Egyptian Fellowship of Hepato-Gastroenterology "Curriculum"
The Curriculum of Training in hepato gastroenterology was developed and reviewed by conjoint teamwork from Tropical Hepato gastroenterology departments in:
- Ain Shams university
- Al Azhar university
- Cairo University

Team members
- Professor/ Mohammad Amin Sakr (Coordinator)
- Professor/ Ibrahim Abou El Enein Negm
- Professor/ Amgad Ali El Zahaby
- Professor/ Amany Ahmed Ibrahim
- Professor/ Mohammad Hassan El Nadry
- Assistant Professor/ Heba Mohammad Abdella
- Lecturer/ Waleed Fouad Fathallah
- Lecturer/ Ashraf Mohammad Breedy

The curriculum was approved by the Egyptian fellowship Committee of hepato gastroenterology.
Director: Professor/ Wahid Halim Doss

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Contact us at: EGYBOARD@MOHP.GOV.EG
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INTRODUCTION AND AIMS

Introduction
A trainee in Hepato gastroenterology must have expertise in:
- Diagnosis and Management of diseases of the gastrointestinal tract, liver and pancreas.
- Diagnosis and treatment of intra abdominal malignancy.
- Diagnostic and therapeutic upper and lower endoscopy.
- Diagnostic Abdominal Ultrasonography.

Specialist Training in Gastroenterology extends for two years and is divided into Academic and practical modules.

Academic module
It includes academic lectures in gastroenterology and hepatology.

Clinical and practical module
It includes clinical work place based training together with endoscopic and ultrasonography training. Trainees will be required to develop skills in diagnostic abdominal ultrasonography and diagnostic and therapeutic endoscopy.
The minimum numbers of procedures recommended for adequate training are outlined in the appendix.

Aims
The hepato gastroenterology training program is concerned with the preparation of trainees for pursuing their role in the provision of comprehensive health care services in these fields. In addition to adequate knowledge and understanding of the specialty, the program aims to develop hepato-gastroenterologists who are competent in skills necessary for patient management, decision making and safe performance of procedures that are integral to field (like abdominal ultrasound, liver biopsy, diagnostic and therapeutic endoscopies). Hepato-gastroenterologists graduated from the program will work independently and within multidisciplinary team. They will be involved in continuous care for hepato gastroenterology patients at various care settings like hospitals, outpatients and critical care units.

Competencies, at a level consistent with practice in the hepato gastroenterology specialty will include the following:
- Medical knowledge in the basic biomedical, behavioral and clinical sciences, medical ethics and application of such knowledge in patient care.
- Appraisal and utilization of new scientific knowledge to update and continuously improve clinical practice.
- Patient care that is appropriate, effective and compassionate in dealing with health problems and in promoting health and wellness.
- Interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professionals, the scientific community and the public.
- The ability to function as a supervisor and trainer in relation to trainees and other health professionals.
- Capability to be a trainer in the field of hepatogastroenterology.
- Knowledge of public health and health policy issues: awareness and responsiveness in the larger context of the health care system, including e.g. the organization of health care, partnership with health care providers and managers, the practice of cost-effective health care, health economics and resource allocations.

**GENERAL INFORMATION**

**Entry Requirements**

Entry to hepatogastroenterology training requires one of the following qualifications:

Applicants for Egyptian fellowship in Hepato gastroenterology must have:

- Master in Tropical or General Internal Medicine with evidence of current practice in hospitals recognized by MOHP.
- MD in Tropical or General Internal Medicine with evidence of current practice in hospitals recognized by MOHP.
- MRCP with evidence of recent training or practice in hospitals recognized by MOHP.
- At least two years of training in Egyptian fellowship of general internal medicine with successful completion of the first part exam

During the entire training program, the candidate must be dedicated full time and must be fully responsible for patient care under supervision.

**Duration & Organization of Training**

The hepatogastroenterology board requires 2 years of supervised fulltime training program that must be conducted in accredited hospitals before sitting for the final examination. The board will announce a list of accredited hospitals yearly.

Candidates will be trained in:

- Teaching hospitals.
- Institutes with academic activity.
- MOHP hospitals.

Before beginning of the program, an orientation session about the training course will be held for all trainees entering the program. In each hospital or institute, a consultant trainer is responsible for the training program. In addition, one consultant (educational supervisor) will evaluate the overall performance of the training program in the training hospital and will report the progress of training to the Specialty committee for hepatogastroenterology. It is mandatory that trainees should not spend more than 1 year in training in any one institution.

**Trainees’ duties and obligations**

Trainees must fulfill the following as advised by the Specialty Committee:

1. Trainees must attend at least 75% of lectures relevant to hepatogastroenterology subjects.
2. They should be actively involved and totally responsible for patient care including sharing in making decisions about diagnosis and management under the supervision of the consultants.
3- Their performance will be evaluated regularly by their trainers and an appraisal report will be submitted on monthly basis to the scientific supervisor.
4- All trainees will work as residents in the training specialty and they must fulfill resident’s jobs defined by supervisors and trainers.
5- They should be responsible under supervision for outpatient and in patients' routine work.
6- They must take supervised shifts according to the hospitals requirements and regulations.
7- The trainee should have completed all logbook requirements before being eligible for the final certifying exam.

**Vacations and Interruption of training**

Vacations are granted according to the ministry of Health and Population Regulations. It is not permissible to interrupt such a structural training program except in major unavoidable circumstances. Such circumstances should be convincing and approved by the Secretary General of the high committee of medical specialties. The interruption once approved should not be for more than one year. Interruption of the training program for more than one year shall result in dismissal from the program and cancellation of the preceding training period.

**Requirements for Training**

The following requirements must be met for the general level of training:

**Clinical:**

1. The trainees will be responsible for supervised admission of patients from the outpatient department or emergency.
2. They will share in the completion of the following documents under supervision:
   a. Complete history and physical examination form.
   b. Investigation requests (laboratory, radiology, pathology…).
   c. Reporting results of the investigations.
   d. The plan of management after consultation and approval from supervisors.
   e. Daily progress notes.
   f. Order and medication sheets.
   g. Order of the necessary diagnostic procedures.
   h. Discussion of the case with the trainers and consultants.
   i. Discharge summaries.
   j. Sick leaves and medical reports.
3. The trainee should inform the senior staff of any high risk patient’s admission.
4. The trainee should attend the hepato gastroenterology outpatient clinics as requested by trainers and supervisory staff. They should participate in different patients' interviews and share in management under supervision.
5. The trainee should attend and participate in the mandatory academic and clinical activities of the department including:
   a. Daily morning patient rounds and meetings.
   b. Clinical round presentation, at least once weekly to cover various topics, problems or research.
   c. Journal club meetings.
   d. Interdepartmental meetings/ morbidity and mortality meetings.
   e. Grand staff rounds.
Upper gastrointestinal endoscopy:
- Perform at least 170 (70 observed, 50 assisted, 50 unassisted) complete procedures.
- A minimum of 30 therapeutic procedures including banding, injection and polypectomy.
- Direct observation of performance will be conducted regularly by the trainer through assessment sheets during the training course, then mid time training assessment by scientific supervisor aiming at achieving competence before the final exam.

Colonoscopy:
- Perform a minimum of 60 (30 observed, 15 assisted, 15 unassisted) complete colonoscopies to the caecum in patients with intact colons (i.e. no previous colonic resection).
- Achieve at least a 75% caecal intubation rate by the completion of training.
- Direct observation of performance will be conducted regularly by the trainer through assessment sheets during the training course, then mid time training assessment by scientific supervisor aiming at achieving competence before the final exam.

Ultrasonography:
- Perform at least 150 (50 observed, 50 supervised, 50 unassisted) full examination with reporting.
- Direct observation of performance will be conducted regularly by the trainer through assessment sheets during the training course, then mid time training assessment by scientific supervisor aiming at achieving competence before the final exam.

Liver biopsy:
- Perform 10 (5 observed, 3 assisted, 2 unassisted) biopsies.

Other procedures:
- Are described and scheduled in the logbook.

No particular order or sequence of training will be imposed and program offered should be flexible i.e. capable of being adjusted to meet trainees’ needs. The earlier period will usually be directed towards acquiring a broad general experience of hepato gastroenterology under appropriate supervision. An increase in the content of hands-on experience follows naturally, and, as confidence is gained and abilities are acquired, the trainee will be encouraged to assume a greater degree of responsibility and independence.

“Generic” knowledge, skills and attitudes support competencies, which are common to good medical practice in all the medical and related specialties. It is intended that all trainees should re-affirm those competencies during training. No timescale of acquisition is offered, but failure to make progress towards meeting these important objectives at an early stage would cause concern about suitability and ability to become a specialist.

Training Program
The training program offered will provide opportunities and fulfill all the requirements of the curriculum of training for Gastroenterology program. Each post within the program will have a named trainer/educational supervisor and programs will be under the direction of the Specialty committee for hepato gastroenterology.

The experience gained through rotation around different institutes is recognized as an essential part of training. A trainee may not remain in the same institute for longer than 1 year of clinical training.
**Research & Audit**

They should write reasonable review article (essay) relevant to hepato gastroenterology using available sources supervised by the trainer and scientific supervisor. Trainees are required to engage in audit during training and to provide evidence of having completed the process.

**Logbook**

Up-to-date training records and a portfolio of achievements will be maintained by the trainee throughout Training. The activities should be dated and categorized to whether been performed by the trainee him/herself or as an assistant or participant. Each trainee is responsible for maintaining an up-to-date record of progress through training and compiling a portfolio of achievements for presentation at annual assessment review. The log book will be reviewed at the mid-time annual assessment by the scientific supervisor. At that time, at least 75% of the required activities during the first year must be fulfilled.

The trainer should counter sign each activity registered in the logbook. The educational supervisor must sign important activities and check the logbook for completion at least monthly. At mid training annual assessment, the logbook will be evaluated by scientific supervisor in the training center. The results of any assessments and reports by educational supervisors, filled in the portfolio submitted, together with other material capable of confirming the trainee’s achievements, will be reviewed. Further remedial actions or any recommendations regarding progression of training will be issued by the scientific board in response to this review process. Trainees may not be allowed to sit for the final exit exam unless they satisfactory completed all the training program requirements.

**Assessment Process**

The methods used to assess progress through training must be valid and reliable. The assessment score will be awarded on the basis of direct observation in the workplace by trainer and checked by the scientific supervisor. The assessment of training may utilize the DOPS using evaluation sheets and Case Based Discussions (CBD) methods adapted for the purpose. Assessment will also be supported by the trainee’s portfolio of achievements and performance at relevant meetings, presentations, audit, attendance at courses and educational events.

**Facilities**

- A consultant trainer/educational supervisor have been identified for each approved post.
- He/she will be responsible for ensuring that the educational potential of the post is translated into effective training which is being fully utilized.
- The training objectives to be secured should be agreed between trainee and trainer at the commencement of each posting in the form of a written learning agreement.
- The trainer will be available throughout, as necessary, to supervise the training process.
- Approved training sites must have been inspected a priori by the gastroenterology scientific board.
- Each must provide an intellectual environment and a range of clinical and practical facilities sufficient to enable the knowledge, skills, clinical judgment and attitudes essential to the practice of Gastroenterology to be acquired.
- Physical facilities include the provision of sufficient space and opportunities for practical and theoretical study; access to professional literature and information technologies so that self learning is encouraged and data and current information can be obtained.
- Trainees in hepato gastroenterology should have access to an educational program of e.g. lectures, demonstrations, literature reviews, multidisciplinary case conferences, seminars, etc, capable of covering the theoretical and scientific background to the specialty.

**Accreditation of training centers**

MOHP Criteria for accreditation of hospitals as a training centers For Egyptian Fellowship of Hepato gastroenterology

**I. Facilities and learning sources necessary for successful training:** it includes

1- Library: containing separated reading halls, recent text books and periodic journals with typing and photocopying facility.
2- Internet connected computers with free access to scientific websites and data bases.
3- Auditorium and smaller training halls.
4- Teaching facilities e.g. data show, projectors, flip charts, etc.
5- Continuing medical education programs including timed plan for conferences, seminars, workshops and training courses.

**II. Curriculum and clinical teaching programs:**

1. The approved Curriculum should be available for both trainees and trainers and should be completely fulfilled by the end of the training period.
2. Clinical rounds headed by a consultant and shared by trainees.
3. Daily outpatient clinics should be supervised by a consultant or senior specialists.
4. Trainees are allowed to attend courses, conferences and workshops related to their subspecialty outside the hospital.

**III. Trainers:**

1. Trainers should be qualified & oriented with the curriculum & the training goals.
2. They should be available to the trainees to help and supervise them during the training.
3. They should evaluate trainees through agreed on workplace based assessment tools and countersign the log book activities of the trainees.

**IV. Academic and logistic support to the trainees:**

1. The hospital or training center should offer food, housing, administration and academic facilities to the trainees and respond to their notes and complains.
2. The training center should ensure the commitment of the trainees as regard their attendance, on call responses, performance and attitude towards patients and colleagues.

**V. Hospitals and training centers specifications:**

1. The capacity of the training center should be at least 25 beds specified for gastroenterology and hepatology cases with reasonable turnover.
2. Outpatient clinics leaded by consultants and dealing with specialty related varieties.
3. The training center should have emergency and ICU departments to allow candidates to get experience from dealing with critical cases.
4. Medical records and statistics departments should be available.
VI. **Supporting diagnostic and treatment facilities:**
The hospital or training center should have supporting diagnostic and treatment facilities like clinical pathology, radiology and physiotherapy departments

VII. **Organization of the training center:**
The training centers and hospitals accredited for training should be organized with head and team members with clear job descriptions and it should allow trainees for active participation and evaluation of the training programs, and medical record department allow the trainees to access through patient files for follow up and audit purposes.

**TEACHING, LEARNING & ASSESSMENT METHODS**

**Training progress evaluation**
The evidence required to confirm progress through training includes:

- Details of the post(s) occupied, the training plan agreed with weekly timetables and duty rosters, numbers of practical procedures and outcomes.
- Confirmation of attendance at events in the educational program, at departmental and inter-departmental meetings and other (optional) educational events.
- Confirmation (certificates) of attendance at subject–based/skills-training/instructional courses. Recorded attendance at conferences and meetings.
- A properly completed logbook.
- Evidence of personal study, e.g. journals taken, web-based research, and special interest developed.
- Copies/examples of material prepared for presentation e.g. for audit, teaching, best practice development, collection of cases, topic reviews, output from research.
- Trainer/scientific supervisor’s reports on observed performance (in the workplace): of duties, practical procedures, of presentations made and teaching activity: of advising and working with others, of standards of case notes, correspondence, communication with others and Results of DOPS encounters.

**Teaching methods**

1. **Lectures**
   Lectures would provide candidates with:
   - Appropriate knowledge and understanding of relevant basic medical science.
   - An overview of patient assessment including history, examination, communications and diagnostic tests.
   - Knowledge and understanding of diseases and their management.

2. **On the job training**
   Trainees will be involved in patient care during clinical training. During this, he is going to acquire necessary intellectual, clinical and procedural skills, attitudes and behaviors as well as opportunities for application & enhancement of knowledge. Responsibilities of trainees in patient management shall increase as they develop more competencies. In addition, training would include regular formal clinical teaching sessions.
3. Other activities
   a. Participation in scientific meetings
      Trainees are expected to participate in at least two scientific meetings relevant to the field of gastroenterology/hepatology. These include conferences, seminars, workshops and other similar activities. Proof of attendance will be required.
   b. Self-learning activities
      Trainees are expected to use self-learning activities such as independent reading and internet search for relevant EBM resources. They are also expected to be able to identify their learning needs & target them through discussion with trainers and/or appropriate self-learning activities.

Learning Methods
This section gives examples of the learning methods that can be used as guidance to acquire competencies as they appear in the curriculum.

Experiential:
- Working under supervision.
- Documenting/reporting progress (*case notes*), preparing summaries (*discharge notes*) other professional correspondence; communicating information to patients/to other health professionals.
- Consults, referrals between departments.
- Procedure room and investigation/assessment sessions offer practical opportunities to learn and develop skills under supervision and to exercise judgment when to seek assistance.

Self-directed learning:
- Curriculum-based personal study *e.g. textbooks, journals, literature search, retrieval of web-based information*.
- Information gathering and evaluation.
- Active participation in audit.
- Tests of knowledge

Group learning:
- Workplace discussions.
- Multidisciplinary meetings.
- Programmed meetings within the workplace.

Performance based:
- Observing, learning, assisting, performing, demonstrating a technique or practical procedure.
- Simulations, role-play

Learning through teaching and research:
- Teaching, giving tutorials, lecturing.
- Presenting at meetings.

Reflection:
- During training period candidates are encouraged to show their reflections regarding training process through filling evaluation forms.
- Reflection on professional activities can be used to highlight strengths, weaknesses and areas for development.
Reference Material

GIT Books
1. Sleisenger and Fordtran's Gastrointestinal and Liver Disease (Sleisenger and Fordtran, 2010).
3. GIT subspecialty consult.
5. GI & liver secrets.

Hepatology books
1. Laurence textbook of liver disease.

Endoscopic books: Advanced digestive endoscopy (Cotton, 2008).


Assessment methods

Regulations
The general rules and regulations of assessment approved by the Egyptian fellowship board and published at the training handbook and the board website apply for the Gastroenterology/hepatology specialty. In addition to the successful completion of the training program and submission of the logbook, each candidate must:
- Attend and pass the mid training assessment.
- Pass the final examinations in order to receive his/her fellowship certificate.

Workplace based assessment
During your training you will be assessed through the use of Direct Observation of Procedural Skills and through the use of Case Based Discussions. Assessment will be done by the assigned trainer/educational supervisor in the corresponding institute.

1. DOPS:
   Definition: Directly Observed Procedural Skills (DOPS) is a method that has been designed specifically for the assessment of practical skills. DOPS assess the capabilities of a trainee while they perform a procedure.
   Description:
   - The DOPS is a structured assessment of actual performance.
   - Each DOPS should represent a different procedure.
   Frequency of Assessments:
   - Frequency will be defined based on agreement between trainee and trainer.

   Competencies assessed:
   - Understanding of Procedure:
     o Relevant anatomy; purpose, indications, contra-indications; outcomes, risks, complications; choice of methods available, technique of procedure.
   - Consideration for the Patient:
     o Gives reassurance, minimizes discomfort, explains procedure fully; confirms informed consent obtained.
   - Preparation:
     o First re-checks all relevant details correct. Safety check; instrumentation, equipment (drugs); positioning; cleansing/aseptic technique; sedation, analgesia, anesthesia confirmed.
Professional/technical ability:
- Dexterity, accuracy, efficiency; obtains, interprets diagnostic material/information; informs, directs staff courteously; recognizes own limitations; seeks help where appropriate; manages risk.

Post-Procedure:
- Completes documentation; regulates recovery phase, observations; anticipates/deals with complications. Informs/counsels patient/relatives.

Overall ability to perform Procedure:
- Ability to complete/undertake procedure; technical abilities as demonstrated; appropriately confident, team/leadership skills.

 Opportunities for assessment:
- While supervising, assisting, observing actual performance in appropriate setting (office, theatre, day procedure, ICU etc.). The assessment should be made under appropriate conditions e.g. with all equipment and personnel necessary to support the procedure.

2. **Case Based Discussion (CBD)**

**Definition:** Case-based discussion (CBD) is used to enable the documenting of conversations about, and presentations of, cases by trainees. This activity happens throughout training, but is rarely conducted in a way that provides systematic assessment and structured feedback.

**Description:**
- CBD is designed to assess clinical decision-making and the application or use of medical knowledge in relation to patient care for which the trainee has been directly responsible.
- It also enables the discussion of the ethical and legal framework of practice, and in all instances, it allows trainees to discuss why they acted as they did.
- The case for discussion can either be selected by the trainee or chosen by the assessor.
- The assessment will be based on oral discussion and written information available.
- Whenever possible the assessment should include issues such as disease notification, health promotion and screening.

**Frequency of Assessment:**
- Frequency will be defined based on agreement between trainee and trainer

**Competencies assessed:**
- **Problem Definition:**
  - All relevant facts established, from current/previous history, investigations, interventions; reports, correspondence reviewed.
- **Record Keeping:**
  - Legible, tidy, legally defensible records seen.
- **Reasoning:**
  - Appropriately selected, sequenced investigations/procedures planned.
  - Evidence-based, logical judgments made; (differential) diagnosis established; action plan made with realistic goals.
- **Case Management:**
  - Effective, safe (responsible) prescribing; aware of protocols/guidelines, best practice; monitoring progress, handling complications/mistakes; timely, appropriate referrals, case closure.
Reflective Practice:
- Shows analytical, constructive approach to case, willingness to learn; acknowledges and prepared to consider other management options; aware of change, possible advances, when to seek help.

Opportunities for assessment:
- The presentation should take place in a suitable environment, with due consideration given to the patient’s sensitivities, to confidentiality e.g. in any ward or clinical setting; an office, side- or seminar-room may be found convenient.
- Case presentations and discussions, e.g. at ward-rounds and departmental meetings.

3. **Mid time Annual assessment**
- An annual review of progress through training will be undertaken. The training record will be examined at the assessment.
- Assessments and reports by trainers, confirmation of achievements in endoscopy and ultrasound and the contents of the logbook will be reviewed.
- During assessment, trainees undergo a formal review by the educational supervisors. They will review in detail the training record, will explore with the trainee the range of experience and depth of understanding which has been achieved and consider individual trainer’s reports.
- An opportunity is also given to the trainee to comment on the training being provided; identifying in confidence any deficiencies in relation to a particular post.
- Reports from the educational supervisors to the Specialty committee will be received for revision. Then, a decision on progress through training is reached at each of these annual assessments for each trainee (whether the trainee needs a special training in a specific area).
- Feedback recommendations will be given to the educational supervisors then to the trainer and discussed with the trainee.

4. **Audit:**
- Trainees will be required to submit a full audit report at the end of the training period as a prerequisite to sit for the final program exam. S/He will be encouraged to present audit results at local, national or international meetings.

**Final program assessment**
Each candidate has the chance to apply for the exam for the next three years of completion of training program.

**Pre-Requisites** Candidates must complete the following:
- Attendance of 75% of scheduled academic lectures.
- Fulfill logbook including the supervised audit.
- Complete successfully all requirements of the two years of the training program.
- Pass the endoscopy and ultrasonography assessment held before the final exam.
- Pass the following courses:
  - Local TOEFEL with a score of at least 500.
  - Computer courses in word processing, internet and power point.
Structure of the end of program exit exam

1. **Applied Knowledge Exam**
   - This is a written examination testing all theoretical topics covered in the curriculum including knowledge, understanding, application to clinical case studies and problem solving.
   - It consists of two written papers that will include Problem solving questions and patients’ clinical scenarios.
     - Two Papers (2 hours each): One composed of 100 multiple choice questions or extended matching questions with a single best answer and one for short essay questions that covers the hepatology curriculum. (A break of 30 minutes will be allowed between the 2 papers).
     - Two Papers (2 hours each): One composed of 100 multiple choice questions or extended matching questions with a single best answer and one for short essay questions that covers the gastroenterology curriculum. (A break of 30 minutes will be allowed between the 2 papers).

2. **The clinical exam:**
   - Only candidates who pass the written exam will enter the clinical and practical exam.
   - The examination consists of four components:
     - **Long Clinical Case:** This component tests the ability of the candidate to:
       - Obtain data from history taking and clinical examination.
       - Present and interpret these data.
       - Discuss patient management.
       - Demonstrate appropriate attitudes towards patients and caregivers.
     - The candidate will be required to take a history and examine the patient while being observed by two examiners who will not interfere. Subsequently, the candidate will orally present the findings and discuss clinical data and proposed patient management. Scoring is based on a predetermined weight for each component of the exam.
     - **Objective Structured Clinical Exam (OSCE):** Item will include different stations which test a specific clinical skill (e.g.: history taking or clinical examination) and the candidate is going to be observed by one examiner.
     - **Objective structural practical Exam (OSPE):** This is composed of 10-20 stations testing knowledge and interpretation skills. Items will include different diagnostic tests and images. The candidate will be required to make an open-ended written comment or to answer questions on each item.

3. **Structured Oral Exam**
   - This includes two oral exams settings one for hepatology and the other for gastroenterology, each will be held by two different examiners.

**Mandatory Training Courses:**
Starting from the year 2013, All trainees must attend the following formal courses prepared by the high committee of medical specialties during their period of training
1. Communication skills and team work course
2. Clinical audit course
3. Decision making and evidence based medicine course
4. Research awareness course
5. Basic life support course
SYLLABUS

This section comprises the Knowledge & Skills that have to be learned as well as attitude & behaviors that have to be displayed in order to practice independently as a specialist gastroenterologist.

Syllabus content

1- Academic module
2- Practical module

Every module consists of:
A) Objective
B) Core of the module
C) Learning, teaching methods

1- ACADEMIC MODULE

A) Objective:
This module concerns with all academic information about HG specialty. Thus, by the end of this module, the candidate should acquire Fundamental knowledge concerning basic science, natural history, epidemiology and management of different diseases related to Hepato gastroenterology.

B) Core of the module:
   i) Hepatology (H) course  
   ii) Gastroenterology (G) course

C) Learning, teaching methods
   ▪ Lectures on the topics.
   ▪ Clinical rotations with experienced gastroenterologists.
   ▪ Tutorials and journal clubs.
   ▪ Interdepartmental meetings.
   ▪ Conferences and workshops.
   ▪ Selected readings and internet - based data.

I) HEPATOLOGY (H) COURSE

KNOWLEDGE (HK)

HK 1 BASIC SCIENCES
HK1.1 Architecture of the liver
Trainees will be able to:
1.1.1 Discuss the macroscopic, segmental and surface anatomy of the liver.
1.1.2 Identify large vessels of the liver: portal veins, hepatic veins, hepatic artery, hepatic collateral circulation, lymphatics and biliary system
1.1.3 Outline the normal liver and biliary tract histology and the ultrastructure of the hepatocyte.
1.1.4 Describe the non hepatocyte liver related cells and know the function of each of them (liver sinusoidal endothelial cells, Kupffer cells, hepatic stellate cells and hepatic stem cells).
1.1.5 Describe the embryology of the liver and biliary tract.
HK1.2 Physiology of the liver
1.2.1 Discuss the functional organization of the liver
1.2.2 Functions of the liver
   1.2.2.1 Explain the role of the liver in carbohydrate, lipoprotein metabolism and in protein synthesis and degradation.
   1.2.2.2 Identify functions of mitochondria and its role in energy formation.
   1.2.2.3 Explain bilirubin and bile acids metabolism and physiology of bile formation.
   1.2.2.4 Discuss the role of the liver in ammonia metabolism, urea production and pH regulation.
   1.2.2.5 Describe glutathione synthesis and its functions and hepatic metabolism of drugs.
   1.2.2.6 Describe the heme biosynthesis, iron metabolism and excretion of porphyrins.
   1.2.2.7 Describe the role of the liver in vitamins absorption and metabolism.
   1.2.2.8 Describe the normal copper metabolism and the trace elements and its relation to the liver.
   1.2.2.9 Describe albumin and other carrier proteins synthesis and the role of liver in coagulation process.
   1.2.2.10 Describe functions and metabolism of collagen and other extracellular matrix proteins.
   1.2.2.11 Describe factors controlling the liver cell proliferation.

HK1.3 Basic concepts in pathobiology
1.3.1 Describe hepatocyte apoptosis and necrosis.
1.3.2 Describe ischemia /reperfusion injury to the liver.
1.3.3 Describe genetic background of liver diseases.
1.3.4 Describe oncogenes and tumor suppressor genes.

HK1.4 Pathology
1.4.1 Identify the important pathological features in different liver diseases.
1.4.2 Define classifications, scoring systems and pathological grading in different hepatic disorders (e.g. chronic hepatitis and hepatocellular carcinoma).

HK1.5 Investigations of hepatobiliary diseases
1.5.1 Explain biochemical tests and its interpretation.
1.5.2 Explain immunological tests
1.5.3 Where is the action verb?? Imaging of the liver (refer to HK 9).
1.5.4 Discuss liver biopsy indications and complications and identify laparoscopic indications and complications.

HK2 HEPATIC DISORDERS
HK 2.1 Cirrhosis
2.1.1 Explain cellular and molecular pathobiology of liver fibrosis and its pharmacological intervention and evolution to cirrhosis.
2.1.2 Discuss the clinical aspects, diagnosis and sequelae of cirrhosis.

HK 2.2 Portal hypertension and its complications
2.2.1 Discuss the etiology, pathogenesis and diagnosis of portal hypertension.
2.2.2 Explain hemodynamic assessment of portal hypertension.
2.2.3 Explain clinical manifestations and outline management of portal hypertension & bleeding episodes in cirrhotic patients.
2.2.4 Describe pathogenesis and identify the diagnosis and treatment of ascites and electrolyte disturbances in cirrhosis.
2.2.5 Discuss hepatorenal syndrome and outline its classification and management.
2.2.6 Explain pulmonary complications of portal hypertension.
2.2.7 Discuss in details predisposing factors and management of hepatic encephalopathy.
2.2.8 Define spontaneous bacterial peritonitis, understand its differential diagnosis and know in details treatment and prophylaxis.

**HK 2.3 Viral infections of the liver**

2.3.1 Explain hepatitis A and E clinical presentation and management.
2.3.2 Describe hepatitis G and TT virus.
2.3.3 Identify clinical picture and vaccination of Yellow fever.
2.3.4 Discuss non hepatotropic viruses (infectious mononucleosis, cytomegalovirus and herpes simplex virus).
2.3.5 Describe hepatitis due to exotic viruses.
2.3.6 Hepatitis B Virus and Hepatitis Delta Virus
   2.3.6.1 Explain molecular virology and epidemiology of hepatitis B.
   2.3.6.2 Discuss immune response (phases), clinical spectrum, course and prognosis of hepatitis B.
   2.3.6.3 Discuss diagnostic aspects and treatment strategies of hepatitis B.
   2.3.6.4 Discuss prevention of hepatitis B infection and screening for HCC.
   2.3.6.5 Elaborate epidemiology, diagnosis, clinical features, prevention and treatment of hepatitis D.
2.3.7 Hepatitis C Virus
   2.3.7.1 Explain molecular virology, epidemiology and natural history.
   2.3.7.2 Discuss clinical course and diagnosis.
   2.3.7.3 Elaborate extrahepatic manifestations.
   2.3.7.4 Discuss therapeutic options (including management of special situations) and prevention.

**HK 2.4 Other infections of the liver**

2.4 Classify bacterial, rickettsial, spirochetal and fungal infections of the liver
2.4.2 Explain diseases caused by protozoal and helminthic infections (particularly bilharziasis).
2.4.3 Identify effect of HIV infection on the liver.

**HK 2.5 Immune disorders of the liver**

2.5.1 Discuss primary biliary cirrhosis
2.5.2 Discuss autoimmune hepatitis
2.5.3 Explain sclerosing cholangitis
2.5.4 Explain vanishing bile duct syndrome
2.5.5 Discuss overlap syndromes

**HK 2.6 Elaborate alcoholic liver disease**

**HK 2.7 Discuss non-alcoholic fatty liver disease**

**HK 2.8 Drugs and toxic liver injury**

2.8.1 Elaborate drug-induced hepatitis, clinicopathological patterns of liver injury and know the commonly used drugs that can affect the liver.
2.8.2 Enumerate physical, herbal, occupational and environmental agents and understand grossly their mechanisms of liver injury.
HK 2.9 Hepatocellular Failure
2.9.1 Discuss acute and fulminant liver cell failure, clinical manifestations and management.
2.9.2 Discuss chronic liver cell failure and its sequelae.

HK 2.10 Genetic and metabolic diseases
2.10.1 Discuss metabolic diseases of the liver in adults (Wilson’s disease, hemochromatosis and Alpha 1-antitrypsin deficiency) epidemiology and when to suspect.
2.10.2 Describe geneticcholestatic diseases and glycogen storage disease.

HK 2.11 Vascular Diseases of the liver
2.11.1 Discuss Budd-Chiari syndrome and sinusoidal obstruction syndrome etiology, clinical features, diagnosis and treatment.
2.11.2 Explain portal vein thrombosis etiology, clinical features, and management.
2.11.3 Identify other vascular diseases of the liver.

HK 2.12 Tumors of the liver
2.12.1 Define benign hepatocellular tumors and understand incidence and complications of hemangioma.
2.12.2 Discuss risk factors, clinical features and guidelines for management of hepatocellular carcinoma.
2.12.3 Define other benign and malignant tumors of the liver
2.12.4 Recall metastatic liver disease and carcinoid tumor.

HK 3 LIVER AND OTHER SYSTEMS INTER-RELATIONSHIP
Outline the impacts of liver diseases and affection of the liver on the following systems:
3.1 Cardiopulmonary system.
3.2 Skin and musculoskeletal system.
3.3 Endocrine system.
3.4 Gastrointestinal system.
3.5 Hematopoietic system.
3.6 Central nervous system.

HK 4 THE LIVER IN SPECIFIC SETTINGS
4.1 Describe pediatric liver diseases.
4.2 Identify liver diseases of the elderly.
4.3 Explain liver diseases and pregnancy.
4.4 classify hepatic granulomas.

HK 5 SURGERY, ANESTHESIA AND THE LIVER
5.1 Explain in details perioperative assessment, precautions & management of liver disease patients.
5.2 Explain the effects of anesthesia on the liver and know the safe anesthetic drugs.
5.3 Enumerate postoperative complications.

HK 6 LIVER TRANSPLANTATION
6.1 Discuss Indications, timing, contraindications and outcomes of liver transplantation.
6.2 Explain Preoperative preparation and postoperative care of a patient with liver transplantation.
6.3 Enumerate types of transplantation and surgical techniques.
6.4 Express Understanding of Immunosuppression and post-transplantation complications.
HK 7 BILIARY TRACT DISEASES
  7.1 Outline causes and management of intrahepatic cholestasis.
  7.2 Define extrahepatic biliary obstruction: causes, systemic effects and management.
  7.3 Recognize gall bladder stones: types, pathogenesis, clinical presentation, complications and management.
  7.4 Describe cholangitis, biliary tract infections and haemobilia.
  7.5 Define biliary dyskinesia and classify benign tumors of the bile duct and gall bladder.
  7.6 Outline etiology, clinical picture and management of gallbladder carcinoma and cholangiocarcinoma.

HK 8 DISEASES OF THE SPLEEN
  8.1 Outline causes and differential diagnosis of splenomegaly.
  8.2 Explain diagnosis and different options of treatment of hypersplenism.
  8.3 Recall causes of splenic focal lesions and tumors of the spleen.
  8.4 Explain the involvement of the spleen in other diseases.

HK 9 IMAGING AND INTERVENTIONS IN HEPATOBILIARY DISEASES
Describe indications, contraindications, and possible complications of different Imaging and interventions techniques in hepatobiliary diseases:
  9.1 U/S, CT and MRI. Understand indications and contraindications of these techniques and describe different imaging features.
  9.2 PET, PET CT & nuclear medicine. Understand indications and contraindications of these techniques and describe different imaging features.
  9.3 ERCP, EUS. Understand indications and contraindications of these techniques and describe different imaging features.
  9.4 Imaging based interventions: Understand indications, contraindications and complications of these techniques.

HK 10 NUTRITION DISORDERS IN LIVER DISEASE
  10.1 Explain nutritional assessment of liver disease patients.
  10.2 Discuss nutrition requirements and precautions in liver disease patients.

II) GASTROENTEROLOGY COURSE

KNOWLEDGE: (GK)

GK.1: BASIC SCIENCE
Description: To understand the relevance of basic science to clinical practice and to recognize the importance of a thorough grounding in basic science to gain an understanding of gastrointestinal disease processes

GK.1.1: Applied Anatomy, Physiology, biochemistry and immunology
  GK.1.1.1: Discuss the development, structure and function of the normal gastrointestinal tract including GIT secretions
  GK1.1.2: Outline the normal micro-structure of the gut and explain how they can be affected by disease processes
GK1.1.3: Describe the biochemical processes occurring within the gut lumen and at mucosal level and identify the factors controlling these processes – in particular the neuro-endocrine influences
GK1.1.4: Describe the role of the immune system in mucosal defence mechanisms in the gastrointestinal tract
GK1.1.5: Identify the role and consequences of disordered immunity in gastrointestinal diseases

GK.1.2: Pathology and pathophysiology
GK.1.2.1: Describe the basic pathological changes that occur in gastrointestinal diseases
GK.1.2.2: Explain how diseases result from alterations in gastric secretion, intestinal absorption and secretion, and disordered function of the pancreas
GK.1.2.3: Indicate the significance of the information which clinical pathologists provide

GK.1.3: Clinical genetics
GK.1.3.1: Describe the basics of clinical genetics, including both ‘classical’ and molecular genetics
GK.1.3.2: Indicate the patterns of inheritance of gastrointestinal diseases.
GK.1.3.3: Discuss how molecular biology can explain predisposition to disease
GK.1.3.4: Identify genetic and environmental factors underlying disease in individual patients

GK.1.4: Pharmacology relevant to gastroenterology
GK.1.4.1: Describe indications, contraindications, side effects, drug interactions and dosage of commonly used drugs
GK.1.4.2: Recall drugs requiring therapeutic drug monitoring
GK.1.4.3: Define the effects of age, body size, organ dysfunction and concurrent illness on drug distribution and metabolism relevant to the trainee’s practice

GK.2: NUTRITION:

GK.2.1: Nutritional screening and assessment
GK.2.1.1: Describe the body composition, energy homeostasis, requirements and sources of macro and micronutrients
GK.2.1.2: Discuss the consequences of deficiency or excess of macro and micronutrients
GK.2.1.3: Outline the different methods available to assess nutritional status and recognize patients with under and over nutrition

GK.2.2: Weight loss and anorexia
GK.2.2.1: Describe the GI & non-GI causes of weight loss & clinical consequences of under nutrition
GK.2.2.2: Explain the management of patients with significant weight loss and/or anorexia

GK.2.3: Obesity and related disorders
GK.2.3.1: Describe the risks associated with obesity
GK.2.3.2: Describe the dietary, pharmacological and surgical techniques for managing obesity and their associated medical and nutritional complications

GK.2.4: Artificial nutritional support
GK.2.4.1: Recall the appropriate indications and contraindications for the use of enteral and parenteral nutrition.
GK.2.4.2: Outlines the different types of enteral & parenteral feeding lines & indications for use of each
GK.2.4.3: Lists the risks and complications of all types of artificial nutrition support and describe how to monitor the nutrition support to minimize these risks.

**GK.2.5: Percutaneous endoscopic gastrostomy (PEG)**
- GK.2.5.1: Describes the indications for PEG tube insertion
- GK.2.5.2: Identifies different types of gastrostomy tube.
- GK.2.5.3: Outlines the advantages, disadvantages and complications of PEG tube insertion

**GK.3: GIT disorders**

**Description:** The candidate should be able to describe the various GIT diseases and to show deep understanding and knowledge of their epidemiology, clinical picture and management and to apply this knowledge to efficient patient care, examination and management.

**GK.3.1: Diseases of the esophagus**
- GK.3.1.1: Motility and swallowing esophageal disorders
  - GK.3.1.1.1: Give a detailed account on the etiology of different motility and swallowing esophageal disorders (organic and functional) and their clinical presentations.
  - GK.3.1.1.2: Discuss various methods of assessment and investigation including the use of manometric assessment where appropriate
  - GK.3.1.1.3: Elaborate on the range of therapeutic options including the potential for endoscopic treatment, and how to select appropriate treatment
- GK.3.1.2: Esophageal tumors
  - GK.3.1.2.1: Classify various types of esophageal neoplasms and mention the management of benign tumors.
  - GK.3.1.2.2: Discuss the predisposing factors/pre-malignant conditions, presentation, diagnostic work-up and staging of esophageal cancer
  - GK.3.1.2.3: Outline the range of potential therapies (including palliative care) for cancer, and explain how the appropriate selection is made
- GK.3.1.3: Gastroesophageal reflux disease (GERD)
  - GK.3.1.3.1: Recognizes the epidemiology, typical clinical presentations and factors associated with GERD
  - GK.3.1.3.2: Discuss the complications of GERD and recognize the importance of the development of Barrett’s disease; follow-up of such patients and the role of surveillance
  - GK.3.1.3.3: Elaborate on the range of diagnostic tests and discuss the role of endoscopy and PH monitoring in GERD
  - GK.3.1.3.4: Explain the treatment options, both medical and surgical and identify the best therapy on individual basis.
- GK.3.1.4: Non reflux-induced esophagitis
  Describe in details the epidemiology, etiology, clinical picture and management of non reflux-induced esophagitis

**GK.3.2: diseases of the stomach and duodenum:**

**GK.3.2.1: Acid peptic diseases**
- GK.3.2.1.1: discuss the epidemiology, etiology, clinical picture, complications, diagnosis and management of gastric and duodenal ulcers
- GK.3.2.1.2: Explain the role, diagnosis and management of H. pylori and elaborate efficiently on different H. pylori related clinical conditions and their management
- GK.3.2.1.3: Discuss role and management of NSAIDs in acid peptic diseases
- GK.3.2.2: Acute and chronic gastritis
Describe in details the epidemiology, etiology, clinical picture and management of acute and chronic gastritis
GK.3.2.3: Non-ulcer/functional dyspepsia: Explain the epidemiology, mechanism, clinical picture and management of non-ulcer/functional dyspepsia
GK.3.2.4: Gastric and duodenal tumors
GK.3.2.4.1: Classify the types of gastric and duodenal neoplasms and polyps and mention the management of benign tumors and polyps.
GK.3.2.4.2: Discuss the predisposing factors/pre-malignant conditions, presentation, diagnostic work-up and staging of gastric and duodenal cancer
GK.3.2.4.3: Outline the range of potential therapies (including palliative care) for cancer, and explain how the appropriate selection is made
GK.3.2.5: Gastric and duodenal motility disorders
Discuss etiology, epidemiology, clinical picture, diagnosis and management of gastric and duodenal motility disorders

GK.3.3: diseases of the small intestine:
GK.3.3.1: Motility disorders
Discuss etiology, epidemiology, clinical picture, diagnosis and management of motility disorders including small bowel obstruction, pseudo-obstruction and diverticula
GK.3.3.2: Malabsorption syndromes
GK.3.3.2.1: Discuss classification, etiology, epidemiology, clinical picture and clinical consequences of malabsorption
GK.3.3.2.2: Discuss different diagnostic methods and explain the treatment of a patient with malabsorption and manage its complications
GK.3.3.3: Small intestinal tumors
GK.3.3.3.1: Classify the types of small intestinal neoplasms and mention the management of benign tumors.
GK.3.3.3.2: Discuss the predisposing factors/pre-malignant conditions, presentation, diagnostic work-up and staging of small intestinal cancer
GK.3.3.3.3: Elaborate on the range of potential therapies (including palliative care) for cancer, and explain how the appropriate selection is made
GK.3.3.4: Enteritis: Outline different causes of enteritis and explain their epidemiology, clinical presentation and how to manage them
GK.3.3.5: Small intestinal vascular disorders: Describe classification, epidemiology, etiology, clinical picture, clinical consequences, diagnosis and treatment of small intestinal vascular disorders

GK.3.4: Diseases of the pancreas:
GK.3.4.1: Tumors of pancreas
Mention tumors of pancreas including hormone-secreting tumors and describe their epidemiology, clinical presentation, diagnosis and management.
GK.3.4.2: Acute and chronic pancreatitis
Describe epidemiology, etiology, clinical picture and management of acute and chronic pancreatitis
GK.3.4.3: Cystic pancreatic diseases
List causes of pancreatic cysts including pseudocysts and mention their epidemiology, clinical presentation, diagnosis and management
GK.3.5: diseases of the colon:
GK.3.5.1: IBS and functional disorders
GK.3.5.1.1: Define IBS and explain the importance of brain gut interaction and different triggering factors
GK.3.5.1.2: Discuss intestinal & extra intestinal manifestations & international diagnostic criteria
GK.3.5.1.3: Elaborate individualized approaches to patient management with IBS
GK.3.5.2: Inflammatory bowel disease (IBD)
GK.3.5.2.1: Mention the causes of IBD, and explain epidemiology, clinical presentation, diagnosis and treatment of non ulcerative colitis (UC) or Crohn`s disease (CD) colitis
GK.3.5.2.2: Discuss epidemiology, pathogenesis, clinical manifestations and methods of diagnosis of (CD) and (UC).
GK.3.5.2.3: Explain various criteria for assessing the severity and extent of IBD
GK.3.5.2.4: Discuss treatment options and elaborate different methods of applying therapy.
GK.3.5.3: Diverticular diseases: Describe causes, epidemiology, clinical presentation, diagnosis and treatment of diverticular disease
GK.3.5.4: Colonic tumors
GK.3.5.4.1: Classify the types of colonic neoplasms & mention the management of benign tumors.
GK.3.5.4.2: Classify the types of colonic polyps and mention polyposis syndromes and explain their clinical presentation and management.
GK.3.5.4.3: Discuss the predisposing factors/pre-malignant conditions, presentation, diagnostic work-up and staging of colonic cancer
GK.3.5.4.4: Outline the range of potential therapies (including palliative care) for cancer, and explain how the appropriate selection is made.
GK.3.5.4.5: Describe the importance of endoscopic cancer surveillance.
GK.3.5.5: Colonic obstruction: Explain causes, epidemiology, clinical presentation, diagnosis and treatment of colonic obstruction including pseudo-obstruction
GK.3.5.6: Ischemic colitis: Explain causes, epidemiology, clinical presentation, diagnosis and treatment of ischemic colitis.

GK.3.6: anorectal diseases:
GK.3.6.1: Describe management of fissures, abscesses, hemorrhoidal vein enlargement, rectal prolapse, fistulas and solitary rectal ulcer syndrome
GK.3.6.2: Anorectal functional disorders
Explain management of anorectal functional disorders and their sequelae
GK.3.6.3: Anorectal infections
Mention infectious agents affecting anus & rectum infections & discuss their management.
GK.3.6.4: Anorectal tumors
GK.3.6.4.1: Classify the types of anorectal neoplasms and mention the management of benign tumors
GK.3.6.4.2: Discuss the predisposing factors/pre-malignant conditions, presentation, diagnostic work-up, staging and treatment options of anorectal cancer
**GK.3.7: Significant Gastrointestinal Symptoms**

**GK.3.7.1: Non cardiac chest pain**
- **GK.3.7.1.1:** Describe the potential role of the oesophagus in patients presenting with chest pain in whom a cardiac cause has been excluded
- **GK.3.7.1.2:** Recognize different causes of non cardiac chest pain and explain how to diagnose and manage them

**GK.3.7.2: Nausea and Vomiting**
- **GK.3.7.2.1:** Describe the organic gastrointestinal conditions that cause nausea and vomiting as well as the range of extra-intestinal causes and explain how to manage them
- **GK.3.7.2.2:** Define functional nausea and vomiting and describe its management

**GK.3.7.3: Upper GIT hemorrhage**
- **GK.3.7.3.1:** Discuss the variceal and non variceal causes of upper gastrointestinal bleeding and their presentation
- **GK.3.7.3.2:** Explain the circulatory disturbance associated with blood loss and the pathophysiology underlying the clinical manifestations of hypovolemic shock
- **GK.3.7.3.3:** Discuss the principles of assessing hypovolemia and of restoring the circulation and to identify and correct coagulopathy
- **GK.3.7.3.4:** Explain the principles of using the various risk stratification tools
- **GK.3.7.3.5:** Explain how medical treatment and endoscopic techniques are used to control bleeding and identify the timing of surgical intervention.
- **GK.3.7.3.6:** Explain how esophageal and gastric varices develop and the endoscopic and pharmacological methods that are used to control blood loss

**GK.3.7.4: Lower GIT bleeding**
- **GK.3.7.4.1:** Describe the causes of lower gastrointestinal bleeding and its presentation
- **GK.3.7.4.2:** Explain the role of endoscopy in diagnosis and management of lower GIT bleeding and identify the proper time to be performed.

**GK.3.7.5: Occult and obscure GIT bleeding**
- **GK.3.7.5.1:** Define occult and obscure GIT bleeding and Discuss their causes, diagnosis and management.

**GK.3.7.6: Abdominal pain**
- **GK.3.7.6.1:** List the causes of acute and chronic abdominal pain that arise from gastrointestinal, and pancreatic diseases
- **GK.3.7.6.2:** Discuss the clinical presentations of the various conditions causing pain and the means by which they can be diagnosed and treated

**GK.3.7.7: Diarrhea**
- **GK.3.7.7.1:** Outline the range of mechanisms by which diarrhea can result from disturbances in physiological and biochemical processes
- **GK.3.7.7.2:** Discuss the causes of both acute and chronic diarrhea
- **GK.3.7.7.3:** Discuss the range of investigations appropriate to determining the cause of the patient’s diarrhea and is aware of the range of therapeutic possibilities
- **GK.3.7.7.4:** Recognize the potential need for urgent replacement therapy

**GK.4: INVOLVEMENT OF THE GASTROINTESTINAL TRACT IN OTHER CONDITIONS:**
Explain how GIT is affected in different clinical conditions and discuss how to manage them.

**GK.4.1: HIV infection**

**GK.4.2: Immunosuppression (congenital or acquired)**
GK.4.3: Immunological disorders (including graft - vs. - host disease)
GK.4.4: Endocrine disorders (e.g., diabetes mellitus) and other systems
GK.4.5: Pregnancy

**GK.5: GIT IMAGING BACKGROUND:**
Describe indications, contraindications and possible complications of different GIT imaging techniques:
GK.5.1: Radiography and barium studies
    GK.5.2: US, CT, MRI
    GK.5.3: Nuclear medicine studies
    GK.5.4: EUS and ERCP
    GK.5.5: PET scan and PET CT
    GK.5.6: Intervention imaging therapeutic techniques in GIT

**GK.6: GIT SURGICAL BACKGROUND:**
Identify different indications & complications of surgical intervention in GIT & nutritional disorders

**GK.7: GIT ENDOSCOPIC BACKGROUND:**
GK.7.1: Describe upper GIT endoscopy skills
    GK.7.2: Describe lower GIT endoscopy skills
GK.7.3: Explain indications, contraindications, and possible complications of different endoscopic based techniques

**GK.8: PERITONEAL DISORDERS:**
Describe epidemiology, etiology, clinical picture, diagnosis and treatment of different peritoneal diseases
GK.8.1: Chyloperitoneum
GK.8.2: Hemoperitoneum
GK.8.3: Mesenteric Lymphadenitis
GK.8.4: Peritonitis
GK.8.5: Pneumoperitoneum
GK.8.6: Peritoneal neoplasms

2- PRACTICAL MODULE

**A) Objective:**
This module concerns with all competencies either common or specialty related. Thus, by the end of this module, the candidate should express independent appropriate performance in practicing those competencies.

**B) Core of the module:**
   i) Common competencies (C)
   ii) Specialty related competencies (S).

**C) Learning and training methods:**
- Lectures on the topics.
- Clinical rotations with experienced gastroenterologists.
- Tutorials and journal clubs.
Interdepartmental meetings.
Conferences and workshops.
Selected readings and internet-based data
Work-Based Experiential Learning

1- COMMON COMPETENCIES

C.1: HISTORY TAKING:
All trainees should be able to obtain a relevant history from patients, accurately record and synthesize the history with clinical examination to formulate a clear management plan.

Knowledge (K.C.1):
K.C.1.1: Explain the importance of different elements of history
K.C.1.2: Explain causes of and risk factors for conditions relevant to the presentation.
K.C.1.3: Outline how to take structured medical history

Skills (S.C.1):
S.C.1.1: Focus on relevant aspects of hepato gastroenterology history
S.C.1.2: Identify and overcome possible barriers to effective communication (severely ill patients, angry or distressed patient / relatives or those with special communication needs, such as the need for interpreters…).
S.C.1.3: Manage time effectively as part of the information collection process.
S.C.1.4: Assimilate history from the available information from patient and other sources
S.C.1.5: Recognize and interpret the use of non-verbal communication from patients and carers.
S.C.1.6: Quickly focus and use questioning (open and closed) to establish working diagnosis and relate to relevant examination, investigation and management plan.

Attitude (A.C.1):
A.C.1.1: Show respect and behaves in accordance with Good Medical Practice
A.C.1.2: Demonstrate compassion and empathy for patients and carers

C.2: CLINICAL EXAMINATION
All trainees should be able to perform focused and accurate clinical examination and be able to relate physical findings to history in order to use data from clinical assessment in an algorithmic manner to build up reasonable differential diagnosis (es) and formulate a management plan.

Knowledge (K.C.2):
K.C.2.1: Explain the basis of performing appropriate abdominal examination
K.C.2.2: Explain the basis and relevance of physical signs

Skills (S.C.2):
S.C.2.1: Perform thorough hepato gastrointestinal examination relevant to the presentation and risk factors that is valid, targeted and time efficient.
S.C.2.2: Actively elicits important clinical findings and the relevance of positive and negative physical signs
S.C.2.3: Recognize the limitations of abdominal examination and the need for adjunctive forms of assessment to confirm diagnosis (sigmoidoscopy, ultrasound)

Attitude (A.C.2):
A.C.2.1: Show respect and behaves in accordance with Good Medical Practice
A.C.2.2: Acknowledge social, cultural and religious boundaries to examination and appropriately involve relatives
C.3: INVESTIGATIONS

Knowledge (K.C.3):

K.C.3.1: Explain the range of investigations for hepato-gastroenterological disorders, and the circumstances in which they are used.
K.C.3.2: Recognize the possible side effects and risks to which the patient may be exposed to during the test.

Skills (S.C.3):

S.C.3.1: Select, use and interpret appropriate investigations needed for diagnosis and follow up of different patients with hepato-gastroenterological disorders.
S.C.3.2: Recognize the implications of a positive or negative test result; perform further actions when it is required.

Attitude (A.C.3):

A.C.3.1: Consider the cost, availability and localize the resources involved.
A.C.3.2: Provide explanations to patients as to rationale for investigations, limitations and possible unwanted effects

C.4: DECISION MAKING & CLINICAL REASONING

All trainees should be able to apply the steps of diagnostic reasoning in order to build up an action plan for diagnosis and treatment and should be able to communicate this appropriately.

Knowledge (K.C.4):

K.C.4.1: Define the steps of diagnostic reasoning
K.C.4.2: Define the concepts of disease natural history and assessment of risk
K.C.4.3: Recognize the need to determine the best value and most effective treatment

Skills (S.C.4):

S.C.4.1: Interprets medical history and the elicited clinical signs and recognize their reliability and relevance to the presented clinical scenarios.
S.C.4.2: Construct a concise and applicable problem list using available information
S.C.4.3: Develop an action plan based on application and interpretation of clinical international and national guidelines and algorithms related to hepato-gastroenterological disorders.
S.C.4.4: Recognize critical illness and respond with appropriate urgency
S.C.4.5: Prioritize the investigations needed to reach final diagnosis
S.C.4.6: Design therapeutic plans based on data gained from clinical assessment and investigations in different hepato-gastroenterological disorders.
S.C.4.7: Monitor disease course, response to therapy, prognosis and complications then modify patient management accordingly.

Attitude (A.C.4):

A.C.4.1: Communicate the action plan effectively to the patient, parents and carers where relevant and facilitate patient choice
A.C.4.2: Search for evidence to support clinical decision making
A.C.4.3: Ask for senior advice on formulating plan
A.C.4.4: Communicate the impact of lifestyle and risk factors on the likelihood of future events
C.5: THERAPEUTICS AND SAFE PRESCRIBING
To develop your ability to prescribe, review and monitor appropriate therapeutic interventions relevant to clinical practice including non-medication-based therapeutic and preventative indications

**Knowledge (K.C.5):**

**K.C.5.1:** Recall Indications, contraindications, side effects, drug interactions and dosage of drugs used in hepato gastroenterology disorders

**K.C.5.2:** Recall drugs requiring therapeutic drug monitoring and interpret results

**K.C.5.3:** Defines the effects of age, body size, organ dysfunction and concurrent illness on drug distribution and metabolism

**Skills (S.C.5):**

**S.C.5.1:** Avoid defined drug interactions, including complementary medicines

**S.C.5.2:** Make appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function)

**S.C.5.3:** Prescribe appropriately in elderly, pregnancy, and during breast feeding

**Attitude (A.C.5):**

**A.C.5.1:** Remains up to date with therapeutic alerts, and responds appropriately

**A.C.5.2:** Advise patients (and carers) about important interactions and adverse drug effects

**A.C.5.3:** Recognize the benefit of minimizing number of medications taken by a patient to a level compatible with best care

C.6: Patient safety in clinical practice

**Knowledge (K.C.6):**

**K.C.6.1:** Define the features of a safe working environment

**K.C.6.2:** Define the hazards of medical equipment in common use

**K.C.6.3:** Outline the dangers of sharps and blood contamination

**Skills (S.C.6):**

**S.C.6.1:** Recognize when a patient is not responding to treatment, reassess the situation

**S.C.6.2:** Recognize when different strategies are required in those not responding to a particular therapy

**S.C.6.3:** Recognize and respond to the manifestations of a patient’s deterioration

**S.C.6.4:** Demonstrate ability to lead an investigation of a serious improper incident or near miss and synthesis’ an analysis of the issues and plan for resolution or adaptation

**S.C.6.5:** Ensure the correct and safe use of medical equipment

**Attitude (A.C.6):**

**A.C.6.1:** Have a high level of safety awareness at all times

**A.C.6.2:** Encourage feedback from all members of the team on safety issues

C.7: INFECTION PREVENTION & CONTROL

**Knowledge (K.C.7):**

**K.C.7.1:** Explain the principles of infection control as defined by the national guidelines of MOH

**K.C.7.2:** Outline the principles of preventing infection in high risk groups

**K.C.7.3:** Outline the local antibiotic policy

**K.C.7.4:** Describe the principles behind aseptic techniques and maintains high standard of infection control during interventional procedures
Skills (S.C.7):
S.C.7.1: Recognize the potential for infection within patients being cared for
S.C.7.2: Counsel Patients on matters of infection risk, transmission and control
S.C.7.3: Actively engage in local infection control procedures
S.C.7.4: Actively engage in local infection control monitoring and reporting processes
S.C.7.5: Prescribe antibiotics according to local antibiotic guidelines
S.C.7.6: Recognize potential for cross-infection in clinical settings
S.C.7.7: Practice aseptic technique whenever relevant

Attitude (A.C.7):
A.C.7.1: Encourage all staff, patients and relatives to observe and adhere to infection control principles

C.8: CONTINUITY OF CARE & LIFELONG MANAGEMENT
Knowledge (K.C.8):
K.C.8.1: Explain the natural history of diseases that run a chronic course (ulcerative colitis, autoimmune hepatitis)
K.C.8.2: Explain the role of the multi-disciplinary team in long-term care

Skills (S.C.8):
S.C.8.1: Develop and agree a management plan with the patient (and carers), to maximize self-care
S.C.8.2: Provide support for those on long term hepato-gastroenterologic medication
S.C.8.3: Provide effective patient education & provide the relevant and evidence based information in an appropriate manner to facilitate patient choice

Attitude (A.C.8):
A.C.8.1: Explain the potential impact of long term conditions, including disability, on the patient, family and friends
A.C.8.2: Demonstrate the concept of quality of life
A.C.8.3: Advice patients about changing life style and habits which may affect the course of the disease and the applied treatment.
A.C.8.4: Discuss with patients the treatment periods, follow up plan and possible complications.

C.9: VALID CONSENT
Knowledge (K.C.9):
K.C.9.1: Explain how to obtain valid consent from the patient according to national guidelines.

Skills (S.C.9):
S.C.9.1: Present all information to patients (and carers) in a format they understand, allowing time for reflection on the decision to give consent
S.C.9.2: Provide a balanced view of all care options

Attitude (A.C.9):
A.C.9.1: Show respect for a patient’s rights of autonomy even in situations where their decision might put them at risk of harm
A.C.9.2: Avoid withholding information relevant to proposed care or treatment in a competent adult
C.10: RESEARCH
Knowledge (K.C.10):
K.C.10.1: demonstrate knowledge of Research principles

Skills (S.C.10):
S.C.10.1: Write an essay related to hepato gastroenterology
S.C.10.2: Organize scientific meetings, present oral presentations.
S.C.10.3: Deal properly with multimedia based facilities and be able to search and retrieve and appraise required scientific literature via the World Wide Web.

Attitude (A.C.10):

C.11: AUDIT
Knowledge (K.C.11):
K.C.11.1: Describe the role of audit (improving patient care and services, risk management etc)
K.C.11.2: Describe the steps involved in completing the audit cycle
K.C.11.3: Describe the different methods of obtaining data for audit including patient feedback questionnaires, hospital sources

Skills (S.C.11):
S.C.11.1: Identify a problem and develop standards for a local audit cycle.
S.C.11.2: Use the findings of an audit to develop and implement corrective actions

Attitude (A.C.11):
A.C.11.1: Recognize the need for audit in clinical practice for quality improvement

C.12: TRAINING
Knowledge (K.C.12):
K.C.12.1: Demonstrate knowledge of the role of the physician as trainer
K.C.12.2: Demonstrate knowledge of different training formats

Skills (S.C.12):
S.C.12.1: Demonstrate important abdominal signs to others
S.C.12.2: Deliver small group training to medical students, nurses or colleagues
S.C.12.3: Share in departmental teaching programs including journal clubs

Attitude (A.C.12):
A.C.12.1: Demonstrate willingness, enthusiasm and ability to contribute to the training of students and other healthcare colleagues.

C.13: MEDICAL ETHICS AND CONFIDENTIALITY
Knowledge (K.C.13):
K.C.13.1: Describe of the principles of medical ethics
K.C.13.2: Outline situations where patient consent, while desirable, is not required for disclosure e.g. serious communicable diseases,

Skills (S.C.13):
S.C.13.1: Use and share information with the highest regard for confidentiality, and encourage such behavior in other members of the team
Attitude (A.C.13):

A.C.13.1: Respect patients' dignity, confidentiality and patient’s rights of autonomy even in situations where their decision might put them at risk of harm.
A.C.13.2: Demonstrate compassion and empathy for patients and carers in accordance with Good Medical Practice.
A.C.13.3: Respect patient’s requests for information not to be shared, unless this puts the patient, or others, at risk of harm.

C.14: TEAM WORKING

Knowledge (K.C.14):

K.C.14.1: Describe the roles played by all members of a multi-disciplinary team
K.C.14.2: Describe the value of the multi-disciplinary team meeting

Skills (S.C.14):

S.C.14.1: Communicate accurately with relevant colleagues according to the urgency of a situation (telephone, email, letter etc), especially where responsibility for a patient's care is transferred
S.C.14.2: Ensure appropriate referrals (eg surgical) are optimally managed
S.C.14.3: Communicate effectively with administrative bodies and support organizations
S.C.14.4: Prepare patient lists with clarification of problems and ongoing care plan
S.C.14.5: Share information with colleagues

Attitude (A.C.14):

A.C.14.1: Appreciate the importance of team work and take part in multi-disciplinary teamwork.
A.C.14.2: Demonstrate willingness for working in team and for cooperation to optimize patient care
A.C.14.3: Show willingness to obtain a second opinion, senior opinion, and legal advice in difficult situations

C.15: COMMUNICATION WITH PATIENTS/CARERS

Knowledge (K.C.15):

K.C.15.1: Explain how to structure an interview with the patient/relative appropriately

Skills (S.C.15):

S.C.15.2: Establish a rapport with the patient and any relevant others (eg carers)
S.C.15.2: Express appropriate way in patient reassurance and in breaking bad news

Attitude (A.C.15):

A.C.15.1: Check the patient's/carer understands the situation and ensure that all their concerns/questions have been covered

C.16: RESUSCITATION & BASIC LIFE SUPPORT

Knowledge (K.C.16):

K.C.16.1: Describe guidelines for resuscitation and basic life support

Skills (S.C.16):

S.C.16.1: Carry out effectively resuscitation of critically ill patients

Attitude (A.C.16):

A.C.16.1: Support relatives in critical situations.
C.17: TRAINEE HEALTH

Knowledge (K.C.17):

K.C.17.1: Explain indications and types of immunization that should be received by healthcare workers
K.C.17.2: Outline different types of hazards in the workplace and assess their risk
K.C.17.3: Discuss management plan for healthcare workers exposed to workplace hazards

Skills (S.C.17):

S.C.17.1: Recognize the manifestations of infectious diseases that require work restriction
S.C.17.2: Use personnel protective equipment to protect themselves and their patients from workplace hazards
S.C.17.3: Demonstrate commitment to notify occupational health service with exposures and needle stick injuries

Attitude (A.C.17):

A.C.17.1: Take appropriate steps to protect patients when their own health is affected by illness or disability.

2- SPECIALTY RELATED COMPETENCIES (S)

S.1: BASIC DIAGNOSTIC ULTRASOUND TRAINING (INTERVENTIONAL ULTRASOUND IS OPTIONAL).

Knowledge (K.S.1):

K.S.1.1: List the organs in the abdominal cavities
K.S.1.2: Discuss how to recognize abdominal structures in multiple planes
K.S.1.3: Describe the correct orientation of an ultrasound image
K.S.1.4: Recognize the sectional ultrasound anatomy in the transverse and longitudinal planes
K.S.1.5: Describe the patient preparation, transducer selection, patient position

Skills (S.S.1):

S.S.1.1: Perform proper clinical evaluation before ultrasound including patient preparation and indications
S.S.1.2: Perform competently and safely upper abdominal ultrasound according to basic ultrasound protocols
S.S.1.3: Interpret correctly and competently ultrasound findings and differentiate between normal anatomy and pathology
S.S.1.4: Integrate the ultrasound findings into the patient management plan.
S.S.1.5: Recognize when a further imaging is needed to confirm the diagnosis

S.2: ENDOSCOPY TRAINING

S.2.1: Basic diagnostic upper and lower endoscopic procedures

Knowledge (K.S.2.1):

Trainees should describe of the following:

K.S.2.1.1: The components of the endoscopy equipment and how it works.
K.S.2.1.2: The normal anatomy and pathophysiology of common GIT diseases and the expected endoscopic findings (videotapes, atlases, etc.)
K.S.2.1.3: The etiology of acute and chronic upper and lower GIT bleeding and how to screen a patient with obscure GIT bleeding.
**K.S.2.1.4:** Appropriate indications and contraindications of the different diagnostic and therapeutic endoscopic procedures.

**K.S.2.1.5:** The risk factors attendant to endoscopic procedures and possible complications and how to manage them.

**K.S.2.1.6:** Recent emerging endoscopic technologies including capsule endoscopy.

**K.S.2.1.7:** Scope reprocessing and accessory handling.

**Skills (S.S.2.1):**

**S.S.2.1.1:** Assess and refer patients appropriately for GI endoscopy and perform Proper pre-endoscopic clinical evaluation including indications, contraindications and risk factors.

**S.S.2.1.2:** Ensure that informed consent is obtained from the patient prior to endoscopy.

**S.S.2.1.3:** Use safely and appropriately moderate sedation and familiarity in the administration of deep sedation (as propofol).

**S.S.2.1.4:** Perform diagnostic and therapeutic endoscopic procedures within the limit of their technical ability but to accepted national and international standards.

**S.S.2.1.5:** Ensure patient safety is maintained during preparation for the procedure, throughout the procedure and in the period following the procedure.

**S.S.2.1.6:** Interpret correctly and competently of most endoscopic findings.

**S.S.2.1.7:** Integrate the endoscopic findings or therapy into the patient management plan.

**S.S.2.1.8:** Appropriate and timely involvement of GI surgeon and radiologist.

**S.S.2.1.9:** Collect appropriate specimens and provide direction on their handling.

**S.S.2.1.10:** Provide reports appropriately written and review results of endoscopic procedures.

**Attitude (A.S.2.1):**

**A.S.2.1.1:** demonstrate understanding of teamwork and competence in interaction with other healthcare professionals such as endoscopy or ward nurses, surgeons, radiologists, general practitioners and referring colleagues.

**A.S.2.1.2:** Participate in personal and institutional audit of endoscopic practice and outcome.

**A.S.2.1.3:** Demonstrate an awareness of the importance of maintaining their endoscopic skills and safely learning new ones.

**A.S.2.1.4:** Explain the procedure to the patient in a way that helps the patient to understand what will be done.

**S.2.2: Basic therapeutic upper and lower endoscopic procedures**

**S.2.2.1: GIT bleeding**

**Knowledge (K.S.2.2.1):**

**K.S.2.2.1.1:** Explain indications, preparation, timing and complications of endoscopy.

**K.S.2.2.1.2:** Identify causes and bleeding sites and treatment options available.

**K.S.2.2.1.3:** Discuss Morbidity and mortality associated with endoscopy.

**Skills (S.S.2.2.1):**

**S.S.2.2.1.1:** Perform appropriately resuscitative and monitoring measures.

**S.S.2.2.1.2:** Use appropriately the GI bleeding morbidity and mortality scores that are widely available e.g. Rockall, Forrest.

**S.S.2.2.1.3:** Use adequately pharmacotherapy before endoscopy (e.g. in case of variceal bleeding).

**S.S.2.2.1.4:** perform appropriate Management of active bleeding, visible vessels, adherent clot.
S.S.2.2.1.5: Use appropriately Sengstaken Blakemore tube, band ligation, sclerosant, endoscopic clips, Argon Plasma Coagulation in the management of bleeding

S.S.2.2.1.6: Recognize the possible failure of endoscopic treatment to control upper GI bleeding and be able to appropriately turn into alternatives in the management.

S.2.2.2: Polypectomy

Knowledge (K.S.2.2.2):

K.S.2.2.2.1: Explain the risks and benefits of polypectomy.
K.S.2.2.2.1: Discuss types, clinical picture and complications of polyps.

Skills (S.S.2.2.2):

S.S.2.2.2: Appropriately use dye spray or tattooing in polyp marking and visualization.
S.S.2.2.2: Set up the electrocautery unit and identify and correct common technical failures.
S.S.2.2.2: Select and perform the appropriate form of polypectomy according to the polyp size, location and form.
S.S.2.2.2: Select and manipulate the appropriate range of endoscopic accessories to complete the polypectomy and specimen retrieval.
S.S.2.2.2: Recognition of large polyps or those difficult to access or requiring special maneuvers to remove and referring these for surgery, or other treatment where necessary.

Training process

Two levels of endoscopic training should be recognized:

Level 1: Routine "standard" endoscopic procedures including esophago gastro duodenoscopy, colonoscopy, with performing competently endoscopic variceal ligation, and injection sclerotherapy of varices, polypectomy and other endo therapeutic options for GIT bleeding.

Level 2: Optional "advanced" endoscopic procedures including ERCP, capsule endoscopy endoscopic mucosal resection, endoscopic ultrasound, esophageal dilatation, percutaneous endoscopic gastrostomy placement and stent placement.

S.3: LIVER BIOPSY

Knowledge (K.S.3):

K.S.3.1: List indications, contraindications and complications of liver biopsy
K.S.3.2: Define different liver biopsy terminology and their indications

Skills (S.S.3):

S.S.3.1: Assess and refer patients appropriately for liver biopsy
S.S.3.2: perform Proper pre-biopsy preparation including clinical evaluation and peri biopsy preparation including position, method used, use of sedation, etc.
S.S.3.3: perform Proper management of medications as antiplatelet and anticoagulants
S.S.3.4: Recognize any complications and properly manage them

Attitude (A.S.3):

A.S.3.1: Explain to the patients about their liver disease and about investigations other than liver biopsy (if any) that may also provide diagnostic and prognostic information
A.S.3.2: Explain the procedure to the patient in a way that helps the patient to understand what will be done, its risks, benefits, and limitations; written informed consent should be obtained
S.4: ABDOMINAL AND THORACIC PARACENTESIS

Knowledge (K.S.4):
  K.S.4.1: List indications, contraindications and complications of Abdominal and thoracic paracentesis

Skills (S.S.4):
  S.S.4.1: perform Proper pre- paracentesis preparation including clinical evaluation.
  S.S.4.2: perform properly all the steps of the procedure
  S.S.4.3: Recognize the types of investigations should be done for the collected fluid samples and interpret them.

Attitude (A.S.4):
  A.S.4.1: Explain the risks, benefits, alternatives to the patient. Make sure that he understands and agrees.
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### HEPATOLOGY MARKS/CURRICULUM WEIGHT/EXAM

Marks changed:
- Oral: from 100 to 50
- OS/viva: from 50 to 70
- SC2: from 50 to 70
- LC: from 100 to 110
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44
### Egyptian Fellowship Hepato gastroenterology Curriculum

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**FELLOWSHIP IN HEPATOFLASTROENTEROLOGY**

**OVERALL ASSESSMENT BLUEPRINT**

**GASTROENTEROLOGY CURRICULUM**

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