eligible scores will be reached, then the proposal will be further processed.
- xvii. The statistician at data analysis centre of ORIC will facilitate the trainees in sample size calculation through sample size calculators according their study designs.

- xviii. The trainees should formulate all the data collection tools under guidance of supervisor and research associates of ORIC and should also pretest to finalize all the data collection tools for their research projects.
- xix. These research proposals along with the tools will be submitted to all concerned authorities for appraisal.
- xx. The supervisors and research associates of ORIC will also ensure that the duration of research project should be adequate and realistic so that trainees will be able to complete their project/s during third year of training leaving enough time for its write up during year 4 of training. For the post graduate trainees following option of Publication of two original research articles as requisite to FCPS degree, the study duration will be even briefer.

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

- i. The R-Y2 trainees will already be aware of the standard operational procedures and protocols of the Institutional Research Ethics Committee of RMU as they had, as a mandatory activity, participated and observed the proceedings of the meeting during R-Y1. However, he/she will be informed about any modifications or updates regarding the standard procedures of application to IREF if will have occurred during last one year.
- ii. Trainees will be individually provided an updated step wise guidance by the research associates of ORIC, regarding how an applicant should access the RMU website and download the application Performa and then how to electronically fill it in for final submission. They will also be provided updated format of presentation for their Research Proposal presentations at IREF meetings.
- iii. The trainees must submit ten sets of hard copies of all the documentation including the research proposal with all annexes, plagiarism detection report and application performa to ORIC, at least ten days prior to the monthly meeting. ORIC will provide them date and month of the IREF meeting for presentation and the trainee must present in the meeting along with his/her supervisor.
- iv. The trainee must make a five to ten minutes' presentation through power-point at Institutional Research Ethics Forum during 9-10 months of R-Y2. By the end of presentation, he/she will respond to all the queries of the forum and the supervisor will facilitate in defense of the proposal.

- v. The IREF will appraise and scrutinize every aspect of the proposal/s and if found acceptable then will provide on spot verbal approval of the project followed by written approval letter within next two weeks to the trainees.
- vi. If members of IREF will find any modifications required in the proposal/s they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal/s within next one week's period.
- vii. The written approval letter of IREF will be issued within next two weeks of meeting, to the trainee.
- viii. In case the trainee will be working on option B of CPSP i.e. publication of two research papers, instead of writing dissertation, then he/she will present both research proposals to IREF for the two topics already approved by CPSP.

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

- i. The trainee will ensure that for his/her research project/s ample resources in terms of monetary, human or physical will be available to complete the project. He will also provide documented proof and justification to avoid any unforeseen problems that may lead to incompleteness of research project/s.
- ii. No individual funding will be provided to the trainees for their research projects requisite to their post graduation degrees by Rawalpindi Medical University. The trainee may be bearing all the expenses on individual basis or may be applying to any of national or international funding agencies for research project/s.
- iii. In case the trainee will be applying for any external source of funding from any national or international funding agency, the funding application and approval process must be completed by the end of year 2 of training.
- iv. The trainee may also be pursuing the degree, through any scholarship that also will include the research project expenses.
- v. In either of the above mentioned circumstances, the trainee must provide and submit the budget details and documented evidences of the funding or availability of monetary resources to the supervisor and Dean who will ensure the feasibility of the resources available to the trainees.

- vi. Moreover, if any tools, kits, equipment or physical materials will be required for research project, the trainee will provide documented evidence of its availability.
- vii. If the data collection will require hiring of additional human resources, then the trainee will provide documented evidence like consent of staff members contributing to his/her research or details of training expenses or honorarium details if any to the supervisor.
- viii. The supervisor will also consult the Dean and HOD's in ensuring the feasibility and availability of resources of a trainee during second year of training.

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

- i. Post graduate trainees applying for their CPSP fellowship using aforementioned option A (Submission of one dissertation in specialty field as requisite to FCPS degree) after receiving appraisal of IREF of RMU, must submit their proposal to CPSP during last quarter of second year of training. The approval process from CPSP takes approximately 3 months on an average but in case any corrections are suggested the resubmission and acceptance procedure may take 6 months on an average. These trainees will initiate data collection as soon as they receive the acceptance by CPSP authorities.
- ii. However, the post graduate trainees who will opt to publish two original research articles in any CPSP recognized journals, as requisite to FCPS degree, will not require any submission of their proposals to CPSP. They will directly initiate the data collection as soon as they will receive the IREF acceptance letter. Hence their data collection phase of both research projects will begin in last quarter of R-Y2.
- iii. The MD scholars of RMU will submit their research proposals to the Board of Advanced Studies and Research (BASR) of RMU for appraisal. BASR will issue an acceptance letter of the research proposal endorsed by the Vice chancellor of RMU copied to the concerned stakeholders and authorities including office of Dean and ORIC. If members of BASR will find any modifications required in the proposal they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal to BASR within next one-week period. The written approval letter of BASR will then be issued within next two weeks to the trainee. The trainees will thus receive formal permission to initiate data collection phase through this acceptance of BASR.
- iv. All trainees who will require data collection from any RMU or its teaching hospitals that are Benazir Bhutto Hospital, District Headquarters Hospital and Holy Family Hospital, will not

require any permission from the administration of these hospitals. The appraisal letters of IREF and BASR will be considered as acceptance by all authorities of the RMU.

- v. If any trainee will need to collect data from any institution other than RMU or its teaching hospital, they must seek that institution's approval too according to their standard protocols parallel to the period when they will have submitted proposals to CPSP/BASR to save their time.
- vi. All the post graduate trainees will follow the guidelines regarding the format and content of the research proposals provided by the authorities to whom they will be presenting their research proposals that are Board of Advanced Studies and Research (BASR) for MD scholars or College of Physicians and surgeons of Pakistan (CPSP).

G. ROTATION OF THE TRAINEES AT ORIC:

- i. During second year of training, All MD/MS trainees will attend *two week's rotation* at the Research Unit, Office of Research Innovation and commercialization (ORIC) of RMU.
- ii. For the rotations, the trainees will follow the same batches as allocated during year 1 of training by ORIC or if feasible then the batches will be reformulated, by the Director of ORIC. according to the study designs. The trainees with similar study designs will be preferably kept in same batches, if feasible.
- iii. These two weeks for each of the batches of the trainees will be scheduled in a manner, that three days of that week will be consumed in the Advanced research workshop while for the remaining working days of two weeks, the trainees will receive individual or group consultations by the staff members of ORIC (that are director, deputy directors/managers, research associates, statistician and/or publication in charge) for finalization of their research synopsis/proposal.
- iv. Regular attendance register will be maintained at ORIC to record the physical presence of the trainees. In case any trainee will require a leave or becomes absent during workshop day/s, s/he must attend the complete 3 days' workshop with any other batch during the same year with a settlement and permission of the Director ORIC, in writing. Whereas in case of absence or leave for the remaining days of rotation, the trainees must s/he must complete the exact number of missing days of 2 weeks' rotation, with any other batch during the same year 2, with a settlement and permission of the Director ORIC, in writing.

- v. As regards the CPSP post graduate trainees they will not have to do the rotations during their training period but will follow all others activities as specified. However, they can visit ORIC, as per appointment schedule that will be given by ORIC, for their individual consultations, in any area of research and for finalization of their research synopsis/proposal.

H. *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 sessions of workshop of the trainee that will be 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 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.

I. OVERALL ASSESSMENT OF PERFORMANCE OF TRAINEES FOR YEAR 2

- i. The overall assessment of performance of trainee for R-Y2 will rely on marks attained where 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 50 total marks. 50 marks will be allocated to completeness and quality of research synopsis.
- 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 by appearing in second attempt accordingly.

J. 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 workshop of R-Y2 through structured and anonymous feedback forms/questionnaire that will be regularly distributed amongst the trainees. The forms will include questions phrased as Likert scales (1-5 categories) inquiring their responses regarding various aspects of teaching sessions. Category 1 will represent the poorest quality increasing till category 5 representing excellence and the trainees will choose either of 5 based on their honest and unbiased personal choice. The open ended questions in form will indicate qualitative evaluation of the trainees. There will also an overall feedback questionnaire for entire second year of training course administered to trainees.
- ii. ***The feedback of trainers*** will be obtained through structured and anonymous feedback forms/questionnaire, including closed and partially closed questions that will be regularly

provided by them. They will provide their inputs and opinions regarding effectiveness of the R-Y2 course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.

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

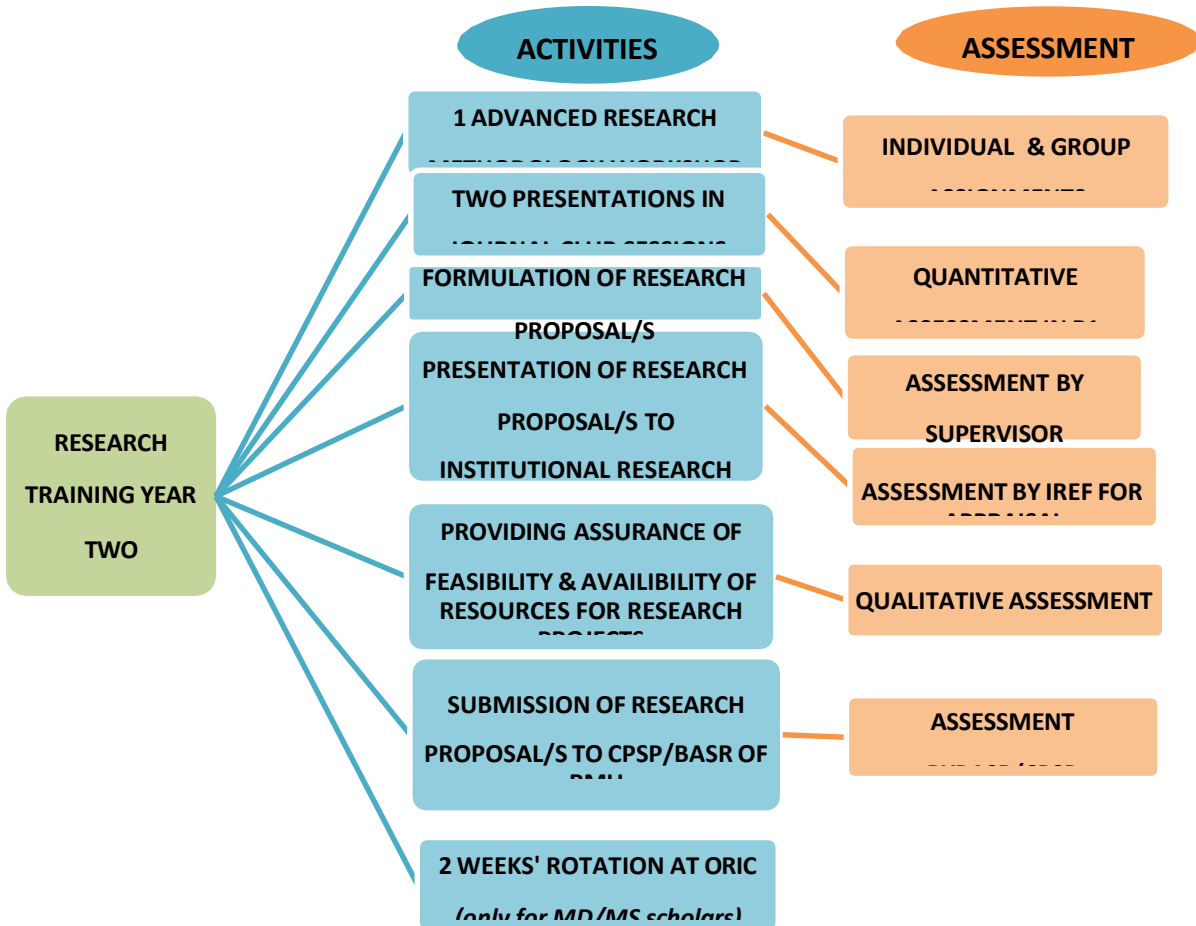
K. **QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 2**

- 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/MS 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 will collect all the information and data and to explore answer to their research questions formulated for their individual research project/dissertation, prerequisite to their degrees. This course will provide them an opportunity to revitalize and update their concepts, knowledge and skills in research methodologies.

LEARNING OUTCOMES OF R-Y3 RESEARCH COURSE

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

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

RESEARCH COURSE OF THIRD TRAINING YEAR

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

A. ELECTIVE REFRESHER SHORT COURSES/WORKSHOPS:

The elective refresher short courses of one day to three days' duration will be held to rejuvenate concepts Basic and advanced Biostatistics and Epidemiological concepts that will be taught to the trainees during initial first two years of training. The short courses will comprise of one to three days' workshops. These workshops will provide the trainees hands on training of all the

components of research methodologies, basic and advanced biostatistics and epidemiological calculations. Each workshop will comprise of following teaching methodologies

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

These short courses will be conducted by the staff members of Office of Research Innovation and commercialization (ORIC) of 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 feedback to each trainee individually.

Content of short courses:

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

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

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

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

Assessment of Trainees for short courses:

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

Assessment of individual and group exercises:

- i. The quality, correctness and completeness of the individual as well as group exercises will be assessed during the workshops by the facilitators.
- ii. The exercises will be presented during each module of workshops by trainees either

individually or in groups accordingly.

- iii. The mode of presentations will be oral using media of charts, flip charts & white boards or through power-point presentations depending on the nature of the tasks.
- iv. There will be no scores or marks specified for the individual or group exercises but the feedback of evaluation by the facilitators will be on spot by end of presentations.

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

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

B. PRESENTATION IN JOURNAL CLUB

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

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

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

Assessment of presentation of the trainee at Journal Club:

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

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

- i. By the beginning of year 3, the trainees will have received the approval from the IREF, BASR and respective examination authorities for their research proposals of dissertations or research papers. Moreover, till then all the data collection tools for their research projects will also have been ready after pretesting.
- ii. During first quarter of year 3, it will be mandatory for the trainees to initiate the data collection phase of their project/s. If the trainee will be collecting the data individually for his/her research project, it will be started under continuous guidance of their supervisors and continuous facilitation by the research centers of specialties, the data analysis center and Research Associates of ORIC of RMU.
- iii. In case the data collection will require more human resources, other than trainee himself/herself, either as honorary or hired data collection staff, they should be properly trained for data collection by the trainee. The supervisor will also ensure that the additional data collection staff will be adequate in number within data within the time framework and should also make sure that they will be proficient enough to collect high quality and authentic data.
- iv. The data storage will also be finalized by trainee under the guidance of Supervisor and research center of specialty.

- v. The trainee will initiate data collection phase and will seek assistance of statisticians at Data analysis centre of ORIC for compilation of data sheets in SPSS/or any other statistical software for data coding and entry. The trainees will be encouraged by statisticians to collect the data and enter it simultaneously after cleaning into the software to save time.
- vi. By the end of R-Y3, the data collection and entry of data must be completed.
- vii. In case the trainee will be working on option B of CPSP i.e. publication of two research papers, keeping in consideration, the lengthy period required for submission and then acceptance of papers by journals, he/she should be vigilant in data collection and must do it at faster pace as compared to those writing dissertation. So such trainees should complete data collection of both papers within first half of year 3 of training simultaneously. Otherwise they can also collect data for first paper within first three months of year 3 of training and then will initiate data collection of second paper from sixth to ninth month of year 3 of training. Whatever is the option followed by the trainee, the data collection phase should not extend beyond ninth month of R-Y3, in order to complete both papers for submission till end of R-Y3.
- viii. The trainees and MD scholars writing dissertation must also complete data collection and analysis till last month of R-Y3.

D. ROTATION OF THE TRAINEES AT ORIC:

- i. All MD/MS trainees will attend *one week's rotation* during year 3 at the Research Unit, Office of Research Innovation and commercialization (ORIC) of RMU.
- ii. For the rotations, the trainees will follow the batches compiled during 3rd year.
- iii. During this one week for each of the batches of the trainees will be facilitated by the statisticians at Data analysis centre of ORIC for compilation of data sheets in SPSS/or any other statistical software for data coding and entry.
- iv. This one week of rotation in third year *WILL BE EXCLUSIVE* of the elective workshop days.
- v. Regular attendance register will be maintained at ORIC to record the physical presence of the trainees. In case any trainee will require a leave or becomes absent during he/she must attend the days missed, with any other batch but with a settlement and permission of the Director ORIC, in writing.
- vi. As regards the CPSP post graduate trainees they will not have to do the rotations during their training period but will follow all others activities as specified. However, they will visit ORIC,

as per appointment schedule that will be given by ORIC, for their individual consultations, for their data entry and analysis for the research papers/dissertations.

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

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

- i. The trainees opting for publication of two research papers should complete and submit manuscripts of both research papers by the end of third year of training. Keeping in consideration, the lengthy period required for submission and then acceptance of papers by journals (that varies from journal to journal and may range from 3 months to even one year) he/she should be vigilant in data collection and paper completion at faster pace as compared to those writing dissertation.
- ii. These trainees will be provided the following options and they will choose either of it based on their will and their supervisor's advise:

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

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

- iii. Whatever is the option followed by the trainee, both of his/her paper should be submitted to journals of choice before initiation of year 4 of trainee, keeping adequate time secured in advance, in case any paper will not be accepted and will have to be sent to another journal accordingly.
- iv. During the data collection and entry phase, trainees will receive continuous assistance from the Research Associates and Data analysis unit of ORIC of RMU.

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

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

F. MONITORING OF RESEARCH ACTIVITIES OF YEAR 3

- i. Continuous monitoring of all the research activities of each trainee will be carried out by research centers of specialties, supervisors, Head of Departments and the research fellows & Deputy Directors at the Office of Research Innovation & Commercialization of RMU.
- ii. The structured Log books specific to research component of the training of year 3; R-Y3 and Research portfolio of the trainees will also be regularly observed, monitored and endorsed by all the concerned faculty, supervisor and facilitators.
- iii. The section of research training in Structured Log books of R-Y3 will be specific to short refresher courses of research conducted during training year 3. It will also include the record of attendance of all the short course/workshops attended by the trainee endorsed by the facilitators of each course and Office of Research Innovation & Commercialization (ORIC) in addition to the Department of Medical Education of RMU.
- iv. It will also comprise of all the submission record of the individual and group assignments of the trainees, endorsed by the facilitators of ORIC along with their comments.
- v. The log books will also include the attendance and presentation details of the trainees in the Journal club sessions of the department. The observation notes catering to qualitative evaluation for active participation by the trainee during each journal club session will also be inclusive. This information will be endorsed by the supervisor of the trainee and HOD.
- vi. The record of the trainees regarding timely completion and quality of each research activity related to completion of data collection and entry phase will also be part of the Log Book that will be endorsed by the supervisor, research associates and relevant facilitators of ORIC.
- vii. The research portfolio of the trainee R-Y3 will again include qualitative and quantitative self assessment of the trainee in narrative form. It will include the individual assessment of the objectives and aims defined by the trainee during the third year of training and extent of their successful attainment. The trainee will also mention individual achievements or knowledge and skills acquired in any aspect of research that was either formally part of the research curriculum or even not. It will also include reporting of any research courses, online or physically attended by the trainee, contribution in any research paper or publication, any participation and/or presentation in any research conference, competition etc. during year R-Y3.

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

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

H. EVALUATION/FEEDBACK OF RESEARCH COURSE OF YEAR 3

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

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

of the supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement. ***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.

I. ***QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 3***

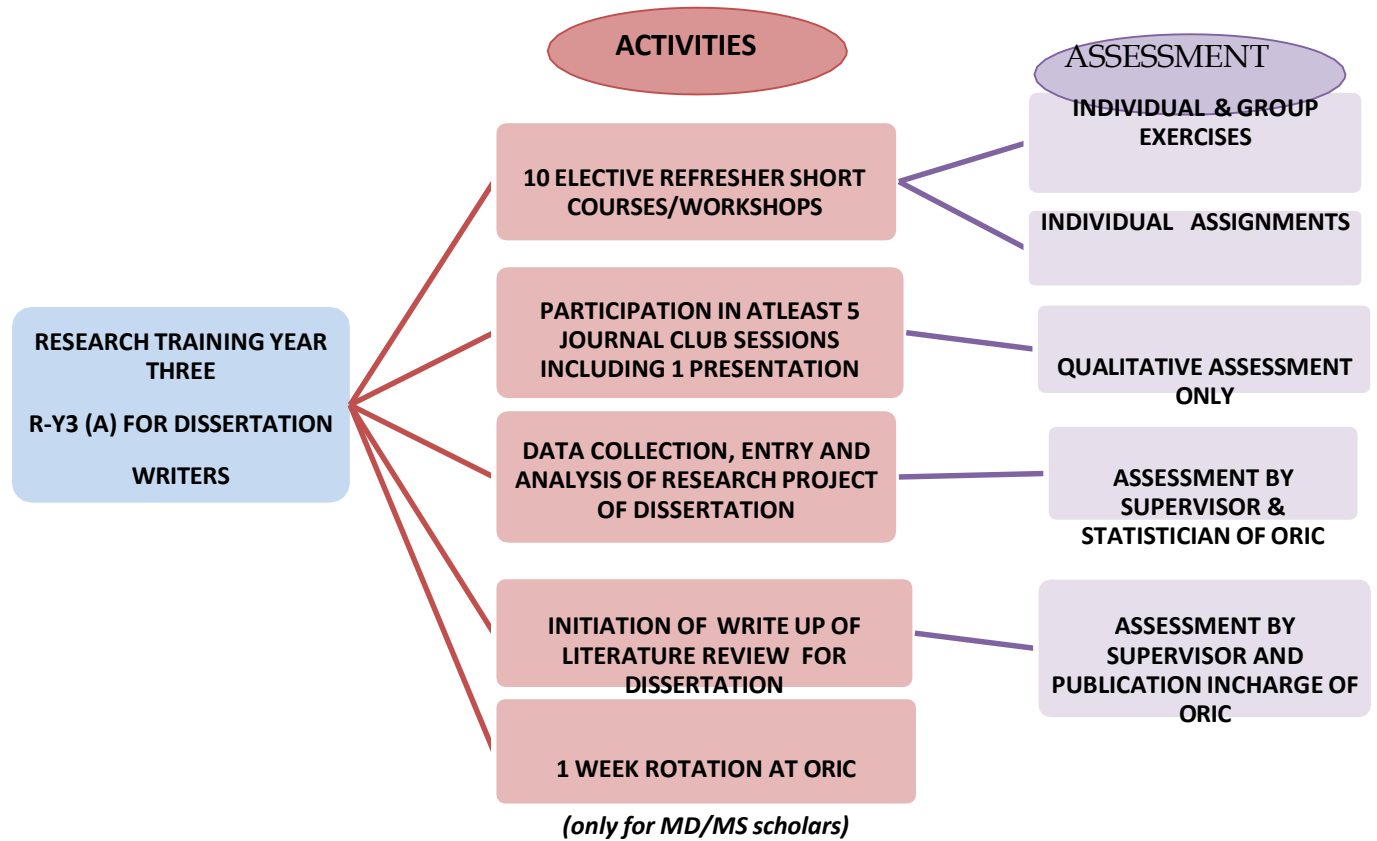
- i. The quality assessment of research course of R-Y3 will involve meticulous review of materials of R-Y3 course (including randomly selected data sheets and completed data collection tools, feedback forms of R-Y3 short course/workshops, log books, research portfolios, individual & group assessment records).
- ii. The quality evaluation team of R-Y3 will include the Head of departments, Deans, selected representatives of BASR, IREF, Director of ORIC, Director DME (Department of Medical Education), Director of Quality enhancement cell (QEC) and Vice chancellor of RMU. The random visits for physical observation of the materials and also of all the short courses proceedings through uninformed visits will also follow same protocol as mentioned in quality assurance procedure of R-Y1 and R-Y2.
- iii. The research papers submitted by post graduate trainees following option of publication of two original articles to CPSP accredited journals will be observed as confidential evidences by Director of ORIC, Dean and chairperson of BASR for quality assessment. No other person will have access to these manuscripts in order to avoid any risk of potential plagiarism.
- iv. ORIC will submit evaluation content of R-Y3 to all stake holders including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.
- v. The QEC will organize an external evaluation too through involvement of a third party that may include members of Quality assurance department of Higher Education Department based on their availability.
- vi. Since the R-Y3 will primarily comprise of the data collection phase of research projects of trainees, therefore, Quality Enhancement Cell (QEC) in liaison with the research centers of the specialty, will ensure the originality, transparency and unambiguity of data, during entire data collection.
- vii. An annual meeting of Quality assurance, by end of year 3, will be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, DME, QEC & IREF, who will be then collectively, review all the evaluation material of R-Y3. The meeting will be chaired by the

Vice Chancellor of RMU. The evaluation team will also share their experiences of their evaluation visits and observations to validate the existing materials.

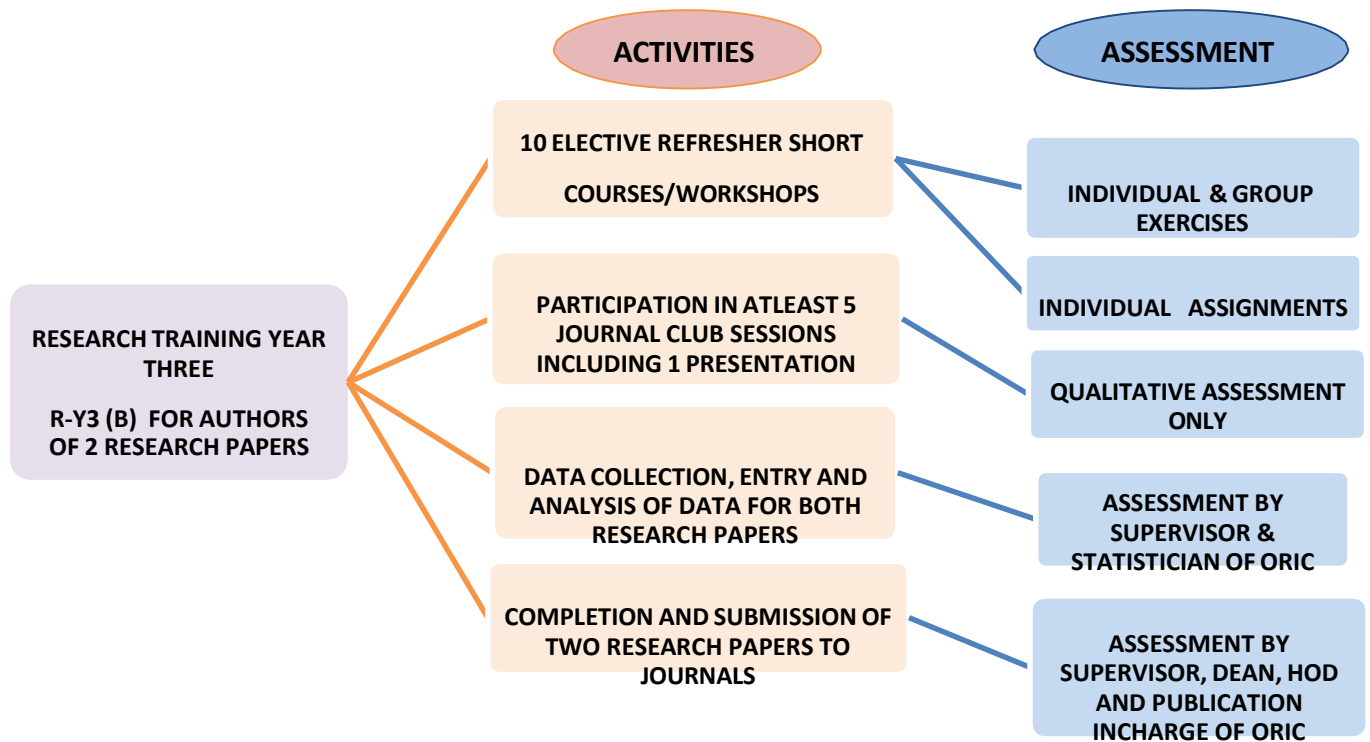
- viii. The quality of R-Y3 course will be stringently determined with recommendations for further quality enhancement.

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

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



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



RESEARCH COURSE OF FOURTH POST GRADUATION TRAINING YEAR

R-Y4

PURPOSE OF R-Y4 RESEARCH COURSE:

During the fourth year of training the post graduate trainees will receive extensive practical hands on experience of conducting individual research project and then transformation of this project's

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

LEARNING OUTCOMES OF R-Y4 RESEARCH COURSE

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

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

9. Present and defend a research final research Dissertation/ original article project to concerned authorities.

RESEARCH COURSE OF FOURTH TRAINING YEAR

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

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

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

- i. The trainees writing dissertations should have completed their data collection and entry by the end of third year of training and will have also initiated write up literature view for the dissertation.
- ii. As soon as the year four of training commences, these trainees should complete the introduction and literature review sections of their dissertations along with proper referencing during first three months of R-Y4. They will be continuously guided in this task by their supervisors, research associates and the publication in charge at the ORIC.
- iii. The trainees, In the meanwhile, will also seek continuous assistance of statisticians of Data analysis unit of ORIC for data analysis in statistical soft ware. Trainees will be guided how to interpret the results, how to determine the statistical significances and how to write these results in textual, tabulated and graphical forms. They will have to complete their data analysis and write up of results till fourth month of year 4.
- iv. The supervisor and publication in charge at ORIC will also guide the trainee to write the section of "discussion" for their dissertations based on the comparison of the findings of their study with the previously available research nationally as well as internationally.
- v. The trainees will also identify strengths and weaknesses of their study and should make recommendations with statement of final conclusion.

- vi. According to the required referencing systems the reference lists and in text citation will also be completed correctly.
- vii. After writing the abstract and cover pages and annexure of the dissertation, the trainee will submit his/her dissertation's final draft to publication in charge ORIC for plagiarism detection through turn-it-in soft ware. Any dissertation that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing till the eligible scores will be reached.
- viii. Then the trainee should submit final draft of dissertation to the supervisor and head of department till end of fifth month of year for final modifications. Since the supervisor will be incessantly involved in every aspect of the project since the beginning and will be persistently guiding the procedure, so he/she should not take more than 10 days to give final review to dissertation of the trainee with written feedback that will be entered in a structured performa with recommendations for improvement or corrections. The Head of Department will also provide his feedback within 10-15 days.
- ix. Based on the feed back of the reviews, the trainee will make final editing and will get the dissertation printed and submitted to the degree awarding authority accordingly (BASR for MD trainees and CPSP for post graduate trainees of fellowship) for review for acceptance before third week of sixth month of year 4.
- x. The trainee will also submit a copy of dissertation to head of department, the Dean, Director of ORIC and Chair person of BASR that will be dealt as a confidential document in order to avoid potential risk of plagiarism.
- xi. While the dissertations will be under review by the degree awarding authority for acceptance, the trainees will be continuously guided by the supervisor and the research associates at ORIC regarding defense of their dissertation. They will be guided how to make effective presentations according to the format provided by the examination authorities and also how to successfully and confidently respond to the queries of examiners.
- xii. In case the dissertation is sent back with recommended corrections or modifications, the supervisor and research associates at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within at least 10 days' time and not more than it.

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

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

- i. In case the research paper/s is/are sent back with recommended corrections or modifications, the supervisor, publication in charge and concerned facilitators at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time.
- ii. In case any of the paper is refused publication by a journal even then the supervisor and publication unit at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time without any delay.

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

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

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

D. PARTICIPATION IN JOURNAL CLUB SESSIONS

- i. Since the journal club is one of the best sources to provide awareness of best current clinical research, its implementation and utilization so its importance cannot be overlooked. In spite of a demanding and eventful fourth year of training, the participation of trainee in the journal club will still be mandatory.
- ii. The participation of trainees in journal club during R-Y4 will complement their knowledge and skills that will be beneficent in write up as well as defense of dissertation but also enhance their evidence based clinical skills.
- iii. However, to decrease the trainees' workload during final year of training, only participation in journal club will be mandatory and he/she will be exempted from making a presentation

during R-Y4.

- iv. The R-Y4 trainee will still be expected to actively participate in discussion and also in question & answer session of the journal club meeting. It will be compulsion for each R-Y4 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

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

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

Assessment of Trainees for Journal Club sessions:

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

E. ROTATION OF THE TRAINEES AT ORIC:

- i. All MD/MS trainees will attend *one week's rotation* during year 4 at the Research Unit, Office of Research Innovation and commercialization (ORIC) of RMU.
- ii. For the rotations, the trainees will follow the batches compiled during 3rd year.
- iii. During this one week for each of the batches of the trainees will be facilitated by the staff members of ORIC for all procedures required for data analysis and interpretation, formulating conclusions, proposing recommendations, writing clear and concise research report, making power-point presentation for the examiners and how to defend their research proposals etc.
- iv. Regular attendance register will be maintained at ORIC to record the physical presence of the trainees. In case any trainee will require a leave or becomes absent during he/she must attend the days missed, with any other batch but with a settlement and permission of the Director ORIC, in writing.
- v. As regards the CPSP post graduate trainees they will not have to do the rotations during their training period but will follow all others activities as specified. However, they will visit ORIC, as per appointment schedule that will be given by ORIC, for their individual consultations, for finalization of report writing for their research papers/dissertations.

F. MONITORING OF RESEARCH ACTIVITIES OF YEAR 4

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

G. OVERALL ASSESSMENT OF PERFORMANCE OF TRAINEES DURING R4

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

H. EVALUATION/FEEDBACK OF RESEARCH COURSE OF YEAR 4

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

- i. ***The end of year R-Y4 and end of four years' research training feedback of trainees*** will include structured evaluation through feedback questionnaire not only 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;*** one of the R-Y4 trainees, second of the concerned facilitators and third of the supervisors will also be organized by the ORIC to evaluate the entire four year's research course, its benefits and weaknesses and scope for improvement.
- iv. ***Self evaluation Performa's of trainees:*** By the end of the fourth year of training, *End of training competency assessment Performa's* will be administered where the trainees will provide information that will help to assess their status of proficiencies and knowledge in various aspects of research that can be compared with the baseline statuses. These Performa's will not only enable the trainees and the trainers to have a comprehension of any change in their knowledge and skills in research and will also will be quantitatively reflect upon the direction and extent of change. The information gathered will be kept confidential for each trainee and will be scored to quantitatively compare to the *end of training competency assessment Performa's*
- v. ***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.
- vi.

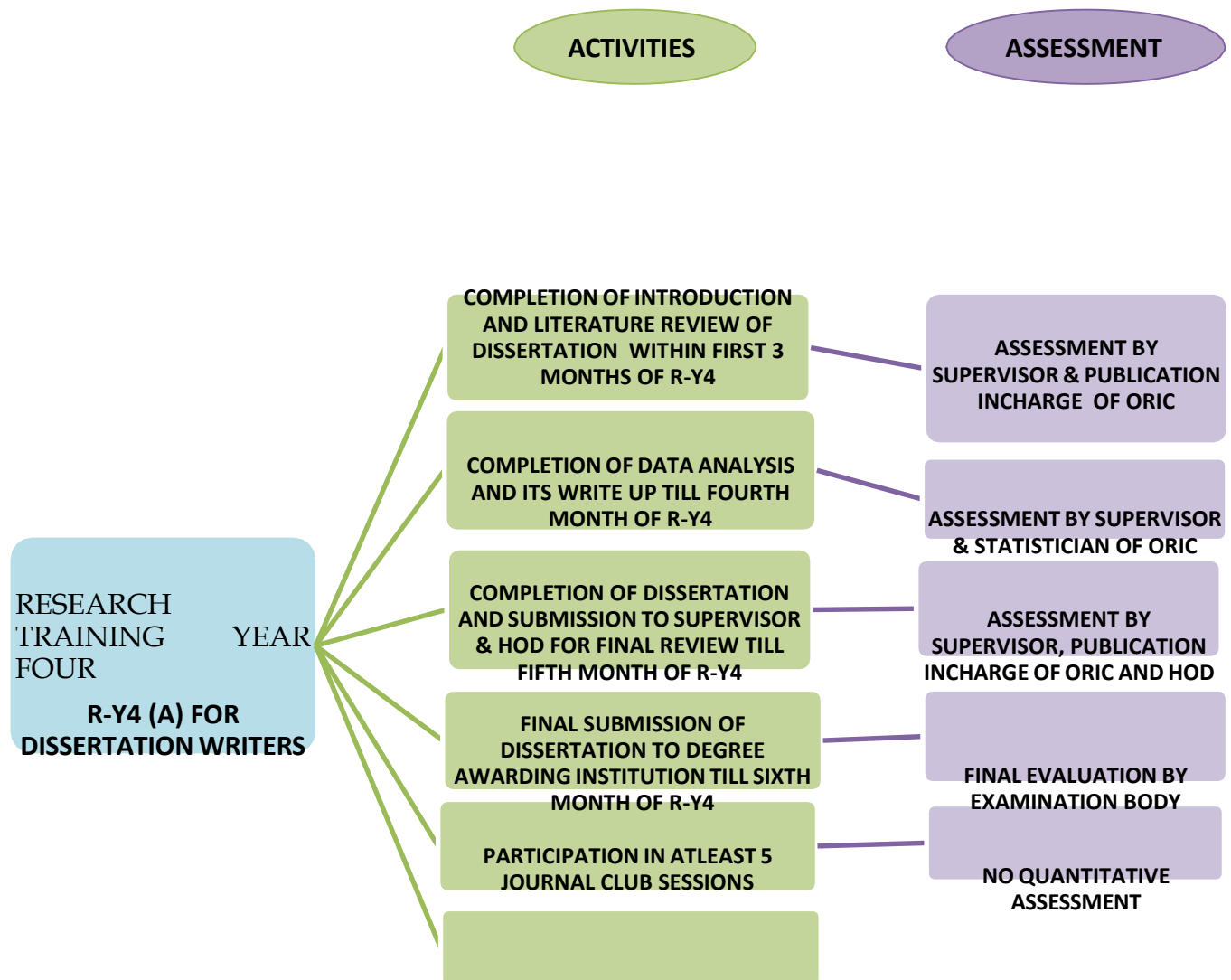
I. ***QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 4***

- 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.

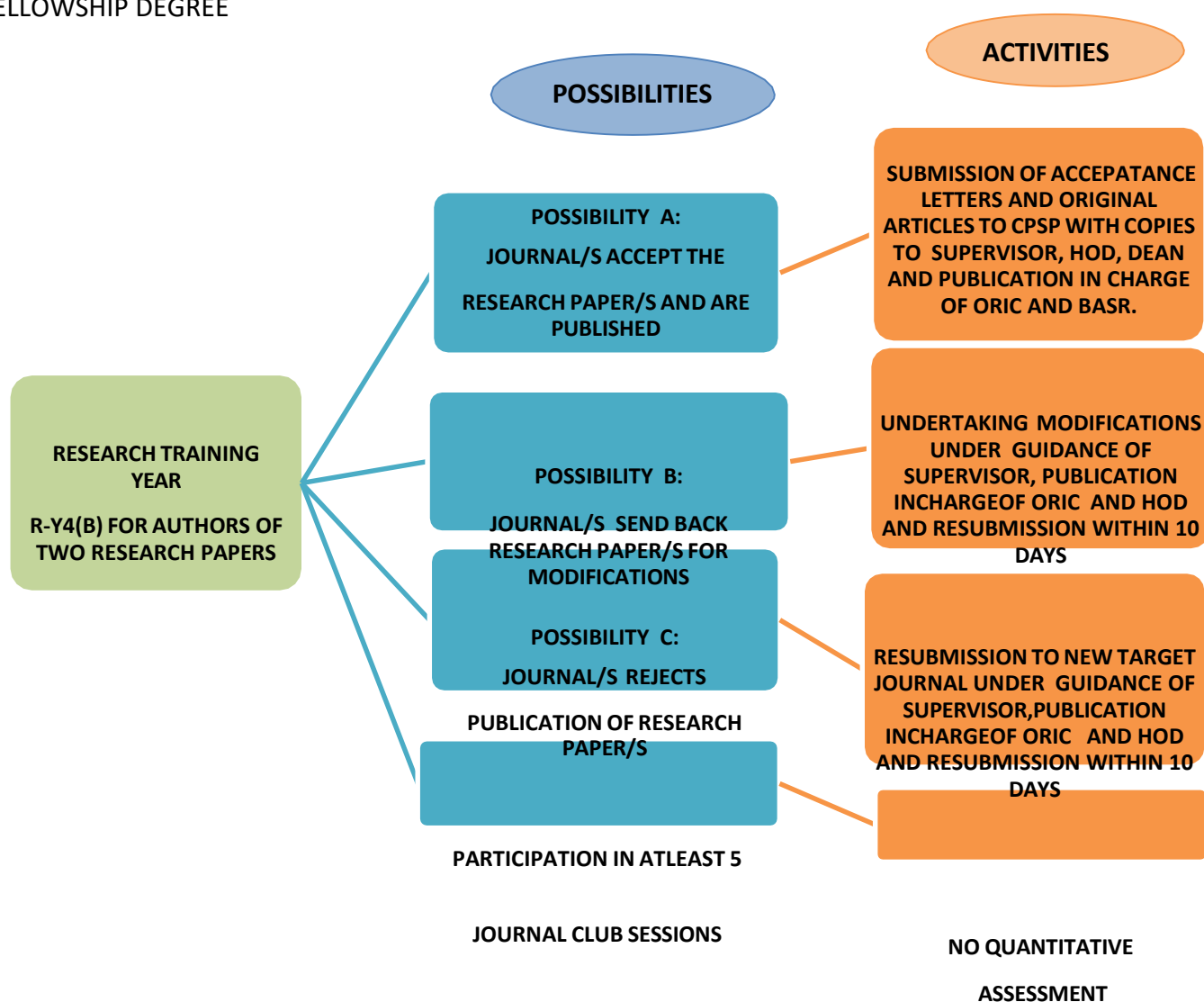
Figure 5 (A). A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS

OF R-Y4 POST GRADUATE/MD TRAINEE OF RMU WHO WILL OPT FOR DISSERTATION WRITING



ONE WEEK ROTATION
(for MD/MS Scholars only)

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



ANNEXURE 1.

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

A. THE VICE CHANCELLOR:

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

B. MEMBERS OF BOARD OF ADVANCED STUDIES AND RESEARCH:

1. The Board of Advanced studies and Research of RMU will finalize, approve and issue final approval list of the supervisors of the trainees of RMU.
2. The Board of Advanced Studies and Research (BASR) of RMU will receive the submitted research proposals

of MD scholars of RMU for appraisal. BASR will issue an acceptance letter of the research proposal endorsed by the Vice chancellor of RMU copied to the concerned stake holders and authorities including office of Dean and ORIC. If members of BASR will find any modifications required in the proposal they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal to BASR within next one-week period. The written approval letter of BASR will then be issued within next two weeks to the trainee. The trainees will thus receive formal permission to initiate data collection phase through this acceptance of BASR.

3. The quality evaluation team of research training course will include selected representatives of BASR who will be nominated and selected by BASR and Vice chancellor of RMU. The members may pay random visits for physical observation of the proceedings and materials of all the research related activities of the trainees and supervisors for quality assessment and assurance.
4. The copies of research papers or dissertations submitted by post graduate trainees following option of publication of two original articles to CPSP accredited journals will also be submitted to the chairperson of BASR for quality assessment to be observed as confidential evidences
5. Representative members of BASR will attend the annual meeting of Quality assurance, by end of each research training year and will also share their experiences of their evaluation visits and observations to validate the existing materials.
6. The quality of Research Training course will be stringently determined by BASR in their meetings and the members will provide recommendations for further quality enhancement and will have the authority for policy formulation or modification regarding the research training course.

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

1. Institutional Research Ethics Forum will organize monthly meetings for approval of research proposals of the trainees of RMU in which the trainee must present along with his/her supervisor for presentation and defense of proposals of dissertations/research papers.
2. The members will be provided hard copies of the research proposals prior to the meetings that they will

review before coming to the meeting.

3. Members will listen and visualize five to ten minutes' presentation through power-point by the trainees and by the end of presentation will make relevant queries to the trainees.
4. The IREF will appraise and scrutinize every aspect of the proposal/s and if found acceptable then will provide on spot verbal approval of the project followed by written approval letter within next two weeks to the trainees.
5. If members of IREF will find any modifications required in the proposal/s they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal/s within next one week's period.
6. The written approval letter of IREF will be issued within next two weeks of meeting, to the trainee.
7. In case the trainee will be working on option B of CPSP i.e. publication of two research papers, instead of writing dissertation, then he/she will present both research proposals to IREF for the two topics already approved by CPSP.
8. The quality evaluation team of research training course will include selected representatives of IREF who will be nominated and selected by chairperson of IREF and Vice chancellor of RMU. The members may pay random visits for physical observation of the proceedings and materials of all the research related activities of the trainees and supervisors for quality assessment and assurance.
9. Representative members of IREF will attend the annual meeting of Quality assurance, by end of each research training year and will also share their experiences of their evaluation visits and observations to validate the existing materials.
10. The quality of Research Training course will be stringently determined by IREF in their meetings and the members will provide recommendations for further quality enhancement to BASR, if any, regarding research training course.

D. THE DEAN OF THE SPECIALITY:

1. The Journal club meetings will be chaired by the Dean of 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. The batches of MD/MS scholars for rotation at ORIC during year 1 will be formulated by the Dean, ensuring that trainees for the rotation are selected in a way that the clinical and academic activities at each department are not effected with ample number of trainees left in the meanwhile at each department.
 14. 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.
 15. 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.
 16. 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.
 17. 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.
 18. The clinical audits completed in groups will be published as Annual Audit Reports of the departments by the Dean
 19. The Dean will make the decision regarding the presentation of clinical audit weekly Clinico-pathological conferences (CPC) of the University.
 20. 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.

21. 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.
22. 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.
23. 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.
24. 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
25. 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.
26. 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 specialty for evidence.
27. The Dean of specialty 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.
28. 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 OF EACH SPECIALITY/SCIENCES:

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 research workshops during 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 Director of ORIC will supervise the rotations of the MD/MS trainees during each training year and will ensure their maximum participation and their utmost facilitation. In case of switching or swapping the batch by the trainees due to any absence or leave or any other justifiable issue, Director ORIC will have the final right of decision and awarding writing permissions. Director ORIC will also reformulate the batches of rotation from second year of training onwards with an attempt to create homogeneity in the batches based on the study designs.
12. 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.
13. 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 workshops 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 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.
7. 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.
8. The deputy directors will be continuously involved in an alert and continuous monitoring of all the scholarly activities of each trainee.
9. 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.
10. 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 workshops during 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 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. 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.
7. 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.
8. 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.
9. 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
10. 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.
11. 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.
12. 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.

13. 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.
14. In case the dissertation is sent back with recommended corrections or modifications, research associates at ORIC will guide the trainee along with supervisor on urgent basis to get it rectified and resubmitted within at least 10 days' time.

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

1. The Publication in charge will be actively involved in the Research training course and for the academic sessions relevant to literature search, review and write up, he/she will take didactic lectures, followed by facilitating individual and group exercises and checking of relevant home tasks and assignments.
2. The post graduate trainees and MD scholars submit a copy of their finalized research proposal/s for the dissertation/research papers to the publication in charge of ORIC who will review for plagiarism through turn-it-in soft ware. Any proposal that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission. Only when the eligible scores will be reached, then the publication in charge will approve and the proposal will be further processed.
3. The publication in charge of ORIC will also guide the trainees to write the literature review sections and the section of "Discussion" based on the comparison of the findings of their study with the previously available research nationally as well as internationally.
4. The final research papers/dissertations of trainees will also be reviewed by publication in charge of ORIC for plagiarism through turn-it-in soft ware. Any article that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission. Only when the eligible scores will be reached, then the trainee will be allowed to proceed further and to submit their research in the form of original articles under continuous assistance of Publication unit of ORIC.
5. In case the research paper/s of trainees is/are sent back with recommended corrections or modifications publication in charge along with the supervisor and concerned facilitators at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time.
6. In case any of the paper of trainee is refused publication by a journal then the publication unit at ORIC along with the supervisor and concerned facilitators at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time and not delaying it all.

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

1. The statisticians at the Data Analysis Unit of ORIC at data analysis centre of ORIC will also be actively involved in the Research training course specifically those of **Basic and advanced Biostatistics and Epidemiological concepts**. The statisticians will take didactic lectures, followed by facilitating individual and group exercises and checking of relevant home tasks and assignments.
2. The statisticians will facilitate the trainees in sample size calculation through sample size calculators according to 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 soft wares and will be continuously assisted in the process till data entry is completed.
5. The trainees will perform the data analysis of their research projects for research papers or dissertations, under continuous guidance and supervision of the statisticians who will also guide them how to interpret analyzed files and to write up results in textual forms, tabulated versions or figures/graphs.
6. In case the research paper/s or dissertation/s of trainees is/are sent back with recommended corrections or modifications in results section then the statisticians along with the supervisor, publication in charge and concerned facilitators at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time.

K. STAFF OF DEPARTMENT OF MEDICAL EDUCATION:

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

L. THE SUPERVISOR OF THE TRAINEE FOR THE DISSERTATION PROJECT

1. The supervisor of the trainee must be nominated within first six months of the research training. The Dean of the specialty will decide the nomination of the supervisor for the post graduate trainee as well as MD scholars. In this regards a meeting will be held that will be attended by all heads of the departments and the Dean. The list of all the first year trainees and the available supervisors in each department will be presented by respective heads of each department in meeting. All of the eligible trainees and supervisors will also be around for brief interviews during the meeting. The supervisor for the trainee will be nominated based the the level of performance, talent personality and temperament of both the trainees and the supervisors by the HOD. If the supervisor will also be willing to happily supervise the trainee, then the Dean will finally approve the nomination, apart from other requirements.
2. After finalization of nominations a letter of agreement of supervision will be submitted by the trainee to the office of Dean, including consent and endorsement of both trainee and the internal and/or external supervisor, with copies to HOD, ORIC and BASR.
3. The supervisor will be bound to meet with the trainee, on weekly basis exclusively for research activity and will document the activity performed during the meeting in the log book along with endorsement.
4. During ninth month of training year 1; R-Y1 the supervisor/s will supervise trainees together in groups and will

undertake clinical audit on various aspects of the department as a project assignment, on one topic assigned to each group by the Dean and Heads of Departments. The contribution of the post graduate trainees'/ MD trainees in audits will be qualitatively assessed by the supervisors and the head of departments.

5. The supervisor will keep vigilant and continuous monitoring of all the research related academic activities of each trainee.
6. The supervisors will provide their feedback through structured and anonymous feedback forms/questionnaire, including closed and partially closed questions that will be regularly provided by them. They will provide their inputs and opinions regarding effectiveness of the course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.
7. One Focus group discussion of supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement, each year.
8. The supervisor will keep a close and continuous check on the Log books, Research portfolio of the trainee and will endorse it regularly. Based on his/her observations, the supervisor will evaluate the performance of the trainee and will discuss it in monthly meeting with the Head of Department or Dean of the specialty 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 defense 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 center of specialty.

17. Whether the trainee is opting for dissertation writing or research paper publication, the supervisor will ensure that every step and procedure is being followed effectively and timely meeting all set requirements as per standard operational procedures.
18. The supervisor will actively assist the trainee in write up of dissertation/ research papers.
19. The trainee should submit final draft of dissertation to the supervisor till end of fifth month of year 4 for final modifications. Since the supervisor will be incessantly involved in every aspect of the project since the beginning and will be persistently guiding the procedure, so he/she should not take more than 10 days to give final review to dissertation of the trainee with written feedback that will be entered in a structured performa with recommendations for improvement or corrections.
20. In case the dissertation or research paper/s is/are sent back with recommended corrections or modifications, the supervisor will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time. In case any of the paper is refused publication by a journal even then the supervisor will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time and not delaying it all.
21. In case the research paper/s is/are sent back with recommended corrections or modifications, the supervisor will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days

time. In case any of the paper is refused publication by a journal even then the supervisor and publication unit at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time and not delaying it all.

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

SECTION VI

ROTATIONS

Framework of Rotations during Gastroenterology Training

Detail rotation planner for university residents

Year	Departments	Duration
1 st & 2 nd Year	Cardiology	2 Months
	ICU	2 Months
	Dermatology	2 Months
3 rd , 4 th & 5 th year	Radiology	2 Months
	Histopathology	1 Month
	GI Oncology	1 Month
	LT/GI Surgery	2 Months

SECTION VII

TRAINING MILESTONES

Charting the Road to Competence:

Developmental Milestones for Gastroenterology Residency Program

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

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

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 <ul style="list-style-type: none">Manage patients using clinical skills of interviewing and physical examinationDemonstrate competence in the performance of proceduresAppropriately use laboratory and imaging techniques	Historical data gathering		
	1.Acquire accurate and relevant history from the patient in an efficiently customized, prioritized, and hypothesis driven fashion	4	<ul style="list-style-type: none">Standardized patientDirect observation
	2. Seek and obtain appropriate, verified, and prioritized data from secondary sources (eg, family, records, pharmacy)	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	
	4.Role model gathering subtle and reliable information from the patient for junior members of the healthcare team	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	4	<ul style="list-style-type: none">Standardized patientDirect observationSimulation
	2.Accurately track important changes in the physical examination over time in the outpatient and inpatient settings	6	
	3. Demonstrate and teach how to elicit important physical findings for junior members of the healthcare team	16	
	4.Routinely identify subtle or unusual physical findings that may influence clinical decision making, using advanced maneuvers where applicable	30	
	Clinical reasoning		
	1. Synthesize all available data, including interview, physical examination, and preliminary laboratory data, to define each patient’s central clinical problem	12	
	2. Develop prioritized differential diagnoses, evidence- based diagnostic and	12-16	

	therapeutic plan for common inpatient and ambulatory conditions		<ul style="list-style-type: none">• Chart-stimulated recall• Direct observation• Clinical vignettes
	3.Modify differential diagnosis and care plan based on clinical course and data as appropriate	16	
	4.Recognize disease presentations that deviate from common patterns and that require complex decision making.	18	
	Invasive procedures		
	1. Appropriately perform invasive procedures and provide post-procedure management for common procedures	24	<ul style="list-style-type: none">• Simulation• Direct observation
B. Delivery of patient-centered clinical care <ul style="list-style-type: none">• Manage patients with progressive responsibility• Manage patients across the spectrum of clinical diseases seen in the practice of general internal medicine• Manage patients in a variety of health care settings to include the inpatient ward, critical care units, the ambulatory setting, and the emergency setting• Manage undifferentiated	Diagnostic tests		
	1.Make appropriate clinical decisions based on the results of common diagnostic testing including but not limited to routine blood chemistries, hematologic studies, coagulation tests, arterial blood gases, ECG, chest radiographs, pulmonary function tests, urinalysis and other body fluids	6	<ul style="list-style-type: none">• Chart-stimulated recall• Standardized tests• Clinical vignettes
	2.Make appropriate clinical decision based on the results of more advanced diagnostic tests	12	
	Patient management		
	1.Recognize situations with a need for urgent or emergent medical care, including life-threatening conditions	4	<ul style="list-style-type: none">• Simulation• Chart-stimulated recall• Multisource feedback• Direct observation• Chart audit
	2. Recognize when to seek additional guidance	6	
	3.Provide appropriate preventive care and teach patient regarding self-care	6	
	4. With supervision, manage patients with common clinical disorders seen in the practice of inpatient and ambulatory gastroenterology	6	
	5. With minimal supervision, manage patients with common and complex clinical disorders seen in the practice of inpatient and ambulatory clinical gastroenterology	16	
6. Initiate management and stabilize patients with emergent gastrointestinal conditions	6		

<div>acutely and severely ill patients</div> <ul style="list-style-type: none">•Manage patients in the prevention, counseling, detection, diagnosis, and treatment of gender-specific diseases• Manage patients as a consultant to other physicians	7.Manage patients with conditions that require intensive care	30	
	8.Independently manage patients with a broad spectrum of clinical disorders seen in the practice of clinical gastroenterology	30	
	9. Manage complex or rare gastrointestinal conditions	30	
	10.Customize care in the context of the patient’s preferences and overall health	30	
	<div></div> <div>Consultative care</div> <div></div>		
	1. Provide specific, responsive consultation to other services	30	<ul style="list-style-type: none">• Simulation• Chart-stimulated recall• Multisource feedback• Direct observation• Chart audit
	2.Provide gastrointestinal consultation for patients with more complex clinical problems requiring detailed risk assessment	30	

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 gastroenterology and its subspecialties • Demonstrate a level of expertise in the knowledge of those areas appropriate for a gastroenterologist • Demonstrate sufficient knowledge to treat gastrointestinal	Knowledge of core content		
	1. Understand the relevant pathophysiology and basic science for common gastrointestinal conditions	6	• Direct observation • Chart audit • Chart-stimulated recall • Standardized tests
	2. Demonstrate sufficient knowledge to diagnose and treat common conditions that require hospitalization	12	
	3. Demonstrate sufficient knowledge to evaluate common ambulatory conditions	18	
	4. Demonstrate sufficient knowledge to diagnose and treat undifferentiated and emergent conditions	30	
	5. Demonstrate sufficient knowledge to provide preventive care	24	
	6. Demonstrate sufficient knowledge to identify and treat gastrointestinal conditions that require intensive care	12	
	7. Demonstrate sufficient knowledge to evaluate complex or rare	30	

conditions commonly managed by gastroenterologist , provide basic preventive care, and recognize and provide initial management of emergency gastrointestinal problems	gastrointestinal conditions and multiple coexistent conditions		
	8.Understand the relevant pathophysiology and basic science for uncommon or complex gastrointestinal conditions	24	
	9. Demonstrate sufficient knowledge of socio behavioral sciences including but not limited to health care economics, medical ethics, and medical education	36	
B. Common modalities used in the practice of gastroenterology & Demonstrate sufficient knowledge to interpret basic clinical tests and images, use common pharmacotherapy, and appropriately use and perform diagnostic and therapeutic procedures.	Diagnostic tests		
	1.Understand indications for and basic interpretation of common diagnostic testing, including but not limited to routine blood chemistries, hematologic studies, coagulation tests, arterial blood gases, ECG, chest radiographs, metabolic & auto immune hepatic profile GI serological & stool tests ,and other body fluids	4-6	<ul style="list-style-type: none">• Chart-stimulated recall• Standardize d tests• Clinical vignettes
	2.Understand indications for and has basic skills in interpreting more advanced diagnostic tests	18	
	3.Understand prior probability and test performance characteristics	24	

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

Competency	Developmental Milestones Informing Competencies	Approximate Time Frame Trainee Should Achieve Stage (months)	General Evaluation Strategies Assessment Methods/ Tools
A. Learning and improving via audit of performance&Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement	Improve the quality of care for a panel of patients		
	1.Appreciate the responsibility to assess and improve care collectively for a panel of patients	16	<ul style="list-style-type: none">• Several elements of quality improvement project• Standardized tests
	2.Performor review audit of a panel of patients using standardized, disease-specific, and evidence based criteria	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	24	
	4.Identify areas in resident’s own practice and local system that can be changed to improve effect of the processes and outcomes of care	18	
	5.Engage in a quality improvement intervention	30	
B. Learning and improvement via answering clinical questions from patient scenarios <ul style="list-style-type: none">• Locate, appraise, and assimilate evidence from scientific studies related to their patients’ health problems;• Use information technology to optimize learning	Ask answerable questions for emerging information needs		
	1.Identify learning needs (clinical questions) as they emerge in patient care activities	8	<ul style="list-style-type: none">• Evidence-based medicine evaluation instruments• EBM mini-CEX
	2. Classify and precisely articulate clinical questions	12	
	3.Develop a system to track, pursue, and reflect on clinical questions	32	

			<ul style="list-style-type: none">Chart-stimulated recall
Acquires the best evidence			
1. Access medical information resources to answer clinical questions and support decision making	12	<ul style="list-style-type: none">Evidence-based medicine evaluation instrumentsEBM mini-CEXChart-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	24		
4.Appraise the quality of medical information resources and select among them based on the characteristics of the clinical question	36		
Appraises the evidence for validity and usefulness			
1.With assistance, appraise study design, conduct, and statistical analysis in clinical research papers	8	<ul style="list-style-type: none">Evidence-based medicine evaluation instrumentsEBM mini-CEXChart-stimulated recall	
2. With assistance, appraise clinical guidelines	24		
3. Independently appraise study design, conduct, and statistical analysis in clinical research papers	30		
4. Independently, appraise clinical guideline recommendations for bias and cost-benefit considerations	30		
Applies the evidence to decision-making for individual patients			
1.Determine if clinical evidence can be generalized to an individual patient	16	<ul style="list-style-type: none">Evidence-based medicine evaluation instrumentsEBM mini-CEXChart-stimulated recall	
2.Customize clinical evidence for an individual patient	24		
3.Communicate risks and benefits of alternatives to patients	30		
4. Integrate clinical evidence, clinical context, and patient preferences into decision making	30		

C. Learning and improving via feedback and self-assessment <ul style="list-style-type: none">Identify strengths, deficiencies, and limits in one’s knowledge and expertiseSet learning and improvement goalsIdentify and perform appropriate learning activitiesIncorporate formative evaluation feedback into daily practiceParticipate in the education of patients, families, students, residents, and other health professionals	<i>Improves via feedback</i>		
	1. Respond welcomingly and productively to feedback from all members of the health care team including faculty, peer residents, students, nurses, allied health workers, patients, and their advocates	12	<ul style="list-style-type: none">Multi source feedbackSelf-evaluation forms with action plans
	2. Actively seek feedback from all members of the health care team	24	
	3. Calibrate self-assessment with feedback and other external data	30	
	4. Reflect on feedback in developing plans for improvement	32 /3 0	
	<i>Improves via self-assessment</i>		
	1. Maintain awareness of the situation in the moment ,and respond to meet situational needs	30	<ul style="list-style-type: none">Multi source feedbackReflective practice surveys
	2. Reflect (inaction) when surprised, applies new insights of true clinical scenarios, and reflects (on action) back on the process	48 /3 0	
	<i>Participates in the education of all members of the health care team</i>		
	1. Actively participate in teaching conferences	16	<ul style="list-style-type: none">OSCE with standardized learnersDirect observationPeer evaluation
	2. Integrate teaching, feedback, and evaluation with supervision of interns’ and students’ patient care	30	
	3. Take a leadership role in the education of all members of the health care team.	30	
Developmental Milestones for gastroenterology Training—Interpersonal and Communication Skills			
Competency	Developmental Milestones Informing Competencies	Approximate Time Frame Trainee Should Achieve Stage (months)	General Evaluation Strategies

			Assessment Methods/ Tools
A. Patients and family Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds	<i>Communicate effectively</i>		
	1. Provide timely and comprehensive verbal and written communication to patients/advocates	6	<ul style="list-style-type: none">• Multi source feedback• Patient surveys• Direct observation• Mentored self-reflection
	2. Effectively use verbal and non verbal skills to create rapport with patients/families	6	
	3. Use communication skills to build a therapeutic relationship		
	4. Engage patients/advocates in shared decision making for uncomplicated diagnostic and therapeutic scenarios	12	
	5. Use patient-centered education strategies	32	
	6. Engage patients/advocates in shared decision making for difficult, ambiguous, or controversial scenarios	32	
	7. Appropriately counsel patients about the risks and benefits of tests and procedures, highlighting cost awareness and resource allocation	24	
	8. Role model effective communication skills in challenging situations	30	
	<i>Inter cultural sensitivity</i>		
	1. Effectively use an interpreter to engage patients in the clinical setting ,Including patient education	8	<ul style="list-style-type: none">• Multisource feedback• Direct observation• Mentored self-reflection
	2. Demonstrate sensitivity to differences in patients including but not limited to race, culture, gender, sexual orientation, socioeconomic status, literacy, and religious beliefs	12	
	3. Actively seek to understand patient differences and views and reflects his in respectful communication and shared decision-making with the patient and the	30	

	health care team		
B. Physicians and other health care professionals <ul style="list-style-type: none">Communicate effectively with physicians, other health professionals, and health-related agenciesWork effectively as a member or leader of a health care team or other professional groupAct in a consultative role to other physicians and health professionals	Transitions of care		
	1.Effectively communicate with other care givers in order to maintain appropriate continuity during transitions of care	16	<ul style="list-style-type: none">Multisource feedbackDirect observationSign-out form ratingsPatient surveys
	2.Role model and teach effective communication with next care givers during transitions of care	32/ 30	
	Interprofessional team		
	1. Deliver appropriate, succinct, hypothesis-driven oral presentations	8	<ul style="list-style-type: none">Multisource feedback
	2.Effectively communicate plan of care to all members of the healthcare team	16	
	3.Engage in collaborative communication with all members of the healthcare team	40 /3 0	
	Consultation		
	1. Request consultative services in an effective manner	8	<ul style="list-style-type: none">Multisource feedbackChart audit
	2.Clearly communicate the role of consultant to the patient, in support of the primary care relationship	16	
	3. Communicate consultative recommendations to the referring team in an effective manner	48/ 30	
C. Medical records <ul style="list-style-type: none">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	<ul style="list-style-type: none">Chart audit
	2. Ensure succinct, relevant, and patient-specific written communication	32/ 12	

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. Physician-ship <ul style="list-style-type: none">Demonstrate compassion, integrity, and the profession	Adhere to basic ethical principles		
	1. Document and report clinical information truthfully	1.5/6	<ul style="list-style-type: none">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	<ul style="list-style-type: none">Multisource feedback
	2. Demonstrate a commitment to relieve pain and suffering	4	
	3. Provide support (physical, psychological, social, and spiritual) for dying patients and their families	32/30	
	4. Provide leadership for a team that respects patient dignity and autonomy	32/30	
	Provide timely, constructive feedback to colleagues		
	1.Communicate constructive feedback to other members of the healthcare team	16	<ul style="list-style-type: none">Multisource feedbackMentored self-reflectionDirect observation
	2.Recognize,respondto,and report impairment in colleagues or substandard care via peer review process	24/12	

Maintain accessibility		
1. Respond promptly and appropriately to clinical responsibilities including but not limited to calls and pages	1.5/12	<ul style="list-style-type: none">• Multisource feedback
2. Carryout timely interactions with colleagues, patients, and their designated caregivers	8	
Recognize conflicts of interest		
1. Recognize and manage obvious conflicts of interest, such as caring for family members and professional associates as patients	8	<ul style="list-style-type: none">• Multisource feedback• Mentored self-reflection• Clinical vignettes
2. Maintain ethical relationships with industry	40/30	
3. Recognize and manage subtler conflicts of interest	40/30	
Demonstrate personal accountability		
1. Dress and behave appropriately	1.5/4	<ul style="list-style-type: none">• 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. Recognize the scope of his/her abilities and ask for supervision and assistance appropriately	16/12	
6. Serve as a professional role model for more junior colleagues(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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Multisource feedback

B. Patient-centeredness <ul style="list-style-type: none">• Respect for patient privacy and autonomy Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation	<i>Respect the dignity, culture, beliefs, values, and opinions of the patient</i>		
	1.Treat patients with dignity, civility and respect, regardless of race, culture, gender, ethnicity, age, or socio economic status	15	<ul style="list-style-type: none">• Multisource feedback• Direct observation
	2. Recognize and manage conflict when patient values differ from their own	40/30	
	<i>Confidentiality</i>		
	1. Maintain patient confidentiality	15/4	<ul style="list-style-type: none">• Multisource feedback• Chart audits
	2. Educate and hold others accountable for patient confidentiality	24/12	
	<i>Recognize and address disparities in health care</i>		
	1.Recognize that disparities exist in healthcare among populations and that they may impact care of the patient	16	<ul style="list-style-type: none">• Multisource feedback• Direct observation• Mentored self-reflection
	2.Embrace physicians’ role in assisting the public and policy makers in understanding and addressing causes of disparity in disease and suffering	40/30	
	3. Advocates for appropriate allocation of limited health care resources.	40/30	

Developmental Milestones for gastroenterology training - SYSTEM-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 <ul style="list-style-type: none">• Work effectively in various health care delivery settings and systems relevant to their clinical practice• Coordinate patient care within the health care system relevant to their clinical specialty• Work in interprofessional teams to enhance patient safety and improve patient care quality• Work in teams and effectively transmit necessary clinical information to ensure safe and proper care of patients, including the transition of care between settings	Works effectively within multiple health delivery systems		
	1.Understand unique roles and services provided by local health care delivery systems.	16	<ul style="list-style-type: none">• Multisource feedback• Chart-stimulated recall• Direct observation
	2.Manage and coordinate care and care transitions across multiple delivery systems, including ambulatory, subacute, acute, rehabilitation, and skilled nursing.	32 /3 0	
	3.Negotiate patient-centered care among multiple care providers.	48 /3 0	
	Works effectively within an interprofessional team		
	1. Appreciate roles of a variety of healthcare providers, including but not limited to consultants, therapists, nurses, home care workers, pharmacists, and social workers.	8	<ul style="list-style-type: none">• Multisource feedback• Chart-stimulated recall• Direct observation
	2. Work effectively as a member within the interprofessional team to ensure safe patient care.	8	
	3. Consider alternative solutions provided by other teammates	16/ 24	
	4.Demonstrate how to manage the team by using the skills and coordinating the activities of interprofessional team members.	48 /3 0	
	B. Improving health care delivery <ul style="list-style-type: none">• Advocate for quality patient care and optimal patient care systems• Participate in identifying system	Recognizes system error and advocates for system improvement	
1.Recognize health system forces that increase the risk for error including barriers to optimal patient care		16	<ul style="list-style-type: none">• Multisource feedback• Quality improvement project
2.Identify,reflecton,and learn from critical incidents such as near misses and preventable medical errors		16/ 30	
3.Dialogue with care team members to identify risk for and prevention of medical error		32 /3	

errors and implementing potential systems solutions <ul style="list-style-type: none">Recognize and function effectively in high-quality care system		0		
	4.Understand mechanisms for analysis and correction of systems errors	32/30		
	5. Demonstrate ability to understand and engage in a system-level quality improvement intervention.	48/30		
	6.Partner with other healthcare professionals to identify, 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 population- based care as appropriate	Identifies forces that impact the cost of healthcare and advocates for cost-effective care			
	1. Reflect awareness of common socioeconomic barriers that impact patient care.	16/6	<ul style="list-style-type: none">Standardized examinationsDirect observationChart-stimulated recall	
	2. Understand how cost-benefit analysis is applied to patientcare(ie, via principles of screening tests and the development of clinical guidelines)	16/6		
	3. Identify the role of various health care stakeholders including providers, suppliers, financiers, purchasers, and consumers and their varied impact on the cost of and access to healthcare.	32/12		
	4. Understand coding and reimbursement principles.	32/30		
	Practices cost-effective care			
	1. Identify costs for common diagnostic or therapeutic tests.	8	<ul style="list-style-type: none">Chart-stimulated recall	
	2. Minimize unnecessary care including tests, procedures, therapies, and ambulatory or hospital encounters	8/6		
		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	

SECTION VIII
ASSESSMENT AND EVALUATION

Definition of Assessment:

The ACGME (Accreditation Council for Graduate Medical Education) defines assessment as the process of gathering, analyzing, and using data to evaluate the progress of residents and fellows in achieving the competencies required for their specialty.

Evaluation:

The ACGME (Accreditation Council for Graduate Medical Education) defines evaluation as the systematic process of reviewing and assessing the effectiveness of a residency or fellowship program, including its curriculum, teaching methods, and resources, to ensure it meets accreditation standards and provides quality education. Evaluation also involves assessing the progress and performance of residents, ensuring they achieve the required competencies, and identifying areas for improvement in both the individual learner and the overall program.

Difference Between Assessment and Evaluation:

In contrast to assessment, which focuses on evaluating individual learner performance, evaluation often refers to broader program-level analysis and decision-making. It includes feedback from multiple sources, such as faculty, peers, and patients, to guide both educational improvements and decisions about a program's overall effectiveness.

Types of Assessments

- **Formative Assessment:** “Formative assessment is intended to provide ongoing feedback to the learner about their performance with the goal of improving performance. It includes opportunities for feedback and reflection that allow learners to monitor their progress in acquiring the competencies and to make adjustments to improve their performance

- **Summative Assessment:** “Summative assessment is intended to assess whether a learner has met specific milestones or competencies at a particular point in time, typically at the conclusion of a learning period (e.g., end of the year, graduation). It is used to determine whether the learner is competent to progress to the next stage of training or to achieve board certification.”
- **Continuous Internal Assessment:** “Continuous internal assessment is a system of regular, ongoing evaluation that provides a comprehensive picture of the learner’s progress over time. This process ensures that feedback is provided regularly, allowing the learner to make adjustments to their learning and improve performance before final summative assessments. Continuous internal assessment includes assessments from multiple sources, such as faculty, peers, self-assessment, and patient feedback.”

Resident Assessment Methods

Tools of Assessment

I. Formative Assessment/ Workplace-Based Assessments

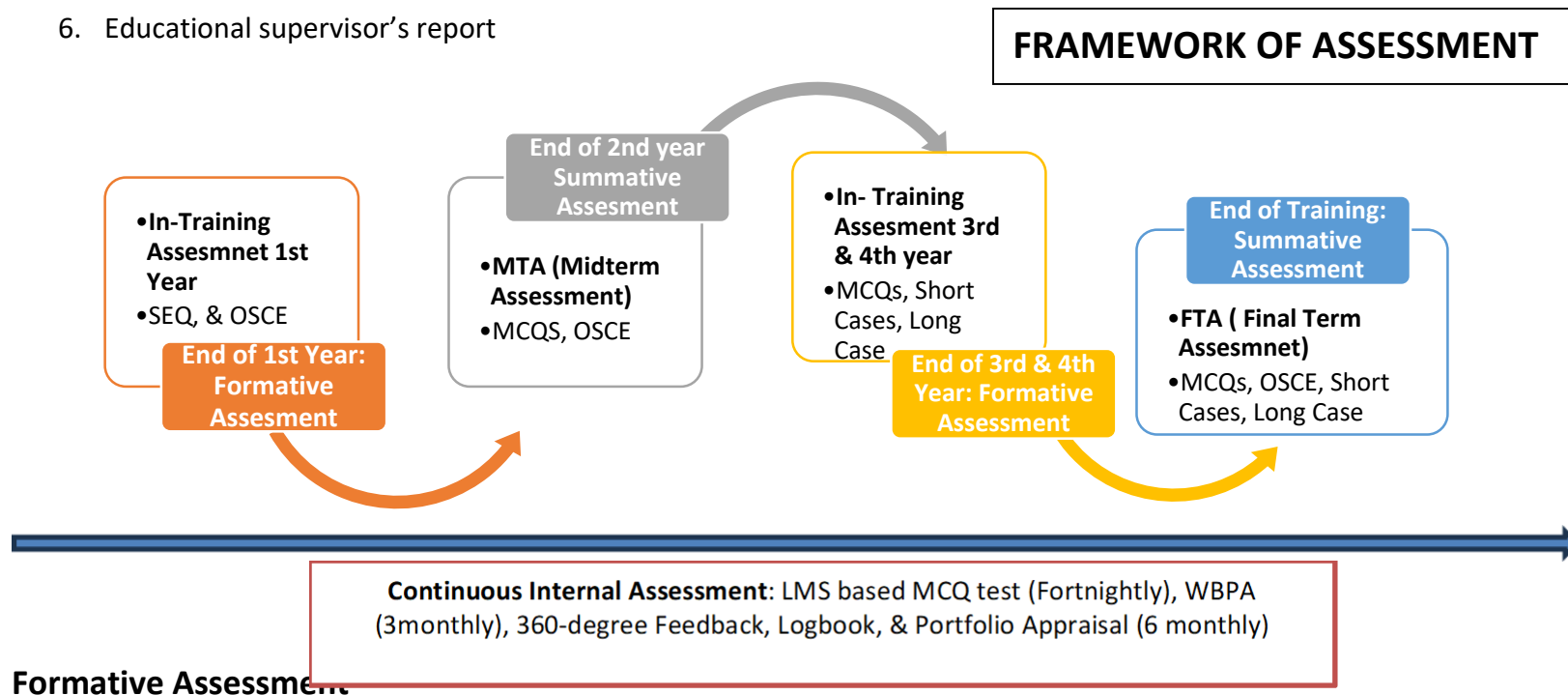
1. Multi-Source Feedback
2. min- CEX
3. CBD
4. ACAT
5. Direct Observation of Procedural Skills (DOPS)

More information about these methods including guidance for trainees and assessors is available in the Portfolio. Workplace-based assessments will be entered in the trainee’s e-portfolio. The workplace-based assessment methods include feedback opportunities as an integral part of the assessment process.

Schedule of Formative Assessment/ Workplace-Based Assessments

The formative assessment will be conducted biannually (internal and external evaluation), in the form of workplace-based assessment through the following tools:

1. DOPS
2. CBD
3. Min-CEX
4. multi-source feedback
5. Attendance record
6. Educational supervisor's report



In training assessment for first year

1. All candidates admitted in MD Gastroenterology course shall appear in an examination at the end of first calendar year.
2. The examination will be composed of SEQs and OSCE.
3. The pass percentage will be 60%.

Midterm Assessment

1. All candidates admitted in MD Gastroenterology course shall appear in Midterm examination at the end of second calendar year.
2. The examination shall be held on biannual basis.
3. The candidate who fails to pass the examination in 3 consecutive attempts availed or un-availed, shall be dropped from the course.
4. The examination shall have two components:
 - Paper-I MCQs 75 Marks
 - Paper-II MCQs 75 Marks
 - OSCE 150 Marks (15 Interactive stations)
5. Subjects to be examined shall be Basic Principle of Internal General Medicine including (Anatomy, Physiology, Biochemistry, Pathology, Pharmacology), Coronary care, Basic Pulmonology, Basic Dermatology, Nephrology, Neurology, Endocrinology, Psychiatry, Gastroenterology, Geriatric medicine and community health.
6. Only those candidates, who pass in theory papers, will be eligible to appear in the OSCE.
7. The candidates, who have passed written examination but failed in OSCE, will re-appear only in OSCE.
8. The maximum number of attempts to re-appear in OSCE alone shall be three, after which the candidate shall have to appear in both written and OSCE as a whole.
9. To be eligible to appear in midterm assessment the candidate must submit;
 - a. Duly filled, prescribed Admission Form to the Controller of Examinations duly recommended by the Principal/Head of the Institution in which he/she is enrolled.
 - b. A certificate by the Principal/Head of the Institution, that the candidate has attended at least 75% of the lectures, seminars, practical/clinical demonstrations.
 - c. Examination fee as prescribed by the University.
10. To be declared successful in midterm examination the candidate must secure 60% marks in each paper

In training assessment for third year

1. All candidates admitted in MD Gastroenterology course shall appear in an examination at the end of third calendar year.
2. The examination will be composed of SEQs and clinical OSCE.
3. The pass percentage will be 60%.

In training assessment for fourth year

1. All candidates admitted in MD Gastroenterology course shall appear in an examination at the end of fourth calendar year.
2. The examination will be composed of MCQs and clinical OSCE.
3. The pass percentage will be 60%.

Final Term Assessment (FTA)

All candidates admitted in MD Gastroenterology course shall appear in FTA at the end of structured training program (end of 5th calendar year), and having passed MTA. However, a candidate holding FCPS Gastroenterology / MRCP / Diplomat ABIM shall be exempted from MTA and shall be directly admitted to FTA, subject to fulfillment of requirements for the examination.

1. The examination shall be held on biannual basis.
2. To be eligible to appear in FTA the candidate must submit;
 - a. duly filled, prescribed Admission Form to the Controller of Examinations duly recommended by the Principal/Head of the Institution in which he/she is enrolled;
 - b. a certificate by the Principal/Head of the Institution, that the candidate has attended at least 75% of the lectures, seminars, practical/clinical demonstrations;
 - c. Original Log Book complete in all respect and duly signed by the Supervisor (for Oral & practical/clinical Examination);
 - d. certificate of having passed the midterm examination;
 - e. certificates of all the mandatory rotations;
 - f. Examination fee as prescribed by the University.
3. The FTA shall have the following components:

• Written	200 marks
• OSCE	150 marks
4. The written paper shall comprise of;

• Paper-I MCQs (single best)	100 Marks
• Paper-II MCQs (single best)	100 Marks
5. Clinical examination shall have 450 marks for:

- a. OSCE 150 marks
 - i. 15 stations of clinical Gastroenterology
 - b. 1 Long Case 100 marks
 - c. 4 Short Cases 200 marks (50 marks each)
- 6. To be declared successful in Part-III examination the candidate must secure 60% marks in each component and 50% in each sub-component.
- 7. Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/ Clinical Examination.
- 8. The candidates, who have passed written examination but failed in Clinical Examination, will re-appear only in three consecutives. Clinical examination after which the candidate shall have to appear in both written and clinical examinations as a whole.
- 9. The candidate with 80% or above marks shall be deemed to have passed with distinction.
- 10. Log Book/Assignments:
- 11. Throughout the length of the course, the work record of the candidate shall be entered on the Log Book.
- 12. The Supervisor shall certify every year that the Log Book is being maintained and signed regularly.
- 13. The performance of the candidate shall be evaluated on annual basis, e.g., 25 marks for each year.
- 14. The internal assessment shall reflect the performance of the candidate on following parameters:
 - a. Year wise record of the competence of skills.
 - b. Year wise record of the assignments.
 - c. Year wise record of the evaluation regarding attitude & behavior.
 - d. Year wise record of journal club / lectures / presentations / clinico-pathologic conferences attended & / or made by the candidate.

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 & communications skills 4. Professionalism (40%)	Phase -1 ➤ CIA Year1 ➤ CIA Year2	till end of Year 2	Equal to or more than 75% of the total marks of all formative assessments/ 360°Evaluations	<ul style="list-style-type: none"> • Multi source feedback/360 degree evaluation • MCQs for knowledge • Mini-CEX • Case based discussion

both) 5. Practice based learning 6. System based learning (10% both) 7. Research10%)	Phase -2 ➤ CIA Year3 ➤ CIA Year4 ➤ CIA Year 5 for five year training program	till end of 5 year training program	Equal to or more than 75% of the total marks of all formative assessments/ 360°Evaluations	<ul style="list-style-type: none"> • CPC presentations • TOACS/OSCE • Charts stimulated recall • Teaching rounds • DOPS • Research activities
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Details about various competencies required for MD Gastroenterology along with brief details of Teaching Strategies, Type of Assessment, weightage given to the competency & Tools of Assessment:

Sr. No	Competency to be assessed	Teaching & learning strategies	Type of Assessment for the competency to be assessed	% weightage of the competency	Tools of Assessment
1.	Medical knowledge	Case based discussion & problem based learning, large group interactive session, Self-directed learning, teaching rounds, and literature search.	Formative Assessment leading to continue internal assessment and also summative assessment in high stake exams	40% for both Medical Knowledge and Patient Care both	MCQs, SEQs, Directly observe procedure, mini clinical examinations, charts, OSCE, teaching ward rounds, case discussion, seminars, topic presentation
2.	Patient care	Case based discussion, teaching rounds, morbidity & mortality meetings, 360 ^o feedback evaluation, DOPS, long case/ short case discussions OPDs, emergency Indoor workshops, hands on trainings.	Formative assessment 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	40% for both professionalism & interpersonal communication skills both	Working in OPDs, wards, emergency DOPS, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
4.	Interpersonal & communication skills	Teaching rounds, hands on training, workshops related to research methodology, SPSS, data entry, LGIS, session with supervisor & mentors, session with research units, SDL,	Formative assessment 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
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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 &communications 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 3days Computer & IT skills--- 3days Research Methodology----- 2days Basic Life Support ----- 2 days 2. Certificate of article approval from DME OR <ul style="list-style-type: none"> Statistical report of one disease 	Details Described at the end 50% pass marks	03 Examinations in Five years training program

					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 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 (MTA) (Summative Assessment)		<p>1. Submission of Pass Result of Examination of Year-1</p> <p>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)</p> <ul style="list-style-type: none"> • Cardiology • ICU • Dermatology <p>Professionalism ----- 2 days SPSS (Statistical Package for Social Sciences) 2 days</p> <p>3 Publication of one article in Resident Research Journal OR Statistical report of one disease</p> <p>4 Completed and duly signed Log Book for year one and two</p> <p>5 Completed and duly signed Portfolio for year one and two</p> <p>6 Submission of certificate of Continuous Internal Assessment for year one: Equal to or More than 75% (a cumulative score of</p>	Details Described at the end 60% pass marks	01	
5	During training of Year -3	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)	

				<p>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.</p> <p>4 Completed and Duly signed Log Book for year four</p> <p>5 Completed and duly signed Portfolio for year four</p> <p>6 Submission of certificate of Continuous Internal Assessment for year four: Equal to or More than 75% (a cumulative score of the year four)</p> <p>7 Certificate of completion of Fourth year of Training duly signed by the Supervisor</p> <p>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</p> <p>Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. For year four only</p>			
	During training of Year -5	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	
	At the end of year-5	Final Assessment for five year program (Summative Assessment)		<p>1. Submission of Pass result of In training assessment year-4</p> <p>2. Submission of certificates of completion of the workshops:</p> <p>3. Can attend any required workshop optionally if He or She wants and can submit the certificate</p> <p>4. Thesis submission about 6 months before the completion of training is to be submitted for FTA.</p> <p>5. Completed and duly signed Log Book for year five.</p> <p>6. Completed and duly signed Portfolio for year five.</p> <p>7. Submission of certificate of Continuous Internal Assessment for year five: Equal to or More than 75% (a cumulative</p>	Details Described at the end 60% Pass marks	01	

				<p>score of the year five)</p> <p>8 Certificate of completion of Fifth year of Training duly signed by the Supervisor</p> <p>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</p> <p>10 Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. For year five only</p> <p>11 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</p> <p>Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. For year five only.</p>			
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) and Marks of various High Stake/ Summative Examinations

Name of examination	Content	Eligibility criteria	Questions MCQs, TOACS		
In Training -Assessment year-1 (at the end of year 1)	<ul style="list-style-type: none"> 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	i. Completion of 1 year training ii. Workshops completion <ul style="list-style-type: none"> communication skills ----- 3days Computer & IT skills-----3days Research Methodology- 02 day BLS/ACLS-----1days iii. Research <ul style="list-style-type: none"> Certificate of 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/ UTM	A. Written Assessment for year-1 total marks 100 (100clinical / Applied Basic Sciences MCQs) (Pass percentage: 50%) B - Table of Specification for written Assessment		
			Sr .no	Discipline	MCQs
			1.	Basic principles of medicine	15 MCQs
			2.	Symptoms analysis	13 MCQs
			3.	Signs interpretation	13 MCQs
			4.	Differential Diagnosis	7 MCQs
			5.	Clinical methods interpretation	7 MCQs
			6.	Basic investigations	7 MCQs
			7.	Infectious Diseases	8 MCQs
			8.	Counseling & Ethics	10 MCQs
			9.	Management of common emergencies	8 MCQs
			10.	Fluid &Electrolyte Management	8 MCQs
			11.	BLS/ACLS	2 MCQs
Name of examination	Content	Eligibility criteria	Questions MCQs, TOACS		

Mid Training Assessment (at the end of year 2)	<ul style="list-style-type: none">● Cardiology● Gastroenterology● Respiratory medicine● Neurology● Infectious diseases● Nephrology● Rheumatology● Psychiatry● Endocrinology● Critical care● Dermatology	<p>i- Completion of 2 year training.</p> <p>ii- Passed Year One examination</p> <p>i. Rotations completion</p> <p>Three rotations (each of 2 months- to be completed in first two years)</p> <p>1. Cardiology</p> <p>2. ICU</p> <p>3. Dermatology</p> <p>iv</p> <p>Research:</p> <ul style="list-style-type: none">● Certificate an article approval from DME OR● Statistical report of one disease● <p>v- CIS- Minimum 75% marks - Certification by DME and Supervisor/s</p> <p>Special note:</p> <p>Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTM</p>	A – Mid Training Assessment (total marks = 300) B - Written Assessment (150 marks) Two papers of case based 75 MCQs total marks150 (Pass percentage =60%)		
			C- Table of Specification for paper I & II PAPER-I		
			Sr.no	Discipline	MCQs
			1.	Cardiology	15 MCQs
			2.	Nephrology	15 MCQs
			3.	ICU	15 MCQs
			4.	Infectious Diseases	08MCQs
			5.	Respiratory medicine	08 MCQs
			6.	Emergency Medicine	7 MCQs
			7.	Psychiatry	7 MCQs
			Paper II		
			Sr.no	Discipline	MCQs
			1..	Neurology	15 MCQs
			2.	Dermatology	15 MCQs
			3.	Hematology	13 MCQs
4.	Endocrinology	13 MCQs			
5.	Rheumatology	12 MCQs			
6.	Gastroenterology	07 MCQs			

Name of examination	Content	Eligibility criteria	Questions MCQs, TOACS		
In Training –Assessment year-3 (at the end of year 3)	<ol style="list-style-type: none"> 1. Basic principle of Gastroenterology and Liver Disease 2. Symptoms analysis and sign interpretation 3. Clinical methods assessment 4. Differential diagnosis 5. Basic and Advanced GI investigations Counseling and Ethics	i. Completion of 3rd year training ii. Passed MTA iii. Workshops completion Synopsis writing 03 days • Reference Manager(Endnote)---1day iv. Research Allotment of thesis topic (first half of calendar year) • Certificate of approval thesis from IRF(2 nd 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/ UTMIC	A- Written Assessment (100 marks) ➤ 100MCQs----- total marks 100 (60 clinical MCQs) (04 Short Cases Each 10 Marks) (Pass percentage= 50%) B- Table of Specification		
			Sr. no	Discipline	MCQs
			1.	Basic principle of Gastroenterology and Liver Disease, including Symptoms analysis and sign interpretation Clinical methods assessment	25 MCQs
			2.	Differential diagnosis	5 MCQs
			3.	Basic and Advanced GI & Hepatology investigations	10 MCQs
			4.	Management of common GI & Hepatology emergencies.	15 MCQs
			5.	Disinfection & Sterilization of Endoscopes & Accessories.	03 MCQs
			6 .	Counseling and Ethics	02 MCQs

Name of examination	Content	Eligibility criteria	Questions MCQs, TOACS
In Training Assessment year-4 (at the end of year 4)	<ol style="list-style-type: none"> 1. Esophagus 2. Stomach & Duodenum 3. Hepatology 4. Pancreatobiliary diseases 5. Small intestine 6. Large intestine 7. Infectious diseases 8. Nutrition 9. GI Emergencies 10. Procedures 11. Liver transplant <p>Drug and Recent advances</p>	<p>i- Completion of 4th year training ii- Passed 3rd year in training assessment</p> <p>iii-Research</p> <ul style="list-style-type: none"> Data collection Data analysis and interpretation Thesis writing <p>iv- Rotations</p> <ul style="list-style-type: none"> . Radiology(02 months) . Histopathology(01 month) . Liver transplant/ GI surgery (01 month) . GI Oncology (01 month) <p>v- CIA Minimum 75% marks- Certification by DME and Supervisor/s</p> <p>Special note:</p> <p>Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC</p>	<p>- Assessment (100 marks)</p> <p>Long Case 60 Marks</p> <p>Short Case 40 Marks (Jaundice and Hepatomegaly Pancreatic Mass, Abdomen, Ascites)</p>

Name of examination	Content	Eligibility criteria	Questions MCQs, TOACS		
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 General	i -Completion of 5 th year training ii - Passed 4 th 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	Questions MCQs, TOACS - TOTAL MARKS: 750 Written: 200 Paper-1 Case based 100 MCQs Paper- II Case based 100 MCQs Clinical: 450 (Long case) 100 (Short cases) 200 OSCE 150 Thesis: 100 Pass percentage: 60% Paper I		
				Esophagus & Stomach	30 MCQS
				Small & Large intestine	20 MCQs
				Infectious disease	15 MCQS
	13.			Procedures (GI & Hepatology)	15 MCQS
	14.			GI & Hepatology Emergencies	15 MCQS
	15.			Paediatrics GI & Hepatology Disorders	05 MCQS

	16.		<p>Paper II- MCQs</p> <p>Hepatology 35 MCQS</p> <p>Pancreaticobiliary diseases 25 MCQS</p> <p>Nutrition 10 MCQS</p> <p>Liver Transplant 10 MCQS</p> <p>GI & Hepatology Drugs 05 MCQS</p> <p>GI & Hepatology Oncology 15 MCQS</p> <p>- Clinical Assessment (450 marks)</p> <p>On passing the theory, trainee will be eligible to appear in practical exam.</p> <p>Pass marks 60%.</p> <ul style="list-style-type: none"> • Four short cases total 200 marks (each of 50 marks) • One long case 100 marks • TOACS/ OSCE (15 stations) 150marks <p>D- Defense of Thesis (100marks)</p> <ul style="list-style-type: none"> • On passing the theory, trainee will be eligible to appear in defence of thesis. • Power Point presentation: 30marks • Discussion session: 70marks <p>(Pass percentage =60%)</p> <p>Format of defence of thesis</p> <p>Panel of 2 examiners external/guest examiner</p> <p>Power point presentations of 30 min regarding his/her research project, including major outcomes of discussion also</p> <p>This will be followed by interactive discussion session / Q & A sessions of 1hour (10 Questions)</p>
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OSCE IN-TRAINING ASSESMENT YEAR 1

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

Details of OSCE Stations

Station No.	Station Description
1	Respiratory Station Short case version of clinical examination
2	Cardiovascular System Short case version of clinical examination
3	Gastrointestinal system Short case version of clinical examination
4	Neurology Station Short case version of clinical examination

5	Clinical Medicine Scenario Station Ability to analyze a clinical Medicine scenario and formulate initial management plan A patient, surrogate, video, equipment, and medicine can be there at this station
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MID TERM ASSESSMENT

TABLE OF SPECIFICATIONS (MCQ EXAM)

Cardiology	Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Round d No	CI Features	Investiga tions	Treatme nt
Ischemic Heart Disease	3	3	9	0.15	1.5	2		1	1
Ischemic Heart Disease	3	3	9	0.15	1.5	2	1		1
Ischemic Heart Disease	3	3	9	0.15	1.5	2		1	1
Valvular Heart disease	3	3	9	0.15	1.5	2	1		1
Dysrhythmia	3	3	9	0.15	1.5	2	1		1
Cardiovascular Emergencies	3	3	9	0.15	1.5	2		1	1
Disorders of myocardium & pericardium	2	2	4	0.066666667	0.66666667	1			1
Disease of Pulmonary Vasculature	1	1	1	0.016666667	0.16666667	1			1
Congenital Heart Disease	1	1	1	0.016666667	0.16666667	1	1		
			60	1	10	15	4	3	8

Respiration	Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Round d No	CI Features	Investiga tions	Treatme nt
Obstructive pulmonary diseases									
Asthma	3	3	9	0.098901099	0.989010989	1			1
Chronic obstructive pulmonary disease	3	3	9	0.098901099	0.989010989	1			1
Bronchiectasis	2	1	2	0.021978022	0.21978022				

Cystic fibrosis	1	1	1	0.010989011	0.10989011				
Infections of the respiratory system			0	0	0				
Pneumonia	3	3	9	0.098901099	0.989010989	1		1	
Tuberculosis	3	3	9	0.098901099	0.989010989	1			1
Respiratory diseases caused by fungi	1	1	1	0.010989011	0.10989011				
Tumours of the bronchus and lung	3	2	6	0.065934066	0.659340659	1	1		
Interstitial and infiltrative pulmonary diseases	3	2	6	0.065934066	0.659340659	1		1	
Occupational and environmental lung disease	2	1	2	0.021978022	0.21978022				
Pulmonary embolism	3	2	6	0.065934066	0.659340659	1	1		
Pulmonary hypertension	2	1	2	0.021978022	0.21978022				
Pleural disease	3	3	9	0.098901099	0.989010989	1			1
Deformities of the chest wall	2	2	4	0.043956044	0.43956044				
Haemoptysis	3	2	6	0.065934066	0.659340659	1	1		
'Incidental' pulmonary nodule	1	1	1	0.010989011	0.10989011				
Respiratory failure	3	3	9	0.098901099	0.989010989	1			1
				91	1	10	3	2	5
Neurology	Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounde d No	Clinical Features	Investiga tions	Treatme nt
Stroke Medicine	3	3	9	0.191489362	2.872340426	3	1	1	1
Headache Syndromes	2	3	6	0.127659574	1.914893617	2	1		1

Epilepsy	2	2	4	0.085106383	1.27659 5745	1	1		
Meningoencephalitis- CNS Infections	3	3	9	0.191489362	2.87234 0426	3	1	1	1
Neurodegenerative Disorders	1	2	2	0.042553191	0.63829 7872	1	1		
Diseases of Nerve and NM Junction	2	2	4	0.085106383	1.27659 5745	2	1	1	
Dementia	2	2	4	0.085106383	1.27659 5745	1	1		
Functional Neurological Syndromes	1	1	1	0.021276596	0.31914 8936				
Spinal Disorders	2	2	4	0.085106383	1.27659 5745	1	1		
Muscular Disorders	2	2	4	0.085106383	1.27659 5745	1		1	
				47	1	15	8	4	3

Haematology	Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Round d No	CI Features	Investiga tions	Treatme nt	Basics
Anaemias										
Iron deficiency Anaemia	3	3	9	0.096774194	0.96774 1935	1			1	
Anaemia of Chronic Disease	2	1	2	0.021505376	0.21505 3763					
Thalassemia	1	1	1	0.010752688	0.10752 6882					
Vit B12 and Folic acid deficiency Anaemia	3	3	9	0.096774194	0.96774 1935	1		1		
Haemolytic Anaemia	3	2	6	0.064516129	0.64516 129	1		1		
Aplastic Anaemia	3	3	9	0.096774194	0.96774 1935	1			1	
Myeloproliferative disorder	2	2	4	0.043010753	0.43010 7527					
Acute Leukemia	3	2	6	0.064516129	0.64516 129	1	1			

Chronic Leukemia	3	2	6	0.064516129	0.64516129	1		1		
Lymphomas	3	2	6	0.064516129	0.64516129					
Plasma cell Myeloma	2	1	2	0.021505376	0.215053763	1	1			
Blood Transfusions	3	3	9	0.096774194	0.967741935	1	1			
Thrombocytopenia	3	3	9	0.096774194	0.967741935	1			1	
Bleeding and Clotting disorders	3	2	6	0.064516129	0.64516129					
Thromboembolic Disease	3	3	9	0.096774194	0.967741935	1			1	
				93	1	10	10	3	3	4
Rheumatology	Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Round No	Diagnosis	Investigation	Management	

Rheumatoid arthritis	2	3	6	0.157894737	1.578947368	1	1		
Spondylarthritis	2	1	2	0.052631579	0.526315789	1	1		
Autoimmune connective tissue diseases	3	3	9	0.236842105	2.368421053	2		1	1
Vasculitis	2	2	4	0.105263158	1.052631579	1	1		
Crystal-induced arthritis	2	2	4	0.105263158	1.052631579	1		1	
Diseases of bone- Osteoporosis, Osteomalacia, Rickets and vitamin D deficiency	2	2	4	0.105263158	1.052631579	1	1		
Rheumatological involvement in other diseases	3	1	3	0.078947368	0.789473684	1	1		
Fibromyalgia	2	2	4	0.105263158	1.052631579	1	1		

Bone and joint infections	2	1	2	0.052631579	0.526315789	1			1
			38	1	10	10	6	2	2

Dermatology	Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounded No	CI Features	Investigations	Treatment	Basics
Psoriasis	3	2	6	0.111111111	1.666666667	2	1		1	
Eczematous Disorders	3	2	6	0.111111111	1.666666667	2	1		1	
Bacterial Skin Infections	3	3	9	0.166666667	2.5	2	1		1	
Fungal Skin Infections	3	3	9	0.166666667	2.5	2	1		1	
Viral Skin Infections	2	2	4	0.074074074	1.111111111	1	1			
Parasitic Skin Infections	2	2	4	0.074074074	1.111111111	1	1			
Neglected Tropical Diseases (Leishmaniasis, Leprosy)	3	1	3	0.055555556	0.833333333	1	1			
Drug reactions	2	1	2	0.037037037	0.555555556	1	1			
Urticaria and related disorders	1	2	2	0.037037037	0.555555556	1	1			
Skin manifestations of connective tissue diseases	3	3	9	0.166666667	2.5	2	1	1		
				54		15	15	10	1	4

Endocrinology		Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounded No	CI Features	Investigations	Treatment
Diabetes and Endocrine Pancreas		3	3	9	0.391304348	3.913043478	4	1	1	2
Thyroid disorders		2	3	6	0.260869565	2.608695652	3		1	2

Adrenal gland disorders		2	2	4	0.17391 3043	1.73913 0435	1			1
Parathyroid and Ca metabolism		2	1	2	0.08695 6522	0.86956 5217	1			1
Misc.		2	1	2	0.08695 6522	0.86956 5217	1			1
(Disorders affecting multiple endocrine glands, hypothalamus & pituitary, reproductive system)										
				23	1	10	10	1	2	7

EMERGENCY MEDICINE		Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounded No	CI Features	Investigations	Treatment
Anaphylactic Shock										
Acute Chest Pain (MI)		3	3	9	0.39130 4348	3.91304 3478	4	1	1	2
Gastrointestinal Bleeding		2	3	6	0.26086 9565	2.60869 5652	3		1	2
Ventricular Fibrillation		2	2	4	0.17391 3043	1.73913 0435	1			1
Pulmonary Embolism		2	1	2	0.08695 6522	0.86956 5217	1			1
Hypoglycaemia		2	1	2	0.08695 6522	0.86956 5217	1			1
Pneumothorax										
Subarachnoid Haemorrhage				23	1	10	10	1	2	7
Acute Myocardial Infarction (AMI)										
Acute Asthma Exacerbation										

Critical care		Impact (1-3)	Frequency (1-3)	IxF (Impact x Frequency)	Weightage	No of Items	Basic knowledge	Diagnosis	Investigation	
Sepsis and SIRS		3	3	9	0.1125	8.4375			1	1

ARDS		3	3	9	0.1125	8.4375			1	1
Acute Circulatory Failure		3	3	9	0.1125	8.4375	1			
Cardiac arrest		3	3	9	0.1125	8.4375		1		1
Post Cardiac arrest		3	3	9	0.1125	8.4375				1
Multi Organ Failure		2	2	4	0.05	3.75			1	1
Organ support in ICU		2	2	4	0.05	3.75				1
Sedation and Analgesia		2	2	4	0.05	3.75	1			
Ventilatory Support		2	2	4	0.05	3.75				1
Non Invasive Ventilation		2	2	4	0.05	3.75				1
Tracheostomy		1	1	1	0.0125	0.9375				1
Nutrition in ICU		2	2	4	0.05	3.75	1			
Death in ICU		3	3	9	0.1125	8.4375		1		
Critical Care Scoring System		1	1	1	0.0125	0.9375		1		
Total				70	1	75	3	3	3	9

Infectious diseases		Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounded No	CI Features	Investigations	Treatment
Viral infections										
Dengue		3	3	9	0.18	1.8	2			1
Covid19/Influenza		3	3	9	0.18	1.8	2		1	
Chicken pox		2	1	2	0.04	0.4		1		
Viral haemorrhagic fever		2	1	2	0.04	0.4			1	
Bacterial infections										1
Typhoid		3	3	9	0.18	1.8	2	1		1
Tuberculosis		3	3	9	0.18	1.8	2	1	1	
Protozoal Infections										
Malaria		3	3	6	0.12	1.2	1			1
Amebiasis		2	1	2	0.04	0.4	1		1	
Fungal Infections										
Aspergillosis		2	1	2	0.04	0.4	1			1

				50	1	10	10	3	2	5
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Nephrology		Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounded No	CI Features	Investigations	Treatment
investigations of renal and urinary tract		1	2	2	0.029850746	0.298507463	1		1	
electrolytes		3	2	6	0.089552239	0.895522388	1	1		
acid base disorders		2	2	4	0.059701493	0.597014925	1		1	
glomerular diseases		3	2	6	0.089552239	0.895522388	1		1	
tubulointerstitial disease		2	1	2	0.029850746	0.298507463	1			1
renal involvement in multisystem disease		3	2	6	0.089552239	0.895522388	1		1	
Acute kidney injury		3	3	9	0.134328358	1.343283582	2		1	1
chronic kidney disease and complications		3	3	9	0.134328358	1.343283582	1			1
renal disease in pregnancy		2	2	4	0.059701493	0.597014925	1	1		
renal replacement therapies		3	2	6	0.089552239	0.895522388	1		1	
kidney and infections		3	1	3	0.044776119	0.447761194	1	1		
urolithiasis		3	1	3	0.044776119	0.447761194	1	1		
tumours of kidney and urinary tract		2	1	2	0.029850746	0.298507463	1		1	
renal vascular diseases		2	2	4	0.059701493	0.597014925	1		1	
drugs and kidneys		1	1	1	0.014925373	0.149253731				
				67		10	15	4	8	3

Poisoning		Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounded No	CI Features	Investigations	Treatment
Acute Poisoning		3	3	9	0.391304348	3.913043478	4	1	1	2
Snake bite/Rabies/ TICK/		2	3	6	0.260869565	2.608695652	3		1	2
Sedative/ non-sedative drug overdose		2	2	4	0.173913043	1.739130435	1			1
Thermal Injuries/Electrocution/radiation injury		2	1	2	0.086956522	0.869565217	1			1
High Altitude Sickness//Caissons disease		2	1	2	0.086956522	0.869565217	1			1
				23	1	10	10	1	2	7

Psychiatry	Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounded No	CI Features	Investigations	Treatment	Basics
Depression	3	2	6	0.157894737	1.578947368	2	1		1	
Deliberate Self Harm/ Suicide	3	2	6	0.157894737	1.578947368	2	1		1	
Bipolar Affective Disorder	3	2	6	0.157894737	1.578947368	2	1		1	
Schizophrenia	3	2	6	0.157894737	1.578947368	1	1			
Substance Use Disorder	2	2	4	0.105263158	1.052631579	1	1			
Dementia	2	2	4	0.105263158	1.052631579	1	1			
Anxiety & Stress related disorders	3	2	6	0.157894737	1.578947368	1	1			
			38		10	10	7	0	3	0

OSCE- MID TERM ASSESSMENT

Total number of stations – 15 (all Interactive)

Time allocation for each station – 5 minutes

Marks allocation for each station – 10 marks

Details of OSCE Stations

Station No.	Station Description	Details	C	P	A
1	ECG (2 ECG) Dysrhythmias, Ischemic heart disease, Pericarditis, Electrolyte imbalance, Medication related effects etc.	<i>ECG will be shown to the Candidate.</i> <i>Questions will focus relevant findings, interpretation, and diagnosis/treatment where relevant.</i>	C3	P3	
2	X-ray Station (2 X Rays) Chest (Pulmonology/Cardiology) mandatory One of Rheumatology, Metabolic bone disease, and Abdomen etc.	<i>X-Rays will be shown.</i> <i>Questions will focus relevant interpretation of findings, diagnosis, etiology, treatment where relevant etc.</i>	C3	P3	
3	2 CT scan (preferably) or MRI- Station Brain mandatory One of Chest, Spine, and Abdomen etc.	<i>CT scan or MRI will be shown.</i> <i>Questions will focus relevant findings, diagnosis, etiology, treatment and complications etc.</i>	C3	P3	

4	Clinical Problem Solution Station One of Hematology, Oncology, Infectious disease, Emergency, Critical Care, and Nephrology etc clinical problem scenario.	<i>Clinical Problems will be presented to Candidate in form of video, picture, clinical details, and clinical data etc.</i> <i>Candidate will be evaluated with reference to diagnostic features and management.</i>	C3	P3	
5	Procedure on Simulator Lumbar puncture, Arterial sampling, CVP line insertion, Needle chest aspiration, Ascitic tap, and ETT intubation etc.	<i>Candidate will be asked to perform one of the procedures. Mannerism, technique/procedural skills will be evaluated by Examiner.</i>	C3	P3	A3
		<i>Questions will focus procedure, indication, contraindications, and complications etc.</i>			
6	Instrument & Medication Station Instruments; Oxygen delivery system, Pleural biopsy, Bone marrow aspiration, Liver biopsy, and Pleural biopsy etc. Medications; Digoxin, Amiodarone, Potassium, Insulin, and Thyroxin etc.	<i>Candidate will be provided one of medication or Instrument.</i> <i>Candidates will be assessed with reference to utilization/indication, practical use, contraindications, practical use/procedure (where relevant) and complications etc.</i>	C3	P3	A3
7	Life Support Station BLS component	<i>Scenario focusing BLS component will be given.</i> <i>Candidate will be observed by Examiner for managing the issue. Relevant questions will be asked.</i>	C3	P3	A3
8	Respiratory Station Focused short case version of clinical examination	<i>In 5 minutes candidate will be asked to perform focused clinical examination of chest for assessment of knowledge, skill and attitude.</i> <i>Examiners will observe and ask questions pertaining to correct findings, logical</i>	C3	P3	A3

		<i>interpretation, and management etc.</i>			
9	Cardiovascular System Focused short case version of clinical examination	<i>In 5 minutes candidate will be asked to perform focused clinical examination of CVS for assessment of knowledge, skill and attitude.</i> <i>Examiners will observe and ask questions pertaining to correct findings, logical interpretation, and management etc.</i>	C3	P3	A3
10	Gastrointestinal system Focused short case version of clinical examination	<i>In 5 minutes candidate will be asked to perform focused clinical examination of GIT for assessment of knowledge, skill and attitude.</i> <i>Examiners will observe and ask questions pertaining to correct findings, logical interpretation, and management etc.</i>	C3	P3	A3
		<i>interpretation, and management etc.</i>			
11	Neurology Station Focused short case version of clinical examination	<i>In 5 minutes candidate will be asked to perform focused clinical examination of Nervous system for assessment of knowledge, skill and attitude.</i> <i>Examiners will observe and ask questions pertaining to correct findings, logical interpretation, and management etc.</i>	C3	P3	A3
12	Counseling Station- Focusing autonomy, confidentiality, beneficence, justice, no harm, empathy, breaking bad diseases, and safety net etc.	<i>In a given scenario Candidate ability to solve relevant issue will be evaluated with involvement of patient or surrogate.</i>	C3	P3	A3

13	Eye/Fundoscopy Station Clinical signs pertaining to pupillary abnormalities, extraocular muscle palsies, fundoscopic examination abnormalities etc.	<i>Candidate will be shown video/picture and or asked to perform examination on patient or surrogate. Examination competency, diagnostic features, management, and complications etc will be evaluated.</i>	C3	P3	A3
14	Emergency Management Station DKA, Status epileptics, poisoning, upper GI bleed, ACS, dysrhythmias, acute severe asthma, hypoglycemia, electrolyte imbalance, and metabolic acidosis etc.	<i>With reference to one of the scenario, Candidates ability to plan management avoiding complications will be evaluated</i>	C3	P3	
15	Dermatology Station 2 Picture/patients of common dermatological disorders i.e., Psoriasis, systemic diseases and CTD disorder related findings, rash, infection, Erythema Nodusam, Erythema multiforme, and drug rash etc	<i>With reference to two of the scenario, Candidates ability to diagnose and plan management will be evaluated</i>	C3	P3	

3RD YEAR GASTROENTEROLOGY IN-TRAINING ASSESSMENT

TABLE OF SPECIFICATIONS

Exam Component	No. of Questions/stations	Marks Distribution	Total Marks	Passing Marks
Written (SEQ)	100	1 mark each	100	50%
Clinical - OSCE	40	5 marks each	200	50%

Written Exam

TABLE OF SPECIFICATIONS

- Discipline Gastroenterology
- Level of exam (INTRAINING -Y3)
- Paper
- No. of items (100)

S. No	Topic	Presentation	Impact	Frequency	I × F	Weight	No of items	Diagnoses	Investigation	Treatment	Basic knowledge
1	Esophagus & Stomach	Developmental abnormalities:	1	1	1	0.030	1	1			
		Motility Disorders:	2	2	4	0.121	4	4			
		Esophageal Injuries	1	3	3	0.09	3	2		1	
		Gastroesophageal Reflux disease:	2	1	2	0.60	2	1			1
		Barret Esophagus	2	1	2	0.030	1	1			
		Esophageal Tumors	2	2	3	0.09	3	1	1		1

		Eosinophilic esophagitis	1	1	2	0.030	1	1			
		Gastritis, Gastropathy and PUD:	3	3	9	0.27	9	9			
		Adenocarcinoma of Stomach	3	2	6	0.18	6	5			1
	Small and Large intestines	SIBO	2	1	2	0.117	2	1	1		
		Celiac Disease	2	2	6	0.35	4	1	1	2	
		IBD	1	2	2	0.117	2	1			1
		Intestinal ischemia	2	1	2	0.117	2		1	1	
		Diverticular diseases	1	1	1	0.05	1		1		
		IBS	1	2	2	0.117	2	2			
		Colorectal carcinoma	1	1	1	0.05	1		1		
		C. Diff. infection	1	1	1	0.05	1		1		

4	GI Emergencies	Acute abdominal pain	2	2	4	0.17	3	2	1		
		Acute dysphagia	2	2	4	0.17	3			3	
		GI bleed	2	2	4	0.17	3			3	
		Acute pancreatitis	2	2	4	0.14	3	1	1	1	
		Acute liver failure	1	3	3	0.13	2	1		1	
		Complications of cirrhosis	2	2	4	0.17	3	1	1	1	
5	Nutrition	Vitamin deficiency disorders	1	2	2	0.16	1	1			
		Nutritional assessment scores	2	2	4	0.3	1	1			
		Nutrition in specific disease states	2	1	2	0.16	1			1	
		Nasoenteric tubes	1	2	2	0.16	1			1	
		Parenteral nutrition	1	2	2	0.16	1			1	

Liver		Hemochromatosis	2	1	2	0.038	1		1		
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	Wilson disease	2	1	2	0.038	1		1		
	Hepatitis A	2	2	4	0.07	1		1		
	Hepatitis B	2	2	4	0.07	1			1	
	Liver abscess	1	2	2	0.038	1			1	
	Budd chiarri syndrome	3	1	3	0.057	1			1	
	Alcohol associated liver disease	2	2	4	0.07	1			1	
	Non alcoholic fatty liver disease	2	2	4	0.07	1			1	
	Autoimmune hepatitis	2	2	4	0.07	1		1		
	Primary biliary cholangitis	2	2	4	0.07	1	1			
	Spontaneous bacterial peritonitis	2	2	4	0.07	1			1	
	Hepatic encephalopathy	2	2	4	0.07	1			1	
	Hepatorenal syndrome	3	1	3	0.057	1			1	
	Hepatocellular carcinoma	2	2	4	0.07	1			1	
	Cirrhosis	2	2	4	0.07	1			1	

	Pancreas	Acute pancreatitis	2	2	4	0.153	2	1		1	
		Chronic pancreatitis	2	2	4	0.153	2		2		
		Pancreatic cancer and cystic neoplasm	2	1	2	0.076	1		1		

		Acute cholecystitis	2	2	4	0.153	2	1		1	
		Gall stone disease	3	2	6	0.23	4		1	3	
		Acute cholangitis	2	2	4	0.18	3		1	2	
		Tumours of gall bladder, bile duct and ampulla	2	1	2	0.076	1	1			

Drugs		PBC drugs	3	3	9	0.33	1				1
		Infection Drug	3	3	9	0.33	1				1
		PSE Drug	3	3	9	0.33	1				1

Level of questions (according to Bloom's taxonomy)

C1 80
C2 10
C3 10

CLINICAL EXAM

Assessment tool: OSPE & OSCE

- Total number of stations - 40
- Total time : 200 minutes
- Time allocation for each case- 5 minutes

- Total marks - 200
- Passing marks – 50%
- Marks allocation for each station - 5 marks

AV-OSPE & OSCE FRAMEWORK 3rd YEAR INTRAINING ASSESSMENT

1.	History taking (symptoms specific)	05
2.	Clinical examination	03
3.	Procedures	04
4.	Endoscopy images (with clinical scenario)	09
5.	Endoscopy videos (with clinical scenario)	07
6.	Instruments	04
7.	Case scenario	05
8.	Radiology images	03

4th Year GASTROENTEROLOGY IN-TRAINING ASSESSMENT

TABLE OF SPECIFICATIONS

Exam Component	No. of Questions/stations	Marks Distribution	Total Marks	Passing Marks
Written (MCQs)	100	01 mark each	100	50%
Clinical (OSPE & OSCE)	40	05 marks each	200	50%

Written Exam

Total MCQs- 100 (01 mark each)

		Impact (1-3)	Frequency (1-3)	I × F (Impact × Frequency)	Weightage	No of Items	Rounded No	CI Features	Investigations	Treatment	Basics
2	HH	1	1	1	0.009	0.9	1				1
3	WD	1	2	2	0.019	1.9	2		2		
4	HEP B	2	1	2	0.019	1.9	2			2	
5	HEP C	1	1	1	0.009	0.9	1			1	
6	HEP D	1	1	1	0.009	0.9	1			1	
7	OTHER VIRUSES	1	1	1	0.009	0.9	1		1		
8	AIH	1	2	2	0.019	1.9	2		2		
9	ALD	1	1	1	0.009	0.9	1			1	
10	PBC	1	1	1	0.009	0.9	1			1	
11	PORT HTN	2	3	6	0.059	5.9	4			3	1
12	HEPATIC CYST	1	1	1	0.009	0.9	1				1
13	HPS	1	1	1	0.009	0.9	1			1	
14	HRS	1	1	1	0.009	0.9	1			1	
15	ASCITES	1	1	1	0.009	0.9	1			1	
16	BARRETS	1	2	2	0.019	1.9	2			2	
17	EOE	1	1	1	0.009	0.9	1			1	
18	ACHALSIA	1	1	1	0.009	0.9	1			1	
19	INFECTIONS	1	1	1	0.009	0.9	1		1		
20	GERD	1	1	1	0.009	0.9	1				1
21	MOTILITY DIS	1	1	1	0.009	0.9	1		1		
22	PILL ESOPHAGITIS	1	1	1	0.009	0.9	1			1	
23	PUD	3	2	6	0.059	5.9	5		1	4	
24	GASTRIC CA	1	2	2	0.019	1.9	2			1	1
25	GASTRITIS	1	1	1	0.009	0.9	1			1	
26	H. PYLORI	1	3	3	0.029	2.9	3		1	2	
27	GIST	1	1	1	0.009	0.9	1			1	
28	SBO	1	1	1	0.009	0.9	1		1		
29	SBS	1	1	1	0.009	0.9	1			1	
30	TRAVL DRA	1	1	1	0.009	0.9	1			1	
31	AGE	1	1	1	0.009	0.9	1			1	
32	CELIAC	1	1	1	0.009	0.9	1		1		
33	UC	1	1	1	0.009	0.9	1			1	
34	WHIPLD	1	1	1	0.009	0.9	1	1			
35	MICROSCOPIC COLITIS	1	1	1	0.009	0.9	1		1		
36	CD	1	1	1	0.009	0.9	1			1	
37	GIB/ MEKL	1	1	1	0.009	0.9	1	1			
38	BOERHV SYND	1	1	1	0.009	0.9	1			1	
39	UC	1	1	1	0.009	0.9	1		1		
40	AMI	1	1	1	0.009	0.9	1		1		
41	LTX	1	1	1	0.009	0.9	1			1	
42	SAID	1	1	1	0.009	0.9	1			1	
43	AFLP	1	1	1	0.009	0.9	1		1		
44	FOOD POISON	1	1	1	0.009	0.9	1		1		
45	INFECTION	1	1	1	0.009	0.9	1		1		
46	GI BLEED	1	1	1	0.009	0.9	1			1	
47	REFEED SYND	1	1	1	0.009	0.9	1		1		
48	CP	1	1	1	0.009	0.9	1				1
49	AP	3	2	6	0.059	5.9	8	0	3	3	2
50	Pancreatic SOL	1	1	1	0.009	0.9	1			1	
51	LIVER TRANSPLANT	3	3	9	0.089	8.9	10	1	3	6	
52	PEDIATRIC DISORDERS	3	2	6	0.059	5.9	5		1	4	
53	NUTRITION	2	3	6	0.059	5.9	5		1	4	
54	CANCERS	3	2	6	0.059	5.9	7		1	6	
55	DRUGS	1	3	3	0.029	2.9	3	1		2	
56	TOTAL			101	0.956	95.6	100	4	27	61	8

FINAL TERM ASSESSMENT

TABLE OF SPECIFICATIONS (MCQ EXAM)

- Paper (I)
- No. of items (100)
- Level of questions (according to Bloom's taxonomy)
 - C2 25
 - C3 75

S. No	Topic	Presentation		Impact	Frequency	I × F	Weight	No of items	Diagnosis	Investigation	Treatment	Basic knowledge
1	Esophagus & Stomach	Developmental abnormalities:		1	1	1	0.043	1.2=1	1			
		Motility Disorders:		2	2	4	0.173	5.1=5	2	1	2	
		Esophageal Injuries		2	1	2	0.086	2.58=3		1	2	
		Gastroesophageal Reflux disease:		1	3	3	0.13	3.9=4	2	1	1	
		Barret Esophagitis		2	1	2	0.086	2.58=3	1		2	
		Esophageal Tumors		3	1	3	0.13	3.9=4	1	1	2	
		Developmental Anomalies		1	1	1	0.043	1.2=1	1			

		Gastric Neuromuscular Disorders:		1	1	1	0.043	1.2=1	1			
		Gastritis, Gastropathy and PUD:		1	3	3	0.13	3.9=4	2		2	
		Adenocarcinoma of Stomach		3	1	3	0.13	3.9=4	1	1	2	
2	Small & Large Intestine	Developmental anomalies		1	1	1	0.024	0.72=1	1			
		SIBO		2	1	2	0.048	1.44=1			1	
		Short Bowel Syndrome		2	1	2	0.048	1.44=1			1	
		Celiac Disease		2	2	4	0.097	2.91=3	1	1	1	
		Tropical sprue		1	1	1	0.024	0.72=1			1	
		Whipple disease		1	1	1	0.024	0,72=1			1	
		IBD		1	2	2	0.048	1.44=2	1		1	
		Intestinal ischemia		2	1	2	0.048	1.44=1			1	
		Intestinal ulcers		1	1	1	0.024	0.72=1			1	
		Diverticular diseases		2	1	2	0.048	1.44=2	1		1	
		IBS		1	3	3	0.073	2.19=2	1		1	
		intestinal obstruction		1	1	1	0.024	0,72=1			1	
		Tumours of small intestine		3	1	3	0.073	2.19=2	1	1		
		Polyps		3	2	6	0.146	4.38=4	1	2	1	
		Colorectal carcinoma		3	2	6	0,146	4.38=4	1	1	2	
		Anorectal diseases		2	2	4	0.097	2.91=3	1	1	1	
3		Acute Enteritis		2	2	4	0.125	1.87=2	1		1	

	GI Infections	C. Diff. infection		2	1	2	0.062	0.93=1	1		1	
		Food poisoning		2	3	6	0.187	2.8=3	1	1	1	
		Protozoal infections		1	2	2	0.062	0.93=1			1	
		Worms		1	2	2	0.062	0.93=1			1	
		Immunocompetent patients Infections		2	2	4	0.125	1.87=2	1		1	
		immunocompromised patients' infections		3	2	6	0.187	2.8=3	1	1	1	
		H. Pylori		2	3	6	0.187	2.8=2		1	1	

4	GI Emergencies	Acute abdominal pain	2	2	4	0.125	1.87=2	1		1	
		Acute dysphagia	2	1	2	0.062	0.93=1		1	1	
		GI bleed	2	3	6	0.187	2.8=3	1		2	
		Acute vomiting	1	2	2	0.062	0.98=1			1	
		Acute diarrhea	1	2	2	0.062	0.98=1			1	
		Acute pancreatitis	2	2	4	0.125	1.87=2			2	
		Acute liver failure	3	2	6	0.187	2.8=2	1		1	
		Complications of cirrhosis	2	3	6	0.187	2.8=3	1	1	1	
5	Nutrition	Vitamin deficiency disorders	2	2	4	0.064	0.64=1	1			
		Malnutrition	1	1	1	0.016	0.16				
		Nutrition assessment techniques	2	3	6	0.097	0.97=1		1		
		Nutritional assessment scores	2	3	6	0.097	0.97=1		1		

		Nutrition in specific disease states	3	3	9	0.15	1.5=2	1		1	
		Nasoenteric tubes	3	2	6	0.097	0.97=				
		PEG & PEJ/ PEG	2	3	6	0.097	0.97=1			1	
		Parenteral nutrition	2	3	6	0.097	0.97=1			1	
		Obesity-medical treatment	2	3	6	0.097	0.97=1			1	
		Obesity- Endoscopic treatment	2	3	6	0.097	0.97=1			1	
		Obesity – Surgical treatment	2	1	2	0.032	0.32				
		Feeding & Eating disorders	2	2	4	0.064	0.64=1			1	

- Paper (II)
- No. of items (100)
 - Level of questions (according to Bloom's taxonomy)
 - C2 26
 - C3 74

S. No	Topic	Presentation	Impact	Frequency	I × F	Weight	No of items	Diagnosis	Investigation	Treatment	Basic knowledge
1	Hepatology	Anatomy of liver	2	1	2	0.017	0.60=1			1	
		Histology of liver	1	1	1	0.008	0.28=0				

		Developmental anomalies	1	1	1	0.008	0.28=0				
		Hemochromatosis	2	1	2	0.017	0.60=1	1			
		Wilson disease	2	1	2	0.017	0.60=1	1			
		Alpha 1 antitrypsin deficiency	1	1	1	0.008	0.28=0				
		Glycogen storage diseases	1	1	1	0.008	0.28=0				
		Porphyrias	1	1	1	0.008	0.28=0				
		Tyrosinemia	1	1	1	0.008	0.28=0				
		Urea cycle defects	1	1	1	0.008	0.28=0				
		Bile acid synthesis defects	1	1	1	0.008	0.28=0				
		Bile acid transport defects	1	1	1	0.008	0.28=0				
		Cystic fibrosis	1	1	1	0.008	0.28=1	1			
		Hepatitis A	2	2	4	0.033	1.16=1			1	
		Hepatitis B	2	2	4	0.033	1.16=1		1		
		Hepatitis C	2	3	6	0.050	1.75=2			1	

		Hepatitis D	2	1	2	0.017	0.60=1			1	
		Hepatitis E	2	2	4	0.033	1.16=1			1	
		Hepatitis by other viruses	1	1	1	0.008	0.28=0				
		Bacterial infections of liver	1	1	1	0.008	0.28=0				
		Parasitic infections of liver	1	1	1	0.008	0.28=0				
		Fungal infections	1	1	1	0.008	0.28=0				
		Liver abcess	1	2	2	0.017	0.60=1				
		Budd chiarri syndrome	3	1	3	0.025	0.88=1	1			
		PVT	3	1	3	0.025	0.88=1		1		
		Noncirrhotic portal hypertension	2	1	1	0.008	0.28=1			1	
		SOS	1	1	1	0.008	0.28=0				
		Ischemic hepatitis	2	1	2	0.017	0.60=1			1	
		Congestive hepatopathy	1	1	1	0.008	0.28=0				
		Hepatic artery aneurysm	3	1	1	0.008	0.28=0				

		HHT	1	1	1	0.008	0.28=0				
		Alcohol associated liver disease	2	2	4	0.033	1.16=1	1			
		Non alcoholic fatty liver disease	2	3	6	0.050	1.75=2		1		
		DILI	2	2	4	0.033	1.16=1	1			
		Autoimmune hepatitis	2	2	4	0.033	1.16=1	1			
		Primary biliary cholangitis	2	2	4	0.033	1.16=1	1			
		Portal hypertension	2	2	4	0.033	1.16=1			1	
		Ascites	2	2	4	0.033	1.16=1	1			
		Spontaneous bacterial peritonitis	2	2	4	0.033	1.16=1			1	
		Hydrothorax	1	2	2	0.017	0.60=1			1	
		Hepatic encephalopathy	2	2	4	0.033	1.16=1	1			
		Hepatorenal syndrome	3	1	3	0.025	0.88=1			1	
		HPS	2	1	2	0.017	0.60=1	1			
		Acute liver failure	3	1	3	0.025	0.88=1	1			

		Acute on chronic liver failure	2	2	4	0.033	1.16=1	1			
		Hepatocellular carcinoma	2	2	4	0.033	1.16=1			1	
		Other malignant tumors	2	1	2	0.017	0.60=1	1			
		Benign tumors	1	1	1	0.008	0.28=0				
		Hepatic cysts	1	1	1	0.008	0.28=1			1	
		Liver transplant	2	1	2	0.017	0.60=1		1		
		Cirrhosis	2	2	4	0.033	1.16=1			1	
2	Pancreaticobiliary System	Developmental anomalies	2	1	2	0.052631579	1.04=1	0	1	0	
		Genetic disorders	1	1	1	0.026315789	0.52=1	1	0	0	

		Acute pancreatitis	3	2	6	0.157894737	3.14=3	1	1	1	
		Chronic pancreatitis	2	2	4	0.105263157	2.10=2		1	1	
		Pancreatic cancer and cystic neoplasm	3	2	6	0.157894737	3.14=3	1	1	1	
		Biliary atresia	1	1	1	0.026315789	0.52=1	1			
		Choledochal cysts	2	1	2	0.052631579	1.04=1			1	

		Caroli disease	1	1	1	0.026315789	0.52=1	1			
		Biliary motor dysfunction	1	1	1	0.026315789	0.52=0				
		Gall stone disease	2	2	4	0.105263157	2.10=2	1		1	
		Primary cholangitis	2	2	4	0.105263157	2.10=2	1		1	
		Tumours of gall bladder, bile duct and ampulla	3	2	6	0.157894737	3.14=3	1	1	1	
3	Liver Transplant	Listing criteria for transplant	1	1	1	0.015	0.15=0				
		Contraindications of LT	2	1	2	0.03	0.3=0				
		Liver Transplant evaluation	2	2	4	0.061	0.61=1	1	0	0	
		LT specific indication	2	2	4	0.061	0.61=1		1		
		LT Surgical aspects	1	1	1	0.015	0.15=0				
		LT Immunosuppression	2	3	6	0.092	0.92=1			1	
		Post Liver transplant infections	3	3	9	0.138	1.38=1	1			
		Post LT -Acute cellular rejection	2	3	6	0,092	0.92=1			1	
		Post LT Hepatic artery thrombosis	2	2	4	0.061	0.61=1	1			

		Post LT Primary graft non-function	2	1	2	0.03	0.3=0				
		LT Surgical complications; bleeding, bile leak, wound infections	1	1	1	0.015	0.15=0				
		Post LT - biliary strictures ; anastomotic, non-anastomotic	2	3	6	0.092	0.92=1			1	
		Chronic rejection	2	3	6	0.092	0.92=1	1			
		LT immunosuppression related issues; hypertension, hyperlipidemia, alcohol consumption, osteopenia, de-novo malignancies	3	2	6	0.092	0.92=1				
		Immunization and antibiotic prophylaxis	2	3	6	0.092	0.92=1			1	
		Retransplantation	1	1	1	0.015	0.15=0				

4	GI Oncology	Ca Esophagus	2	2	4	0.105	1.57	2			
		Ca stomach	2	2	4	0.105	1.57	1			
		Ca Pancreas	2	2	4	0.105	1.57	2			
		HCC	2	3	6	0.158	2	2			

		cholangiocarcinoma	2	2	4	0.105	1.57	2			
		Ca Gall bladder	2	1	2	0.052	0.78	1			
		colorectal Ca	2	2	4	0.105	1.57	2			
		Neuroendocrine	2	1	2	0.052	0.78	1			
		GIST	2	1	2	0.052	0.78	1			
		Lymphoma	2	2	4	0.105	1.57	1			
		cystic neoplasm of pancreas	1	1	1	0.026	0.4	0			
		small intestine tumors	1	1	1	0.026	0.4	0			
	GI Paediatric disorders	Esophagus - Tracheoesophageal fistula	2	1	2	0.022	0.22=0				
		Esophageal atresia	1	1	1	0.011	0.11=0				
		Esophageal rings and webs	1	1	1	0.011	0.11=0				
		Stomach - Infantile hypertrophic pyloric stenosis	3	3	9	0.102	1.02=1				
		Duodenum - Duplication cyst	1	1	1	0.011	0.11=0				
		Pancreas - Annular pancreas	2	1	2	0.022	0.22=0				
		Pancreatic divisum	3	3	9	0.102	1.02=1				
		Pancreatobiliary malunion	2	2	4	0.045	0.45=0				

		Biliary system - Atresia	3	3	9	0.102	1.02=1				
		Choledochal Malformation	3	3	9	0.102	1.02=1				
		Hepatic fibrocystic disease	2	1	2	0.022	0.22=0				
		Alagille syndrome	2	2	4	0.045	0.45=1				
		Liver - alpha 1 antitrypsin deficiency	2	1	2	0.022	0.22=0				
		Glycogen storage disorders	1	1	1	0.011	0.11=0				
		Tyrosinemia	2	1	2	0.022	0.22=0				
		Cystic fibrosis	2	2	4	0.045	0.45=1				
		Bile transport disorders	2	2	4	0.045	0.45=0				
		Hepatoblastoma	2	1	2	0.022	0.22=0				
		Physiological jaundice of neonate	2	3	6	0.068	0.58=1				
		Meckel's diverticulum	2	2	4	0.045	0.45=1				
		Hirschsprung disease	2	2	4	0.045	0.45=1				
		Rectal polyps	2	3	6	0.068	0.68+1				

6	GI Drugs	IBS drugs	2	2	4	0.105	0.53=1			1	
		IBD drugs	3	2	6	0.158	0.79=1			1	
		HCC Drug	3	2	6	0.158	0.79=1			1	
		CRC drugs	1	1	1	0.026	0.13=0				
		HBV Drugs	2	2	4	0.105	0.53=0				
		HCV Drug	2	2	4	0.105	0.53=0				
		HDV Drug	1	1	1	0.026	0.13=0				
		PBC drug	1	1	1	0.026	0.13=0				
		LT drugs	2	2	4	0.105	0.53=1			1	
		GIST	2	1	2	0.053	0.26=0				
		MASH	2	2	4	0.105	0.53=1			1	
		EE	1	1	1	0.026	0.13=0				
7	GI Recent advances	POEM	1	2	2	0.095	0.48=1			1	
		EUS Guided gastric varices embolization	1	1	1	0.047	0.24=0				

		EUS Gastrojejunostomy	1	1	1	0.047	0.24=0				
		Artificial intelligence	1	2	2	0.095	0.48=1		1		
		EUS hepaticogastrostomy	1	1	1	0.047	0.24=0				
		EUS choledochoduodenostomy	2	1	2	0.095	0.48=1			1	
		TIF	1	1	1	0.047	0.24=0				
		Endo Bariatric therapy	1	1	1	0.047	0.24=0				
		Liquid biopsy for tumors	1	1	1	0.047	0.24=0				
		EUS guided HVPG measurement	1	1	1	0.047	0.24=0				
		EUS cystogastrostomy	2	2	4	0.190	0.95=1			1	
		Cholangioscopy	2	2	4	0.190	0.95=1			1	

CLINICAL EXAM (FTA)

Details of Stations and Marks Distribution

- Total number of stations –15
- Types of stations: Interactive
- Time allocation for each station – 5minutes
- 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/ C3			
STATION - 2	(Radiology – X-ray)	• Describe the findings	C2/ C3			
		• Relevant questions will be asked (regarding differential diagnosis and management)	C 1/ C2			
STATION – 3	(Radiology – CT-scan, MRI,	IMAGE will be shown: • Describe the findings	C2/ C3			
		• Relevant questions will be asked (regarding differential diagnosis and management)	C 1/ C2			
STATION – 4	(Instrument)	• Identify instrument/specimen	C1			
		• Relevant questions will be asked (regarding differential diagnosis and management)	C2/ C3			
STATION – 5	(G I. Emergency)	Examiner will share a case-scenario related to acute GI emergency: • Diagnosis	C2/ C3			
		• Relevant questions will be asked (regarding work-up and emergency management plan)	C3			
STATION – 6	Counselling / Pediatric/ Image/ Case scenario	• Command will be given regarding issue	C2/3			
		• Relevant questions will be asked				
STATION – 7	Manometry (HRM) / GI motility disorder	IMAGE will be shown: Describe the findings	C2/C3			
		Relevant questions will be asked (regarding differential				

		diagnosis and management)				
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STATION -8	Instrument	Identify instrument/specimen	C1			
		Relevant questions will be asked (regarding differential diagnosis and, management)	C2/3			
STATION - 9	Radiology – MRCP)	Describe the findings	C1			
		Relevant questions will be asked (regarding differential diagnosis and, management)	CC2/3			
STATION - 10	Case scenario (Problem base case with ERCP/EUS/GI Endoscopy video or Radiology image)	Candidate will read the case scenario and identify problem in the video.	C2			
		Relevant questions will be asked (regarding differential diagnosis, investigations, management)	C2/3			
STATION - 11	Case scenario (Problem base case with ERCP/EUS/GI Endoscopy video or Radiology image)	Candidate will read the case scenario and identify problem in the video				
		Relevant questions will be asked (regarding differential diagnosis, investigations, management)	C2,3			
STATION - 12	GI & Hepatology emergency procedure (Video)	Candidate will read the case scenario / identify problem in the video.				
		Relevant questions will be asked regarding management/ intervention/ complications	C2,3			
STATION - 13	Histopathology slides	Identify pathology				
		Relevant questions will be asked (regarding diagnosis, investigations, management)	C1			
STATION - 14	Case scenario (Problem base case with ERCP/EUS/GI Endoscopy video or Radiology image)	Examiner will share a case scenario/ video and candidate will be asked about:	C2/			
		Differential diagnosis, Investigation and management plan	C2			
STATION - 15	GI Endoscopy video	<ul style="list-style-type: none"> Identify the abnormality/ abnormalities. Diagnosis Relevant questions will be asked. 	C3			

SHORT CASES- 4

minutes)

(200 marks, 40

Each candidate will appear in 4 short cases. Each short case will be of 10 minutes' duration. In first 5 minutes' candidate will be asked to perform a pertinent clinical examination. During this period the candidate will be observed by the examiners. Case presentation and discussion on each short case will be conducted by examiner. Following will be assessed and marking will be done on Assessment Form.

Clinical Examination Skills

Performance of proper and concerned relevant clinical examination according to instructions given in professional manner.

- Systematic and appropriate application of clinical methods

Discussion Focusing

- Correct findings, logical interpretation, and conclusion.
- Diagnosis justification
- Appropriate / relevant investigations and management (including recent advances)

Interviewing and Clinical examinations skills

- Introduces oneself, listens patiently, and is polite with the patient.
- Able to extract relevant information.
- Takes informed consent.
- Uses correct clinical methods systematically (including appropriate exposure and re-draping).

Case Presentation / Discussion

- Presents skillfully.
- Gives correct findings.
- Gives logical interpretation of findings and discuss differential diagnosis.
- Enumerates and justifies relevant investigation(s).
- Outlines and justifies treatment plan (including rehabilitation).
- Discusses prevention and prognosis.
- Has knowledge of recent advances relevant to the case.

Submission of Synopsis and Thesis

7. The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on RMU website.

8. Synopsis of research project should be submitted and approved by the end of the 3rd year of MD Gastroenterology program.

9. The minimum duration between approval of synopsis and submission of thesis shall be one year, but the thesis cannot be submitted later than 8 years of enrolment.

10. Thesis shall be submitted by the candidate duly recommended by the Supervisor.

11. The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.

12. The research thesis will be submitted along with the fee prescribed by the University.

Thesis Defense

8. All candidates admitted in MD Gastroenterology course shall appear in thesis evaluation component of the FTA after completion of five years of their training course.

9. Only those candidates shall be eligible for thesis evaluation who have passed Midterm Examination and Oral & Practical/ Clinical component of Exit Examination.

10. The examination shall include thesis evaluation with defense.

11. The Vice Chancellor shall appoint three external examiners for thesis evaluation, preferably from other universities and from abroad, out of the panel of examiners approved by the Advanced Studies & Research Board. The examiners shall be appointed from respective specialty.

12. The thesis shall be sent to the external examiners for evaluation, well in time before the date of defense examination and should be approved by all the examiners.

13. After the approval of thesis by the evaluators, the thesis defense examination shall be held within the University on such date as may be notified by the Controller of Examinations. The Controller of Examinations shall make appropriate arrangements for the conduct of thesis defense examination in consultation with the supervisor, who will co-ordinate the defense examination.

14. The thesis defense examination shall be conducted by two External Examiners who shall submit a report on the suitability of the candidate for the award of degree. The supervisor shall act as coordinator.

SECTION IX
ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPA)

Entrustable Professional Activities (EPAs)

Entrustable Professional Activities (EPAs) for a five -year Gastroenterology residency program are essential in defining the specific tasks residents should be able to perform independently by the end of their training. These EPAs are aligned with clinical core competencies and are designed to ensure that residents progressively develop their skills and knowledge throughout their residency.

Levels of EPA

- 1) Be present and observe or Assist
- 2) Direct pro-active Supervision: The supervisor is physically present with the resident and the patient.
- 3) Indirect re-active Supervision is broken down into two levels: Direct Supervision Immediately Available: The supervisor is physically within the hospital or other site of patient care and is immediately available to provide direct supervision. Direct Supervision not readily Available: The supervisor is not physically present within the hospital or other site of patient care, but is immediately available by means of telephonic and/or electronic modalities, and is available to provide direct supervision.
- 4) Can supervise other junior residents

Below is a structured outline of EPAs in each domain based on ACGME core competencies

Entrustable Professional Activities for MD Gastroenterology Training

1. Manage common acid peptic related problems.
2. Manage common functional gastrointestinal disorders
3. Manage common gastrointestinal motility disorders
4. Manage liver diseases
5. Manage complications of cirrhosis
6. Perform upper and lower endoscopic evaluation of the luminal gastrointestinal tract for screening, diagnosis, and intervention
7. Perform endoscopic procedures for the evaluation and management of gastrointestinal bleeding
8. Manage biliary disorders
9. Manage pancreatic diseases
10. Manage common GI infections in non-immunosuppressed and immunocompromised populations
11. Identify and manage patients with noninfectious GI luminal disease
12. Manage common GI and liver malignancies, and associated extraintestinal cancers
13. Assess nutritional status and develop and implement nutritional therapies in health and disease

Each EPA is accompanied by a comprehensive toolbox that includes:

1. A detailed description
2. Specific behavioral objectives in:
 - a. Knowledge
 - b. Skills
 - c. Attitudes
3. A checklist of the ACGME competencies applicable to the EPA
4. The specific sub competencies that are needed to achieve mastery of the EPA
5. Implications of entrustment for the trainee

1. EPA Title: Manage common acid peptic related problems

Detailed Description: Acid peptic diseases include peptic ulcer disease, gastroesophageal reflux, other erosive foregut diseases where gastric acid contributes to the pathogenesis, acid hypersecretory states, and complications of these processes. At the completion of fellowship training, the GI consultant should have an in depth understanding of the physiology of gastric acid secretion, and the pathophysiology and etiopathogenesis of acid peptic diseases. The consultant should be able to extract appropriate history and physical examination findings to identify acid peptic diseases, apply investigative tests including endoscopy to diagnose and treat these diseases and their complications, and formulate appropriate management plans to manage these disorders and prevent complications.

Knowledge	<ul style="list-style-type: none"> • Recognize anatomy and physiology of the esophagus, stomach and duodenum, and pathophysiology of gastric acid secretion in health and disease, including hypersecretory states • Describe the natural history, epidemiology and complications of acid-peptic disorders • Develop understanding of molecular and genetic basis for certain complications, including Barrett’s esophagus, gastric cancer, gastrinoma.” • Associate the role of Helicobacter pylori infection and NSAID use in the pathophysiology of acid-peptic disorders, including detailed understanding of epidemiology, pathophysiology, diagnosis and management of Helicobacter pylori infection • Recall the pharmacology, efficacy, appropriate use, routes of administration, and appropriate use of medications for acid-peptic diseases, including antacids, histamine-2 receptor antagonists, proton pump inhibitors, mucosal protective agents, prostaglandin analogues, prokinetic agents, and antibiotics • Recognize the pathophysiology of gastroesophageal reflux disease, presentation, manifestations, investigation including reflux monitoring, complications, appropriate choice of management options, and potential for premalignant conditions including Barrett’s esophagus • Recall conditions that may mimic or confound the diagnosis of acid peptic disorders, including eosinophilic esophagitis, stress ulcer syndrome, achlorhydria and pernicious anemia, gastric polyps and neoplasia, other esophageal and gastric inflammatory disorders, and elevated gastrin • Describe appropriate use of endoscopy and reflux monitoring for diagnosis and therapy of acid peptic diseases and their complications; understand clinical indications, cost effectiveness and complications; make appropriate screening and surveillance recommendations • Recognize situations where surgical management is indicated in acid peptic diseases, both for short term and long term management of these disorders
Skills	<ul style="list-style-type: none"> • Obtain a comprehensive history pertaining to acid peptic disorders • Perform a physical examination that assesses for manifestations and

	<p>particularly, complications of acid peptic disorders</p> <ul style="list-style-type: none">• Order appropriate laboratory studies, radiologic studies and endoscopy in the evaluation of acid peptic disorders and their complications• Counsel patients about the role of pharmacological and non-pharmacological approaches to treatment of acid related disease• Demonstrate adequate skills to perform diagnostic and therapeutic endoscopy for diagnosis and management of acid peptic disorders and their complications• Integrate non pharmacologic management, appropriate use of medications, endoscopic management and surgical management of acid peptic disorders and H pylori infection
Attitudes	<ul style="list-style-type: none">• Apply ethical principles in appropriate use of diagnostic and therapeutic approaches• Team with pharmacists, surgeons, and other disciplines including ear-nose- throat and pulmonary medicine in management of acid peptic disorders• Demonstrate ethnic, gender, cultural and socio-economic sensitivity in choice of management options for acid peptic disorders
Check competencies applicable to EPA	
Patient Care (PC)	<input checked="" type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>
Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	<input type="checkbox"/>
Professionalism (PROF)	<input checked="" type="checkbox"/>
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>
What sub competencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage

Patient Care (PC): <ul style="list-style-type: none"> Manages patients with progressive responsibility and independence. (PC3) 	
<ul style="list-style-type: none"> Requests and provides consultative care. (PC5) 	
Medical Knowledge (MK): <ul style="list-style-type: none"> Knowledge of diagnostic testing and procedures. (MK2) 	
<ul style="list-style-type: none"> 	
Systems-Based Practice (SBP): <ul style="list-style-type: none"> Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (SBP1) 	
<ul style="list-style-type: none"> Identifies forces that impact the cost of health care, and advocates for and practices cost-effective care. (SBP3) 	
Practice-Based Learning & Improvement (PBLI): <ul style="list-style-type: none"> 	

•		
Professionalism (PROF):		
• Has professional and respectful interactions with patients, caregivers and members of the interprofessional team (e.g. peers, consultants, nursing, ancillary professionals, and support personnel). (PROF1)		
• Responds to each patient’s unique characteristics and needs. (PROF3)		
Interpersonal & Communication Skills (ICS):	<input checked="" type="checkbox"/>	
• Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (ICS2)	<input checked="" type="checkbox"/>	
	<input checked="" type="checkbox"/>	
• Appropriate utilization and completion of health records. (ICS3)	<input checked="" type="checkbox"/>	
Stage of training at which supervision level 4 is expected to be reached:	<input type="checkbox"/>	
	<input checked="" type="checkbox"/>	
Implications of entrustment for the trainee: Entrustment would allow the GI consultant to perform independent consults on patients with acid peptic disease and its complications in both the inpatient and outpatient setting, and independently develop and implement clinically appropriate management approaches. Entrustment indicates that the fellow is ready for unsupervised practice of this activity in accordance with program policy.		

2. EPA Title: Manage common functional gastrointestinal disorders

Detailed Description: Functional gastrointestinal disorders are among the most common indications for gastroenterological consultation by practicing gastroenterologists. At the completion of fellowship training, the GI consultant should be familiar with the concepts of visceral sensation, brain-gut axis, triggering of functional symptoms, and use of pharmacologic and non-pharmacologic approaches for control and management of functional symptoms. The consultant needs knowledge of judicious and limited use of diagnostic studies in functional gastrointestinal disorders, understand the impact of affective, organic and psychological stressors, and develop a compassionate and detail oriented approach to management of functional gastrointestinal disorders.

Knowledge	<ul style="list-style-type: none"> • Describe anatomic and physiological basis of brain and gut interactions, including visceral afferent signaling, sensitization and neurobiology of central pain modulation and peripheral pain signaling. • Demonstrate the natural history, presentation, epidemiology and clinical course of common functional gastrointestinal diseases, including irritable bowel syndrome, functional dyspepsia, functional vomiting, noncardiac chest pain, functional heartburn, cyclic vomiting syndrome, narcotic bowel syndrome and chronic unexplained abdominal pain • Recall the pharmacology, efficacy, routes of administration, and appropriate use of medications functional gastrointestinal disorders, including antidepressants, typical and atypical analgesic agents, psychotropic agents, laxatives, antidiarrheal agents, antiemetics • Recall conditions that may mimic or confound the diagnosis of functional gastrointestinal disorders, including the concept of alarm symptoms that would warrant further investigation, and overlap functional syndromes interfacing with organic disorders (e.g. noncardiac chest pain and GERD, IBD and IBS) • Illustrate the role of psychiatric and affective disorders in functional disease; describe appropriate use of diagnostic studies for evaluation of confounding organic diagnoses, triggers of functional syndromes • Describe the utility of general measures and non-pharmacologic intervention for functional gastrointestinal disorders, including establishing a therapeutic patient-physician relationship, cognitive and behavioral therapy, dietary therapy, hypnosis, acupuncture and biofeedback
Skills	<ul style="list-style-type: none"> • Obtain a comprehensive history pertaining to functional gastrointestinal disorders • Perform directed physical examination that assesses for confounding organic diagnoses and alarm symptoms warranting further investigation; perform a digital rectal examination as part of the assessment of every patient (other than those presenting with dysphagia), and particularly in patients with defecatory disorders

	<ul style="list-style-type: none">• Order limited, appropriate laboratory studies, radiologic studies, diagnostic motility studies and endoscopy for exclusion of organic disorders when warranted• Integrate pharmacologic management, nonpharmacologic management, complementary and alternative medicine in effective management of functional gastrointestinal disorders
Attitudes	<ul style="list-style-type: none">• Develop an understanding of the role of affective disorders, psychological state and abuse history in the presentation of functional gastrointestinal disorders• Demonstrate a sensitive, patient and empathetic approach towards patients with chronic functional gastrointestinal symptoms including pain• Incorporate a team approach utilizing health psychologists, dieticians, psychiatrists, and physical therapists in providing compassionate care that has sound neuropsychological basis• Demonstrate gender, ethnic, cultural and socio-economic sensitivity in choice of management options
Check competencies applicable to EPA	
Patient Care (PC)	<input checked="" type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>
Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	<input checked="" type="checkbox"/>
Professionalism (PROF)	<input checked="" type="checkbox"/>
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>
What subcompetencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage
Patient Care (PC): <ul style="list-style-type: none">• Manages patients with progressive responsibility and independence. (PC3)	
<ul style="list-style-type: none">• Requests and provides consultative care. (PC5)	

Medical Knowledge (MK):	
• Possesses Clinical knowledge (MK1)	
• Knowledge of diagnostic testing and procedures. (MK2)	
Systems-Based Practice (SBP):	
• Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (SBP1)	
• Identifies forces that impact the cost of health care, and advocates for and practices cost-effective care. (SBP3)	
Practice-Based Learning & Improvement (PBLI):	
• Monitors practice with a goal for improvement. (PBLI1)	
• Learns and improves via feedback. (PBLI3)	

Professionalism (PROF):	
• Has professional and respectful interactions with patients, caregivers and members of the interprofessional team (e.g. peers, consultants, nursing, ancillary professionals, and support personnel). (PROF1)	
• Responds to each patient's unique characteristics and needs. (PROF3)	
Interpersonal & Communication Skills (ICS):	
• Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (ICS2)	
• Appropriate utilization and completion of health records. (ICS3)	
Stage of training at which supervision level 4 is expected to be reached:	

Implications of entrustment for the trainee: Entrustment would allow the GI consultant to recognize functional presentations distinct from and within organic disorders, direct appropriate diagnostic testing, and implement effective therapy. Once entrusted, the consultant can independently extract sensitive psychological and affective background history, and incorporate psychological elements into an effective multidisciplinary management plan. Entrustment indicates that the fellow is ready for unsupervised practice of this activity in accordance with program policy.

3. EPA Title: Manage common gastrointestinal motility disorders

Detailed Description: Motility disorders interface with many common GI presenting symptoms, including dysphagia, chest pain, nausea, vomiting, constipation and diarrhea. At the completion of fellowship training the GI consultant should develop an understanding of the physiology of the gastrointestinal muscle function, its neural regulation, and common disorders arising from dysfunction. The consultant needs knowledge of the indications, and limitations of diagnostic motility studies, and utilization of motility studies in diagnosis and management of motility disorders. Additional training is frequently required for expertise in detailed interpretation of motility studies.

Knowledge	<ul style="list-style-type: none"> • Recognize anatomy and physiology of gastrointestinal contractile apparatus, gastrointestinal sensation, and its neurohormonal regulation including deglutition, gastric emptying, small bowel and colonic motility and transit, sphincter function and dysfunction (including sphincter of Oddi). • Describe the natural history, epidemiology, pathophysiology, and complications of common motility disorders, including achalasia, aperistalsis, gastroparesis, intestinal pseudo-obstruction, colonic inertia, pelvic floor dyssynergia and fecal incontinence • Develop understanding of molecular and genetic basis for certain motility disorders, including achalasia and Hirschsprung disease • Recall the pharmacology, efficacy, routes of administration, and appropriate use of medications for motility disorders, including prokinetic agents, acid suppressive agents, laxatives, antidiarrheal agents • Recall conditions that may mimic or confound the diagnosis of motility disorders, including organic obstructive syndromes, gastroesophageal reflux disease, celiac disease, inflammatory bowel disease, common anorectal disorders (including anal fissures, fistula and hemorrhoids) • Describe the diagnostic motility studies for diagnosis and in directing therapy of motility disorders and their complications; understand clinical indications, cost effectiveness and complications • Recognize situations where invasive intervention and surgical management is indicated in motility disorders, both for short term and long term management of these disorders • Describe the utility of nonpharmacologic intervention for motility disorders, including cognitive and behavioral therapy, dietary therapy and biofeedback
Skills	<ul style="list-style-type: none"> • Obtain a comprehensive history pertaining to motility disorders • Perform a physical examination that assesses for manifestations and particularly, complications of motility disorders; perform a digital rectal examination as part of the assessment of every patient (other than those presenting with dysphagia), and particularly in patients with defecatory disorders • Order appropriate laboratory studies, radiologic studies, diagnostic motility studies and endoscopy in the evaluation of motility disorders and their

	complications; apply results from these studies in the management of motility disorders	
	<ul style="list-style-type: none">Integrate nonpharmacologic management, appropriate use of medications, endoscopic and surgical management of common motility disorders	
Attitudes	<ul style="list-style-type: none">Develop patience, compassion and ethical principles in managing chronic and disabling symptoms in motility disordersTeam with pharmacists, surgeons, speech pathologists, health psychologists and motility nurses in management of GI motility disordersDemonstrate gender, ethnic, cultural and socio-economic sensitivity in choice of management options	
Check competencies applicable to EPA		
Patient Care (PC)	<input checked="" type="checkbox"/>	
Medical Knowledge (MK)	<input checked="" type="checkbox"/>	
Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>	
Practice-Based Learning & Improvement (PBLI)	<input checked="" type="checkbox"/>	
Professionalism (PROF)	<input checked="" type="checkbox"/>	
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>	
What sub competencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage	
Patient Care (PC): <ul style="list-style-type: none">Manages patients with progressive responsibility and independence. (PC3)		
<ul style="list-style-type: none">Requests and provides consultative care. (PC5)		
Medical Knowledge (MK): <ul style="list-style-type: none">Possesses Clinical knowledge (MK1)		
<ul style="list-style-type: none">Knowledge of diagnostic testing and procedures. (MK2)		
Systems-Based Practice (SBP): <ul style="list-style-type: none">Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (SBP1)		

<ul style="list-style-type: none"> Identifies forces that impact the cost of health care, and advocates for and practices cost-effective care. (SBP3) 	
Practice-Based Learning & Improvement (PBLI):	
<ul style="list-style-type: none"> Monitors practice with a goal for improvement. (PBLI1) 	
<ul style="list-style-type: none"> Learns and improves via feedback. (PBLI3) 	
Professionalism (PROF):	
<ul style="list-style-type: none"> Has professional and respectful interactions with patients, caregivers and members of the interprofessional team (e.g. peers, consultants, nursing, ancillary professionals, and support personnel). (PROF1) 	
<ul style="list-style-type: none"> Responds to each patient's unique characteristics and needs. (PROF3) 	

Interpersonal & Communication Skills (ICS):	
<ul style="list-style-type: none"> Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (ICS2) 	
<ul style="list-style-type: none"> Appropriate utilization and completion of health records. (ICS3) 	
Stage of training at which supervision level 4 is expected to be reached:	
<p>Implications of entrustment for the trainee: Entrustment would allow the GI consultant to reliably recognize situations where common motility disorders are likely in both the inpatient and outpatient setting, and independently recommend appropriate diagnostic testing. Once entrusted, the consultant diagnose common motility disorders and recommend appropriate management; recognize motility disorders that require further expert opinion.</p> <p>Entrustment indicates that the fellow is ready for unsupervised practice of this activity in accordance with program policy.</p>	

4. EPA Title: Manage liver diseases

Detailed Description: Gastroenterologists diagnose and manage the broad spectrum of acute and chronic liver problems encountered in a typical gastroenterology practice. This includes an understanding of liver disease in general, with an ability to recognize, diagnose and treat routinely seen acute and chronic liver diseases. Separate EPAs cover the management of cirrhosis and its complications, nutritional aspects of liver disease and endoscopic management of variceal bleeding.

Knowledge	<ul style="list-style-type: none">• Describe the anatomy, physiology, pharmacology, histology and molecular biology ++related to the liver• Describe the pathophysiological mechanisms of liver injury• Interpret abnormal liver chemistries• List the indications, contraindications, limitations, complications and techniques of liver biopsy and interpret the results• Interpret genetic markers and apply them in the management of liver disease• List options for treatment of liver diseases encountered in a typical gastroenterology practice• Recognize liver disorders associated with pregnancy• Summarize the indications and limitations of liver imaging modalities, and be able to interpret the results of CT, MRI, MRCP, hepatic angiography and ultrasound (including Doppler evaluation of vasculature)

Skills	<ul style="list-style-type: none"> • Obtain a relevant history and perform a focused physical examination in patients with acute and chronic liver disease and develop a comprehensive differential diagnosis • Order appropriate labs and studies to assess patients with acute and chronic liver disease • Counsel patients about lifestyle modifications relevant to liver disease (alcohol, drugs, diet) • Diagnose and manage patients with liver diseases encountered in a typical gastroenterology practice including: acute infectious hepatitis, acute liver injury and failure, chronic infectious hepatitis, alcoholic liver disease, nonalcoholic fatty liver disease, Wilson's disease, primary biliary cirrhosis, primary sclerosing cholangitis, autoimmune hepatitis, hemochromatosis, alpha-1 antitrypsin deficiency, vascular liver disease, cystic diseases of the liver • Appropriately refer patients with complex liver disease to a hepatologist • Identify patients at risk of complications of liver disease including progression to advanced stages • Assess preoperative risk in patients with liver disease • Provide efficient, cost-effective consultative care with timely feedback to referring providers
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Attitudes	<ul style="list-style-type: none"> • Incorporate evolving management guidelines in the care of patients with liver disease • Demonstrate cultural and socioeconomic sensitivity to devising individualized management plans • Develop an awareness of the stigma related to liver disease, including the stigma associated with alcohol and drug-related causes.
Check competencies applicable to EPA	
Patient Care (PC)	<input checked="" type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>
Systems-Based Practice (SBP)	<input type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	<input checked="" type="checkbox"/>

Professionalism (PROF)	<input checked="" type="checkbox"/>
Interpersonal & Communication Skills (ICS)	<input type="checkbox"/>
What subcompetencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage
Patient Care (PC): <ul style="list-style-type: none"> Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s) (PC1) 	
<ul style="list-style-type: none"> Develops and achieves comprehensive management plan for each patient (PC2) 	
Medical Knowledge (MK): <ul style="list-style-type: none"> Possesses Clinical knowledge (MK1) 	
<ul style="list-style-type: none"> Knowledge of diagnostic testing and procedures (MK2) 	
Systems-Based Practice (SBP): <ul style="list-style-type: none"> 	
<ul style="list-style-type: none"> 	
Practice-Based Learning & Improvement (PBLI): <ul style="list-style-type: none"> Monitors practice with a goal for improvement (PBLI1) 	
<ul style="list-style-type: none"> Learns and improves at the point of care (PBLI4) 	
Professionalism (PROF): <ul style="list-style-type: none"> Has professional and respectful interactions with patients, caregivers and members of the interprofessional team (e.g. peers, consultants, nursing, ancillary professionals, and support personnel) (PROF1) 	
<ul style="list-style-type: none"> Responds to each patient's unique characteristics and needs (PROF3) 	
Interpersonal & Communication Skills (ICS): <ul style="list-style-type: none"> 	
<ul style="list-style-type: none"> 	
Stage of training at which supervision level 4 is expected to be reached:	

Implications of entrustment for the trainee: Entrustment allows the fellow to independently perform consultation for patients with acute and chronic liver diseases in the inpatient and outpatient setting.

5. EPA Title: Manage complications of cirrhosis

Detailed Description: Gastroenterologists diagnose and manage the broad spectrum of liver problems encountered in a typical gastroenterology practice. This includes an understanding and management of the complications of cirrhosis, including portal hypertension and hepatic encephalopathy. Gastroenterologists must be able to recognize when to request consultative services and refer patients for liver transplant evaluation. Separate EPAs cover the management of nutritional aspects of decompensated liver disease and endoscopic management of variceal bleeding.

Knowledge	<ul style="list-style-type: none">• Recognize the complications of cirrhosis, including portal hypertension (ascites, spontaneous bacterial peritonitis, varices), hepatic encephalopathy and hepatorenal syndrome• List the indications, contraindications, limitations and complications of diagnostic and therapeutic paracentesis and interpret the results of ascitic fluid analysis• Describe appropriate screening and diagnostic strategies for hepatocellular carcinoma• Recognize and apply prognostic models (e.g., MELD, CPT)• Identify appropriate timing to request specialty consultation on patients with cirrhosis• Recognize patients in need of referral for liver transplantation
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Skills	<ul style="list-style-type: none"> • Obtain a relevant history and perform a focused physical examination in patients with decompensated liver disease • Order appropriate labs and studies to assess patients with decompensated liver disease • Counsel patients about lifestyle modifications and dietary restrictions/recommendations relevant to decompensated liver disease • Diagnose and manage patients with cirrhosis, including complications of portal hypertension (ascites, spontaneous bacterial peritonitis, varices), hepatic encephalopathy and hepatorenal syndrome • Apply the results of ascitic fluid analysis • Screen patients for hepatocellular carcinoma and refer for management • Recognize when to refer patients for liver transplant evaluation • Assess preoperative risk in patients with cirrhosis • Communicate transitions of care effectively with other providers 	
Attitudes	<ul style="list-style-type: none"> • Work and communicate effectively within an interprofessional team in the management of patients with decompensated liver disease • Provide compassionate care and end-of-life counseling to liver patients and their families 	
Check competencies applicable to EPA		
Patient Care (PC)		<input checked="" type="checkbox"/>
Medical Knowledge (MK)		<input checked="" type="checkbox"/>
Systems-Based Practice (SBP)		<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)		<input type="checkbox"/>
Professionalism (PROF)		<input type="checkbox"/>
Interpersonal & Communication Skills (ICS)		<input checked="" type="checkbox"/>
What subcompetencies are needed to achieve mastery?		
		Approximate Time Frame Trainee Should Achieve Stage

Patient Care (PC): <ul style="list-style-type: none"> • Demonstrates skill in performing and interpreting invasive procedures. (PC4a) • Demonstrates skill in performing and interpreting non-invasive procedures and/or testing (PC4b) 	
• Requests and provides consultative care (PC5)	
Medical Knowledge (MK): <ul style="list-style-type: none"> • Possesses Clinical knowledge (MK1) 	
• Knowledge of diagnostic testing and procedures (MK2)	
Systems-Based Practice (SBP): <ul style="list-style-type: none"> • Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel) (SBP1). 	
• Transitions patients effectively within and across health delivery systems (SBP4)	
Practice-Based Learning & Improvement (PBLI): <ul style="list-style-type: none"> • 	
•	
Professionalism (PROF): <ul style="list-style-type: none"> • 	
•	
Interpersonal & Communication Skills (ICS): <ul style="list-style-type: none"> • Communicates effectively with patients and caregivers (ICS1) 	
• Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel) (ICS2).	
Stage of training at which supervision level 4 is expected to be reached:	
Implications of entrustment for the trainee: Entrustment allows the fellow to independently perform consultation for patients with cirrhosis and its complications in the inpatient and outpatient setting.	

6. EPA Title: Perform upper and lower endoscopic evaluation of the luminal gastrointestinal tract for screening, diagnosis, and intervention

Detailed Description: Endoscopy is a significant aspect of gastroenterology practice and gastroenterologists should be able to determine which patients are appropriate to undergo an endoscopic procedure, be able to perform a quality examination safely, and integrate the clinical presentation with the endoscopic findings in order to plan further management. Gastroenterologists must also be able to communicate endoscopic and pathological findings to the patient, family, and the referring doctor in a timely fashion.

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|------------------|--|
| Knowledge | <ul style="list-style-type: none"> • Summarize the appropriate indications for both upper and lower endoscopy. • List specific risks of endoscopic procedures. • Define the management of antiplatelet and anticoagulant therapy related to endoscopy. • Summarize the proper use of antibiotics related to endoscopic procedures. • Summarize the endoscopic screening/surveillance guidelines for average, intermediate, and high-risk patients for colon cancer, colon polyps, inflammatory bowel disease, Barrett's esophagus, and varices. • List the techniques utilized for removal of various lesions including flat and laterally spreading polyps. • Define potential quality metrics for endoscopic procedures including depth of insertion and adequate identification of lesions in both the upper and lower gastrointestinal tract. • Determine which lesions are best managed by submucosal injection and cap or band-assisted resection. • Recognize system errors associated with endoscopy (universal protocol, scope re-processing, specimen labeling, patient identification) |
|------------------|--|

Skills	<ul style="list-style-type: none"> • Obtain a thorough informed consent including a discussion of all possible outcomes • Participate in a well-informed discussion about the preparation and procedure day expectations. • Administer sedation and monitor the patient during endoscopy safely. • Communicate effectively with assistants during procedure. • Demonstrate proper use of resuscitation equipment. • Perform and document the successful intubation to the second portion of the duodenum using proper technique. • Perform and document successful intubation of the cecum and terminal ileum using proper technique. • Conduct a thorough examination of the upper and lower gastrointestinal tract and correctly identify landmarks. • Recognize both the spectrum of normal endoscopic findings as well as abnormal findings and determine the clinical relevance of these findings. • Determine the adequacy of bowel preparation for a colonoscopy evaluation.
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	<ul style="list-style-type: none"> • Demonstrate adequate detection of polyps and adenomas on colonoscopy. • Determine the best management and disposition of each patient and discuss the findings with the patient, their family and other physicians in a comprehensible fashion. • Recognize and manage any complications expeditiously. • Perform endoscopic mucosal biopsy and polypectomy successfully, including pedunculated and sessile polyps, and submucosal injection when appropriate • Ensure adequate post polypectomy hemostasis. • Perform retroflexion of the gastric fundus/cardia and rectum with adequate visualization. • Perform effective endoscopic therapies (such as foreign body removal, prophylactic variceal band ligation, dilation, injection therapy, feeding tube placement, and colonic decompression) safely in the appropriate setting. • Complete timely and thorough documentation of all endoscopic procedures. • Integrate endoscopic findings with clinical presentation to formulate a diagnosis and plan of care. • Explain how patients and other providers will get pathology results and recommendations within the patient's medical system.
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Attitudes	<ul style="list-style-type: none"> • Acquire all of the relevant medical and social history prior to the procedure. • Consider alternatives to the procedure and inform the patient and family. • Recognize the cultural and religious differences that patients may have as it pertains to endoscopy and the specific interventions associated with the procedure. • Recognize when a procedure or intervention should be aborted for the safety of the patient. • Respect gender issues that may exist with regard to the comfort/discomfort of the patient with the endoscopist. • Recognize patient and family values as part of clinical decision making • Recognize the social and ethical issues in aging, abused and other vulnerable populations. • Recognize ones own training or skill limitations in procedure planning and acknowledge that certain procedures (luminal stenting, ERCP, EUS) may require special additional training. • Review quality performance metrics and incorporate necessary changes into practice.
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Check competencies applicable to EPA	
Patient Care (PC)	<input checked="" type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>
Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	<input checked="" type="checkbox"/>
Professionalism (PROF)	<input type="checkbox"/>

Interpersonal & Communication Skills (ICS)		<input checked="" type="checkbox"/>
What subcompetencies are needed to achieve mastery?		
Approximate Time Frame Trainee Should Achieve Stage		
Patient Care (PC): <ul style="list-style-type: none"> • Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s). (PC1) 		

<ul style="list-style-type: none"> • Demonstrates skill in performing and interpreting invasive procedures. (PC4a) • Demonstrates skill in performing and interpreting non-invasive procedures and/or testing (PC4b) 	
Medical Knowledge (MK):	
<ul style="list-style-type: none"> • Possesses Clinical knowledge. (MK1) 	
<ul style="list-style-type: none"> • Knowledge of diagnostic testing and procedures. (MK2) 	
Systems-Based Practice (SBP):	
<ul style="list-style-type: none"> • Recognizes system error and advocates for system improvement. (SBP2) 	
Practice-Based Learning & Improvement (PBLI):	
<ul style="list-style-type: none"> • Monitors practice with a goal for improvement. (PBLI1) 	
<ul style="list-style-type: none"> • Learns and improves via performance audit. (PBLI2) 	
Professionalism (PROF):	
<ul style="list-style-type: none"> • 	
Interpersonal & Communication Skills (ICS):	
<ul style="list-style-type: none"> • Appropriate utilization and completion of health records. (ICS3) 	
Stage of training at which supervision level 4 is expected to be reached:	
<p>Implications of entrustment for the trainee: Entrustment indicates that a gastroenterologist has acquired the necessary skills to independently perform both upper and lower endoscopy in the inpatient as well as outpatient setting. The trainee will be entrusted to perform endoscopy safely and to ensure that the quality metrics are met for every procedure as defined by our professional societies.</p> <p>Actual independent practice is dependent on institutional and governmental policies.</p>	

7. EPA Title: Perform endoscopic procedures for the evaluation and management of gastrointestinal bleeding

Detailed Description: Gastroenterologists play a critical role in the evaluation and management of patients with gastrointestinal bleeding. Care of the patient with gastrointestinal bleeding includes initial assessment, hemodynamic resuscitation, and stabilization. Gastroenterologists should be able to determine when and which patients are appropriate to undergo endoscopic procedures that are diagnostic and potentially therapeutic. Consultants should be able to perform a quality endoscopic examination in a safe and efficient manner and should be able to perform effective endoscopic hemostasis. GI staff must also be able to communicate endoscopic findings, pathological findings, and management plans to the patient, family, and the involved health care providers in a timely fashion.

<p>Knowledge</p>	<ul style="list-style-type: none"> • Demonstrate understanding of the principles for assessing hemodynamic status, determining the need for hemodynamic resuscitation including blood transfusion, and indications for advanced airway protection and more intensive care within the hospital • List the indications for proton pump inhibitors, somatostatin analogues, and other medical management for acute gastrointestinal bleeding • Summarize the management of antiplatelet and anticoagulant therapy in the setting of gastrointestinal bleeding • Summarize the pathophysiology and risk of variceal bleeding in liver disease with portal hypertension. • Summarize the indication and treatment options for antibiotic prophylaxis • Summarize the appropriate indications for esophagogastroduodenoscopy, colonoscopy, small bowel enteroscopy and capsule endoscopy in the evaluation of gastrointestinal bleeding • Describe specific risks of endoscopic procedures • Recognize mucosal lesions, stigmata of bleeding and other anatomical findings and know the clinical relevance of these findings • Summarize the appropriate utilization of radiological and surgical interventions in the management of gastrointestinal bleeding. • Summarize the appropriate endoscopic and medical management required for the specific endoscopic findings • Summarize the available endoscopic hemostasis techniques including electrocautery, band ligation, hemoclip placement, and injection of various hemostatic agents • Recognize complications of endoscopic procedures • List the necessary post-procedural monitoring and care of the patient
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Skills	<ul style="list-style-type: none"> • Obtain a detailed history and physical examination • Determine hemodynamic status • Assess and guide hemodynamic resuscitation of the patient using current guidelines • Recommend necessary medical management including proton pump
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	<p>inhibitors, somatostatin analogues, prophylactic antibiotics, and transfusion of indicated blood products</p> <ul style="list-style-type: none"> • Determine whether upper or lower endoscopy (or both) is required in the setting of an active GI bleed. • Identify necessity, timing and appropriate location of endoscopic procedures • Differentiate patient presentations that are at high risk for a variceal source of hemorrhage. • Recognize indication for anesthesia assistance and appropriate airway protection for the performance of endoscopy • Demonstrate the ability to obtain a thorough informed consent including a discussion of all possible outcomes • Engage in a well informed discussion about the preparation and procedure day expectations • Assemble the necessary endoscopic equipment and devices needed during specific procedures • Administer sedation safely and effectively and monitor the patient during endoscopy • Perform appropriate upper and lower endoscopic procedures for gastrointestinal bleeding and accurately identify endoscopic findings and stigmata of bleeding • Perform the endoscopic hemostasis methods indicated for the specific endoscopic findings and recognize when hemostasis has been achieved or if further measures are necessary. • Demonstrate the ability to interpret capsule endoscopy findings in the evaluation of gastrointestinal bleeding • Communicate effectively with assistants during endoscopic procedures • Integrate endoscopic findings with clinical presentation to formulate a diagnosis and plan of care • Determine the best management and disposition of each patient and discuss the findings with the patient, their family and other physicians in a comprehensible fashion • Manage any complications expeditiously • Complete timely and thorough documentation of all endoscopic procedures
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Attitudes	<ul style="list-style-type: none"> Plan medical care while respecting the patient's and family's values. Acquire all of the relevant medical and social history prior to performing endoscopic procedures Consider alternatives to endoscopic procedures and inform the patient and family Value the cultural and religious differences that patients may have as it pertains to endoscopy and the specific interventions associated with the procedure Respect gender issues that may exist with regard to the comfort/discomfort of the patient with the endoscopist Recognize when a procedure or intervention should be aborted for the safety of the patient
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	<ul style="list-style-type: none"> Work effectively with surgeons, intensivists, and radiologists as part of a multidisciplinary team. Recognize and advise the patient, family, and medical team when intervention is futile, such as those with terminal conditions 	
Check competencies applicable to EPA		
Patient Care (PC)	<input checked="" type="checkbox"/>	
Medical Knowledge (MK)	<input checked="" type="checkbox"/>	
Systems-Based Practice (SBP)	<input type="checkbox"/>	
Practice-Based Learning & Improvement (PBLI)	<input checked="" type="checkbox"/>	
Professionalism (PROF)	<input type="checkbox"/>	
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>	
What subcompetencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage	
Patient Care (PC): <ul style="list-style-type: none"> Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s). (PC1) 		
<ul style="list-style-type: none"> Demonstrates skill in performing and interpreting invasive procedures.(PC4a) Demonstrates skill in performing and interpreting non-invasive procedures and/or testing. (PC4b) 		

Medical Knowledge (MK):	
• Possesses Clinical knowledge. (MK1)	
• Knowledge of diagnostic testing and procedures. (MK2)	
Systems-Based Practice (SBP):	
•	
Practice-Based Learning & Improvement (PBLI):	
• Monitors practice with a goal for improvement. (PBLI1)	
Professionalism (PROF):	
•	
Interpersonal & Communication Skills (ICS):	
• Communicates effectively with patients and caregivers. (ICS1)	
• Appropriate utilization and completion of health records. (ICS3)	
Stage of training at which supervision level 4 is expected to be reached:	
Implications of entrustment for the trainee: Entrustment indicates that a gastroenterologist has acquired the necessary skills to independently perform evaluation of, and consultation on patients with gastrointestinal bleeding. The trainee will be entrusted to perform endoscopic procedures safely for the evaluation and management of gastrointestinal bleeding. Actual independent practice is dependent on institutional and governmental policies.	

8. EPA Title: Manage biliary disorders

Detailed Description: The diagnosis and treatment of biliary disorders constitute a significant portion of the practice of gastroenterology. At the completion of training, a GI consultant should be able to obtain diagnostic information from patient history, physical exam and studies to evaluate biliary conditions, including those related to lithiasis, inflammatory or neoplastic etiologies. The trainee who is aiming at becoming proficient in therapeutic biliary endoscopy should undergo additional training.

Due to the complexity of this field of endoscopy and need for expertise, gastroenterologists should only perform procedures they have demonstrated proficiency in performing during supervised training, and should identify patients who might benefit from referral to centers of expertise. The gastroenterologist who is aiming at becoming proficient in any of the fields of advanced endoscopy such as EUS, therapeutic biliary endoscopy, etc. will need additional focused training.

Knowledge

- Demonstrate an understanding of basic anatomy of the biliary tree and congenital structural anomalies
- Describe the basic physiology of the biliary system including hormonal and neural regulation of bile flow and gallbladder function, motility of the biliary system, bile composition and secretion and its derangement in cholestatic disorders
- Recognize cholelithiasis related disease including epidemiology, etiology, clinical manifestations, complications, and treatment modalities
- List the various infectious conditions affecting the biliary system and differentiate those from non-infectious inflammatory conditions.
- Demonstrate understanding of the current principles for the evaluation and management of common clinical syndromes including cholestasis, biliary- type pain, motility disorders, and incidental findings on radiographic testing
- Summarize the indications for obtaining radiographic and endoscopic evaluation of the biliary tree and the utility of each modality for lesion recognition
- List principles, utility, and complications of biliary interventional procedures
- Interpret laboratory and imaging studies related to biliary disease
- Recognize post-surgical biliary complications and understand appropriate and timely endoscopic intervention

Skills	<ul style="list-style-type: none"> • Obtain a detailed history of biliary disorders • Perform a physical exam that identifies signs of biliary obstruction (cholestasis), inflammation and related systemic manifestations • Order and interpret appropriate labs and imaging studies to assess the biliary tree and potential obstructive pathology (transabdominal US, CT, MRI/MRCP and scintigraphy). • Identify endoscopic techniques used in the diagnosis and treatment of biliary tract diseases, including their potential risks, limitations, and costs; and the role of alternative diagnostic and therapeutic modalities • Manage acute cholangitis with antibiotics and understand timing of
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	<p>interventional procedures</p> <ul style="list-style-type: none"> • Recognize the indications and contraindications of ERCP and EUS, the advantages and disadvantages, complications, alternative diagnostic and therapeutic options, and interpretation of findings. • Evaluate the clinical efficacy of advanced endoscopic techniques and non- endoscopic interventions, including drainage procedures. • Identify and manage systemic manifestation of biliary obstruction such as jaundice and pruritus
Attitudes	<ul style="list-style-type: none"> • Apply ethical principles in discussing and applying biliary evaluations and interventions including clear presentation of risks, benefits and alternatives to the various diagnostic and therapeutic options • Team with diagnostic and interventional radiologists, pathologists, oncologists and surgeons in the care of the patient with biliary disorders • Consider alternative palliative approaches to treatment of advanced and terminal biliary diseases • Develop respect for personal choices for treatment and end of life decisions

Check competencies applicable to EPA

Patient Care (PC)	<input checked="" type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>
Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	<input checked="" type="checkbox"/>

Professionalism (PROF)	<input type="checkbox"/>
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>
What subcompetencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage
Patient Care (PC):	
<ul style="list-style-type: none"> Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s). (PC1) 	
<ul style="list-style-type: none"> Develops and achieves comprehensive management plan for each patient. (PC2) 	
<ul style="list-style-type: none"> Demonstrates skill in performing and interpreting invasive procedures.(PC4a) Demonstrates skill in performing and interpreting non-invasive procedures and/or testing. (PC4b) 	
Medical Knowledge (MK):	
<ul style="list-style-type: none"> Possesses Clinical knowledge. (MK1) 	
<ul style="list-style-type: none"> Knowledge of diagnostic testing and procedures. (MK2) 	
Systems-Based Practice (SBP):	
<ul style="list-style-type: none"> Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (SBP1) 	
<ul style="list-style-type: none"> Identifies forces that impact the cost of health care, and advocates for and practices cost-effective care. (SBP3) 	
Practice-Based Learning & Improvement (PBLI):	
<ul style="list-style-type: none"> Monitors practice with a goal for improvement. (PBLI1) 	
?	
Professionalism (PROF):	
?	
?	

Interpersonal & Communication Skills (ICS):	
• Communicates effectively with patients and caregivers. (ICS1)	
• Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (ICS2)	
Stage of training at which supervision level 4 is expected to be reached:	
Implications of entrustment for the trainee: Entrustment indicates that the fellow is ready for unsupervised practice of this activity in accordance with program policy. This includes the ability to recognize when higher-level consultation is required. It is recognized that achieving proficiency in advanced endoscopy of the biliary tree requires time and continued guidance, which usually extends beyond the end of the 3 rd year of training.	

9. EPA Title: Manage pancreatic diseases

Detailed Description: By the end of gastroenterology fellowship, trainees should have a thorough cognitive understanding of the spectrum of pancreatic disease. Gastroenterologists should be able to obtain pertinent information through patient history, physical examination, laboratory, and imaging to evaluate the etiology, severity, complications, and basic management of pancreatic disease. The GI consultant should also recognize the indications for invasive testing of the pancreas including EUS and ERCP. The trainee who aspires to be an expert in pancreatic endoscopy usually requires additional dedicated advanced endoscopic training with a focus on ERCP, EUS, and endoscopic management of pancreatic diseases.

Knowledge	<ul style="list-style-type: none"> • Describe the normal anatomy of the pancreas and congenital variants • Describe the physiology of pancreatic exocrine secretion of digestive enzymes, including the types of enzymes, their mechanisms of activation, regulation, and roles in digestion • Summarize the epidemiology, etiology, pathophysiology, natural history, prevention, and management of acute and chronic pancreatitis and its complications • Recognize the epidemiology, etiology, natural history, and management of pancreatic cancer and related complications • Describe the epidemiology, pathology, natural history, and management of pancreatic cystic lesions • Summarize the basics of the molecular genetics of pancreatic disease with particular reference to hereditary pancreatitis and cystic fibrosis, their diagnosis and management • List the indications for and the interpretation of test results in the diagnosis and management of pancreatic diseases including serum enzymes, tumor markers, fecal studies, and cytological analysis of pancreatic fine needle aspirates. • Summarize the principles, utility, indications for, and basic interpretation of all radiographic studies of the pancreas. • Summarize the basic principles, utility, and complications of pancreatic surgery • Recognize principles of nutritional support for patients with both acute and chronic pancreatitis • Describe endoscopic, radiologic, and surgical therapeutic interventions and their risks and benefits for pancreatic diseases • List indications, contraindications, alternatives, and complications, of ERCP and EUS in the diagnosis and management of pancreatic disease

Skills	<ul style="list-style-type: none"> • Obtain a thorough history of pancreatic disorders and presentation of common pancreatic disorders such as acute and chronic pancreatitis • Perform a physical exam that would identify signs of severe pancreatitis, pancreatic insufficiency and related systemic manifestations
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	<ul style="list-style-type: none"> • Identify and manage systemic manifestation of inflammatory and neoplastic conditions of the pancreas (acute and chronic pancreatitis, pancreatic cancer) • Order appropriate labs and imaging studies to assess various pancreatic pathology (Transabdominal US, CT, MRI/MRCP) • Manage acute pancreatitis with proper use of fluids, antibiotics, and supportive hospital care • Provide basic interpretation of results EUS and ERCP images for diseases of the pancreas • Work effectively within a multidisciplinary team of diagnostic and interventional radiologists, pathologists, oncologists and surgeons in the care of the patient with pancreatic disorders as appropriate.
Attitudes	<ul style="list-style-type: none"> • Apply ethical principles in discussing and applying pancreatic evaluations and interventions including clear presentation of risks, benefits and alternatives to the various diagnostic and therapeutic options • Consider alternative palliative approaches to treatment of advanced and terminal pancreatic diseases. • Respect personal choices for treatment and end of life decisions. • Consider psychosocial impact of debilitating conditions like chronic pancreatitis

Check competencies applicable to EPA		
Patient Care (PC)	<input checked="" type="checkbox"/>	
Medical Knowledge (MK)	<input checked="" type="checkbox"/>	
Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>	
Practice-Based Learning & Improvement (PBLI)		
Professionalism (PROF)		
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>	



What subcompetencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage
Patient Care (PC): <ul style="list-style-type: none"> Manages patients with progressive responsibility and independence. (PC3) 	
<ul style="list-style-type: none"> Requests and provides consultative care. (PC5) 	
Medical Knowledge (MK): <ul style="list-style-type: none"> Possesses Clinical knowledge (MK1) 	
<ul style="list-style-type: none"> Knowledge of diagnostic testing and procedures. (MK2) 	
Systems-Based Practice (SBP): <ul style="list-style-type: none"> Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (SBP1) 	
<ul style="list-style-type: none"> 	

Practice-Based Learning & Improvement (PBLI): <ul style="list-style-type: none"> 	
<ul style="list-style-type: none"> 	
Professionalism (PROF): <ul style="list-style-type: none"> 	
<ul style="list-style-type: none"> 	
Interpersonal & Communication Skills (ICS): <ul style="list-style-type: none"> Communicates effectively with patients and caregivers. (ICS1) 	
<ul style="list-style-type: none"> Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (ICS2) 	
Stage of training at which supervision level 4 is expected to be reached:	

<p>Implications of entrustment for the trainee: Entrustment indicates that the fellow is ready for unsupervised practice of this activity in accordance with program policy. This includes the ability to recognize when higher-level consultation is required. It is recognized that achieving proficiency in advanced pancreatic endoscopy requires time and continued guidance, which usually extends beyond the end of the 3rd year of training.</p>

10. EPA Title: Manage common GI infections in non-immunosuppressed and immunocompromised populations

Detailed Description: Gastroenterologists must understand the pathogenic entities that cause infections of the upper and lower GI tract including infectious diarrhea. Particular skill and attention are required to recognize that populations of patients, such as those who are immunocompromised or pharmacologically immunosuppressed, may have different susceptibilities to enteric pathogens.

Knowledge	<ul style="list-style-type: none"> • Describe the mechanism of action of infectious agents that cause inflammatory diarrhea • Identify the molecular mechanism of organisms that cause secretory diarrhea • Describe the constituents of the mucosal defense system (including the mucosal immune system and epithelial barrier) • Identify the components of the normal micro biome • Recognize risk factors for and clinical presentation of bacteria, parasites, viruses and other gastrointestinal pathogens including those related to chemotherapy and other immune compromised states not directly related to the bowel (e.g. Graft vs Host Disease). • Describe the indications and contraindications for antimicrobial therapy and risk of antibiotic associated diarrhea and esophagitis • Recognize HIV enteropathy and AIDS-related malignancies • Differentiate between infectious diarrhea and functional diarrhea • Identify the viral and fungal organisms that can cause esophagitis.
Skills	<ul style="list-style-type: none"> • Apply therapies for GI infections which may differ based upon region of the country or travel history • Differentiate between infectious vs. non-infectious diarrhea • Order laboratory, stool and pathologic studies necessary to diagnose infections of the luminal GI Tract in a cost effective manner • Interpret results of mucosal biopsies • Select appropriate antimicrobial therapy and determine rational treatment plan for enteric infections • Formulate preventative strategies related to upcoming travel

Attitudes	<ul style="list-style-type: none"> • Apply broad based differentials to immunocompetent and immunocompromised patients. • Demonstrate high standards of ethical behavior when approaching patients with infectious diseases including but not limited to HIV. • Determine rational treatment plans in a cost-effective fashion with sensitivity to the cultural and socioeconomic values of the patient.
Check competencies applicable to EPA	
Patient Care (PC)	<input checked="" type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>

Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	<input type="checkbox"/>
Professionalism (PROF)	<input checked="" type="checkbox"/>
Interpersonal & Communication Skills (ICS)	<input type="checkbox"/>
What sub competencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage
Patient Care (PC): <ul style="list-style-type: none"> • Manages patients with progressive responsibility and independence. (PC3) 	
<ul style="list-style-type: none"> • Requests and provides consultative care. (PC5) 	
Medical Knowledge (MK): <ul style="list-style-type: none"> • Possesses Clinical knowledge (MK1) 	
<ul style="list-style-type: none"> • Knowledge of diagnostic testing and procedures. (MK2) 	
Systems-Based Practice (SBP): <ul style="list-style-type: none"> • Identifies forces that impact the cost of health care, and advocates for and practices cost-effective care. (SBP3) 	
<ul style="list-style-type: none"> • 	
Practice-Based Learning & Improvement (PBLI): <ul style="list-style-type: none"> • 	

•	
Professionalism (PROF):	
• Exhibits integrity and ethical behavior in professional conduct. (PROF4)	
•	
Interpersonal & Communication Skills (ICS):	
•	
•	
Stage of training at which supervision level 4 is expected to be reached:	

<p>Implications of entrustment for the trainee: Entrustment affirms the fellow's ability to diagnose and manage patients with infections of the gastrointestinal tract in both the inpatient and outpatient environments. Entrustment indicates that the fellow is ready for unsupervised practice of this activity in accordance with program policy.</p> <p>The gastroenterology and hepatology professional societies recognize the incongruence between the theoretical implications of entrustment and the medico-legal and regulatory limitations of practicing without supervision within a training program. Continued learning even after entrustment is achieved is recognized as having value. Therefore, the implications of entrustment can vary per individual program, and may include additional teaching and leadership roles and responsibilities, but importantly can individualize further training by focusing on EPAs not yet achieved.</p>

11. EPA Title: Identify and manage patients with noninfectious GI luminal disease

Detailed Description: Gastroenterologists diagnose and manage patients with inflammatory bowel disease and other noninfectious luminal disease. To effectively manage patients with these conditions, the gastroenterologist requires a close relationship with a health care team that includes nutrition, colorectal surgery, radiology, pathology, etc. The gastroenterologist should be able to formulate an assessment and plan that leads to the successful diagnosis of IBD, microscopic colitis, celiac disease, etc. and, once the diagnosis is made, begin an evidence-based treatment approach, including monitoring of therapy.

Knowledge	<ul style="list-style-type: none">• Describe and recognize the extra intestinal manifestations of GI disorders including ophthalmologic, musculoskeletal, dermatologic, hepatic, etc. and how to recognize them• List the classes of immunomodulatory agents used in the treatment of noninfectious GI luminal disease, including evaluation of patients prior to initiating treatment (testing) a monitoring of these agents , and recognize the short- and long-term drug- or class-specific complications of the various agents used in the treatment of IBD and microscopic colitis• Summarize the guidelines for immunizations in patients receiving immunomodulator therapy• Summarize the guidelines for colorectal cancer surveillance in patients with chronic colitis• Recognize when referral to colorectal surgery is necessary for management of a patient with IBD, including anorectal disease, complex luminal disease, and dysplasia• Recognize when patients meet criteria for inpatient management of IBD, including ability to list indicators of severe disease, and describe how inpatient treatment differs from outpatient management• Recognize infections relevant to the IBD population and the role this infection plays in the management of such patients• Outline guidelines for treatment of IBD during pregnancy• List criteria for diagnosis of celiac disease, autoimmune enteropathy, etc.
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Skills	<ul style="list-style-type: none"> • Perform a careful history and physical examination and be able to order appropriate diagnostic tests in a logical and cost-conscious sequence to diagnosis inflammatory GI conditions or to assess disease activity of known inflammatory conditions • Manage immunosuppressive medications including biologic agent and monitor and adjust medication dosages based on laboratory testing and patient response to therapy • Order diagnostic testing (including endoscopy) appropriately in the management of patients with any of the above conditions • Work effectively with the Primary Care team to manage immunizations and
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	<p>other health maintenance requirements including bone density assessments, vitamin deficiencies, smoking cessation, cancer screening, etc.</p> <ul style="list-style-type: none"> • Manage an inpatient with IBD including appropriate diagnostic testing, initiation of therapy, and communication with other members of the inpatient health care team • Incorporate appropriate colorectal cancer surveillance strategies into the long-term management of patients with chronic colitis • Communicate the risk, benefits and alternatives of treatment options to patients and members of the health care team
Attitudes	<ul style="list-style-type: none"> • Work with a multidisciplinary team to deliver comprehensive care for patients with chronic GI conditions; this could include pathology, radiology, nutrition, rheumatology, colorectal surgery, and the primary care physician, among others • Recognize and understand the psychological consequences of dealing with a chronic illness and know when to intervene or refer to a specialist for further care • Anticipate the needs of patients including support groups (e.g., for patients with ostomy, celiac disease, ileal pouch, etc.)

Check competencies applicable to EPA	
Patient Care (PC)	<input checked="" type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>

Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	
Professionalism (PROF)	
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>
What subcompetencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage
Patient Care (PC): <ul style="list-style-type: none"> Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s). (PC1) Manages patients with progressive responsibility and independence. (PC3) 	
Medical Knowledge (MK): <ul style="list-style-type: none"> Possesses Clinical knowledge. (MK1) Knowledge of diagnostic testing and procedures. (MK2) 	
Systems-Based Practice (SBP): <ul style="list-style-type: none"> Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (SPB1) Transitions patients effectively within and across health delivery systems. (SPB4) 	
Practice-Based Learning & Improvement (PBLI): <ul style="list-style-type: none"> 	
Professionalism (PROF): <ul style="list-style-type: none"> 	
Interpersonal & Communication Skills (ICS): <ul style="list-style-type: none"> Communicates effectively with patients and caregivers. (ICS1) 	

<ul style="list-style-type: none"> Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (ICS2) 	
Stage of training at which supervision level 4 is expected to be reached:	
<p>Implications of entrustment for the trainee: Entrustment indicates that the fellow is ready for unsupervised practice of this activity in accordance with program policy.</p> <p>The gastroenterology and hepatology professional societies recognize the incongruence between the theoretical implications of entrustment and the medico-legal and regulatory limitations of practicing without supervision within a training program. Continued learning even after entrustment is achieved is recognized as having value. Therefore, the implications of entrustment can vary per individual program, and may include additional teaching and leadership roles and responsibilities, but importantly can individualize further training by focusing on EPAs not yet achieved.</p>	

12. EPA Title: Manage common GI and liver malignancies, and associated extraintestinal cancers

Detailed Description: Gastroenterologists screen, diagnose, and manage patients with GI and liver malignancies. In addition, they also manage patients with complications from the treatment of malignancies involving other systems related to side effects from chemotherapy, radiation therapy, and bone marrow transplantation. At the completion of fellowship training a gastroenterologist should be able to diagnose malignancies of the GI tract and hepatobiliary system. They should be able to discuss and offer appropriate screening tests for GI and liver malignancies, treat complications associated with these malignancies, and those related to the treatment of malignancies. The gastroenterologist should be able to work within a team of providers and extenders to provide care to the patient with GI or liver malignancy. The fellow should also be exposed to all appropriate endoscopic tools while providing this care.

Knowledge	<ul style="list-style-type: none"> • Identify cancer epidemiology, primary prevention, and screening for GI and liver malignancies. • Cite the recommended guidelines for screening for gastrointestinal and liver neoplasia and the literature supporting these recommendations. • Identify the appropriate surveillance and surveillance intervals for patients at high risk for developing cancer and those in whom premalignant epithelium has already been detected. • Describe clinical genetics related to GI and liver malignancies and the approaches to the genetic diagnosis of FAP, HNPCC, and other rarer polyposis syndromes. • Define the initial management of patients with newly diagnosed gastrointestinal or liver cancer. • Recall the prognoses associated with different types of gastrointestinal and liver cancer. • Describe the principles of neoplastic growth as they relate to therapy, including endoscopic treatment as well as traditional surgical approaches. • Cite the principles and importance of genetic counseling as it pertains to genetic testing and the management of the inherited gastrointestinal and liver diseases. • Identify patients at high risk for luminal obstruction secondary to malignancy.
Skills	<ul style="list-style-type: none"> • Perform a careful history and physical examination identifying features related to GI and liver malignancies. • Order appropriate tests in a cost-conscious sequence for the diagnosis, screening, surveillance, and staging of GI/liver malignancies. • Perform basic endoscopy to diagnose and treat GI neoplasia including colonoscopic polypectomy of pedunculated and sessile polyps and ablative therapies for sessile lesions. • Demonstrate the capabilities and limitations of endoscopic therapy for early

	<ul style="list-style-type: none">gastrointestinal cancers.Determine the best management of luminal distention including radiological, surgical, and endoscopic interventions.Counsel patients who have gastrointestinal and/or liver neoplasia and how to manage patients who inquire about the management of positive family histories of gastrointestinal or liver cancer.
Attitudes	<ul style="list-style-type: none">Maintain professional and ethical interactions with all healthcare providers and patients.Work with a multidisciplinary team to provide care to patients with GI and/or liver malignancies including primary care physicians, oncologists, surgeons, pathologists, and radiologists.Recognize and understand the psychological consequences to the family and patient with GI and/or liver malignancyBe able to discuss with the patient and family about transitioning to palliative care
Check competencies applicable to EPA	
Patient Care (PC)	<input checked="" type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>
Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	<input type="checkbox"/>
Professionalism (PROF)	<input type="checkbox"/>
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>
What subcompetencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage
Patient Care (PC): <ul style="list-style-type: none">Gathers and synthesizes essential and accurate information related to define each patient’s clinical problem. (PC1)	
<ul style="list-style-type: none">Manages patients with progressive responsibility and independence (PC3)	

<ul style="list-style-type: none"> • Demonstrates skill in performing and interpreting invasive procedures.(PC4a) • Demonstrates skill in performing and interpreting non-invasive procedures and/or testing. (PC4b) 	
<ul style="list-style-type: none"> • Requests and provides consultative care (PC5) 	
Medical Knowledge (MK):	
<ul style="list-style-type: none"> • Possesses Clinical Knowledge (MK1) 	
<ul style="list-style-type: none"> • Knowledge of diagnostic testing and procedures (MK2) 	
Systems-Based Practice (SBP):	
<ul style="list-style-type: none"> • Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (SBP1) 	

<ul style="list-style-type: none"> • 	
Practice-Based Learning & Improvement (PBLI):	
<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • 	
Professionalism (PROF):	
<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • 	
Interpersonal & Communication Skills (ICS):	
<ul style="list-style-type: none"> • Communicates effectively with patients and caregivers (ICS1) 	
<ul style="list-style-type: none"> • Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (ICS2) 	
Stage of training at which supervision level 4 is expected to be reached:	

Implications of entrustment for the trainee: Entrustment indicates that the fellow is ready for unsupervised practice of this activity in accordance with program policy.

The gastroenterology and hepatology professional societies recognize the incongruence between the theoretical implications of entrustment and the medico-legal and regulatory limitations of practicing without supervision within a training program. Continued learning even after entrustment is achieved is recognized as having value. Therefore, the implications of entrustment can vary per individual program, and may include additional teaching and leadership roles and responsibilities, but importantly can individualize further training by focusing on EPAs not yet achieved.

13. EPA Title: Assess nutritional status and develop and implement nutritional therapies in health and disease

Detailed Description: Gastroenterologists diagnose and manage diseases where pathogenesis and therapies involve an understanding of nutritional principles and therapies. A GI consultant should be able to obtain information from patient history, physical exam and studies to evaluate nutritional status, diagnose diseases of nutritional excess and deficiency, and identify nutritional complications from other chronic GI and liver disease. The gastroenterologist should be able to select appropriate parenteral and enteral options for nutrition therapy and understand how food and diet impact the presentation and management of GI symptoms.

Knowledge	<ul style="list-style-type: none">• Recognize physiology of nutrition in health including absorption, digestion and metabolism• State the metabolic response to starvation, illness/trauma and obesity• Discuss chronic GI and liver diseases that can lead to malnutrition including IBD, celiac disease, and altered GI anatomy• Summarize indications and complications of enteral and parenteral support• List options for obesity treatment including medical and surgical options• Assess nutritional status, including specific nutrient deficiencies and excesses, protein-energy malnutrition and obesity• Describe nutritional issues specific to the patient with cirrhosis• Determine nutrient requirements during stress states

Skills	<ul style="list-style-type: none"> • Obtain a diet history and use validated nutrition assessment tools • Perform a physical exam that assesses nutritional status of the patient • Order appropriate labs and studies to assess nutritional status • Counsel patients about how to make lifestyle and dietary changes to impact nutritional status • Provide nutritional guidance for many medical conditions • Identify and treat nutritional deficiencies, overfeeding and obesity • Implement and manage nutritional therapy, including modified diets, enteral tube feeding, and create parenteral nutrition orders • Evaluate the clinical efficacy of and complications of nutrition support • Perform endoscopic placement of feeding tubes
Attitudes	<ul style="list-style-type: none"> • Apply ethical principles in discussing and applying nutritional therapy, including at the end of life • Demonstrate cultural, gender and socio-economic sensitivity to creating nutrition therapy plans, including diet counseling, and complementary and alternative approaches to nutrition • Collaborate effectively with pharmacists, dietitians and surgeons in the care of the patient with nutritional problems • Develop an awareness of stigma associated with obesity in the delivery of health care • Consider complementary and alternative approaches to nutrition

	<ul style="list-style-type: none"> • Consider psychosocial impact on eating disorders
Check competencies applicable to EPA	
Patient Care (PC)	<input type="checkbox"/>
Medical Knowledge (MK)	<input checked="" type="checkbox"/>
Systems-Based Practice (SBP)	<input checked="" type="checkbox"/>
Practice-Based Learning & Improvement (PBLI)	<input type="checkbox"/>
Professionalism (PROF)	<input checked="" type="checkbox"/>
Interpersonal & Communication Skills (ICS)	<input checked="" type="checkbox"/>

What subcompetencies are needed to achieve mastery?	Approximate Time Frame Trainee Should Achieve Stage
Patient Care (PC):	
•	
•	
Medical Knowledge (MK):	
• Possesses Clinical knowledge. (MK1)	
• Knowledge of diagnostic testing and procedures. (MK2)	
Systems-Based Practice (SBP):	
• Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (SBP 1)	
• Transitions patients effectively within and across health delivery systems. (SBP4)	
Practice-Based Learning & Improvement (PBLI):	
•	
•	
Professionalism (P):	
• Accepts responsibility and follows through on tasks. (PROF2)	
• Responds to each patient's unique characteristics and needs. (PROF3)	
Interpersonal & Communication Skills (ICS):	
• Communicates effectively with patients and caregivers. (ICS1)	
• Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel). (ICS2)	
Stage of training at which supervision level 4 is expected to be reached:	
Implications of entrustment for the trainee: Entrustment would allow the fellow to perform consultation in the inpatient and outpatient setting with distance supervision, or independently (according to program policy), particularly with encounters related to counseling. Once entrusted, the trainee can become an observer and teacher of junior trainees. Entrustment of a nutrition-related procedure, such as a PEG or endoscopic NJ tube placement, would allow the trainee	

to teach the
procedure in a supervised setting.

EPA: GASTROSCOPY

Year 3: Foundation and Observation

1. EPA 1: Preparation and Positioning

- **Description:** Assist in preparing the endoscopy suite, including positioning the patient, and ensuring all necessary equipment is ready.
- **Level:** Supervised observation. Trainees are expected to understand the setup but require direct supervision.

2. EPA 2: Basic Patient Interaction

- **Description:** Perform patient history-taking and informed consent under supervision.
- **Level:** Supervised performance. Residents begin to practice and refine communication skills with oversight.

Year 4: Developing Skills

1. EPA 3: Basic Endoscopy Technique

- **Description:** Perform basic upper GI endoscopy procedures with supervision. This includes identifying common anatomical landmarks and performing straightforward procedures.
- **Level:** Intermediate. Residents should be able to perform procedures under indirect supervision and demonstrate growing proficiency.

2. EPA 4: Handling Complications

- **Description:** Recognize and manage common minor complications that arise during endoscopy, such as minor bleeding or discomfort.
- **Level:** Supervised performance. Residents are expected to identify issues and manage them with guidance.

Year 4: Advanced Techniques

1. EPA 5: Independent Endoscopy Performance

- **Description:** Perform upper GI endoscopies independently, including more complex cases with minimal supervision.
- **Level:** Advanced beginner. Residents should be able to complete the procedure independently but with a supervisor available if needed.

2. EPA 6: Advanced Complication Management

- **Description:** Manage and resolve more complex complications that may arise during or after the procedure.
- **Level:** Intermediate to advanced. Requires the ability to handle complications effectively and efficiently.

Year 5: Mastery and Teaching

1. EPA 7: Teaching and Supervising

- **Description:** Teach junior residents and medical students about upper GI endoscopy, including procedural skills and patient management.
- **Level:** Advanced. Demonstrates mastery of the procedure and the ability to educate others.

2. EPA 8: Quality Improvement and Patient Safety

- **Description:** Participate in quality improvement initiatives related to upper GI endoscopy, including patient safety, procedure efficacy, and protocol development.
- **Level:** Advanced. Engage in activities to enhance procedural quality and safety within the practice setting.

EPA: COLONOSCOPY

Year 3: Foundation and Observation

1. EPA 1: Preparation and Setup

- **Description:** Assist in preparing the endoscopy suite, including patient preparation and setup of equipment.
- **Level:** Supervised observation. Residents should understand the preparation process but will need direct supervision during initial attempts.

2. EPA 2: Basic Patient Interaction

- **Description:** Conduct patient history-taking, obtain informed consent, and address patient concerns with supervision.
- **Level:** Supervised performance. Residents begin to practice these skills with guidance.

Year 4: Developing Skills

1. EPA 3: Basic Colonoscopy Technique

- **Description:** Perform basic colonoscopy procedures under supervision. This includes insertion, navigation, and basic polyp identification.
- **Level:** Intermediate. Residents should demonstrate basic proficiency with indirect supervision.

2. EPA 4: Recognition and Management of Complications

- **Description:** Identify and manage common complications during colonoscopy, such as minor bleeding or discomfort.
- **Level:** Supervised performance. Residents should be able to handle minor issues with guidance.

Year 5: Advanced Techniques

1. **EPA 5: Independent Colonoscopy Performance**

- **Description:** Perform colonoscopies independently, including more complex cases and challenging anatomy, with minimal supervision.
- **Level:** Advanced beginner. Residents are expected to handle procedures independently but should have a supervisor available if needed.

2. **EPA 6: Advanced Complication Management**

- **Description:** Manage complex complications during or after colonoscopy, such as significant bleeding or perforation.
- **Level:** Intermediate to advanced. Residents should demonstrate effective and efficient management of complex scenarios.

Year 5: Mastery and Teaching

1. **EPA 7: Teaching and Supervising**

- **Description:** Educate junior residents and medical students about lower GI endoscopy, including procedural techniques and patient care.
- **Level:** Advanced. Residents should show mastery of the procedure and the ability to teach and guide others.

2. **EPA 8: Quality Improvement and Patient Safety**

- **Description:** Engage in quality improvement activities related to colonoscopy, including developing and evaluating protocols for patient safety and procedural effectiveness.
- **Level:** Advanced. Residents are expected to contribute to and lead quality improvement initiatives within their practice setting.

EPA: ABDOMINAL EXAMINATION

Year 1: Foundation and Observation

1. EPA 1: Basic Abdominal Examination

- **Description:** Perform a basic abdominal examination including inspection, palpation, percussion, and auscultation under direct supervision.
- **Level:** Supervised observation. Residents should demonstrate an understanding of examination techniques and anatomy but need direct supervision during their initial attempts.

2. EPA 2: History-Taking and Clinical Assessment

- **Description:** Take a comprehensive history related to gastrointestinal symptoms and perform a basic clinical assessment.
- **Level:** Supervised performance. Residents begin to develop skills in history-taking and integrating findings into their clinical assessment.

Year 2-3: Developing Skills

1. EPA 3: Targeted Abdominal Examination

- **Description:** Conduct targeted abdominal examinations based on patient history and presenting symptoms. Identify and describe common abnormalities.
- **Level:** Intermediate. Residents should perform targeted examinations with indirect supervision, demonstrating growing proficiency in identifying relevant findings.

2. EPA 4: Clinical Reasoning and Differential Diagnosis

- **Description:** Utilize abdominal examination findings to generate differential diagnoses and suggest appropriate next steps in management.
- **Level:** Supervised performance. Residents should show the ability to integrate examination findings into clinical reasoning with guidance.

Year 4: Advanced Techniques

1. EPA 5: Comprehensive Abdominal Examination

- **Description:** Conduct comprehensive and nuanced abdominal examinations, including identifying subtle signs and differentiating between complex conditions.
- **Level:** Advanced beginner. Residents should perform comprehensive examinations with minimal supervision and demonstrate advanced skills in identifying and interpreting findings.

2. EPA 6: Integration with Other Diagnostic Modalities

- **Description:** Integrate abdominal examination findings with results from other diagnostic tests (e.g., imaging studies, lab results) to refine diagnosis and management plans.
- **Level:** Intermediate to advanced. Residents should be able to combine physical examination findings with other diagnostic information effectively.

Year 5: Mastery and Teaching

1. EPA 7: Teaching and Supervising

- **Description:** Teach and supervise junior residents and medical students in abdominal examination techniques and clinical assessment.
- **Level:** Advanced. Residents should demonstrate mastery of abdominal examination and be able to instruct others effectively.

2. EPA 8: Quality Improvement and Patient Safety

- **Description:** Participate in or lead quality improvement initiatives related to abdominal examination practices and patient safety within the gastroenterology practice.
- **Level:** Advanced. Residents are expected to contribute to enhancing practice protocols and ensuring high standards of patient care

EPA: LIVER BIOPSY

Year 3: Foundation and Observation

1. EPA 1: Preparation and Setup

- **Description:** Assist in preparing for liver biopsy, including setting up the necessary equipment, preparing the patient, and ensuring proper infection control.
- **Level:** Supervised observation. Residents should be familiar with the setup and preparation procedures but will need direct supervision during initial involvement.

2. EPA 2: Patient Interaction and Informed Consent

- **Description:** Obtain informed consent from patients for liver biopsy, explaining the procedure, risks, and benefits under supervision.
- **Level:** Supervised performance. Residents start practicing patient communication and consent processes with guidance.

Year 4: Developing Skills

1. EPA 3: Basic Liver Biopsy Technique

- **Description:** Assist in performing liver biopsies, including patient positioning, monitoring during the procedure, and handling the biopsy needle with supervision.
- **Level:** Intermediate. Residents should demonstrate understanding and basic skills in assisting with liver biopsies under indirect supervision.

2. EPA 4: Handling Immediate Complications

- **Description:** Recognize and manage immediate complications that may arise during or shortly after the liver biopsy, such as bleeding or discomfort.
- **Level:** Supervised performance. Residents are expected to identify and manage common complications with guidance.

Year 5: Advanced Techniques

1. EPA 5: Independent Liver Biopsy Performance

- **Description:** Perform liver biopsies independently, including proper technique, navigation, and sample acquisition with minimal supervision.
- **Level:** Advanced beginner. Residents should be able to perform the procedure with minimal oversight and handle standard cases independently.

2. EPA 6: Advanced Complication Management

- **Description:** Manage more complex complications that may arise during or after liver biopsy, such as significant bleeding or perforation.
- **Level:** Intermediate to advanced. Residents are expected to effectively handle complex scenarios and complications with limited supervision.

Year 5: Mastery and Teaching

1. EPA 7: Teaching and Supervising

- **Description:** Educate junior residents and medical students on liver biopsy techniques, including procedural steps, patient care, and complication management.
- **Level:** Advanced. Residents should demonstrate mastery in liver biopsy and be able to teach and supervise others effectively.

2. EPA 8: Quality Improvement and Procedure Safety

- **Description:** Engage in quality improvement initiatives related to liver biopsy procedures, including developing protocols for patient safety, procedural efficacy, and outcomes assessment.
- **Level:** Advanced. Residents are expected to contribute to or lead efforts in improving practice protocols and ensuring high standards of procedure safety

EPA: ASCITIC TAP

Year 1: Foundation and Observation

1. EPA 1: Preparation and Setup

- **Description:** Assist in preparing for an ascitic tap, including patient positioning, sterile technique, and equipment setup.
- **Level:** Supervised observation. Residents should understand the preparation process and equipment but will need direct supervision during initial involvement.

2. EPA 2: Patient Interaction and Informed Consent

- **Description:** Obtain informed consent from patients for an ascitic tap, explaining the procedure, risks, and benefits under supervision.
- **Level:** Supervised performance. Residents begin practicing informed consent with guidance.

Year 2: Developing Skills

1. EPA 3: Basic Ascitic Tap Technique

- **Description:** Assist in performing an ascitic tap, including identifying the appropriate site, needle insertion, and fluid aspiration with supervision.
- **Level:** Intermediate. Residents should be able to assist and demonstrate basic skills in performing an ascitic tap under indirect supervision.

2. EPA 4: Immediate Complication Management

- **Description:** Recognize and manage immediate complications during or shortly after the procedure, such as bleeding or infection.
- **Level:** Supervised performance. Residents are expected to identify and manage common complications with guidance.

Year 3: Advanced Techniques

1. EPA 5: Independent Ascitic Tap Performance

- **Description:** Perform ascitic tap independently, including patient preparation, technique, and post-procedure care with minimal supervision.
- **Level:** Advanced beginner. Residents should be able to carry out the procedure with minimal oversight and handle standard cases independently.

2. EPA 6: Advanced Complication Management

- **Description:** Manage more complex complications related to ascitic tap, such as large-volume fluid removal or unexpected procedural difficulties.
- **Level:** Intermediate to advanced. Residents should effectively handle more challenging scenarios with limited supervision.

Year 4: Mastery and Teaching

1. EPA 7: Teaching and Supervising

- **Description:** Educate and supervise junior residents and medical students in the technique of ascitic tap, including procedural steps, patient care, and complication management.
- **Level:** Advanced. Residents should demonstrate mastery of the procedure and be able to instruct and mentor others effectively.

2. EPA 8: Quality Improvement and Procedure Safety

- **Description:** Participate in or lead quality improvement initiatives related to ascitic tap procedures, including enhancing protocols for patient safety and procedural efficacy.
- **Level:** Advanced. Residents are expected to contribute to or lead efforts to improve practice standards and ensure high-quality patient care.

EPA Title: History Taking of Jaundice

EPA Level:

- Level 1: Observation and discussion with direct supervision
- Level 2: Execution with direct supervision
- Level 3: Execution with indirect supervision
- Level 4: Supervision of juniors, with oversight from senior clinicians
- Level 5: Independent practice, with the ability to teach and guide others

Milestones by Resident Year

PGY-3

- **EPA Level 1-2:**
 - **Skills:**
 - Identify common symptoms associated with jaundice (e.g., yellowing of the skin, dark urine, light-colored stools).
 - Take a basic medical history focusing on possible causes of jaundice (e.g., liver disease, hemolysis, bile duct obstruction).
 - Gather relevant family history, travel history, and medication history.
 - **Supervision:** Direct supervision, with feedback on thoroughness and communication skills.

PGY-4

- **EPA Level 2-3:**
 - **Skills:**
 - Differentiate between pre-hepatic, hepatic, and post-hepatic causes of jaundice through detailed history-taking.
 - Assess for risk factors such as alcohol use, drug-induced liver injury, and viral hepatitis.
 - Correlate the patient's history with potential diagnostic tests (e.g., liver function tests, imaging studies).
 - **Supervision:** Direct or indirect supervision, with feedback on clinical reasoning and diagnostic approach.

PGY-4

- **EPA Level 3-4:**
 - **Skills:**
 - Perform a comprehensive and systematic history that includes detailed questions about systemic diseases, lifestyle factors, and prior medical history.
 - Anticipate potential complications or red flags (e.g., signs of acute liver failure, sepsis).
 - Develop a differential diagnosis and create a plan for further investigation and management based on the history.
 - **Supervision:** Indirect supervision, with feedback focused on accuracy, efficiency, and decision-making.

PGY-5

- **EPA Level 4-5:**
 - **Skills:**
 - Independently perform and oversee detailed history-taking in complex or atypical cases of jaundice.
 - Teach junior residents how to conduct a thorough history-taking and recognize subtle signs of different types of jaundice.
 - Integrate patient history with physical examination findings to guide management plans.
 - Discuss the implications of the history on long-term prognosis and patient counseling.
 - **Supervision:** Minimal to no supervision; residents should be able to lead the care team and educate others.

Assessment Tools

- **Direct Observation:** Use checklists and structured feedback during patient encounters.
- **Case-Based Discussions:** Evaluate the resident's approach to history-taking in different clinical scenarios.
- **Simulation:** Use standardized patients to assess history-taking skills in a controlled environment.

References:

- [1] Chen, H. L., & Tsai, C. W. (2019). "Best Practices in Gastroenterology Education". Journal of Clinical Gastroenterology.

EPA Title: History Taking of Abdominal Pain

EPA Level:

- **Level 1:** Observation and discussion with direct supervision
- **Level 2:** Execution with direct supervision
- **Level 3:** Execution with indirect supervision
- **Level 4:** Supervision of juniors, with oversight from senior clinicians
- **Level 5:** Independent practice, with the ability to teach and guide others

Milestones by Resident Year

PGY-3

- **EPA Level 1-2:**
 - **Skills:**
 - Gather basic history related to abdominal pain, including onset, location, duration, and character (e.g., sharp, dull, cramping).
 - Identify associated symptoms such as nausea, vomiting, diarrhea, or fever.
 - Ask about previous episodes, relevant medical history, and current medications.
 - **Supervision:** Direct supervision, with feedback on communication skills and the ability to obtain a complete history.

PGY-4

- **EPA Level 2-3:**
 - **Skills:**
 - Differentiate between various types of abdominal pain (e.g., visceral, parietal, referred) based on history.
 - Elicit a focused history to identify specific conditions (e.g., peptic ulcer disease, appendicitis, pancreatitis).
 - Correlate the history with possible diagnostic tests and initial management plans.
 - **Supervision:** Direct or indirect supervision, with feedback on clinical reasoning, differential diagnosis, and diagnostic approach.

PGY-4

- **EPA Level 3-4:**
 - **Skills:**
 - Conduct a thorough history that includes a review of systems, lifestyle factors, and psychosocial context.
 - Assess for red flags that might indicate serious pathology (e.g., acute abdomen, ischemic bowel).
 - Develop a comprehensive differential diagnosis and initiate an appropriate workup based on the history.
 - **Supervision:** Indirect supervision, with feedback focused on efficiency, accuracy, and decision-making in complex cases.

PGY-5

- **EPA Level 4-5:**
 - **Skills:**
 - Independently take and oversee detailed histories in complex or atypical cases of abdominal pain.
 - Teach junior residents how to conduct a comprehensive history and recognize subtle signs that differentiate between various gastrointestinal conditions.
 - Integrate history with physical examination findings, laboratory results, and imaging studies to guide comprehensive management plans.
 - Discuss long-term implications of history findings with patients and their families, including prognosis and treatment options.
 - **Supervision:** Minimal to no supervision; residents should be able to lead the care team, mentor juniors, and contribute to patient education.

Assessment Tools

- **Direct Observation:** Utilize checklists and structured feedback during patient encounters.
- **Case-Based Discussions:** Evaluate the resident's history-taking approach in a variety of clinical scenarios.
- **Simulation:** Employ standardized patients to assess history-taking skills in controlled settings.

References:

- [1] Talley, N. J., & O'Connor, S. (2018). "Clinical Examination: A Systematic Guide to Physical Diagnosis". Elsevier.
 - [2] Jones, M. P., & Crowell, M. D. (2020). "Gastrointestinal Disease: A Comprehensive Review". Journal of Gastroenterology.
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EPA Title: History Taking of Ascites

EPA Level:

- **Level 1:** Observation and discussion with direct supervision
- **Level 2:** Execution with direct supervision
- **Level 3:** Execution with indirect supervision
- **Level 4:** Supervision of juniors, with oversight from senior clinicians
- **Level 5:** Independent practice, with the ability to teach and guide others

Milestones by Resident Year

PGY-3

- **EPA Level 1-2:**
 - **Skills:**
 - Elicit a basic history relevant to ascites, including symptoms like abdominal distension, weight gain, and discomfort.
 - Identify common causes of ascites (e.g., liver cirrhosis, heart failure, malignancy) through basic questioning.
 - Ask about associated symptoms such as jaundice, shortness of breath, or peripheral edema.
 - Gather relevant medical history, including liver disease, alcohol use, and heart conditions.
 - **Supervision:** Direct supervision, with feedback on thoroughness and communication skills.

PGY-4

- **EPA Level 2-3:**
 - **Skills:**

- Conduct a more focused history to differentiate between causes of ascites (e.g., portal hypertension vs. non-portal hypertension causes).
- Assess risk factors for ascites, such as chronic hepatitis, alcohol use, or malignancy.
- Correlate history with potential diagnostic tests (e.g., serum-ascites albumin gradient [SAAG], imaging studies) and management strategies.
- **Supervision:** Direct or indirect supervision, with feedback on clinical reasoning, differential diagnosis, and diagnostic approach.

PGY-4

- **EPA Level 3-4:**
 - **Skills:**
 - Perform a comprehensive history, including detailed questioning about systemic diseases, previous episodes of ascites, and response to prior treatments.
 - Identify red flags for complications (e.g., spontaneous bacterial peritonitis, hepatorenal syndrome).
 - Develop a detailed differential diagnosis and create an initial management plan based on the history.
 - **Supervision:** Indirect supervision, with feedback on accuracy, efficiency, and decision-making in complex cases.

PGY-4 -5

- **EPA Level 4-5:**
 - **Skills:**
 - Independently conduct and supervise detailed histories in complex cases of ascites, including patients with multiple comorbidities or atypical presentations.
 - Teach junior residents how to perform a comprehensive history-taking and recognize subtle signs of various causes and complications of ascites.
 - Integrate patient history with physical examination findings, laboratory results, and imaging studies to guide advanced management plans.
 - Discuss the long-term implications of the history findings with patients and their families, including prognosis, treatment options, and lifestyle modifications.
 - **Supervision:** Minimal to no supervision; residents should be able to lead the care team, mentor juniors, and provide education to patients.

Assessment Tools

- **Direct Observation:** Utilize checklists and structured feedback during patient encounters.
- **Case-Based Discussions:** Evaluate the resident's approach to history-taking in various clinical scenarios.
- **Simulation:** Use standardized patients to assess history-taking skills in controlled environments.

References:

- [1] Runyon, B. A. (2019). "Management of Adult Patients with Ascites Due to Cirrhosis: Update". Hepatology.
- [2] Sherlock, S., & Dooley, J. (2020). "Diseases of the Liver and Biliary System". Wiley-Blackwell.

EPA: Management of Acute Variceal Bleeding in the Emergency Setting

Resident Year 3

- **Observation and Initial Exposure:**
 - **Learning Objectives:**
 - Understand the pathophysiology of variceal bleeding.
 - Recognize the signs and symptoms of acute variceal bleeding.
 - Participate in the initial resuscitation and stabilization of patients under supervision.
 - Learn about the roles of medications (e.g., octreotide, antibiotics) and the need for emergent endoscopy.
 - **Responsibilities:**
 - Assist in the initial assessment and stabilization of the patient.
 - Participate in the preparation of the patient for endoscopy.
 - Document the initial findings and management plan under supervision.
 - **Supervision Level:** Direct supervision by senior residents or attending physicians.

Resident Year 3-4

- **Increased Responsibility and Skill Development:**
 - **Learning Objectives:**
 - Independently recognize and diagnose variceal bleeding.
 - Initiate and lead the resuscitation and stabilization of the patient.
 - Understand and apply the indications for different therapeutic interventions (e.g., band ligation, sclerotherapy).

- Develop an understanding of when to escalate care (e.g., referral for TIPS).
- **Responsibilities:**
 - Lead the initial assessment and management under indirect supervision.
 - Perform endoscopic variceal banding under supervision.
 - Coordinate care with the ICU team and other specialists.
 - Begin to take responsibility for the decision-making process.
- **Supervision Level:** Indirect supervision with direct supervision available for complex cases.

Resident Year 4-5

- **Independent Practice with Supervisory Role:**
 - **Learning Objectives:**
 - Manage the complete care of a patient with acute variceal bleeding independently.
 - Perform endoscopic interventions (e.g., band ligation, sclerotherapy) independently.
 - Recognize and manage complications associated with variceal bleeding.
 - Provide education and guidance to junior residents and medical students.
 - **Responsibilities:**
 - Independently assess, stabilize, and manage patients with acute variceal bleeding.
 - Perform and supervise endoscopic procedures.
 - Lead the multidisciplinary team in managing the patient's care.
 - Serve as the primary decision-maker in the management plan, consulting with attending physicians as needed.
 - **Supervision Level:** Independent practice with attending physician available for consultation.

Final Year 5

- **Transition to Independent Practice:**
 - **Learning Objectives:**
 - Demonstrate the ability to manage complex cases of variceal bleeding with minimal supervision.
 - Engage in the teaching and supervision of junior residents and fellows.
 - Develop a comprehensive understanding of long-term management strategies for patients with a history of variceal bleeding.
 - **Responsibilities:**
 - Independently manage all aspects of care for patients with variceal bleeding.

- Act as a consultant and educator within the team.
 - Prepare for independent practice post-residency.
 - **Supervision Level:** Independent with attending support as needed.
-

EPA: Management of Portosystemic Encephalopathy (PSE) in the Emergency Setting

Resident Year 3

- **Introduction and Observation:**
 - **Learning Objectives:**
 - Understand the pathophysiology and clinical presentation of PSE.
 - Recognize early signs and symptoms of PSE in patients with liver disease.
 - Learn about the initial stabilization steps and the role of lactulose, rifaximin, and other treatments.
 - Understand the importance of ruling out precipitating factors (e.g., infection, GI bleeding, electrolyte disturbances).
 - **Responsibilities:**
 - Assist in the initial assessment and stabilization of patients with PSE under direct supervision.
 - Participate in the management of precipitating factors with guidance from senior residents or attendings.
 - Document patient findings, treatment plan, and response to therapy under supervision.
 - **Supervision Level:** Direct supervision by senior residents or attending physicians.

Resident Year 3-4

- **Increased Responsibility and Skill Development:**
 - **Learning Objectives:**
 - Independently recognize and diagnose PSE, including the grading of encephalopathy.
 - Initiate and lead the treatment of PSE, including the use of lactulose and rifaximin, and manage precipitating factors.
 - Develop skills in managing complications and understanding when to escalate care (e.g., ICU admission).
 - Learn to coordinate multidisciplinary care, including involving neurology and hepatology teams when necessary.

- **Responsibilities:**
 - Lead the initial assessment and management of PSE patients under indirect supervision.
 - Initiate appropriate treatment protocols and manage common precipitating factors.
 - Communicate effectively with the patient's family about the condition and treatment plan.
 - Start developing differential diagnoses and treatment plans, with final approval from a supervising physician.
- **Supervision Level:** Indirect supervision with direct supervision available for complex cases.

Resident Year 4-5

- **Independent Management and Supervisory Role:**
 - **Learning Objectives:**
 - Manage all aspects of PSE care independently, including complex cases.
 - Perform comprehensive assessments to identify and manage precipitating factors and complications.
 - Develop and implement long-term management strategies for recurrent or refractory PSE.
 - Supervise and mentor junior residents in the management of PSE.
 - **Responsibilities:**
 - Independently assess, diagnose, and manage patients with PSE, including complex or refractory cases.
 - Lead the multidisciplinary team in the patient's care, coordinating with neurology, hepatology, and ICU teams.
 - Educate and supervise junior residents and medical students in the management of PSE.
 - Take primary responsibility for decision-making and treatment plans, consulting with attending physicians as needed.
 - **Supervision Level:** Independent practice with attending physician available for consultation.

Final Year 5

- **Transition to Independent Practice:**
 - **Learning Objectives:**
 - Demonstrate the ability to manage PSE in a variety of settings with minimal supervision.
 - Lead the management of complex cases, including those requiring advanced interventions such as liver transplant evaluation.
 - Engage in the teaching and supervision of junior residents, fellows, and other healthcare providers.

- Prepare for independent practice by managing a range of PSE cases and refining leadership skills.
- **Responsibilities:**
 - Independently manage all aspects of care for patients with PSE, including those requiring advanced interventions.
 - Act as a consultant and educator within the team, guiding the care of complex PSE cases.
 - Prepare for transition to independent practice post-residency.
- **Supervision Level:** Independent with attending support as needed

EPA: Obtaining Informed Consent for Endoscopy

Resident Year 3

- **Introduction and Observation:**
 - **Learning Objectives:**
 - Understand the basic principles of informed consent, including patient autonomy, disclosure, and capacity to consent.
 - Learn about the indications, risks, benefits, and alternatives of common endoscopic procedures (e.g., EGD, colonoscopy).
 - Observe experienced physicians obtaining consent, noting how they explain procedures and address patient concerns.
 - **Responsibilities:**
 - Assist in the process of obtaining consent by preparing documents and answering basic patient questions under direct supervision.
 - Begin to develop communication skills needed to discuss endoscopy with patients and their families.
 - Document the consent process in the patient's medical record under supervision.
 - **Supervision Level:** Direct supervision by senior residents or attending physicians.

Resident Year 3-4

- **Increased Responsibility and Skill Development:**
 - **Learning Objectives:**
 - Develop the ability to independently explain the purpose, procedure, risks, benefits, and alternatives of common endoscopic procedures.

- Learn to assess the patient's understanding and capacity to consent, including managing situations where a surrogate decision-maker is involved.
- Enhance skills in addressing patient concerns and answering questions effectively.
- **Responsibilities:**
 - Obtain informed consent for routine endoscopic procedures (e.g., EGD, colonoscopy) under indirect supervision.
 - Address common patient concerns and questions independently, referring to senior residents or attendings for complex cases.
 - Document the consent process independently, ensuring all necessary information is included.
- **Supervision Level:** Indirect supervision with direct supervision available for complex cases or difficult patient interactions.

Resident Year 4-5

- **Independent Management and Supervisory Role:**
 - **Learning Objectives:**
 - Achieve competence in obtaining informed consent for a wide range of endoscopic procedures, including advanced procedures (e.g., ERCP, EUS).
 - Manage more complex consent situations, such as patients with limited capacity, language barriers, or high-risk procedures.
 - Develop leadership skills by supervising junior residents in the consent process, providing feedback and guidance.
 - **Responsibilities:**
 - Obtain informed consent independently for both routine and advanced endoscopic procedures.
 - Manage complex consent situations, including those involving high-risk patients or procedures, with minimal supervision.
 - Supervise and mentor junior residents in obtaining consent, ensuring they understand the nuances of the process.
 - Lead discussions with patients and their families in challenging cases, ensuring thorough understanding and proper documentation.
 - **Supervision Level:** Independent practice with attending physician available for consultation as needed.

Final Year 5

- **Transition to Independent Practice:**

- **Learning Objectives:**
 - Demonstrate the ability to obtain informed consent independently for all endoscopic procedures, including those with higher risks or complexity.
 - Engage in the teaching and supervision of junior residents, fellows, and other healthcare providers regarding the consent process.
 - Refine communication skills to handle difficult consent situations, ensuring patients are fully informed.
- **Responsibilities:**
 - Independently manage all aspects of the informed consent process for any endoscopic procedure, including complex and high-risk cases.
 - Act as a consultant and educator within the team, guiding the consent process in difficult or unusual cases.
 - Prepare for independent practice by refining the ability to communicate effectively with patients and families in all consent situations.
- **Supervision Level:** Independent with attending support as needed

EPA: History Taking for Chronic Diarrhea

Resident Year 3

- **Introduction and Basic Skills:**
 - **Medical Expert:** Develop foundational knowledge of chronic diarrhea etiologies (e.g., infectious, inflammatory, functional, malabsorptive).
 - **Communicator:** Learn how to conduct a patient-centered history with an emphasis on open-ended questions.
- **Learning Objectives:**
 - Understand the basic differential diagnosis for chronic diarrhea.
 - Learn to ask relevant questions about the onset, duration, frequency, and characteristics of diarrhea (e.g., watery, bloody, fatty).
 - Begin to inquire about associated symptoms (e.g., weight loss, abdominal pain, nocturnal diarrhea).
 - Document history-taking findings under supervision.
- **Responsibilities:**
 - Conduct a focused history under direct supervision, with guidance from senior residents or attendings.
 - Begin to identify potential red flags (e.g., weight loss, blood in stool).
 - Develop initial communication skills for discussing sensitive topics.
- **Supervision Level:** Direct supervision by senior residents or attending physicians.

Resident Year 3-4

- **Intermediate Skills and Increased Responsibility:**

- **Medical Expert:** Broaden understanding of chronic diarrhea, including rarer causes (e.g., microscopic colitis, bile acid diarrhea).
- **Communicator:** Enhance ability to take a thorough history, integrating social, occupational, and dietary factors.
- **Collaborator:** Begin coordinating with dietitians or other specialists as needed.
- **Learning Objectives:**
 - Elicit a comprehensive history, including dietary habits, medication use, and travel history.
 - Begin to differentiate between functional and organic causes based on history.
 - Address the impact of diarrhea on the patient's quality of life.
 - Document and synthesize findings to develop an initial differential diagnosis.
- **Responsibilities:**
 - Independently take a comprehensive history of chronic diarrhea, with indirect supervision.
 - Discuss findings with the supervising physician and propose initial management plans.
 - Communicate effectively with patients, particularly when discussing potential lifestyle modifications or the need for further testing.
- **Supervision Level:** Indirect supervision, with direct supervision available for complex cases or unclear histories.

Resident Year 4-5

- **Advanced Skills and Leadership:**

- **Medical Expert:** Achieve proficiency in identifying and differentiating between various causes of chronic diarrhea.
- **Communicator:** Master patient communication, including discussing diagnoses, prognoses, and management plans.
- **Leader:** Mentor junior residents in history-taking and differential diagnosis formulation.
- **Scholar:** Engage in teaching sessions or case presentations related to chronic diarrhea.
- **Learning Objectives:**
 - Conduct a nuanced and efficient history-taking session that addresses all relevant factors (e.g., endocrine causes, previous surgeries).
 - Identify when to involve other specialists (e.g., endocrinologists, surgeons) based on history and initial findings.

- Develop patient-centered management plans that incorporate history findings.
- Educate junior residents on the importance of a thorough history and its impact on patient outcomes.
- **Responsibilities:**
 - Independently take detailed and targeted histories for complex cases, ensuring all possible etiologies are considered.
 - Lead the discussion on differential diagnoses and next steps in management.
 - Supervise and provide feedback to junior residents on their history-taking skills.
- **Supervision Level:** Independent practice with attending available for consultation in complex cases.

Final Year 5

- **Transition to Independent Practice:**
 - **Medical Expert:** Demonstrate expertise in managing patients with chronic diarrhea, from history-taking to diagnosis and management.
 - **Communicator:** Perfect the art of patient interviews, especially in complex or sensitive situations.
 - **Collaborator:** Work seamlessly with multidisciplinary teams to provide comprehensive care.
 - **Leader:** Lead in educational initiatives and quality improvement projects focused on chronic diarrhea.
 - **Learning Objectives:**
 - Synthesize complex patient histories to arrive at a refined differential diagnosis and appropriate workup.
 - Manage complex cases with minimal supervision, preparing for independent practice.
 - Lead multidisciplinary discussions and develop comprehensive management plans based on detailed history-taking.
 - **Responsibilities:**
 - Independently manage all aspects of history-taking, diagnosis, and management for patients with chronic diarrhea.
 - Educate and mentor junior colleagues, ensuring they develop robust history-taking skills.
 - Lead quality improvement initiatives related to the diagnosis and management of chronic diarrhea.
 - **Supervision Level:** Independent with attending support as needed.
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EPA: History Taking for Dysphagia

Resident Year 3

- **Introduction and Basic Skills:**
 - **Medical Expert:** Develop foundational knowledge of the different types and causes of dysphagia (e.g., oropharyngeal vs. esophageal, structural vs. functional).
 - **Communicator:** Learn the basics of conducting a patient-centered history, focusing on open-ended questions to elicit detailed information.
- **Learning Objectives:**
 - Understand the common causes of dysphagia and the differences between oropharyngeal and esophageal dysphagia.
 - Learn to ask relevant questions regarding the onset, progression, and characteristics of dysphagia (e.g., difficulty with solids, liquids, or both).
 - Begin to inquire about associated symptoms (e.g., weight loss, odynophagia, regurgitation) and risk factors (e.g., smoking, alcohol use).
 - Document history-taking findings under direct supervision.
- **Responsibilities:**
 - Conduct a focused history for dysphagia under direct supervision, with guidance from senior residents or attending physicians.
 - Identify red flags (e.g., progressive dysphagia, unintentional weight loss).
 - Begin to develop basic communication skills for discussing symptoms and possible causes with patients.
- **Supervision Level:** Direct supervision by senior residents or attending physicians.

Resident Year 3-4

- **Intermediate Skills and Increased Responsibility:**
 - **Medical Expert:** Broaden understanding of dysphagia, including more complex causes (e.g., achalasia, esophageal strictures, motility disorders).
 - **Communicator:** Improve ability to take a comprehensive history, integrating patient's medical history, lifestyle factors, and psychosocial context.
 - **Collaborator:** Begin to coordinate care with other specialists (e.g., ENT, speech therapy) when necessary.
- **Learning Objectives:**
 - Elicit a comprehensive history of dysphagia, including differentiating between mechanical and motility-related causes.
 - Understand the significance of symptoms like choking, aspiration, and recurrent pneumonia in the context of dysphagia.

- Develop the ability to integrate history with clinical findings to form a differential diagnosis.
- Document and communicate history findings clearly and accurately, formulating an initial management plan.
- **Responsibilities:**
 - Independently take a detailed history of dysphagia with indirect supervision, identifying potential underlying causes.
 - Discuss findings with the supervising physician and propose initial investigations or referrals as appropriate.
 - Communicate effectively with patients, particularly when discussing potential diagnostic procedures or treatments.
- **Supervision Level:** Indirect supervision, with direct supervision available for complex or unclear cases.

Resident Year 4-5

- **Advanced Skills and Leadership:**
 - **Medical Expert:** Develop expertise in identifying and differentiating between the various causes of dysphagia, including rare and complex conditions.
 - **Communicator:** Master the skills required to discuss difficult diagnoses and management plans with patients and their families.
 - **Leader:** Mentor junior residents in history-taking and the development of differential diagnoses.
 - **Scholar:** Engage in teaching, research, or quality improvement projects related to the evaluation and management of dysphagia.
- **Learning Objectives:**
 - Conduct a nuanced and efficient history-taking session, addressing all relevant factors (e.g., neurological, structural, functional causes).
 - Identify when to refer patients for advanced diagnostic procedures (e.g., barium swallow, manometry, endoscopy).
 - Develop patient-centered management plans based on history findings, considering the patient's overall health and preferences.
 - Educate and supervise junior residents, ensuring they understand the importance of a thorough history in guiding diagnosis and management.
- **Responsibilities:**
 - Independently take detailed and targeted histories for complex cases of dysphagia, ensuring all possible etiologies are considered.
 - Lead discussions on differential diagnoses and develop appropriate management strategies.
 - Supervise and provide feedback to junior residents on their history-taking skills, emphasizing the integration of history with clinical findings.

- **Supervision Level:** Independent practice with attending support available for consultation in complex cases.

Final Year 5

- **Transition to Independent Practice:**
 - **Medical Expert:** Demonstrate comprehensive expertise in the assessment and management of dysphagia, from history-taking to diagnosis and treatment planning.
 - **Communicator:** Refine communication skills, especially in challenging or complex cases.
 - **Collaborator:** Work effectively within a multidisciplinary team to provide optimal care for patients with dysphagia.
 - **Leader:** Lead in educational initiatives and contribute to clinical practice improvements related to dysphagia management.
 - **Learning Objectives:**
 - Synthesize complex patient histories to arrive at a refined differential diagnosis and appropriate management plan.
 - Manage complex cases with minimal supervision, preparing for independent practice.
 - Lead multidisciplinary discussions and develop comprehensive care plans based on detailed history-taking and patient preferences.
 - **Responsibilities:**
 - Independently manage all aspects of history-taking, diagnosis, and management for patients with dysphagia, including those with complex or rare conditions.
 - Educate and mentor junior colleagues, ensuring they develop robust history-taking skills and an understanding of dysphagia's multifactorial nature.
 - Lead quality improvement initiatives or research projects focused on dysphagia.
 - **Supervision Level:** Independent with attending support as needed.
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Resident Year 3

- **Introduction and Basic Skills:**
 - **Medical Expert:** Develop foundational knowledge of the common causes of upper GI bleeding (e.g., peptic ulcer disease, varices, Mallory-Weiss tear).
 - **Communicator:** Learn the basics of patient-centered history-taking, focusing on open-ended questions to elicit a detailed history.
- **Learning Objectives:**
 - Understand the basic differential diagnosis of upper GI bleeding.
 - Learn to ask pertinent questions about the onset, duration, frequency, and nature of bleeding (e.g., hematemesis, melena).
 - Begin to inquire about associated symptoms (e.g., abdominal pain, dizziness, hypotension) and risk factors (e.g., NSAID use, alcohol consumption, liver disease).
 - Document history-taking findings under supervision.
- **Responsibilities:**
 - Conduct a focused history for upper GI bleeding under direct supervision, with guidance from senior residents or attending physicians.
 - Identify red flags (e.g., hypotension, tachycardia, signs of hypovolemic shock).
 - Begin to develop basic communication skills for discussing symptoms and possible causes with patients.
- **Supervision Level:** Direct supervision by senior residents or attending physicians.

Resident Year 2-3

- **Intermediate Skills and Increased Responsibility:**
 - **Medical Expert:** Broaden understanding of the various causes of upper GI bleeding, including rarer conditions (e.g., Dieulafoy lesion, gastric antral vascular ectasia).
 - **Communicator:** Enhance the ability to take a comprehensive history, integrating patient's medical history, medication use, and lifestyle factors.
 - **Collaborator:** Begin to coordinate care with other specialists (e.g., surgery, interventional radiology) when necessary.
- **Learning Objectives:**
 - Elicit a comprehensive history, including detailed information about the bleeding event, previous episodes, and relevant medical history (e.g., cirrhosis, coagulopathy).
 - Recognize the importance of assessing hemodynamic stability and the need for immediate resuscitation in unstable patients.

- Develop the ability to differentiate between variceal and non-variceal causes of bleeding based on history.
- Document and communicate history findings clearly and accurately, formulating an initial differential diagnosis and management plan.
- **Responsibilities:**
 - Independently take a comprehensive history of upper GI bleeding with indirect supervision, identifying potential underlying causes.
 - Discuss findings with the supervising physician and propose initial investigations (e.g., endoscopy) or interventions as appropriate.
 - Communicate effectively with patients, particularly when discussing potential diagnostic procedures or treatments, and the risks associated with upper GI bleeding.
- **Supervision Level:** Indirect supervision, with direct supervision available for complex or unclear cases.

Resident Year 4-5

- **Advanced Skills and Leadership:**
 - **Medical Expert:** Develop expertise in identifying and differentiating between the various causes of upper GI bleeding, including high-risk and complex cases.
 - **Communicator:** Master patient communication skills, particularly in urgent or sensitive situations.
 - **Leader:** Mentor junior residents in history-taking and the development of differential diagnoses.
 - **Collaborator:** Engage in multidisciplinary care, working effectively with emergency medicine, surgery, and critical care teams.
 - **Scholar:** Contribute to teaching or quality improvement initiatives related to upper GI bleeding.
- **Learning Objectives:**
 - Conduct a nuanced and efficient history-taking session, addressing all relevant factors (e.g., liver disease, anticoagulant use, previous interventions).
 - Identify when to escalate care, including the need for intensive monitoring, blood transfusion, or urgent endoscopy.
 - Develop patient-centered management plans based on history findings, considering the patient's overall health and preferences.
 - Educate and supervise junior residents, ensuring they understand the importance of a thorough history in guiding diagnosis and management.
- **Responsibilities:**
 - Independently take detailed and targeted histories for complex or high-risk cases of upper GI bleeding.
 - Lead discussions on differential diagnoses and develop appropriate management strategies, including preparation for endoscopic intervention.

- Supervise and provide feedback to junior residents on their history-taking skills, emphasizing the integration of history with clinical findings.
- **Supervision Level:** Independent practice with attending support available for consultation in complex cases.

Final Year 5

- **Transition to Independent Practice:**
 - **Medical Expert:** Demonstrate comprehensive expertise in the assessment and management of upper GI bleeding, from history-taking to diagnosis and treatment planning.
 - **Communicator:** Refine communication skills for managing complex or urgent cases and discussing sensitive issues with patients and families.
 - **Collaborator:** Lead multidisciplinary teams in the care of patients with upper GI bleeding.
 - **Leader:** Take an active role in educational initiatives, research, or quality improvement projects focused on upper GI bleeding.
- **Learning Objectives:**
 - Synthesize complex patient histories to arrive at a refined differential diagnosis and appropriate management plan, including resuscitation, risk stratification, and therapeutic interventions.
 - Manage complex or high-risk cases with minimal supervision, preparing for independent practice.
 - Lead multidisciplinary discussions and develop comprehensive care plans based on detailed history-taking and patient preferences.
- **Responsibilities:**
 - Independently manage all aspects of history-taking, diagnosis, and management for patients with upper GI bleeding, including those with complex or refractory conditions.
 - Educate and mentor junior colleagues, ensuring they develop robust history-taking skills and an understanding of the multifactorial nature of upper GI bleeding.
 - Lead quality improvement initiatives or research projects focused on the management of upper GI bleeding.
- **Supervision Level:** Independent with attending support as needed.

EPA: History Taking for Acute Abdominal Pain

Resident Year 3

- **Introduction and Basic Skills:**

- **Medical Expert:** Acquire foundational knowledge of the broad differential diagnosis for acute abdominal pain (e.g., appendicitis, cholecystitis, pancreatitis, bowel obstruction).
- **Communicator:** Learn the basics of patient-centered history-taking, focusing on open-ended questions to elicit a comprehensive history.
- **Learning Objectives:**
 - Understand the common causes of acute abdominal pain, including both gastrointestinal and non-gastrointestinal sources (e.g., renal, gynecological, vascular).
 - Learn to ask pertinent questions regarding the onset, duration, location, radiation, and character of the pain.
 - Begin to inquire about associated symptoms (e.g., nausea, vomiting, diarrhea, fever) and pertinent past medical history (e.g., previous surgeries, chronic diseases).
 - Document history-taking findings under direct supervision.
- **Responsibilities:**
 - Conduct a focused history for acute abdominal pain under direct supervision, with guidance from senior residents or attending physicians.
 - Identify red flags (e.g., peritonitis signs, hemodynamic instability).
 - Begin to develop basic communication skills for discussing symptoms and potential causes with patients.
- **Supervision Level:** Direct supervision by senior residents or attending physicians.

Resident Year 3-4

- **Intermediate Skills and Increased Responsibility:**
 - **Medical Expert:** Broaden understanding of the differential diagnosis for acute abdominal pain, including less common conditions (e.g., mesenteric ischemia, perforated viscus).
 - **Communicator:** Enhance the ability to take a comprehensive history, integrating patient's medical history, medication use, and lifestyle factors.
 - **Collaborator:** Begin to coordinate care with other specialists (e.g., surgery, emergency medicine) when necessary.
- **Learning Objectives:**
 - Elicit a detailed history, including factors that exacerbate or relieve the pain, previous episodes, and the impact of the pain on daily activities.
 - Recognize the importance of assessing hemodynamic stability and the need for immediate intervention in unstable patients.
 - Develop the ability to differentiate between surgical and non-surgical causes of acute abdominal pain based on history.

- Document and communicate history findings clearly and accurately, formulating an initial differential diagnosis and management plan.
- **Responsibilities:**
 - Independently take a comprehensive history of acute abdominal pain with indirect supervision, identifying potential underlying causes.
 - Discuss findings with the supervising physician and propose initial investigations (e.g., imaging, labs) or interventions as appropriate.
 - Communicate effectively with patients, particularly when discussing potential diagnostic procedures or treatments.
- **Supervision Level:** Indirect supervision, with direct supervision available for complex or unclear cases.

Resident Year 4-5

- **Advanced Skills and Leadership:**
 - **Medical Expert:** Develop expertise in identifying and differentiating between the various causes of acute abdominal pain, including high-risk and complex cases.
 - **Communicator:** Master patient communication skills, particularly in urgent or sensitive situations.
 - **Leader:** Mentor junior residents in history-taking and the development of differential diagnoses.
 - **Collaborator:** Engage in multidisciplinary care, working effectively with surgery, emergency medicine, and critical care teams.
 - **Scholar:** Contribute to teaching or quality improvement initiatives related to the management of acute abdominal pain.
- **Learning Objectives:**
 - Conduct a nuanced and efficient history-taking session, addressing all relevant factors (e.g., previous surgical history, family history of gastrointestinal conditions).
 - Identify when to escalate care, including the need for urgent surgical consultation or intensive monitoring.
 - Develop patient-centered management plans based on history findings, considering the patient's overall health and preferences.
 - Educate and supervise junior residents, ensuring they understand the importance of a thorough history in guiding diagnosis and management.
- **Responsibilities:**
 - Independently take detailed and targeted histories for complex or high-risk cases of acute abdominal pain.
 - Lead discussions on differential diagnoses and develop appropriate management strategies, including preparation for surgical intervention if necessary.

- Supervise and provide feedback to junior residents on their history-taking skills, emphasizing the integration of history with clinical findings.
- **Supervision Level:** Independent practice with attending support available for consultation in complex cases.

Final Year 5

- **Transition to Independent Practice:**
 - **Medical Expert:** Demonstrate comprehensive expertise in the assessment and management of acute abdominal pain, from history-taking to diagnosis and treatment planning.
 - **Communicator:** Refine communication skills for managing complex or urgent cases and discussing sensitive issues with patients and families.
 - **Collaborator:** Lead multidisciplinary teams in the care of patients with acute abdominal pain.
 - **Leader:** Take an active role in educational initiatives, research, or quality improvement projects focused on the management of acute abdominal pain.
- **Learning Objectives:**
 - Synthesize complex patient histories to arrive at a refined differential diagnosis and appropriate management plan, including urgent interventions.
 - Manage complex or high-risk cases with minimal supervision, preparing for independent practice.
 - Lead multidisciplinary discussions and develop comprehensive care plans based on detailed history-taking and patient preferences.
- **Responsibilities:**
 - Independently manage all aspects of history-taking, diagnosis, and management for patients with acute abdominal pain, including those with complex or refractory conditions.
 - Educate and mentor junior colleagues, ensuring they develop robust history-taking skills and an understanding of the multifactorial nature of acute abdominal pain.
 - Lead quality improvement initiatives or research projects focused on the management of acute abdominal pain.
- **Supervision Level:** Independent with attending support as needed.

EPA: History Taking for Dyspepsia

Resident Year 3

- **Introduction and Basic Skills:**

- **Medical Expert:** Acquire foundational knowledge of the common causes of dyspepsia (e.g., functional dyspepsia, peptic ulcer disease, gastroesophageal reflux disease).
- **Communicator:** Learn the basics of patient-centered history-taking, focusing on open-ended questions to elicit a comprehensive history.
- **Learning Objectives:**
 - Understand the common causes and symptoms associated with dyspepsia.
 - Learn to ask relevant questions about the onset, duration, frequency, and nature of dyspeptic symptoms (e.g., epigastric pain, bloating, early satiety).
 - Begin to inquire about associated symptoms (e.g., weight loss, vomiting, gastrointestinal bleeding) and risk factors (e.g., NSAID use, *Helicobacter pylori* infection).
 - Document history-taking findings under direct supervision.
- **Responsibilities:**
 - Conduct a focused history for dyspepsia under direct supervision, with guidance from senior residents or attending physicians.
 - Identify red flags (e.g., weight loss, anemia, vomiting) that may suggest more serious underlying conditions.
 - Begin to develop basic communication skills for discussing symptoms and possible causes with patients.
- **Supervision Level:** Direct supervision by senior residents or attending physicians.

Resident Year -3-4

- **Intermediate Skills and Increased Responsibility**
 - **Medical Expert:** Broaden understanding of the differential diagnosis for dyspepsia, including less common causes (e.g., Zollinger-Ellison syndrome, gastric cancer).
 - **Communicator:** Enhance the ability to take a comprehensive history, integrating patient's medical history, medication use, and lifestyle factors.
 - **Collaborator:** Begin to coordinate care with other specialists (e.g., dietitians, psychologists) when necessary.
- **Learning Objectives:**
 - Elicit a detailed history, including factors that exacerbate or relieve dyspeptic symptoms, and the impact of the symptoms on daily activities.
 - Recognize the importance of distinguishing between functional and organic causes of dyspepsia.
 - Develop the ability to integrate history findings with clinical examination to form a differential diagnosis.
 - Document and communicate history findings clearly and accurately, formulating an initial management plan.
- **Responsibilities:**
 - Independently take a comprehensive history of dyspepsia with indirect supervision, identifying potential underlying causes.

- Discuss findings with the supervising physician and propose initial investigations (e.g., H. pylori testing, endoscopy) or interventions as appropriate.
- Communicate effectively with patients, particularly when discussing potential diagnostic procedures or treatments.
- **Supervision Level:** Indirect supervision, with direct supervision available for complex or unclear cases.

Resident Year 4-5

- **Advanced Skills and Leadership:**
 - **Medical Expert:** Develop expertise in identifying and differentiating between the various causes of dyspepsia, including high-risk and complex cases.
 - **Communicator:** Master patient communication skills, particularly in urgent or sensitive situations.
 - **Leader:** Mentor junior residents in history-taking and the development of differential diagnoses.
 - **Collaborator:** Engage in multidisciplinary care, working effectively with dietitians, psychologists, and other specialists in managing complex cases of dyspepsia.
 - **Scholar:** Contribute to teaching or quality improvement initiatives related to the management of dyspepsia.
- **Learning Objectives:**
 - Conduct a nuanced and efficient history-taking session, addressing all relevant factors (e.g., dietary habits, stress levels, medication use).
 - Identify when to escalate care, including the need for further diagnostic testing or referral to a specialist.
 - Develop patient-centered management plans based on history findings, considering the patient's overall health and preferences.
 - Educate and supervise junior residents, ensuring they understand the importance of a thorough history in guiding diagnosis and management.
- **Responsibilities:**
 - Independently take detailed and targeted histories for complex or high-risk cases of dyspepsia.
 - Lead discussions on differential diagnoses and develop appropriate management strategies, including dietary modifications, pharmacotherapy, and referral for endoscopy if needed.
 - Supervise and provide feedback to junior residents on their history-taking skills, emphasizing the integration of history with clinical findings.
- **Supervision Level:** Independent practice with attending support available for consultation in complex cases.

Final Year (PGY-5):

- **Transition to Independent Practice:**

- **Medical Expert:** Demonstrate comprehensive expertise in the assessment and management of dyspepsia, from history-taking to diagnosis and treatment planning.
- **Communicator:** Refine communication skills for managing complex or chronic cases and discussing sensitive issues with patients and families.
- **Collaborator:** Lead multidisciplinary teams in the care of patients with dyspepsia.
- **Leader:** Take an active role in educational initiatives, research, or quality improvement projects focused on the management of dyspepsia.
- **Learning Objectives:**
 - Synthesize complex patient histories to arrive at a refined differential diagnosis and appropriate management plan, including lifestyle interventions, pharmacotherapy, and further testing if needed.
 - Manage complex or chronic cases with minimal supervision, preparing for independent practice.
 - Lead multidisciplinary discussions and develop comprehensive care plans based on detailed history-taking and patient preferences.
- **Responsibilities:**
 - Independently manage all aspects of history-taking, diagnosis, and management for patients with dyspepsia, including those with complex or refractory conditions.
 - Educate and mentor junior colleagues, ensuring they develop robust history-taking skills and an understanding of the multifactorial nature of dyspepsia.
 - Lead quality improvement initiatives or research projects focused on the management of dyspepsia.

Supervision Level: Independent with attending support as needed

The EPAs-competencies matrix:

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

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

SECTION X
LOG BOOKS & PORTFOLIO

INTRODUCTION OF LOG BOOK:

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

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

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

Reference

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

LOGBOOK INDEX

1. Morning report presentation/case presentation
2. Topic presentation/seminar
3. Didactic lectures/interactive lectures
4. Journal club
5. Problem case discussion
6. Emergency cases
7. Indoor patients
8. OPD and clinics
9. Procedures (observed, assisted, performed under supervision & performed independently)
10. Multidisciplinary meetings
11. Clinicopathological conference
12. Morbidity/mortality meetings
13. Hands on training/workshops
14. Publications
15. Major research project during md training/any other major research project
16. Written assessment record
17. Clinical assessment record
18. Evaluation record
19. Leave record
20. Record sheet of attendance/counseling session/documentation quality
21. Any other important and relevant information/details

MINIMUM LOG BOOK ENTERIES PER MONTH IN GENERAL

(This minimum number is being provided for uniformity of the training and convenience for monitoring of the resident's performance by Quality Assurance Cell & University Research Training & Monitoring Cell of RMU but resident is encouraged to show performance above this minimum required number)

Serial No	ENTRY	SUB ENTRY	
1	Clinical meetings/Teaching sessions / large group Discussion/Bed Side Teachings	1.Case presentation	1/month
		2. Topic Presentation	1/month
		3. Journal Club	1/month
		4. Mortality & Morbidity Discussions	1/month
		5. Problem Case Discussion/Bed Side Teachings	2/month
		6. Didactic Lecture/Interactive Sessions	1/month
2	CPC	01/month	
3	Procedure Documentation/DOPS	6-10/month	
4	Indoor Patient Documentation	Minimum total 200 cases during residency	
5	Emergency Cases Documentation	At least 200 cases during Emergency allocated duties	
6	OPD cases Documentation	At least 200 cases during OPD allocated duties	

CLINICAL COMPETENCIES FOR 1st 2nd AND 3rd YEAR MD TRAINEES GASTROENTEROLOGY

CLINICAL COMPETENCIES \ SKILL\ PROCEDURE

The clinical competencies, a specialist must have, are varied and complex. A complete list of the skills necessary for trainees and trainers is given below. The level of competence to be achieved each year is specified according to the key, as follows:

1. Observer status
2. Assistant status
3. Performed under supervision
4. Performed under indirect supervision
5. Performed independently

Note: Levels 4 and 5 for practical purposes are almost synonymous

ENTRUSTABLE PROFESSIONAL ACTIVITIES FOR MD GASTROENTEROLOGY, RMU

EPAs for Procedures of Gastroenterology MD Training, RMU

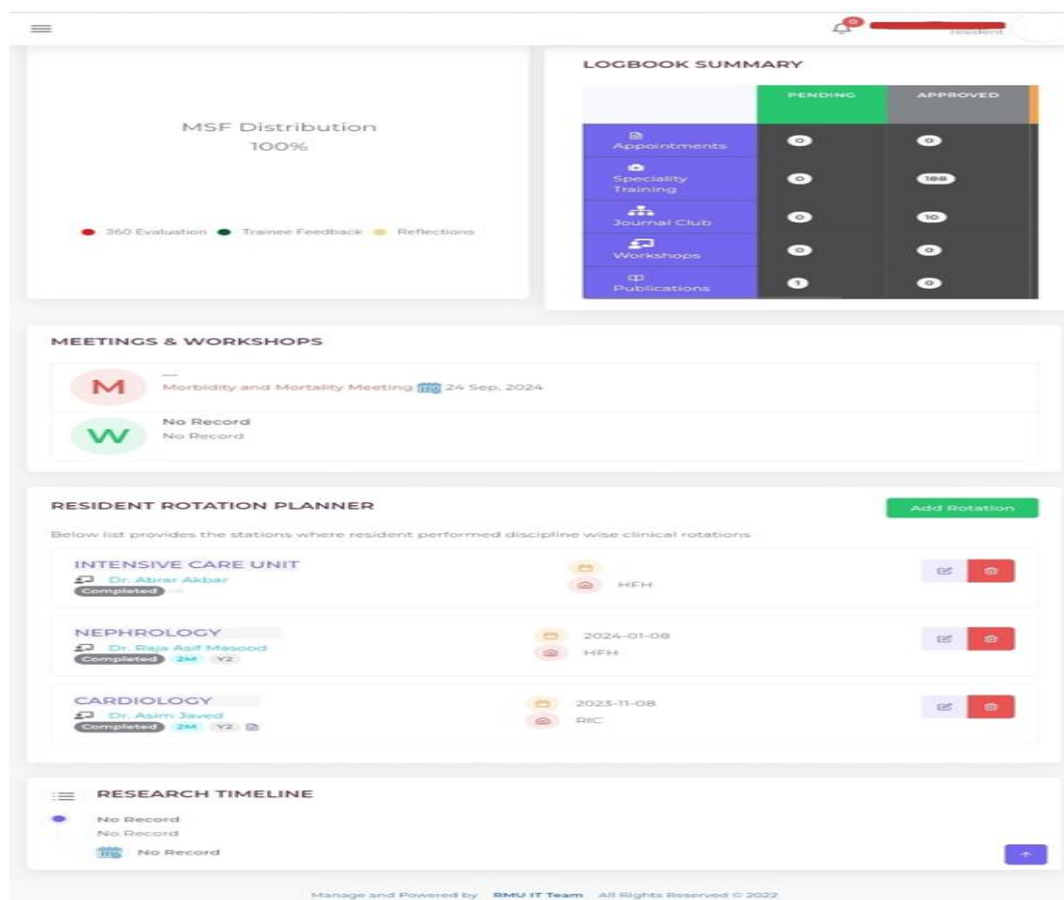
S NO.	Procedural competencies	PGY - 3		PGY - 4		PGY - 5	
		level	No	Level	No	Level	No
1	Paracentesis	4	10	4	10	4	10
2	Sengstaken Blakemore tube placement	1-2	5	3	5	4	5
3	Liver biopsy	1-2	5	2-3	5	4	2
4	Disinfection of Scope	2	10	3	5	3	5
5	Management of Sedation during endoscopic procedure	1-3	10	3-4	10	4	10
6	Diagnostic EGD	1-3	40	3-4	50	4	70
7	Variceal Banding	1-3	20	3-4	20	4	30
8	Sclerotherapy	1-2	10	3	5	4	5
9	Endoscopic management of bleeding ulcer	1-2	10	3	10	4	10
10	Esophageal stricture dilatation	1-2	10	3	15	4	20
11	Achalasia Pneumatic dilatation	1-2	5	3	5	4	5
12	Foreign body removal	1-2	5	2-3	5	3-4	5
13	PEG tube placement	1	5	2	5	2-3	5
14	Sigmoidoscopy	1-3	10	3	20	4	20
15	Colonoscopy	1	10	2-3	30	4	40
16	Polypectomy	1-2	10	2-3	10	3-4	5
17	Manometry	1-2	5	2-3	10	2-3	10
18	ERCP	1-2	10	2	30	2-3	20

EPAs (Patient Management) of Gastroenterology MD Training, RMU






COMPETENCIES	PGY - 3		PGY - 4		PGY - 5	
	Level	No	Level	No	Level	No
History taking	4	40	4	50	4	60
Physical examination	4	40	4	50	4	60
Appropriate Investigations	2-3	40	4	50	4	60
Interpretation of investigations	2-3	40	3-4	50	4	60
Appropriate treatment plan	2-3	40	3-4	50	4	60
Follow-up care	3-4	40	4	50	4	60
Communication skills	3	40	4	50	4	60
Dealing Ethnical Issues	2-3	40	3-4	50	4	60

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

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



LOGBOOK SUMMARY

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

DRAFT	DISCUSS & RESUBMIT	TO
0	0	0
0	0	1
0	0	1
0	0	0
0	0	1

SECTION XI

LEARNING RESOURCES

ACGME Program Requirements for Graduate Medical Education in Gastroenterology

Revision Information

ACGME-approved major revision: October 18, 2023; effective date July 1, 2024

Definitions

For more information, see the [ACGME Glossary of Terms](#).

Core Requirements: Statements that define structure, resource, or process elements essential to every graduate medical educational program.

Detail Requirements: Statements that describe a specific structure, resource, or process, for achieving compliance with a Core Requirement. Programs and sponsoring institutions in substantial compliance with the Outcome Requirements may utilize alternative or innovative approaches to meet Core Requirements.

Outcome Requirements: Statements that specify expected measurable or observable attributes (knowledge, abilities, skills, or attitudes) of residents or fellows at key stages of their graduate medical education.

Osteopathic Recognition

For programs with or applying for Osteopathic Recognition, the Osteopathic Recognition Requirements also apply (www.acgme.org/OsteopathicRecognition).

1. Books:

- Davidson's Principle and Practice Of Medicine
- Current Medical diagnosis and Treatment
- Harrison's Principles of internal Medicine
- Sleisenger and Fordtran's Gastrointestinal and Liver Diseases 11th Edition

2. Guidelines:

- American Association for the study of Liver Diseases (AASLD)
- European Association for the study of the Liver (EASL)
- American College of Gastroenterology Guidelines (ACG)
- British Society of Gastroenterology Guidelines (BSG)

3. UptoDate

4. Digital Library

SECTION XII

REFERENCES

Teaching Methods

- Kolb, D. *Experiential Learning*. Englewood Cliffs, NJ: Prentice Hall. 1984
- Maudsley G. Do we all mean the same thing by “PBL”? *Academic Medicine* 1999; 74:178-85
- Hill W. *Learning Thru Discussion* 2nd edition. London: Sage Publications. 1977.
- Cook D. Web-based learning: pros, cons and controversies. *Clinical Medicine* 2007; 7(1):37-42.
- Greenhalgh T. Computer assisted learning in undergraduate medical education. *BMJ* 2001; 322:40-4.
- Chumley-Jones HS *et al* Web-based learning: Sound educational method or Hype? A review of the evaluation literature. *Academic Medicine* 2002;77(10):S86-S93.
- Schon D. *Educating the reflective practitioner*. San Francisco: Jossey Bass. 1984
- Lockyer J *et al* Knowledge translation: the role and practice of reflection. *Journal of Continuing Education*. 2004;24:50-56

Assessment methods

- www.ACGME.org/what-we-do/accreditation/milestones/resources
- Van der Vleuten, CPM and Swanson, D. Assessment of clinical skills with standardized patients: State of the art. *Teach Learn Med*. 1990; 2: 58-76.
- Haladyna TM. *Developing and validating multiple-choice test items*. Hillsdale, New Jersey: L. Erlbaum Associates.1994.
 - Case SM, Swanson DB. *Constructing written test questions for the basic and clinical sciences*. Philadelphia, PA:National Board of Medical Examiners, 1996 (www.nbme.org)

- Case SM, Swanson DB. *Constructing written test questions for the basic and clinical sciences*. Philadelphia, PA:National Board of Medical Examiners, 1996 (www.nbme.org)
- Center for Creative Leadership, Greensboro, North Carolina (<http://www.ccl.org>).
- Challis M. AMEE medical education guide no. 11 (revised): Portfolio-based learning and assessment in medical education. *Med Teach*. 1999; 21: 370-86.
- Gray, J. Global rating scales in residency education. *Acad Med*. 1996; 71: S55-63.
- Haladyna TM. *Developing and validating multiple-choice test items*. Hillsdale, New Jersey: L. Erlbaum Associates.1994.
- Kaplan SH, Ware JE. The patient's role in health care and quality assessment. In: Goldfield N and Nash D (eds). *Providing quality care (2nd ed): Future Challenge*. Ann Arbor, MI: Health Administration Press, 1995: 25-52.
- Matthews DA, Feinstein AR. A new instrument for patients' ratings of physician performance in the hospital setting. *J Gen Intern Med*. 1989;4:14-22.
- Mancall EL, Bashook PG. (eds.) *Assessing clinical reasoning: the oral examination and alternative methods*. Evanston, Illinois: American Board of Medical Specialties, 1995.
- Munger, BS. Oral examinations. In Mancall EL, Bashook PG. (editors) *Recertification: new evaluation methods and strategies*. Evanston, Illinois: American Board of Medical Specialties, 1995: 39-42.
- Noel G, Herbers JE, Caplow M et al. How well do Internal Medicine faculty members evaluate the clinical skills of residents? *Ann Int Med*. 1992; 117: 757-65.
- Norman, Geoffrey. *Evaluation Methods: A resource handbook*. Hamilton, Ontario, Canada: Program for Educational Development, McMaster

University, 1995: 71-77. Tekian A, McGuire CH, et al (eds.) *Innovative simulations for assessing professional competence*. Chicago, Illinois: University of Illinois at Chicago, Dept. Med. Educ. 1999

- Tugwell P, Dok, C. Medical record review. In: Neufeld V and Norman G (ed). *Assessing clinical competence*. New York: Springer Publishing Company, 1985: 142-82.
- Van der Vleuten, CPM and Swanson, D. Assessment of clinical skills with standardized patients: State of the art. *Teach Learn Med*. 1990; 2: 58-76.
- Watts J, Feldman WB. Assessment of technical skills. In: Neufeld V and Norman G (ed). *Assessing clinical competence*. New York: Springer Publishing Company, 1985, 259-74.
- Winckel CP, Reznick RK, Cohen R, Taylor B. Reliability and construct validity of a structured technical skills assessment form. *Am J Surg*. 1994; 167: 423-27.

References of Milestones

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

SECTION XIII
APPENDICES

LIST OF APPENDICES

1.	Workplace Based Assessments: 360- Degree Feedback	Appendix “A”
2.	Departmental DOPS Proforma	Appendix “B”
3.	Supervisor’s Annual Review Report	Appendix “C”
4.	Evaluation Of Program By The Resident	Appendix “D”
5.	Faculty Evaluation Of Resident	Appendix “E”
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7.	Guidelines for program evaluation & Template	Appendix “ G”
8.	Annual Program Evaluation	Appendix " H"
9.	SWOT Analysis Form	Appendix " I"

APPENDIX A



MENTOR / SUPERVISOR EVALUATION OF TRAINEE

Resident's Name: _____

Evaluator's Name(s): _____

Hospital Name: _____

Date of Evaluation: _____

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

1	Unsatisfactory
2	Below Average
3	Average
4	Good
5	Superior

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

Patient Care		Scale				
1.	Demonstrates sound clinical judgment	1	2	3	4	5
2.	Presents patient information case concisely without significant omissions or digressions	1	2	3	4	5
3.	Able to integrate the history and physical findings with the clinical data and identify all of the patient's major problems using a logical thought process	1	2	3	4	5
4.	Develops a logical sequence in planning for diagnostic tests and procedures and Formulates an appropriate treatment plan to deal with the patient's major problems	1	2	3	4	5
5.	Able to perform commonly used office procedures	1	2	3	4	5
6.	Follows age appropriate preventative medicine guidelines in patient care	1	2	3	4	5
Medical Knowledge		Scale				
1.	Uses current terminology	1	2	3	4	5
2.	Understands the meaning of the patient's abnormal findings	1	2	3	4	5
3.	Utilizes the appropriate techniques of physical examination	1	2	3	4	5
4.	Develops a pertinent and appropriate differential diagnosis for each patient	1	2	3	4	5
5.	Demonstrates a solid base of knowledge of ambulatory medicine	1	2	3	4	5
6.	Can discuss and apply the applicable basic and clinically supportive sciences	1	2	3	4	5
Professionalism		Scale				
1.	Demonstrates consideration for the patient's comfort and modesty	1	2	3	4	5
2.	Arrives to clinic on time and follows clinic policies and procedures	1	2	3	4	5
3.	Works effectively with clinic staff and other health professionals	1	2	3	4	5
4.	Able to gain the patient's cooperation and respect	1	2	3	4	5
5.	Demonstrates compassion and empathy for the patient	1	2	3	4	5
6.	Demonstrates sensitivity to patient's culture, age, gender, and disabilities	1	2	3	4	5
7.	Discusses end-of-life issues (DPOA, advanced directives, etc.) when appropriate	1	2	3	4	5



Patient Medical Record / Chart Evaluation Proforma

Name of Resident

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

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

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

**Preview Form****RESIDENT EVALUATION BY NURSE / STAFF**

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

Name of Resident*

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

Your position (Nurse, Ward Servant, Endoscopy Attendant)

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

THANK YOU for your time and thoughtful input. You play a vital role in the education and training of the internal medicine residents.

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

Total Score _____/56



RAWALPINDI MEDICAL UNIVERSITY

4

Patient Evaluation of Trainee

Trainee Name: _____

Date of Evaluation: _____

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

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

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

Total Score _____/30



Resident/Fellow Evaluation of Faculty Teaching

Evaluator: _____

Evaluation of: _____

Date: _____

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

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



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

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

Total Score _____ / 130



RAWALPINDI MEDICAL UNIVERSITY

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FINAL Evaluation Scoring Sheet

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



RAWALPINDI MEDICAL UNIVERSITY

Logbook complete ☐ incomplete ☐

Portfolio complete ☐ incomplete ☐

Leave /absentees: _____

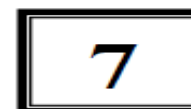
Comments

Supervisor Name (1) _____ Supervisor Name (2) _____ Head of Unit _____

Sign & Stamp _____ Sign & Stamp _____ Sign & Stamp _____



RAWALPINDI MEDICAL UNIVERSITY



RESIDENT SELF-ASSESSMENT PROFORMA

Resident Name _____ Date _____

Year of Training _____ Hospital Name _____ Unit _____

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

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



RAWALPINDI MEDICAL UNIVERSITY

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

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

Please set three specific goals for the next six months:

Signature _____

Date _____



Rawalpindi Medical University

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DIRECT OBSERVATION OF PROCEDURAL SKILLS (DOPS)

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

Doctor's Name: _____

PMDC Number: _____

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

*if appropriate

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

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

SpSR - Specialty Senior Registrar
SpR - Specialty Registrar



CASE BASED CLINICAL EVALUATION OF TRAINEE

Resident's Name: _____

Evaluator's Name(s): _____

Hospital Name: _____

Date of Evaluation: _____

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

1	Unsatisfactory
2	Below Average
3	Average
4	Good
5	Superior

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

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

APPENDIX B



Endoscopy Disinfection Evaluation Performa

Name of Staff Nurse: _____

Evaluators Name: _____ Date: __



S#		Yes	No
1.	Clear gross debris from the scope by wiping with gauze.	<input type="radio"/>	<input type="radio"/>
2.	Expel any blood or mucus by sucking the water.	<input type="radio"/>	<input type="radio"/>
3.	Immerse the scope in detergent solution.	<input type="radio"/>	<input type="radio"/>
4.	Detach the scope from light source.	<input type="radio"/>	<input type="radio"/>
5.	Detach the air water with suction valve.	<input type="radio"/>	<input type="radio"/>
6.	Brush all the channels.	<input type="radio"/>	<input type="radio"/>
7.	Rinse the scope with clean water.	<input type="radio"/>	<input type="radio"/>
8.	Flush all channels with clean water.	<input type="radio"/>	<input type="radio"/>
9.	Immerse the scope and valves in disinfectant solution.	<input type="radio"/>	<input type="radio"/>
10.	Irrigate all channels with disinfectant.	<input type="radio"/>	<input type="radio"/>
11.	Change Gloves before rinsing with clean water	<input type="radio"/>	<input type="radio"/>
12.	Rinse the scope and valves with clean water.	<input type="radio"/>	<input type="radio"/>
13.	Irrigate all the channels with clean water.	<input type="radio"/>	<input type="radio"/>
14.	Remove the scope from trolley and hang.	<input type="radio"/>	<input type="radio"/>
15.	Put all the valves correctly.	<input type="radio"/>	<input type="radio"/>

Total Score _____/15

Evaluator Signature _____



CENTRE FOR LIVER AND DIGESTIVE DISEASES

Holy Family Hospital, Rawalpindi, Pakistan

DOPS Assessment Form - UPPER GI ENDOSCOPY

FCPS Gastroenterology Training - Year - I

Endoscopist

Trainer / Peer

Date

Scale and Criteria Key

- 4 Highly skilled performance
- 3 Competent and safe throughout procedure, no uncorrected errors
- 2 Some standards not yet met, aspects to be improved, some errors uncorrected
- 1 Accepted standards not yet met, frequent errors uncorrected
- 0/0 Not applicable

Criteria	Score	Comments
Assessment, consent, communication <ul style="list-style-type: none"> Obtains informed consent using a structured approach <ul style="list-style-type: none"> Satisfactory procedural information Risk and complications explained Co-morbidity Sedation Opportunity for questions Demonstrates respect for patient's views and dignity during the procedure Communicates clearly with patient, including outcome of procedure with appropriate management and follow up plan. Full endoscopy report. 		
Safety and sedation <ul style="list-style-type: none"> Safe and secure IV access Gives appropriate dose of analgesia and sedation and ensures adequate oxygenation and monitoring of patient Demonstrates good communication with the nursing staff, including dosages and vital signs 		
Endoscopic skills during insertion and procedure <ul style="list-style-type: none"> Checks endoscope function before intubation Intubates the oesophagus under direct vision Maintains luminal view Demonstrates awareness of patient's consciousness and comfort during the procedure and takes appropriate actions Uses distension, suction and lens washing appropriately Passes the scope into the second part of the duodenum Uses retroflexion to visualise fundus and cardia Completes procedure in reasonable time 		
Diagnostic and therapeutic ability <ul style="list-style-type: none"> Adequate mucosal visualisation Recognises and notes the position of the gastro-oesophageal junction, and is appropriately orientated within the stomach and duodenum Accurate identification and management of pathology Uses diathermy and therapeutic techniques appropriately and safely High quality images recorded Recognises and manages complications appropriately 		

REMARKS

|

Signature _____



CENTRE FOR LIVER AND DIGESTIVE DISEASES

Holy Family Hospital, Rawalpindi, Pakistan

DOPS Assessment Form - COLONOSCOPY

FCPS Gastroenterology Training - Year - I

Colonoscopist

Trainer / Peer

Date

Scale and Criteria Key

- 4 Highly skilled performance
- 3 Competent and safe throughout procedure, no uncorrected errors
- 2 Some standards not yet met, aspects to be improved, some errors uncorrected
- 1 Accepted standards not yet met, frequent errors uncorrected
- n/a Not applicable

Criteria	Score	Comments
Assessment, consent, communication <ul style="list-style-type: none"> Obtains informed consent using a structured approach <ul style="list-style-type: none"> Satisfactory procedural information Risk and complications explained Co-morbidity Sedation Opportunity for questions Demonstrates respect for patient's views and dignity during the procedure Communicates clearly with patient, including outcome of procedure with appropriate management and follow up plan. Full endoscopy report. 		
Safety and sedation <ul style="list-style-type: none"> Safe and secure IV access Gives appropriate dose of analgesia and sedation and ensures adequate oxygenation and monitoring of patient Demonstrates good communication with the nursing staff, including dosages and vital signs 		
Endoscopic skills during insertion and procedure <ul style="list-style-type: none"> Checks endoscope function before intubation Performs PR Maintains luminal view / inserts in luminal direction Demonstrates awareness of patient's consciousness and pain during the procedure and takes appropriate action Uses torque steering and control knobs appropriately Uses distension, suction and lens washing appropriately Recognises and logically resolves loop formation Uses position change and abdominal pressure to aid luminal views Completes procedure in reasonable time 		
Diagnostic and therapeutic ability <ul style="list-style-type: none"> Adequate mucosal visualisation Recognises caecal/desc. colon landmarks or incomplete examination Accurate identification and management of pathology Uses diathermy and therapeutic techniques appropriately and safely Recognises and manages complications appropriately 		

REMARKS

Signature _____

APPENDIX C

Supervisor's Annual Review Report.

This report will consist of the following components: -

1. 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.
2. 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.
3. Assessment report of presentations and lectures
4. Compliance Report to meet timeline for completion of research project.
5. Compliance report on personal Development Plan.
6. Multisource Feedback Report, on relationship with colleagues, patients.
7. Supervisor will produce an annual report based on assessments as per proforma in appendix-G and submit it to the Examination department.
8. 75% score will be required to pass the Continuous Internal Assessment on annual review.

APPENDIX D

RESIDENT EVALUATION OF RESIDENCY PROGRAM

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

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

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

B. Evaluation (Question 2 of 35)

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

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

C. Research (Question 3 of 35)

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

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

Research (Question 4 of 35)

Residents are encouraged to participate in research.

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

Research (Question 5 of 35)

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

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

D. Faculty (Question 6 of 35)

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

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

E. Faculty (Question 7 of 35)

The Knowledge of the faculty is current and appropriate.

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

F. Facilities (Question 8 of 35)

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

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

G. Facilities (Question 9 of 35)

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

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

H. Facilities (Question 10 of 35)

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

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

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

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

I. Leadership and Logistics (Question 11 of 35)

The Program Director communicates effectively with residents.

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

J. Leadership and Logistics (Question 12 of 35)

The Associate Program Director communicates effectively with residents.

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

K. Leadership and Logistics (Question 13 of 35)

The Chief Residents communicates effectively with residents.

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

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

L. Leadership and Logistics (Question 14 of 35)

The Program Coordinator communicates effectively with residents.

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

M. Leadership and Logistics (Question 15 of 35)

The Program Director provides effective leadership of the residency.

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

N. Leadership and Logistics (Question 16 of 35)

There is adequate departmental support for residency education.

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

O. Leadership and Logistics (Question 17 of 35)

There is adequate departmental support for residency education.

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

P. Leadership and Logistics (Question 18 of 35)

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

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

Q. Leadership and Logistics

(Question 19 of 35) The

evaluation system (E-Value)

is easy to use.

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

R. Training (Question 20 of 35)

Faculty adequately supervises residents' care of patients.

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

S. Training (Question 21 of 35)

Training sites present a wide range of psychiatric clinical problems.

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

T. Training (Question 22 of 35)

Residents see an appropriate number of patients.

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

U. Training (Question 23 of 35)

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

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

V. Training (Question 24 of 35)

Rounds and staffing are conducted professionally.

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

W. Training (Question 25 of 35)

Rounds and staffing are conducted efficiently.

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

X. Training (Question 26 of 35)

Faculty teaches and supervises in ways that facilitate learning.

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

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

Y. Training (Question 27 of 35)

The program is responsive to safety concerns at training.

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

Z. Training (Question 28 of 35)

The program is responsive to feedback from residents.

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

AA. Training (Question 29 of 35)

Residents experience an appropriate balance of educational and clinical responsibilities.

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

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

BB. Training (Question 30 of 35)

The didactic sessions provide core knowledge of the field.

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

CC. Training (Question 31 of 35)

The morale of the residents is good.

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

DD. Training (Question 32 of 35)

The morale of the faculty is good.

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

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

EE. Training (Question 33 of 35)

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

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

FF. Recommendations (Question 34 of 35)

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

GG. Additional Comments (Question 35 of 35)

APPENDIX E

FACULTY EVALUATION OF RESIDENT

Abbreviations for six Core Competencies

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

Interpersonal and Communication Skills

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

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

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

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

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

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

Medical Knowledge

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

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

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

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

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

Patient Care

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

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

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

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

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

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

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

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

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

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

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

I

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

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

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

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

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

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

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

Professionalism

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

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

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

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

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

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

System-Based Practices

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

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

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

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

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

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

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	Superio r
0 <input type="text"/>	1 <input type="text"/>	2 <input type="text"/>	3 <input type="text"/>	4 <input type="text"/>	5 <input type="text"/>	6 <input type="text"/>	7 <input type="text"/>	8 <input type="text"/>	9 <input type="text"/>

APPENDIX F

RESIDENT EVALUATION OF FACULTY TEACHING SKILLS

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 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	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	N/A <input type="checkbox"/>
Situation as opportunities to demonstrate how he / she learn					
Used Medical / scientific literature to support clinical decisions	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	N/A <input type="checkbox"/>

Comments

C. Patient Care /Teaching and & Feedback

Demonstrate how to handle “difficult” patients encounters	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	N/A <input type="checkbox"/>
Demonstrated how to perform special physical exam techniques and / or procedures and observed me during my initials attempt	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	N/A <input type="checkbox"/>
Asked thought provoking questions to help me develop my critical thinking skills and clinical judgment	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	N/A <input type="checkbox"/>
Share his/her own thought process when discussing patient workups and patients care decisions with the team	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	N/A <input type="checkbox"/>
Highlighted important aspects of a patient case and often generalized to boarder medical concepts and principles	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	N/A <input type="checkbox"/>

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Integrated social / ethical aspects of medical

1

2

3

4

N/A

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

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

1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Comments:

D. Didactic (Classroom) Instructions

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

1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

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

1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

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

1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Comments

E. Evaluation

Reviewed my overall clinical performance at the end of the rotation pointed out my strengths and areas for improvement

1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Demonstrated “fairness” by adhering to established criteria, explaining reasons for the scores and following me to respond

1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Comments

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

POOR ☐

FAIR ☐

VERY
GOOD ☐

EXCELLENT ☐

Would you recommend that faculty member continue to teach in this program?

Yes ☐ NO ☐

COMMENTS, COMMENDATIONS OR CONCERNS

APPENDIX G

Guidelines for program Evaluation & Template

Program Evaluation Committee (PEC)

Background

The purpose of this committee is to conduct and document a formal, systematic evaluation of the program & curriculum on an annual basis.

Membership

The chair and membership of the committee are appointed by the Program Director. The membership of the committee consists of at least two members of the program faculty, and at least one resident/subspecialty resident.

Meeting Frequency

The committee meets, at a minimum, annually.

Responsibilities of the PEC

- The PEC actively participates in planning, developing, implementing and evaluating the educational activities of the program.
- The PEC reviews and makes recommendations for revision of competency-based goals and objectives.
- Addresses areas of non-compliance with the standards; and reviews the program annually using written evaluations of faculty, residents, and others.

Required Documentation of PEC Activities

The PEC provides the GMEC with a written Annual Program Evaluation (APE) in the format that is appended to this document. This document details a written plan of action to document initiatives to improve performance based on monitoring of activities described below.

The APE document provides evidence that the PEC is monitoring the following areas, at a minimum:

1. Resident performance
2. Faculty development
3. Graduate performance, including performance of program graduates on the certifying examination
4. Assessment of program quality through:
 - a. Annual confidential and formal feedback from residents and faculty about the program quality;

- b.** Assessment of improvements needed based on program evaluation feedback from faculty, residents, and others

5. Continuation of progress made on prior year's action plan

6. Prepare and submit a written plan of action to

- a.** document initiatives to improve performance in one of more of the areas identified,
- b.** Delineate how they will be measured and monitored
- c.** Document continuation of progress made on the prior year's action plan

Template for Documentation of Annual Program Evaluation and Improvement

Date of annual program evaluation meeting: _____

Attendees:

- i. Program Director: _____
- ii. Program Coordinator: _____
- iii. Associate/Assistant PD: _____
- iv. Faculty Members: _____
- v. Residents: _____

	Reviewed √	Discussion, Followup, Action Plan
1. Current Program Requirements & Institutional Requirements		
2. Most recent Internal Review Summary to ensure all recommendations are addressed		
3. Review Curriculum <ul style="list-style-type: none"> a. effective mechanism in place to distribute Goals & Objectives (G&O) to residents and faculty b. overall program educational goals c. up-to-date competency-based G&O for each assignment d. up-to-date competency-based G&O for each level of training e. G&O contain delineation of resident responsibilities for patient care, progressive responsibility for patient management, and supervision of residents 		
4. Evaluation System		

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.

APPENDIX H

Annual Program Evaluation (APE)

Date of the APE meeting:

Date; Minutes & Action Plan were reviewed and Approved by teaching faculty:

Please attach the minutes of the meeting where the Minutes & Action Plan were reviewed and approved.

Academic Year reviewed:

Faculty Members of the PEC in attendance Other Members of the PEC in attendance: Areas reviewed:

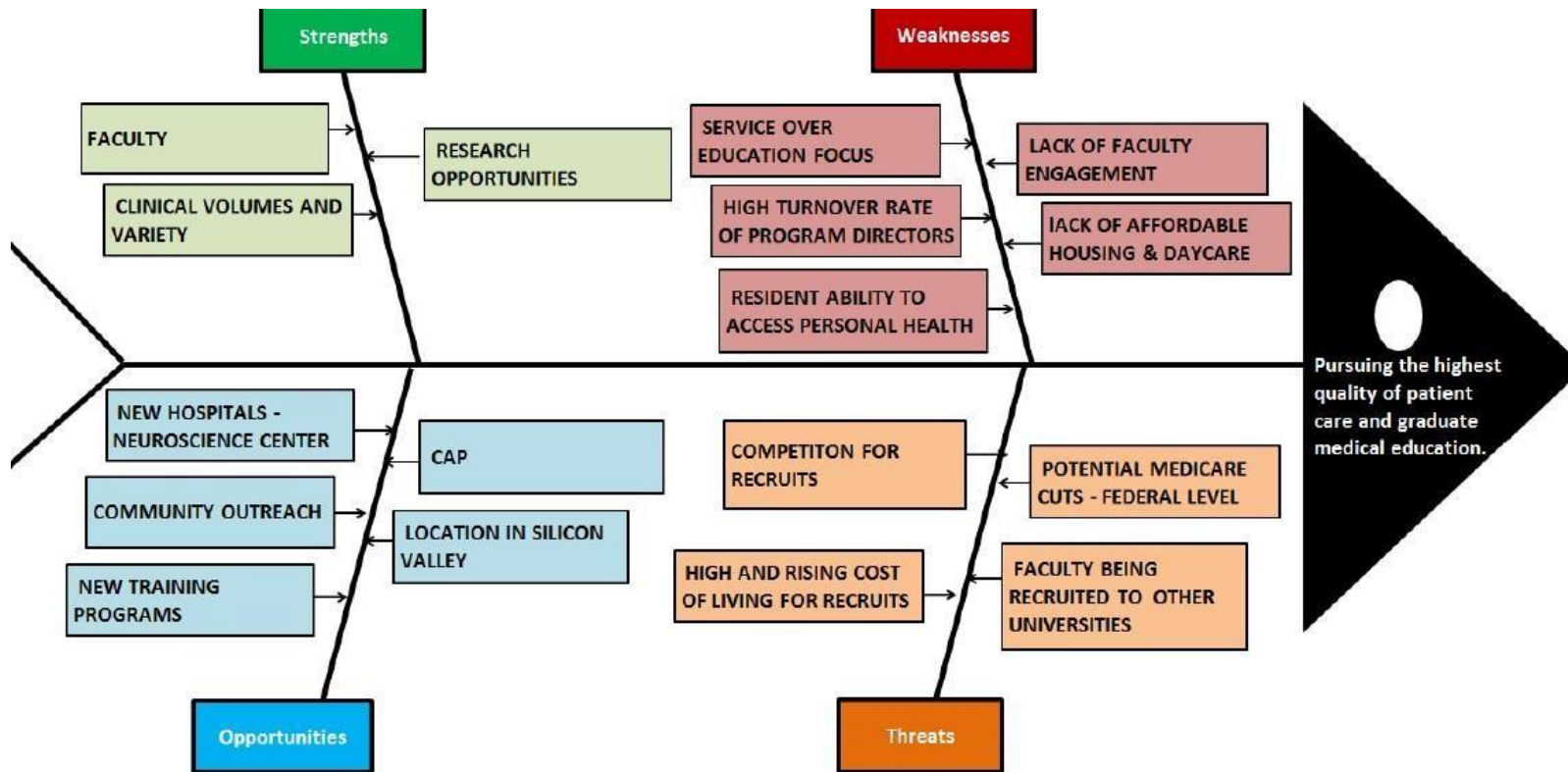
1. Resident performance
 - Supporting documents:
2. Faculty development
 - Supporting documents:
3. Graduate performance
 - Supporting documents:
4. Program quality
 - Supporting documents:
5. Policies, Protocols & Procedures
 - Supporting documents:

APPENDIX I

SWOT Analysis

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

SWOT Analysis (Fishbone – Ishikawa Diagram)



Action Plan

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

FINAL APPROVAL AND SIGNATURES

This page serves as the official endorsement of the MD Medicine Curriculum, confirming its approval by the respective authorities of Rawalpindi Medical University (RMU). The undersigned affirm their review and acceptance of the document.

Name	Designation	Signatures
Prof Dr. Muhammad Umer	Vice Chancellor, RMU	
Prof Dr. Bushra Khaar	Professor of Medicine & Gastroenterology	
Prof Dr. Muhammad Khurram	Dean of Medicine, RMU& Head of Department, MU-2, HFH	
Prof. Dr. Ifra	Director DME	
Dr. Tanveer Hussain	Associate professor of Gastroenterology and Head of Department, RMU	
Dr. Sadia Ahmed	Assistant professor of Gastroenterology , RMU	

APPROVAL STATEMENT:

We, the undersigned, hereby confirm that the MD Medicine Curriculum has been reviewed and approved for implementation at Rawalpindi Medical University.