MD Training Programme *for* Gastroenterology

Department of Medicine
Gastroenterology & Hepatology Division
Holy Family Hospital Rawalpindi-Pakistan

اور جو لوگوں کو فائدہ پہنچاتا ہے وہ روئے زمین پر قائم رہتا ہے (الرعد: ۱۷)

Which is for the good of mankind remains in the earth

MD TRAINING PROGRAMME FOR GASTROENTEROLOGY

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MD TRAINING PROGRAMME FOR GASTROENTEROLOGY

This manual will serve as educational tool for young physicians of Pakistan.

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Foreword

We believe that gastroenterology and GI Endoscopy is now seen as an important established discipline of medicine in Pakistan. The curriculum of any specialty is always a dynamic document which continues to change. Many guidelines and documents were published by CPSP for GI fellows and UHS for MD Training in Gastroenterology. We feel that there is always need for improvement in these guidelines particularly with increasing medical research, changing methodology of training and increasing standards of patient care and last but not least, the availability of new endosocpic equipment in Pakistan. The main objectives of this document are three.

1. To provide structured training program guidelines for GI Trainees.

2. Provide structured guidelines for trainers of GI Training Program.

3. To standardize the training program in Gastroenterology nationally and internationally.

Actually this is not one document but comprised of four documents. To understand the training program in GI these documents should be considered one document while reading. 1st three documents are available Gastroenterology & Hepatology Division Holy Family Hospital Rawalpindi and 4th is with UHS.

Finally we believe this document is only a basic roadmap and needs continuous improvement by future authors. We will like to extend our gratitude to our learned colleagues in our department particularly Dr. Masood Ahmad, Dr. Saima Ambreen, Dr. Muhammad Khurram, Dr. Zahid Mahmood Minhas, Dr. Abdul Naeem, Dr. Muhammad Arif, Dr. Muhammad Saleem, Dr. Raja Adnan Arif for their extensive efforts in preparing these documents and finally Jahanzeb Khan for formatting this manuscript.

Our special thanks for Professor M. Mubashir Malik Vice Chancellor of UHS who approved the MD Gastroenterology Program in RMC and encouraged us to prepare this initial document. We also extend our attitude to Professor Naveed from UHS for providing us UHS Guidelines for MD Gastroenterology.

Prof. Muhammad Umar **Prof. Hamama-tul-Bushra Khaar**

Structured Gastroenterology Training Program Comprising 4 Documents.

Document 1 Aims & Objectives of Training and UHS Guidelines

Document 2 Standards in Gastrointestinal Endoscopy Training

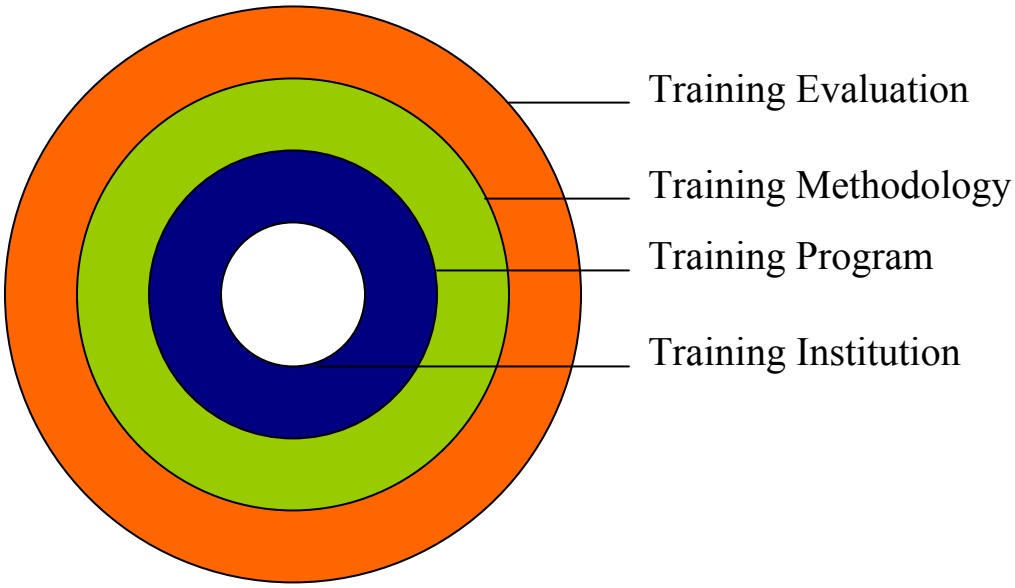
Document 3 Log Book of Training Program

Document 4 Detailed UHS, regulations and syllabus of MD Gastroenterology

Document 1, 2 and 3 are written and composed by Division of Gastroenterology, Hepatology and GI Endoscopy, Holy Family Hospital, Rawalpindi. These documents are available from the Office as well as our website (www.rawalianresearch.org)

4th Document is available from UHS Office Lahore and UHS Website.

Training Wheel in Gastroenterology



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TRAINING PROGRAMME

1. GENERAL GOALS

Gastroenterology and Hepatology are branches of Internal Medicine, usually practiced together, that are concerned with the prevention, diagnosis, treatment of and research into illnesses involving all of the gastrointestinal tract, liver, pancreas, and other associated organs, referred to as "digestive diseases." So gastroenterologists will deem to be experts to manage these digestive diseases.

2. Definition of Gastroenterology

Gastroenterology is a wide and complex specialty, including a wide variety of digestive diseases that require competence in clinical as well as in procedural skills. Training programs therefore have to provide an adequate intellectual environment for acquiring the knowledge, clinical judgment, skills, attitudes, and professional values that are essential for practicing gastroenterology. This covers only medical gastroenterology.

Registration as a gastroenterologist i.e., as a specialist in gastroenterology means registration as a medical gastroenterologist.

Pediatric and surgical specialists who have trained in gastroenterology should be known as pediatric gastroenterologists and surgical gastroenterologists.

3. Definition of Endoscopy

Endoscopy is an examination inside the body with an instrument (endoscope) that provides for viewing of the targeted structures. In digestive endoscopy, this generally includes the capability to access the tissue for biopsy and therapeutic maneuvers.

The Gastrointestinal Endoscopy Specialist comes from Clinical Gastroenterology, Gastrointestinal Surgery or Paediatric Gastroenterology

4. TRAINING INSTITUTIONS

Gastroenterology training should only take place at medical institutions that are accredited for Internal Medicine and Gastroenterology, or at Gastroenterological units belonging to a medical school. These institutions must have sufficient faculty members relative to the number of trainees and should have modern facilities and sufficient space and equipment to carry out the overall educational program; adequate clinical support services on a 24-hour basis; and interaction with peers from other specialties and subspecialties. The training institution must provide adequate financial resources to support faculty members and trainees and should provide the following facilities and resources for the trainee.

Facilities and resources

- Trainees are to be supervised by adequately experienced and certified trainers. There should be a sufficient number of new patients (about 150 per year, to ensure adequate exposure to in-patients and outpatients) and follow-up patients to allow trainees to learn about a wide range of digestive diseases.

- There should be adequate in-patient and ambulatory care facilities to provide care for acute and chronic gastrointestinal problems.

- The institution must have a fully-equipped and staffed procedure laboratory, including state-of-the-art diagnostic and therapeutic endoscopy instruments (diagnostic and therapeutic upper and lower gastrointestinal endoscopy) and motility equipment.

- The institution may also have, or have access to: —Radiography (diagnostic and interventional), ultrasound, nuclear medicine, CT/MRI scanning, and biopsy equipment —Laboratory: specialized serological, parasitological, biochemistry, hematology, microbiology and histopathology — Basic tests for gastrointestinal function — A full-service emergency room, general and surgical unit, Oncological unit — an intensive-care unit for critically ill patients with gastrointestinal and hepatic disorders

- Computers should be available for recording results and creating a database.

- A well-stocked library, with online capabilities for computer-assisted literature searches, is essential.

V. FACULTY

A. Training Director

The training director should be a designated, qualified and expert medical or surgical endoscopist and teacher substantially committed to the program. Responsibilities include:

i. Regular audit of each trainee's knowledge, skills, logs and records of numerical procedural experience (including indications, findings and complications) and success in achieving defined objective performance indicators.
ii. Incorporate endoscopic teaching resources (textbooks, atlases, electronic media and the internet).
iii. Assess and revise training methodology and quality.
iv. Review with the trainee evaluation forms from trainers.
v. Solicit feedback from the trainee regarding the trainers and the program.

B. Medical Staff Trainers

Staff endoscopic trainers should be experts in endoscopy and committed teachers who are patient, able to provide verbal and physical instruction, and participate in the evaluation process. Staff endoscopists should serve as appropriate role models for the trainees by actively participating in the clinical practice of gastroenterology, their own continuing education, regional and national scientific societies, research activities, presentation and publication of scientific studies, and scholarly reviews. A ratio of 1 trainer to 1.5 trainees is optimal.

5. TRAINING PROGRAM

Primary Objectives

A. Residents should be able to perform a thorough gastrointestinal history and physical exam and understand the clinical significance of the findings. The attending physician will review history and physical examination findings on both ambulatory and hospitalized patients.

1. To know the anatomy of gastrointestinal tract and pathophysiology and biochemistry of Gastrointestinal diseases.

2. To understand the significance of abnormal findings noted in the clinical history and review of systems including heartburn, dysphagia, chest pain of esophageal origin, abdominal distension, abdominal pain, nausea and vomiting, food intolerance, diarrhea, jaundice, constipation, fecal incontinence, weight loss, blood loss, and complaints of gas, etc.

3. To accurately evaluate the abdomen by physical examination and to interpret the abnormal appearance and findings involving the liver, spleen, masses, hernias, bowel sounds, bruits, tenderness, signs of peritoneal inflammation, ascites, anal and perianal lesions, rectal lesions, and abnormalities of the oral cavity.

4. To identify systemic signs of chronic liver disease, including jaundice, parotid enlargement, spider angiomata, palmar erythema, alterations in secondary hair characteristics, gynecomastia, testicular atrophy, Dupuytren's contractures, caput medusae, hepatic encephalopathy, esophageal and rectal varices, and hemorrhoids.

5. To identify signs and symptoms of gastrointestinal bleeding, including: hematemesis, melena, hematochezia and occult blood in the stool.

6. To recognize clinical signs of malnutrition and specific signs of nutritional deficiencies and initiate treatment.

7. To be familiar with the fundamental diagnostic approach to the gastrointestinal manifestations of immunodeficiency disorders and common gastrointestinal problems in the pregnant patient.

B. The resident should understand the methodology and clinical significance of tests that provide diagnostic information about the liver, pancreas and gastrointestinal tract including:

1. Abnormal liver function tests.
2. Tests of acute and chronic hepatitis including viral serologic markers, antimitochrondrial antibody, anti-smooth muscle antibody, anti-nuclear antibody, alpha 1 antitrypsin level, ceruloplasmin, serum iron

and total iron binding capacity, carcino-embryonic antigen and alpha-fetoprotein.

3. Tests of pancreatic function, including serum amylase and lipase, qualitative fecal fat examination, and secretin test.
4. Tests of maldigestion and malabsorption including the qualitative fecal fat stain of the stool for free and split fats, serum carotene, prothrombin time, and xylose absorption test.
5. Tests for both acute and chronic diarrhea including stool volume, response to fasting, osmolarity and electrolyte content, fecal leukocytes, stool culture, stool examination for ova and parasites, and stool examination for *clostridium difficile* toxin.
6. Tests of gastric function including serum gastrin, pentagastrin stimulation for gastric analysis, and secretin provocation for detection of gastrinoma.
7. The interpretation, indications, and complications of radiologic examinations of the liver and gastrointestinal tract including upper GI series, barium swallow, small bowel follow through, barium enema, abdominal ultrasound, abdominal CAT scan, MRI, MRCP HIDA scan, labeled red cell scan, and abdominal angiography.
8. The indications and complications of gastrointestinal tract endoscopy for both therapeutic and diagnostic purposes including upper endoscopy, colonoscopy, enteroscopy, capsule endoscopy, ERCP, variceal sclerotherapy, variceal banding, polypectomy, coagulation of gastrointestinal hemorrhage, endoscopic sphincterotomy, biliary stent placement, and dilation of strictures in the esophagus and elsewhere in the GI tract.
9. The indications and methodology for evaluation of esophageal disease including esophageal manometry and 24 hour pH monitoring.
10. The indications for paracentesis and liver biopsy, and the complications associated with those procedures.

C. The resident should be able to establish a professional relationship with the patient, be sensitive to the anxieties of the patient and their family, and be able to effectively communicate with the patient and their family about the disease, the anticipated diagnostic evaluation, and therapeutic intervention. This core competency will be a point of focus by the gastroenterology service.

D. The resident should be familiar with the cost of daily hospital care, specific diagnostic tests and therapeutic interventions and should be able

to compare sensitivity and specificity of the tests and relative value of the various therapeutic alternatives.

E. The resident should be familiar with the pharmacology, indications, side effects, and costs of commonly prescribed gastrointestinal medications including histamine 2 receptor blockers, proton pump inhibitors, sucralfate, metoclopramide, mesalamine, steroids and immunosuppressive agents such as infliximab, etc.

F. The resident should be familiar with how to use library resources and computer literature searches to answer specific questions related to patient care.

G. Consultations

The resident will be asked to present a concise but thorough history and physical exam with special focus on the gastrointestinal symptoms. Major emphasis should be placed on the assessment including the differential diagnosis, the specific points in the case which were in favor of individual items in the differential diagnosis and the suggestions for further evaluation and management. After discussion with the attending physician and review of the literature, recommendations will be made. For all consults, it is imperative that the GI consultation team communicate in a direct verbal manner with the consulting physicians to be certain that their questions have been answered satisfactorily and to facilitate carrying out the additional diagnostic and therapeutic procedures suggested.

H. Endoscopic Procedural Skill

Detail given in Document 2 (*Standards in Gastrointestinal Endoscopy Training)*

I. Research opportunities

Interested residents are encouraged to discuss ongoing clinical trials with the faculty. The faculty is available to assist the resident with preparation of case reports or poster presentations on selected patients.

Experience in patient care

• Caring for a sufficiently large number of patients should provide broad experience in different types of digestive diseases.

• Caring for a sufficient number of new patients (about 150 per year, to ensure adequate exposure to in-patients and outpatients) and follow-up patients - e.g. pregnant, adolescent, geriatric patients of both genders.

• Training in the in-patient and outpatient departments, in order to enable trainees to diagnose and manage a wide range of digestive diseases.

• It should be ensured that 30% of this experience consists of clinical training in acute and chronic liver diseases.

J. Evaluation of trainee competence

On completing their training, trainees are required to have achieved the levels of consultative and technical skills that will allow them to practice independently. They should also feel confident to diagnose and treat the most complicated of gastroenterological cases. They must have the following characteristics required for the profile of a gastroenterologist:

• A broad knowledge base

• An ability to establish a relevant differential diagnosis on the basis of an accurate patient history and physical examination

• A firm foundation in pathophysiology

• An understanding of the indications and contraindications for diagnostic and therapeutic procedures

• Skill in performing procedures

• An ability to think critically

• An appreciation of the humane and ethical aspects of medicine

• A cost-effective approach to the use of technology

This will be achieved by means of broad exposure to patients under supervision by experienced and thoughtful clinical teachers.

Elements of competence to be evaluated

• Understanding of and commitment to all elements of professionalism.

• Knowledge of clinical record-taking, including family, genetic background, psychosocial and environmental facts. Ability to perform a comprehensive and accurate physical examination.

• Knowledge of gastroenterological and hepatic physiology, pathophysiology, and clinical pharmacology, as outlined above under "objectives of gastroenterology training."

• Procedural skills in gastrointestinal endoscopy, depending on the level of training.

• Ability to establish an appropriate differential diagnosis in order to outline a logical plan for specific and targeted management and treatment of the patient, as well as follow-up.

• Ability to carry out a consultation and to present its results both orally and in a well-written style.

• Medicolegal issues should also be taken into account in modern curricula.

Methods of evaluating trainee competence

• Observation during all the activities involved, including procedures, rounds, and conferences.
• Each faculty member who is incharge of a trainee has to carry out formal evaluation.

- Formal assessment of clinical skills, using a patient-based examination.

- Formal in-practice examination to test the trainee's knowledge base and mastery of the interpretation of endoscopic, radiographic, and pathological findings.

- Trainees must keep logbooks (training record books) to record endoscopic procedures and clinical records—work experience, meetings attended, variety of patients seen, procedures done, research plans, etc.

- Coordinators should arrange an annual assessment of each trainee.

- Final assessment at the end of the period of training, prior to MD Certification.

- Feedback provided by the trainee is necessary in order to improve standards.

K. Final Evaluation (As per UHS Guideline)

Our aim is to train doctors that are outstanding physicians while preparing them for careers in academic gastroenterology and Hepatology through defense of thesis, written & oral Exam. To ensure that trainees accomplish the goals of the training program, a semi-annual meeting with a multi-disciplinary committee composed of clinical and research faculty is held for each trainee.

L. Method of Specialty Evaluation:

Residents are asked to provide feedback to the attending in an informal manner during the course of the rotation. They will complete an evaluation form using New Innovations at the end of the rotation.

M. Core competences of a gastroenterologist

This outline recognizes that there are significant local variations in the precise levels of knowledge and competence required in different areas of gastroenterology. However, on the basis of this document on standards in gastroenterology training, the core competences of a gastroenterologist can be summarized as follows.

1. Basic training in and understanding of internal medicine.
2. Specialized training in gastroenterology, resulting in:

• Detailed understanding of the physiology and pathophysiology of the gastrointestinal tract, including: - Normal macroscopic and microscopic structure - Process of digestion and movement of gastrointestinal contents - Perception of sensations/symptoms arising from the gastrointestinal tract and the complex effects of psychological factors on these —Normal and abnormal radiographic anatomy - Macroscopic and microscopic pathological changes

• Detailed understanding the physiology and pathophysiology of the liver and the biliary system, including:- Basic biology and pathobiology of the liver and biliary systems - Thorough understanding of the diagnosis and treatment of a wide range of hepatobiliary disorders - Skill in performing a limited number of diagnostic and therapeutic procedures (percutaneous liver biopsy, diagnostic and therapeutic paracentesis) - An appreciation of the indications and use of a number of diagnostic and therapeutic procedures that are needed to manage hepatobiliary diseases

• Ability to take a comprehensive medical history and conduct an examination of patients with gastrointestinal disease

• Ability to create an appropriate summary of the patient's history and examination to communicate to other practitioners, including a likely diagnosis and list of differential diagnoses

• Ability to develop a plan for investigation of patients presenting with symptoms referable to the gastrointestinal tract, including:- Understanding the indications, risks and benefits of relevant gastrointestinal investigative procedures - Understanding the principles of the sensitivity, specificity, and positive and negative predictive values of investigations and the way in which these influence the odds of disease being present

• Ability to carry out basic endoscopic investigations, including upper gastrointestinal endoscopy and colonoscopy

• Ability to perform basic therapeutic endoscopic procedures, e.g :- Mucosal biopsy - Dilation of strictures - Polypectomy - Treatment of esophageal varices - Endoscopic hemostatic therapy

• Ability to diagnose and intervene in emergency situations regarding gastrointestinal disorders and in general

• Understanding of the role of other professionals in the care of patients with gastrointestinal diseases, including:- Surgeons (including an understanding of common gastrointestinal operations) - Dietitians –Radiologists - Pathologists - Primary-care physicians (including strategies for preventing gastrointestinal diseases) - Emergency-unit physicians

• Ability to communicate with patients, including: - Medical history-taking - Exploring sensitive information (e.g., sexual practices/abuse) - Discussing the risks and benefits of diagnostic tests - Discussing the results of diagnostic investigations and helping the patient evaluate the risks, costs and benefits of a variety of management plans - Helping the patient implement management plans, including long-term management strategies - Communicating bad news - e.g., a diagnosis of malignancy

• Ability to access for information via online electronic resources

• Commitment to ongoing medical education

• Ability to critically appraise individual scientific publications and review the scientific literature

• Understanding of quality assurance/safety and service improvement processes

• Understanding of cost-effectiveness as it applies to investigation and treatment

• Understanding and practicing ethical behavior and observing local laws and regulations regarding medical practice

Duration of Training Course

- The duration of training for MD Gastroenterology is 5 years for candidate who enters after MBBS while it will be 4 years for candidate who has done FCPS medicine or MD Internal Medicine.
- MD Gastroenterology training is structured in three parts

Eligibility

Rout-1

MBBS Degree (Five Year Program)

Qualify entry test (Five Year Program)

Rout-2

FCPS in Internal Medicine (Four Year Program)

NOTE: For detail see UHS Guideline.

SECTION 2

University of Health Sciences (UHS)

(Lahore Pakistan)

GUIDELINES FOR

MD GASTROENTEROLOGY

TRAINING PROGRAM

Admission Criteria

1. For admission in MD course, every candidate shall be required to have: MBBS degree Completed one year House Job Registration with PMDC Recommendation of Supervisor Passed Entry Test.

2. Credit for marks in professional examinations, Rural/Army services, additional experience & published research work may also be considered on case to case basis.

REGULATIONS

1. Scheme of the Courses

A summary of four years course in Internal Medicine & five years course in special subjects is presented as under:

ENTRY EVALUATION

		Final Examination
PART-I	□ Basic medical sciences (Anatomy, Physiology and Cell Biology, Biochemistry, General Pathology and Pharmacology) □ Research Methodology and Biostatistics □ Fundamental concepts in Medicine/ principles of specialty	□ At the end of 1st year □ **Written**: Paper1: Basic Sciences (Anatomy, Physiology and Cell Biology, Biochemistry, General Pathology, Pharmacology)/ Research Methodology and Biostatistics Paper 2: Principles of Internal Medicine □ **Oral & Practical & Clinical** Basic clinical Techniques / OSCE /Structured viva □ **LOG Book/Assignments***

PART-II	□ Advanced Professional education in specialty of admission □ Compulsory/optional rotation in related fields(up to 6 months)	□ At the end of 3rd year in internal medicine □ At the end of 4th year in specialty medicine □ **Written**: Paper 1 & 2: Problem-based questions in the subject □ **Oral & Practical / Clinical** Long case/short cases/OSCE □ **LOG Book/Assignments***
PART-III	Research work/Thesis writing	□ Thesis Examination at the end of □ Fourth (4th) Year in Internal Medicine □ Fifth (5th) Year in Special Subjects □ **LOG Book/Assignments***

* Evaluation shall be done on annual basis

MD Gastroenterology Trainee Position Summary/job Description

The position of Gastroenterology trainee involves evaluation and management of patients with a diagnosis of digestive diseases and liver disorders and formal educational and research activities. All of the activities are supervised by the attending teaching staff. Provision of care provided by the trainee is commensurate with the physician's level of advancement and competence.

Part I

Part-1 is structured for the 1st calendar year. For those trainees who have done only MBBS, they have to complete 1st year in Basic Subject. They have to clear part –I in basic subjects as well as research methodology and epidemiology. Those trainees who have done FCPS in medicine or MD Internal Medicine. Part-1 in medicine will be exempted.

Part II

Part II is structured for 2nd, 3rd and 4th Calendar years.

Gastroenterology Trainee (year 2, 3) Job Description

1. Rounds with Supervisor , or Professor
2. Participation in the weekly outpatient clinic
3. Consultations
4. Teaching of medical students and medical residents
5. Attendance at the conferences, including:
    - GI pathology conference
    - A course in gastrointestinal physiology
    - Weekly GI grand rounds including outside speakers
    - Monthly GI radiology conference
    - Monthly motility conference
    - GI journal club
    - Morbidity and mortality rounds
    - Bi-monthly conference on liver disease and ERCP
    - GI Research conferences
    - Weekly Board review
    - Monthly liver pathology conference
    - Synopsis required for research topic in MD

Gastroenterology Trainee (year 4) Job Description

a. Demonstrate and perfect primary care and sub-specialty skills in the care of patients with gastroenterological and hepatologic disorders in the outpatient setting as well as in the inpatient/consult environment
b. Demonstrate an understanding of the multidisciplinary nature of digestive diseases
c. Polish those interpersonal skills which epitomise a compassionate and humanistic interaction with patients, families and colleagues
d. Understanding cost containment issues in the changing environment of managed care
e. Document research project efforts - clinical or laboratory
f. Demonstrate technical skills in endoscopic procedures including esophagogastroduodenoscopy, colonoscopy with polypectomy, endoscopic biopsy, dilation, liver biopsy, flexible sigmoidoscopy and control of hemorrhage
g. Attend and participate in educational activities - journal clubs, didactic conference, multidisciplinary medical-surgical conference, research conference, gastroenterology and internal medicine grand rounds conferences
h. Perfect teaching skills through supervision of residents and medical students
i. Demonstrate and perfect skills in pain management and palliative care
j. Perfect ability to critically analyze medical literature
k. Continue working toward completion of the core clinical competencies program.

Part III

Qualifications: Trainee must have satisfactorily completed first 3 years of training in the Gastroenterology/Hepatology M.D program.

On successful completion of Part I and Part II the candidate shall spend one calendar year on research and thesis writing.

Compulsory rotations in the relevant fields for 3-6 months

Clinical training experiences are described below:

1. Intensive Care Units:

On this 3 month rotation, the resident shall develop competence in the differential diagnosis and management of the critically ill, and learn to integrate these clinical skills with the biomedical instrumentation of bedside hemodynamic measurements, right heart catheterization, measurement and computation of gas exchange variables, cardiac output determination, and all aspects of mechanical ventilation and airway care. These principles, and those governing fluid therapy, nutritional support, and antimicrobial therapy in severely ill patients, shall be reviewed extensively.

2. Outpatient Services

Gastroenterological outpatient training shall be provided during the entire residency in a continuity to review findings and to discuss patient care issues. Residents shall assume primary responsibility for managing their patients.

3. Radiation Gastroenterology

The resident shall learn to prescribe and monitor the different doses and methods of radiation therapy in management of different types of malignancies.

4. Organ Transplantation

This popular rotation shall provide residents with an intense introduction to the selection of transplant candidates and the management of these patients after transplantation. Residents shall work with a dedicated group of organ transplant physicians and learn the indications, contraindications and the relative protocols and precautions required for these transplantations.

5. Gastroenterological Rehabilitation Rotation

This rotation shall expose residents to issues in rehabilitation of patients with chronic gastroenterological diseases 6, Elective experiences in Pathology and Laboratory Medicine as well as Radiology and Infectious diseases centre for 1 month each in the relevant departments

RESEARCH/THESIS WRITING

RESEARCH/THESIS WRITING

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 5th year of training or it can be stretched over five years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

Research Experience

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

Clinical Research

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

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

The usually is done during the consultation and outpatient clinical rotations.

Case Studies or Literature Reviews

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

Laboratory Research

Bench Research

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

Research involving animals

Each resident participating in research involving animals is required to:

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

Research involving Radioactivity

Each resident participating in research involving radioactive materials is required to

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

METHODS OF INSTRUCTION/COURSE CONDUCTION

As a policy, active participation of students at all levels will be encouraged. Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological Conferences
6. SEQ as assignments on the content areas
7. Skill teaching in ICU, emergency and ward settings
8. Attend genetic clinics and rounds for at least one month.
9. Attend sessions of genetic counseling
10. Self study, assignments and use of internet
11. Bedside teaching rounds in ward
12. OPD & Follow up clinics
13. Long and short case presentations

In addition to the conventional teaching methodologies interactive strategies like conferences will also be introduced to improve both communication and clinical skills in the upcoming consultant. Conferences must be conducted regularly as scheduled and attended by all available faculty and residents. Residents must actively request autopsies and participate in formal review of gross and microscopic pathological material from patients who have been under their care. It is essential that residents participate in planning and in conducting conferences.

1. Clinical Case Conference

Each resident will be responsible for at least one clinical case conference each month. The cases discussed may be those seen on either the consultation or clinic service or during rotations in specialty areas. The resident, with the advice of the Attending Physician on the consultation Service, will prepare and present the case(s) and review the relevant literature.

2. Monthly Student Meetings

Each affiliated medical college approved training for MD gastroenterology will provide a room for student meeting/discussions such as:

- Journal Club Meeting
- Core Curriculum Meetings
- Skill Development

a. Journal Club Meeting

A resident will be assigned to present, in depth, a research article or topic of his/her choice of actual or potential broad interest and/or application. Two hours per month should be allocated to discussion of any current articles or topics introduced by any participant. Faculty or outside researchers will be invited to present outlines or results of current research activities. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department.

b. Core Curriculum Meetings

All the core topics of Gastroenterology should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief resident (elected by the residents of the relevant discipline). Each resident should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure

c. Skill Development

Two hours twice a month should be assigned for learning and practicing clinical skills,

List of skills to be learnt during these sessions is as follows:

1. Residents must develop a comprehensive understanding of the indications, contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline (mentioned in pg. 10).
2. Residents must acquire knowledge of and skill in educating patients about the technique, rationale and ramifications of procedures and in obtaining procedure-specific informed consent. Faculty supervision of residents in their performance is required, and each resident's experience in such procedures must be documented by the program director.

3. Residents must have instruction in the evaluation of medical literature, clinical epidemiology, clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making.

4. Training must include cultural, social, family, behavioral and economic issues, such as confidentiality of information, indications for life support systems, and allocation of limited resources.

5. Residents must be taught the social and economic impact of their decisions on patients, the primary care physician and society. This can be achieved by attending the bioethics lectures and becoming familiar with Project Professionalism Manual such as that of the American Board of Internal Medicine.

6. Resident should have instruction and experience with patient counseling skills and community education.
7. This training should emphasize effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education.
8. Residents may attend the series of lectures on Nuclear Medicine procedures (radionuclide scanning and localization tests and therapy) presented to the Radiology residents.
9. Residents should have experience in the performance of clinical laboratory and radionuclide studies and basic laboratory techniques, including quality control quality assurance and proficiency standards.
10. Each resident will observe and participate in each of the procedures, preferably done on patients first under supervision and then independently.

3. Annual Grand Meeting

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

Time Line of Rotations in Different Components of Training Program

Duration of training: 5 Years

Part I	
In first year the resident will spend 75% of time in learning of history taking and clinical skill of examining patients. 25% time will be spent in learning, Physiology, Biochemistry and Pathology of Gastrointestinal and liver disease and Biostatistics. Residents who were passed FCPS Medicine will be exempted of year 1	**Year-I**
Part II	
In year 2 Resident will deal with patients in emergency out patient and in patients. He will also be placed in Endoscopy and pathology rotations. The week 1 schedule will be as follows for year two. • Endoscopy twice weekly • Pathology lab once weekly	**Year-2**
In year 3 the resident will be having two rotations of 3 months each in radiology and intensive care unit. The rest of six months will be spent in routine GI Training as in year 1	**Year-3**
In year 4 the resident will be having two rotations 3 months each in ERCP and radiology and oncology department. The rest of six months will be spent in routing GI Training as in year 2 and 3.	**Year-4**
Part III	
Research and Thesis working	**Year-5**

NOTE: Detailed syllabus of MD Training Program can be studied from document of UHS / UHS Website.

Clinical Rotations for Gastroenterology and Hepatology Training Program

The clinical rotations include out patients rotations and endoscopic training. The program is reviewed periodically and subject to modification.

In patient rotations

The trainee will rotate in GI inpatient service. The service is staffed by full time faculty. Daily round and case discussion, management and diagnostic issues will be addressed.

Out patient rotations / emergency rotation

Trainee will have exposure to GI diseases emergencies .

Endoscopic/ ERCP Training

Trainee will be trained in Diagnostic / Therapeutic Upper Endoscopy, Diagnostic and Therapeutic Colonoscopy, Sigmoidoscopy, Percutaneous Endoscopic Gastrostomy Tube, Endoscopic Band Ligation, Sclerotherapy and Liver Biopsy.

Radiology Rotation

Trainee will be trained in USG guided procedures and interpretation of MRI, CT Scan and Barium series.

Pathology Rotation

Trainee will examine the GI Pathology Slides, observe the GI Biochemical Test

Conferences

Trainees are expected to attend several conferences which include the following.

Journal Club

This conference is designed to share important recent publications with the GI trainees while reviewing the elements of study design utilizing standard critical appraisal techniques.

Recommendations for this conference:

1. Choose two to three recent articles from reputable, peer-reviewed journals.
2. Copy the articles and distribute them to each of the trainees, at least one week in advance (If possible, provide hypertext links to the article).
3. Presentations are generally done with just a brief review of the topic followed by a 15-20 minute review and analysis of each article. The remaining time is devoted to group discussion.

GI Radiology Conference

This is an informal conference, with trainee participation, aided by faculty from the Department of Radiology. The conference will consist of GI fluoroscopic and computed tomographic (CT) images. It focuses on the interpretation of gastrointestinal and hepatic radiographic findings. Trainees are encouraged to submit interesting cases for review.

Endoscopy Conference

Two/Three interesting cases should be presented by the trainees per month. Preference should be given to those cases which are interventional in nature (biliary, pancreatic, or difficult gastrointestinal bleeding).

GI Pathology Conferences

Weekly alternating conferences that involves meeting with our GI pathologists and reviewing selected cases from the respective sections.

Research Conference

Research conference consists of either one of the GI section's members or a visiting professor discussing his/her current research.

GI Clinical Conference

A case-based learning session during which two, 20-minute cases are presented on a rotating basis by GI faculty, trainees, and visiting section attending (pediatrics, radiology, and surgery). As a trainee, you will be assigned a topic (rotation) from which to present. These topics are not set in stone – they are only there to guide you. Standard presentations should involve 5-7 minutes of case information, 10-15 minutes of pertinent

literature review, with the remaining time for discussion and debate. Pointers for this conference:

1. Keep the literature review focused on the specific problem, and resist the urge to review more general issues
2. Review your presentation with your faculty member before the conference
3. Don't be derailed by the active discussion which invariably develops
4. PowerPoint presentations are encouraged
5. Include radiographic, endoscopic, & pathology images when pertinent

Senior Resident Lecture series

Each 3rd year resident is responsible to preparing a lecture about a topic of their choice. House officers are encouraged to pick controversial topics and make the lectures evidence based. House officers receive a list of expectations prior to beginning to help prepare them for their talk. Each resident picks a faculty mentor. This mentor helps the resident prepare their presentation and participates actively in the conference.

Evaluation per UHS guidelines

Award MD degree by UHS

VALUATION & ASSESSMENT STRATEGIES

Assessment

It will consist of action and professional growth oriented student-centered integrated assessment with an additional component of informal internal assessment, formative assessment and measurement-based summative assessment.

Student-Centered Integrated Assessment

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages students to 'own' the evaluation and to use it as a basis for self-improvement, Therefore, it tends to be growth-oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- Self Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

Self Assessment by the Student

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

Peer Assessment:

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors In future.

Informal Internal Assessment by the Faculty

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors.

It will include:

a. Punctuality
b. Ward work
c. Monthly assessment (written tests to indicate particular areas of weaknesses)
d. Participation in interactive sessions

Formative Assessment

Will help to improve the existing Instructional methods and the curriculum in use

Feedback to the faculty by the students:

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

Summative Assessment

It will be carried out at the end of the programme to empirically evaluate **cognitive, psychomotor** and **affective domains** in order to award degrees for successful completion of courses.

Examinations

Part-I Examination:

All candidates admitted in MD degree courses shall appear in Part-I examination at the end of first calendar year.
The examination shall be held on biannual basis.
The candidate is expected to pass this examination in four attempts.
The candidate who fails to pass the examination in four attempts or within 3 years of enrolment shall be dropped from the course.

The examination shall have three components:

- **Written**
- **Oral & practical / clinical examination.**
- **Log Book Evaluation**

There shall be two written papers of 100 marks each:

Paper 1: Basic Sciences relevant to the specialty (Anatomy, Physiology, Biochemistry, General Pathology, and Pharmacology) / Research Methodology & Biostatistics
Paper 2: Principles of Internal Medicine
The types of questions shall be of Short/Modified essay type and/or MCQs (single best). The question pertaining to Research Methodology & Biostatistics may be of descriptive nature.
Oral & practical / clinical examination shall be held in basic clinical techniques relevant to Medicine and special subjects.
To be declared successful in Part-1 examination the candidate must secure 60% marks in each component (written and practical), and 50% in each sub-component.
To be eligible to appear in Part-1 examination the candidate must submit:
Application duly recommended by the Supervisor
Certificate by the Supervisor that candidate has attended at least 75% of the lectures, seminars, practical / clinical demonstrations
Examination fee as prescribed by the University
Exemptions: A candidate holding FCPS/MRCP/ equivalent qualification shall be exempted from Part-I examination.

Part-II Examination

All candidates admitted in MD course shall appear in Part-II examination at the end of structured training programme (end of 3rd calendar year in Internal Medicine and end of 4th calendar year in a subspecialty).

The examination shall be held twice a year.

The Part-II examination shall have the following components:

Written 300 marks
Oral & Practical / Clinical 300 marks
Log Book 200* marks

* 50 marks per year in 4 years program
* 40 marks per year in 5 years programme

There shall be two written papers of 150 marks each. Both papers shall have problem-based Short/Modified essay questions and/or MCQs. To be declared successful in Part-II examination the candidate must secure 60% marks in each component (written and practical).

Oral & practical / clinical examination shall have 300 marks for:

	#	Marks
· Long Case	1	100
· Short Cases	4	100
· OSCE/ Structured viva		100

Log Book/Assignments:

Through out the length of the course, the performance of the candidate shall be recorded on the Log Book.

The Supervisor shall certify every year that the Log Book is being maintained and signed regularly.

The Log Book will be developed & approved by the Advanced Studies & Research Board.

The evaluation will be maintained by the Supervisor (in consultation with the Co-Supervisor, if appointed).
The performance of the candidate shall be evaluated on annual basis, e.g., 50 marks for each year in a four year course and 40 marks for each year in a five year course. The total marks for Log Book shall be 200. The Log Book shall reflect the performance of the candidate on following parameters:

Year wise record of the competence of skills.

Year wise record of the assignments.

Year wise record of the evaluation regarding attitude & behavior.

Year wise record of journal club, lectures and clinico-pathologic conference attended.

To be eligible to appear in Part-II examination the candidate must submit:

Application duly recommended by the Supervisor.

Certificate by the Supervisor that the candidate has completed the prescribed period of training of the course and has attended at least 75% of the lectures, seminars, and practical/clinical demonstrations.

Original Log Book complete in all respect and duly signed by both the Supervisor and Co-Supervisor (during Oral & practical/clinical).

Certificate that the candidate has passed Part-I Examination.

Examination fee as prescribed by the University.

Board of Examiners

The part-II examination shall be conducted by a board of four examiners preferably examiners from other universities and from abroad. The senior examiner of the subject will be the Convenor of the Board. 2.2.8.2. The examiners shall be appointed from respective specialties. Specialists from Internal Medicine and related fields may also be appointed/co-opted in special subjects where deemed necessary.

All examiners shall have equal responsibilities as examiners, except the Convener, who shall be responsible for conducting the examination and submitting the result to the Controller of Examinations on the same day at the end of examination in the University.

A candidate must be assessed by each examiner of board independently without consultation with the others.

Part III Submission / Evaluation of Synopsis:
The applicants shall prepare synopsis for the thesis as per guidelines provided by the Advanced Studies and Research Board.

The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to acquire & analyze the data.

Synopsis of research project shall be submitted during the first 12 months of course. The synopsis shall be submitted through the supervisor/s, the Principal/ Dean of the institution. The synopsis shall be evaluated by the following Committee: Principal/Dean or his representative Chairman Supervisor of the student Member/Secretary a Professor nominated by the Principal Member

After the approval by the Committee, the synopsis shall be submitted to the respective Review Committee of the University for consideration by the Advanced Studies & Research Board.

Part-IV (Thesis) Examination

All candidates admitted in MD courses shall appear in Part-III (thesis examination) after 1 year of completion of Part-II examination and not later than 8th calendar year of enrolment

Only those candidates shall be eligible for thesis evaluation that have passed Part-II examination

The examination shall include thesis evaluation with defense.

Submission of Thesis:

Thesis shall be submitted by the candidate duly recommended by the Supervisor.
The minimum duration between approval of synopsis and submission of thesis shall be one year.
The Research Thesis must be ring-bound in accordance with the specifications of the Academic Council of the University.
Four copies of the thesis shall be submitted 1 year after Part-II examination but not later than 8 years of enrolment.
The research thesis will be submitted along with fee prescribed by the University.

The Evaluation and Defense of the Thesis

The thesis shall be examined by three examiners, at least one from abroad, appointed by the University for Part-III Examination. Each of the examiners will be provided a copy of the thesis at least thirty days before the defense. The candidate will appear for defense before the panel of examiners in the presence of Supervisor / Co-Supervisor on a fixed date and will have to successfully defend the thesis. Total marks of thesis evaluation will be 200. The distribution of marks will be 66 marks for each of two examiner & 68 with the Convenor Examiner. Log Book/ Other Assignments

Declaration of Result

The candidates who have passed written, oral and practical (OSCE) and clinical examinations separately shall be declared Pass.

The candidates, who have passed written examination but failed in oral and practical/clinical examination, will re-appear only in oral & practical/clinical examination.
The maximum number of attempts to re-appear in oral and practical/clinical shall be three, after which the candidate shall have to appear in both written and oral and practical/clinical, as a whole.

The candidate must obtain 60% marks in each component to pass the examination.

The candidate with 80% or above marks shall be deemed to have passed with distinction.

Award of MD Degree

After successful completion of the structured courses of MD and qualifying Part-I, Part-II and Part-III examinations, the degree of MD with title shall be awarded, e.g. MD (Cardiology), MD (Nephrology) etc.

MD GASTROENTEROLOGY EXAMINATION

PART-I MD GASTROENTEROLOGY
TOTAL MARKS: 100

All candidates admitted in MD Gastroenterology course shall appear in Part I examination at the end of first calendar year.

There shall be one written paper of 100 marks

Topics included in paper:

1.	Anatomy Histology and Embryology	20 MCQs
2.	Physiology	20 MCQs
3.	Pathology	25 MCQs
4.	Biochemistry	10 MCQs
5.	Pharmacology	10 MCQs
6.	Behavioral Sciences	10 MCQs
7.	Biostatistics and Research Methodology	05 MCQs

Components of paper

MCQ Paper	100 one best type
Total Marks	100

PART II MD GASTROENTEROLOGY
TOTAL MARKS: 380

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

There shall be two written papers of 100 marks each, structured clinical viva of 100 marks and log book assessment of 80 marks.

Topics included in paper 1

Principles of internal medicine including:

1.	Pulmonary Medicine	10 MCQs
2.	Allergy and Immunology	10 MCQs
3.	Cardiovascular Illness	10 MCQs

4. Endocrinology and Metabolism 10 MCQs
5. Ophthalmology & Otolaryngology 05 MCQs
6. Infectious Disease 05 MCQs

Topics included in paper 2

Principles of internal medicine including:

1. Nephrology 10 MCQs
2. Neurology 10 MCQs
3. Hematology & Gastroenterology 10 MCQs
4. Dermatology 10 MCQs
5. Rheumatology 10 MCQs

Components of Part II Examination

Theory:

Paper 1:	**100 Marks**	**3Hours**
10 SEQs (No Choice; 5 marks each)	50 Marks	
50 MCQs	50 Marks	
Paper 2		
10 SEQs (No Choice; 5 marks each)	50 Marks	
50 MCQs	50 Marks	

The candidates, who pass in theory papers, will be eligible to appear in the structured viva voce.

OSCE **100 Marks**

10 stations each are carrying 10 marks of 10 minutes duration; each evaluating performance based assessment with five of them interactive.

Log Book **80 Marks**

PART III MD GASTROENTEROLOGY
TOTAL MARKS: 920

All candidates admitted in MD Gastroenterology course shall appear in Part III examination at the end of structured training programme (end of 5th calendar year and after clearing Part I & II examinations.)

There shall be two written papers of 150 marks each practical/clinical examination of 300 marks, log book assessment of 120 marks and thesis examination of 200 marks.

Topics included in Paper 1

1. Upper GI Disorders	25 MCQs
2. Lower GI Disorders	25 MCQs
3. Pediatric and Geriatric Gastroenterology	25 MCQs

Topics included in Paper 2

1. Hepatology	25 MCQs
2. GI Radiology and other Diagnostic tests	15 MCQs
3. Gastrointestinal Oncology	15 MCQs
4. Vascular, Infectious & Immune Disorders	10 MCQs
5. Parenteral and Enteral Nutrition	10 MCQs

Components of Part III Examination

Theory

Paper I	**150 Marks**	**3 Hours**
15 SEQ (No Choice)	75 marks	
75 MCQs	75	
Paper II	**150 Marks**	**3 Hours**
15 SEQs (No Choice)	75 Marks	
75 MCQs	75 Marks	

The candidates who pass in theory papers, will be eligible to appear in the clinical & viva voce.

OSCE / Viva **100 Marks**

10 stations each carrying 10 marks of 10 minutes duration; each evaluating performance based assessment with five of them interactive

Clinical	**200 Marks**
Four short cases (each 25 marks)	100 Marks
One long case	100 Marks
Log Book	**120 Marks**

Thesis Examination **200 Marks**

All candidates admitted in MD courses shall appear in Part III thesis examination at the end of 5th calendar year of the MD Programme and not later than 7th calendar year of enrolment. The examination shall include thesis evaluation with defense.

Recommended Books

1. Textbook of Gastroenterology
   Tadataka Yamada

2. Atlas of Gastroenterology 4th Edition
   Tadataka Yamada

3. Endosonography in Gastroenterology: Principles, Techniques, Findings
   Henryk Dancygier

4. Mayo Clinic Gastroenterology and Hepatology Board Review 3rd Edition
   Stephen C. Hauser

5. Handbook of Gastroenterology (Paperback)
   Tadaka Yamada

6. Current Diagnosis & treatment in Gastroenterology
   Scott L. Friedman

7. Medical Imaging in Gastroenterology and Hepatology
   F. Hagenmuller

8. Gastroenterology Endoscopy
   Michael V. Sivak

9. Endoscopy Gastrointestinal System Diseases, Diagnosis's
   Sivak, Michael V. Schleutermann, Donna A

References

- Organisation Mondiale D' Endoscopie Digestive (OMED)
- Joint Advisory Group on Gastrointestinal Endoscopy (JAG)
- World Gastroenterology Organization (WGO)
- British Society of Gastroenterology (BSG)
- American Society Gastrointestinal Endoscopy (ASGE)
- American Gastroenterology Association (AGA)
- University of Health Sciences, Lahore, Pakistan(UHS)

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