

THE EUROPEAN SECTION AND BOARD OF GASTROENTEROLOGY AND HEPATOLOGY

Speciality Training Programme and  
Curriculum for Gastroenterology and Hepatology

THE EB GASTROHEP  
TRAINING PROGRAMME

the blue  
book  
2012

[www.eubog.org](http://www.eubog.org)



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# UEMS & The ESGH and The EBGH

## UEMS

The Union of European Medical Specialities was founded in 1958, one year after the European Economic Community (EEC) was formed by the Treaty of Rome. It is the official representative body of all Medical Specialities to the European Commission. Its membership is comprised of delegates from 35 Countries, and it operates through its 37 Specialist Sections and Boards. The mission of the UEMS is to promote the highest level of professional autonomy and training for medical specialists so that they can provide the highest possible quality of healthcare services for the benefit of all European citizens. The UEMS promotes harmonisation of postgraduate specialist medical training in Europe by setting standards for all aspects of postgraduate medical training. The UEMS co-ordinates the accreditation of international CME/CPD in Europe by setting standards for these activities and providing critical evaluation of these activities in conjunction with the Speciality Boards. The UEMS achieves this objective through an institution of the UEMS, EACCME (European Accreditation Council for Continuing Medical Education). The UEMS also promotes the harmonisation of postgraduate medical specialist qualifications in the various specialities. In addition to the promotion of standardisation and evaluation of postgraduate specialist medical training and CME/CPD in Europe, the UEMS promotes quality assurance assessment of a specialist's medical practice at a European level. The UEMS is the official representative body of all medical specialists to the European Commission and has contacts with the European Institutions to promote its objectives.

## THE GASTROENTEROLOGY & HEPATOLOGY SECTION OF THE UEMS

Shortly after the formation of the UEMS, the Gastroenterology Section was formed. This is composed of two delegates from each of the UEMS member countries and a representative from the Junior Doctors Organisation (PWG). The delegates are appointed by the National Medical Association. European countries not members of the UEMS may have Associate or Observer status. Two organisations associated with Gastroenterology are represented by Observers (European Association for the Study of the Liver and Le Association des Sociétés Nationales Européennes et Méditerranéennes de Gastroentérologie).

## THE EUROPEAN BOARD OF GASTROENTEROLOGY & HEPATOLOGY

In its early years, the Section of Gastroenterology & Hepatology was predominately concerned with general professional matters. However, with increasing focus in the UEMS on postgraduate training and CME, Speciality Boards were formed, and The European Board of Gastroenterology and Hepatology was founded in 1992 as a Working Party composed of the two National Delegates, one of whom is appointed by the National Medical Association and the other by the National Gastroenterology & Hepatology Specialist Society via the NMA. Thus the two delegates from each country are selected to provide a balance between pure clinicians and academics. In practice, there is no distinction between the Section and Board of Gastroenterology & Hepatology, and the Section and Board work jointly on all initiatives.

### The primary functions of the EBGH are to:

- Define and secure the standards of training in Gastroenterology and Hepatology in Europe
- To evaluate the quality of International Gastroenterology and Hepatology CME/CPD in Europe in conjunction with EACCME
- To promote exchange of trainee gastroenterologists and hepatologists
- To collect and analyse workforce demographics and statistics in Gastroenterology and Hepatology.

The EBGH has the following working Committees: The Training & Recognition Committee, The CME Committee and The Manpower & Public Relations Committee. Evaluation of CME activities (event-based activities and e-learning activities) are carried out by the CME Committee. The routine business of the Section and Board of Gastroenterology & Hepatology is carried out by an Executive Committee composed of: The President of the Section, The President of the Board, The Secretary General and The Treasurer. The Section & Board meet twice a year, in the spring and at the annual UEGW Meeting.

## THE FELLOWSHIP OF THE EUROPEAN BOARD OF GASTROENTEROLOGY & HEPATOLOGY

To improve the quality of gastroenterology and hepatology training, the EBGH accredits well-trained gastroenterologists and hepatologists and certifies training centres in EUMS countries.

Applications for the award of the Fellowship of the European Board of Gastroenterology and Hepatology can be made by completing the application form on the EBGH Website. This application pathway will be available until December 31st, 2014.

Candidates who fulfil these requirements will be awarded the **Certificate of Fellowship of the European Board of Gastroenterology & Hepatology** and can call him/herself **Fellow of the European Board of Gastroenterology & Hepatology**. See Application Form on website [www.eubog.org](http://www.eubog.org).

## TRAINING CENTRES AND SITE-VISITS

To ensure the quality of a training centre, the EBGH encourages visitation of training centres. Site-visits are the key component for the EBGH to secure the quality of training in Gastroenterology. They are considered as a most valuable contribution to maintaining high standards of training. At current or prospective teaching centres, the teachers are encouraged to apply for the Certificate of Fellowship of the European Board of Gastroenterology & Hepatology. To be effective, inspection must be conducted, within published guidelines, by two external assessors, nominated by the Board and who hold the FEBGH. The assessors should be from other countries and be working in institutions subject to the same process. Re-evaluation in the form of a questionnaire should be carried out every five years. Major changes in the institution should be reported to the Training Recognition Committee. A diploma will be issued to a training centre fulfilling all EBGH requirements, approving it as a Training Centre of the European Board of Gastroenterology & Hepatology, or alternatively as a Rotation Training Centre. A certificate of visitation with a letter of commendation may be issued to a visited training centre, fulfilling most but not all EBGH requirements. The site-visits are meant to encourage the establishment of national training programmes, inspectors and diplomas. The quality of every national specialist training programme is of key importance. The reports should provide examples of good practice that can be followed by other training centres.

# TRAINING PROGRAMME - SETTING AND ORGANISATION

## TRAINING CENTRE

Training in Gastroenterology and Hepatology should be based in a University-affiliated institution or with an equivalent education and research programme and the full complement of Medical, Surgical and Diagnostic services commensurate with a University Hospital. The Training Centre should be housed in quality buildings which are well maintained. The Training Centre must have facilities for inpatients and outpatients and must contain an Endoscopy Unit and a Gastrointestinal/Liver Clinical Investigation room/laboratory. Satisfactory premises for education are needed with teaching space, library and contemporary information technology and audio visual teaching aids. The equipment in the gastroenterological, surgical, radiological and pathological departments must be of a standard to provide good clinical and education training. The Gastroenterology and Hepatology Training Centre should be located in a Hospital or Institution which also has surgical, intensive care, radiology and access to histopathology, biochemistry, microbiology and haematology laboratory facilities. The Hospital/Institution should also have a broad array of other medical subspecialty services such as cardiology, pulmonary, endocrinology/diabetes, haematology, nephrology, infectious disease and oncology.

## FACULTY AND TRAINERS

The Gastroenterology & Hepatology Faculty of Trainers should show itself to be committed to specialist education and provide appropriate space, facilities and funding to protect the needs of education from the demands of service. The majority of the faculty should be Fellows of European Board of Gastroenterology & Hepatology.

The members of the faculty should be experienced both as gastrohepatologists and teachers, committing time, effort and enthusiasm to the training programme. They should regularly attend interdisciplinary meetings with surgeons, pathologists and radiologists. The faculty should be large enough to supervise the clinical and practical work of the trainees.

Each trainee should have a named clinical supervisor. The optimal ratio between trainees/supervisor should be close to one.

## DURATION OF TRAINING

The training programme should be of at least six years duration including at least two years of common trunk training and at least three years full-time gastroenterology and hepatology training; one further year may be used for gastroenterology and hepatology related scientific work or hepatogastroenterology practice in a developing country or optional specialised training, e.g. in advanced endoscopy or hepatology or other medical/scientific activity related to hepatogastroenterology or general internal medicine. The training in this further year must be approved in advance by the Educational Supervisor and be compatible with National Training requirements.

## ROTATION TRAINING CENTRES AND ONE CENTRE TRAINING

Training Centres may be recognised by The European Board of Gastroenterology & Hepatology to be of such quality as to provide sufficient training for the total four year period of speciality gastroenterology/hepatology training. However some Units, with high quality gastrointestinal and hepatology clinical facilities and training, may lack the full complement of training facilities and opportunities. These Units may be recognised by the EBGH as a Rotation Training Centre of sufficient merit such that a Gastroenterology Trainee will receive sufficient training for either a period of one year or a period of two years. A trainee may therefore fulfil the four year programme of training by rotating between a number of recognised training centres.

Although the training will be supervised, assessed and documented by a number of different trainers in different centres, the trainee must organise in advance overall supervision, assessment and documentation of his/her training by one nominated supervisor, usually the supervisor at the initial training centre or alternatively a regional or national training supervisor. A supervising trainer who takes on this responsibility must ensure overall supervision and mentoring of the trainee during his/her four year training period by liaising with other training centres to ensure that the trainee undertakes the full multi-centre training programme. Trainees requiring advice regarding the selection of an Educational Supervisor may contact his/her EBGH National Representative - see EBGH Website ([www.eubog.org](http://www.eubog.org)).

## **ADEQUATE CLINICAL EXPERIENCE DURING TRAINING PERIOD**

Throughout the training period, there should be appropriate clinical exposure as judged by an adequate number of both inpatients and outpatients and a wide breadth of clinical experience in all aspects of the speciality.

## **TEACHING ACTIVITIES**

Case Conferences, Journal Clubs, In-service Meetings, Multi Disciplinary Meetings (especially surgery, radiology, histopathology, liaison psychiatry), Hospital Staff Rounds and Seminars should take place regularly. Trainees should attend and on occasions contribute and present at these educational activities. In addition, trainees should be encouraged to attend and eventually to present at local, regional, national and international gastroenterology and hepatology meetings.

## **FACILITIES FOR ENDOSCOPY AND HEPATOGASTROENTEROLOGY PROCEDURES**

The training centre Endoscopy Unit should contain well functioning up-to-date endoscopy equipment with appropriate decontamination equipment and processes. It should be staffed by appropriately trained endoscopy nurses and assistants and should undergo regular quality control assessment according to either local, national or international criteria. These quality control assessments might include measurement of patient comfort levels, complication rates (perforation, post ERCP pancreatitis, post polypectomy bleeding etc), procedure completion rates, pathology detection rates (polyp detection etc) and referral appropriateness. Protocols should exist within the Unit to ensure the proper management of complex patients (diabetics, those receiving anticoagulation etc). Trainees should receive formal induction training on entry to an Endoscopy Unit particularly with regard to patient informed consent and sedation. As far as practicable, Endoscopy sessions during which training occurs should be adjusted to the needs of the trainee. Formal competence 'sign-off' should be undertaken by the trainer. The Unit should be adequately equipped with well maintained video system endoscopes. The Training Centre Endoscopy Unit should perform at least one thousand upper GI endoscopies a year including relevant therapeutic procedures. At least one thousand Colonoscopies including therapeutic colonoscopies should also be carried out in the Unit each year. Facilities for Abdominal Ultrasound and Ultrasound Guided Biopsy must be available to the Training Centre.

## **TRAINEE POSTS - ENTRY, CLINICAL RESPONSIBILITIES AND TIMETABLE**

Trainees should be employed in substantive paid, higher postgraduate medical positions, entry to which is by a competitive process. Employing Authorities should provide a job-description for the post. Trainee posts should provide adequate and appropriate clinical responsibility for both inpatients and outpatients, but the hours of work should not be so great as to deny the trainee adequate time for personal study and attendance at formal educational activities. At least half the trainee's time should be devoted to clinical work; the remainder might be divided between personal study, formal educational activities, teaching, audit and research.

## **STUDY LEAVE**

During their training programme, trainees should be facilitated to be completely relieved of their clinical duties in order that they can take study leave to attend conferences and other educational activities outside their training unit.

## **DOCUMENTATION OF TRAINING**

Trainees must document their training on an ongoing basis throughout their training period by means of a logbook. This logbook, which may be published nationally or by the local training centre, should log information regarding experience, competencies and non-experiential education (e.g. formal teaching sessions, educational courses attended etc).

Experience to be logged includes volume and nature of clinical interaction with patients (emergency, elective, inpatient and outpatient), endoscopy and other procedures, communication and ethical matters, teaching sessions personally delivered, research, audit and administration (e.g. rota management, representative duties etc).

## SUPERVISION OF TRAINING

Trainees require supervision of their clinical duties. In addition, supervision of their training programme and schedule is required to ensure they are making sufficient progress, that milestones are being achieved and the training curriculum is being covered. Thus the trainee needs both Clinical Supervision and Educational Supervision. One supervisor may undertake both roles, or the roles may be undertaken by separate people depending on local arrangements. It is advisable, however, that if there is a separate Educational Supervisor, he or she should be a clinician in the speciality team and not be remote from the clinical environment in which the trainee works. A Clinical Supervisor can have one trainee and the Educational Supervisor a maximum of three trainees. If there is difficulty in recruiting an Educational Supervisor for trainees rotating through a number of Rotation Training Centres, the local National Delegate to the European Board of Gastroenterology and Hepatology should be contacted to provide advice, see [www.eubog.org](http://www.eubog.org).

A Clinical Supervisor oversees the trainee's ongoing work and provides constructive feedback. Although all elements of work in training posts must be supervised, as training progresses the trainee should have the opportunity for increasing autonomy, consistent with safe and effective patient care.

An Educational Supervisor oversees the trainee's educational progress in the context of the speciality curriculum. He or she reviews the trainee's logbook or e-logbook, sets goals and provides direction and advice on a regular basis. Educational Supervisors should be familiar with the use of assessment tools, how to support trainees in difficulty and how to give effective feedback including goal setting and career advice. Ideally, Educational Supervisors should have attended a 'Train the Trainers' course.

## ASSESSMENT AND APPRAISAL OF TRAINING

Educational Supervisors should have an induction session for trainees soon after enrolment, during which the training programme and curriculum are explained and how the various clinical aspects of training can be completed over a 3-4 year period. In addition, each trainee should on a yearly basis discuss and document a detailed training plan for the forthcoming year personally with his/her Educational Supervisor. This yearly plan will take into account what training has been completed successfully previously and what areas need to be developed on an ongoing basis. In the first year of specialised hepatogastroenterology training, after common trunk/general medicine training, the trainee may benefit from frequent formal feedback from his/her Clinical and/or Educational Supervisor up to 2-3 times in that year.

Established assessment tools for appraisal of clinical knowledge, skills and professional attributes should be used on an ongoing basis during training, and documentation of these appraisals should be maintained in association with the trainee's logbook. The assessment of clinical skills, especially problem-orientated history taking, physical examination, diagnostic decision making ability, appropriate selection of investigations, investigation interpretation and overall clinical judgements, is particularly important. Different workplace assessment instruments may be used in various countries or institutions to document these clinical skills; it is recommended that nationally or internationally recognized instruments be used, such as the mini-Clinical Evaluation Exercise, the Case Based Discussion or the Calgary Cambridge tool<sup>1</sup> and completed documents be placed in the trainee's e-portfolio. Workplace assessment of the trainee's behaviour and professionalism is normally carried out by patient surveys and feedback from colleagues and other members of the relevant multidisciplinary teams. Assessment of procedural skills, particularly endoscopic skills, needs to be documented by each trainee in conjunction with his/her trainer - this normally is performed by direct observation of the trainee's procedural skills.

Appraisal of training progression should be performed formally on a yearly basis jointly by the trainee and Educational Trainer by reviewing the trainee's logbook and evidence of attainment of competencies in knowledge, clinical skills and professional attributes and discussing other matters of relevance to completion of training. The appraisal of training before entering into the final year of training is particularly important as deficits in training can be identified and plans made to correct them; for this reason it is advisable that this particular appraisal involves an external/extra Educational Supervisor as well as the usual Educational Supervisor.

<sup>1</sup> Kurtz S, Silverman J, Benson J, Draper J, Marring content and process in clinical method teaching: enhancing the Calgary-Cambridge guides. *Acad Med* 2003;78:802-9

# CORE CURRICULUM

## OBJECTIVES

The training curriculum of the EBGH is a programme of training such that doctors who successfully complete the specialist training programme will be enabled to practice autonomously as a Gastroenterologist and Hepatologist, without ongoing supervision from another Gastroenterologist, not discounting the use of appropriate peer consultation. The curriculum is designed to train across the entire discipline of clinical Gastroenterology and Hepatology, so although trainees may develop particular clinical interests, they will also have acquired core knowledge and skills. The programme and curriculum aims to produce broadly trained specialists who will be able to deliver high quality general gastroenterology and hepatology care to their patients.

## SUB-SPECIALIST MODULES AND ADVANCED MODULES

As gastroenterology/hepatology has grown, some areas have become increasingly complex. The curriculum therefore contains modules of advanced training in Hepatology, Nutrition, Digestive Oncology and Interventional Endoscopy. These modules are not obligatory, but some trainees may wish to undertake these or components of these.

## ASSESSMENT AND RECOGNITION OF COMPETENCIES

During their training, doctors will acquire a variety of clinical competencies. The acquisition of the competencies needs to be assessed and documented initially in a formative process and thereafter in a summative and maintenance process. Valid tools for assessing and documenting the successful acquisition of competencies must be available to trainees and trainers during the programme. Although these instruments will vary throughout the European area, it is important that full documentation of competence acquisition occurs.

The accreditation of a competence is primarily the teaching responsibility of the local supervising trainer and the learning responsibility of the trainees themselves. **There is an ethical responsibility** on both the trainer and the trainee to ensure that the accreditation of any particular competence is valid from the viewpoint of patient safety - the 'primum non nocere' principle. The EBGH does not validate individual competencies for individual trainees. **The award of the Fellowship of the EBGH does not assume that each fellow has achieved competence in all areas of hepatogastroenterology, including knowledge, clinical skills or procedural skills, but that the fellow has achieved a critical mass of competence to practice as a general gastroenterologist and hepatologist and has the ability to acquire further specialised competencies as necessary.** Local patient care requirements in the various clinics, hospitals, regions and countries will determine which specialised competencies are necessary for a gastroenterology/hepatology practitioner to acquire and maintain. There is an ethical requirement on a practitioner not to care for patient conditions, or carry out procedures in which he/she, the practitioner, is not competent. This ethical requirement is not superseded by the acquisition of the Diploma of the FEBGH. Likewise, as with individual patients, correct representation of competence on the part of a practitioner to an employer or colleague is an ethical requirement.

The attainment of the FEBGH by an individual doctor does not mean that this doctor is immediately competent to practice clinical gastroenterology throughout the European area. Europe is a multi-cultured, multi-language, multi-state area. Thus an individual doctor who wishes to practice medicine in any area of Europe must be au fait with the local language, cultural context and legal framework in order to effectively practice medicine. Notwithstanding this, in European Law language is not a barrier to the entitlement of an individual doctor to practice medicine. The attainment of the FEBGH indicates that an individual doctor has achieved the clinical ability to practice gastroenterology according to international European standards, but it does not guarantee competence in local language, cultural and legal matters. To effectively practice clinical medicine and communicate with and care for individual patients, a competence in these latter aforementioned factors is necessary, but their attainment is outside the scope of this curriculum.

## BEHAVIOUR AND PROFESSIONALISM

Appropriate behaviour and clinical actions by doctors are guided by ancient and longstanding norms and ethical codes. Patients and relatives place their trust in doctors at moments when they are most vulnerable. Doctors must display a professionalism which maintains and nurtures this trust. As trainee doctors achieve increasing autonomy in patient care, it is important that they also display increasing professionalism and an increasing spectrum of generic competencies.

Gastroenterologists and Hepatologists in caring for their patients need to demonstrate the highest levels of compassion and honesty and show respect for others and not be discriminatory or judgemental. They need to be able to communicate clearly and confidentially with patients and their relatives, carers, advocates and other professionals and involve the patient in decision making, be it simple or complex. In order that no untoward harm should occur, gastroenterologists should be involved in quality assurance and audit. They should have a scholarly disposition and maintain knowledge and skills through continuing education. They will also need to display leadership, administrative, personnel management and team management skills.

During their training programme, trainees will at all times need to display appropriate behaviour and professionalism. The precise quantification of these generic behaviours is not easy as they are implicit in all actions involved in patient care, as well as actions not involving patient care. Feedback from patients themselves, as well as members of the healthcare team including colleagues, nurses, allied health professionals, administrative staff, managers and other hospital/clinic staff, provides useful information. Lapses in appropriate behaviour or professionalism by a trainee which are reported to, or come to the attention of, the Clinical and/or Educational Supervisor need to be evaluated and discussed with the trainee.

# FUNDAMENTAL GENERIC COMPETENCIES

## **PATIENT INTERACTION AND CONSULTATION-RELATED COMPETENCIES**

All interactions between a patient and a doctor may be viewed as a consultation, and there are a number of fundamental consultation-related competencies which must be acquired by the clinician. These include:

- Establishing rapport and putting the patient at ease
- Eliciting an appropriate history
- Performing a physical examination
- Making an initial diagnosis or differential diagnosis
- Arranging appropriate cost-effective and ethical investigations
- Reaching diagnostic conclusions
- Communicating clearly
- Educating and providing educational resources for the patient
- Deliberating about various management approaches including benefits, risks and alternatives
- Obtaining informed consent
- Obtaining help or second opinions from colleagues or other health professionals
- Quickly sourcing reference information
- Prescribing or recommending therapies or procedures
- Personally undertaking procedures
- Providing sensitive and empathetic emotional support
- Managing the consultation time efficiently

Throughout the duration of the training programme, the trainee's acquisition of the various consultation related competencies needs to be supported and, when successfully acquired, documented.

## **SYSTEM INTERACTION, MANAGEMENT AND ORGANISATIONAL COMPETENCIES**

The doctor-patient interaction occurs within a professional and organizational system, and a doctor must be competent in his or her relationship with these systems. Thus an array of competencies which are not directly related to the individual doctor-patient relationship and consultation must be shown. These include:

- Personal management especially time management
- Team working, including appropriate leadership, with patient care clinical team, multidisciplinary team, departmental and institutional-wide management and clinical teams
- Hospital Clinic Management including resource allocation and service development
- Ethical behaviour
- Clinical governance
- Awareness and understanding of legal framework and obligations within which clinical care occurs
- Awareness and understanding of commercial pressures and biases impacting on clinical care
- Teaching of colleagues and students
- Audit
- Research
- Public Health implications of clinical care

## **ACADEMIC ACTIVITIES**

Trainees need to have and support an attitude of active inquiry and realise the value of continuing education and knowledge generation. As evidence of this, trainees should have 2 publications or presentations at National or International level as first or second author.

# BASIC COMPETENCIES IN GASTROENTEROLOGY AND HEPATOLOGY

Gastroenterology and Hepatology trainees must be thoroughly familiar with the structures and normal functions of the gastrointestinal tract, liver, biliary tree and pancreas. To this end, they need to acquire sound theoretical knowledge of:

- Anatomy (gross and microscopic) and embryology of the liver, pancreas and gastrointestinal tract
- biochemistry, especially GI hormones and neurotransmitters
- hepatic metabolism and transport, biliary physiology and pathophysiology
- cellular turnover, growth, differentiation and death
- mucosal immunity and immunology
- pharmacology
- physiology including motility, digestion, absorption and secretion
- classical and molecular genetics
- microbiology of the normal gut and infection as a cause of disease
- epidemiology of liver and gastrointestinal diseases
- principles of preventative hepatogastroenterology
- physiological and other changes in the GI tract and liver associated with special circumstances like pregnancy or ageing and their clinical relevance.

Documentation of the acquisition of these competencies may occur formally by means of a validated examination

# COMPETENCIES AND TRAINING RELATED TO COMMON PRESENTATIONS

Evaluation and analysis of patient symptoms is the central skill of a Hepatogastroenterologist. This skill assumes the abilities to conduct a successful consultation with a patient as outlined earlier. Competent symptom appraisal leads to early diagnosis with a minimum of investigations and sometimes no investigations at all. Successful symptom evaluation rests on communication abilities combined with analytical abilities informed by knowledge of gastrointestinal physiology and pathology. The skill of symptom evaluation is a multi faceted skill which is acquired gradually and iteratively over a period of time and therefore relies on a broad and deep experience of patients and their problems. Patient symptoms may have a physical or psychological source. In gastroenterology and hepatology, the symptoms a patient presents with often have a psychological source, so the specialist must be able to evaluate this psychological source if symptom evaluation is to be complete and unnecessary and inappropriate investigative paths are to be avoided. As psychological sources for symptoms are mostly identified at patient interview with the physician (rarely by interviewing third parties), a competent specialist will know when and how to explore these sources during symptom appraisal by confident and sensitive enquiring into matters which produce psychological and emotional upset including personal relationships, family matters, work matters, childhood, housing and financial matters etc.

The trainee gastroenterologist and hepatologist thus will be required to have sufficient exposure to patients presenting with new symptoms, either in the outpatient clinic/ambulatory setting or in the emergency or inpatient setting. Training in symptom appraisal occurs almost exclusively in one-to-one case-based discussions between trainee and clinical trainer, often in the presence of the patient. These case-based discussions should be documented and the competence of symptom appraisal assessed by the trainer. Competence should be acquired in the evaluation of the following symptoms or symptoms complexes during training.

## **ACUTE ABDOMINAL PAIN**

The trainee should be aware of the neuroanatomy underlying the presentation of pain in the acute abdomen including visceral pain, somatic parietal pain and referred pain. The trainee should demonstrate ability to elicit the time basis and frequency of the pain along with location and the character, aggravating and relieving factors, relationship to eating and defaecation and associated symptoms. Clinical appraisal of acute abdominal pain should lead to an appropriate abdominal examination including rectal examination, if necessary, and inform the selection of appropriate blood and urine tests and appropriate imaging with endoscopy, CT and/or Ultrasound. The trainee should have the ability to identify and distinguish between acute appendicitis, acute biliary disease, small bowel obstruction, acute diverticulitis, acute pancreatitis, perforated peptic ulcer, acute mesenteric ischaemia, leaking or dissecting aortic aneurysm and other intra and extra abdominal causes of acute abdominal pain.

## **CHRONIC ABDOMINAL PAIN**

The trainee should be aware of the genesis of visceral pain including its modulation by the central nervous system. He/she should demonstrate the competence of taking a relevant history, particularly with respect to the Rome and Manning criteria as most chronic abdominal pain is functional. The trainee should demonstrate knowledge of the many organic causes of chronic abdominal pain and the skills to diagnose these including musculoskeletal and neural causes. The trainee should demonstrate competency in exploring personal, psychological and social matters with patients.

## **DYSPEPSIA**

The trainee should be aware of the organic causes of dyspepsia as well as the functional dyspepsia symptom complex. The importance of ALARM symptoms should be understood. The trainee should show competence in the selection of initial management strategies for dyspepsia - be it 'wait and see', test and treat for H.Pylori, empirical antacid or antiseecretory therapy or investigation, especially upper GI Endoscopy. Again, as with chronic abdominal pain, the trainee should demonstrate the ability to explore psychosocial matters with the patient if there is a likelihood that the dyspepsia is functional.

**NAUSEA AND VOMITING**

Trainees should be aware of the causes of vomiting especially extra intestinal causes particularly toxins, drugs, metabolic and infectious causes as well as functional vomiting. The trainee should also be able to elicit the clinical characteristics which may lead to an early diagnosis, especially the significance of vomiting on an empty stomach and appropriate associated symptoms.

**DYSPHAGIA, HEARTBURN, REFLUX AND CHEST PAIN**

Trainees should be able to evaluate the symptoms of dysphagia, heartburn, reflux and chest pain particularly in relation to GERD, Oesophageal Cancer and Achalasia of the Oesophagus, as well as other Oesophageal diseases. The importance of ALARM symptoms should be understood and acted upon.

**ACUTE DIARRHOEA**

Trainees should become competent in the evaluation and management of patients with acute diarrhoea, particularly in the differentiation of transitory acute diarrhoea from acute diarrhoea due to severe infection and rapid onset of Inflammatory Bowel Disease.

**CHRONIC DIARRHOEA**

The diagnostic evaluation of a patient with chronic diarrhoea can be one of the most challenging clinical tasks to be undertaken by a gastroenterologist. Trainees at the outset should show the ability to distinguish functional diarrhoea from organic diarrhoea and further subdivide the latter - watery, inflammation or fatty diarrhoea. The trainee should, in addition to evaluation by history and examination, be able to undertake investigations in a step wise and appropriate manner.

**CONSTIPATION**

Trainees should be competent in establishing whether constipation is present or not and what patients mean when they complain of constipation. The importance of the duration of symptoms along with the presence of ALARM symptoms should be understood, along with the value of clear dietary history. The trainee should be competent in assessing disorders of the colon, rectum, anus and pelvic floor along with systemic disorders and disorders of the central and enteric nervous system. In addition, it is important that the trainee be able to elicit the presence of psychological disorders such as depression and anxiety.

**UPPER GI BLEEDING**

Trainees need to be competent in determining the severity and source of upper GI bleeding and undertake necessary and timely diagnostic and therapeutic approaches (including vasoactive drugs, volume replacement, blood transfusion, therapeutic endoscopy and surgical intervention). Distinguishing variceal from non-variceal Upper GI Bleeding is a core clinical competence.

**LOWER GI BLEEDING**

As with upper GI Bleeding, it is incumbent upon trainees to develop the competence to assess the severity and source of bleeding from the lower GI tract. Ano-rectal lesions such as haemorrhoids and anal fissures are the most common cause of lower GI bleeding, and the trainee needs to be able to distinguish these from more serious causes such as Diverticulitis, Colon Polyps, Cancer and Inflammatory Bowel Disease. The trainee also needs to be aware of rare sources of lower gastrointestinal bleeding and how these are evaluated and investigated.

Iron Deficiency Anaemia may occur due to obscure occult gastrointestinal bleeding. Thus the trainee will need to be competent in diagnosing iron deficiency anaemia and distinguishing it from other types of anaemia and assessing whether dietary factors or absorption factors are involved in the genesis of the iron deficiency anaemia before embarking on invasive investigations to determine the source of an occult gastrointestinal bleed.

**JAUNDICE AND ABNORMAL LIVER ENZYMES**

A knowledge of the metabolism of bilirubin along with its laboratory analysis and measurement in serum is an essential competence that must be acquired by trainees. Trainees should demonstrate a knowledge and a clinical ability to diagnose isolated disorders of bilirubin metabolism and jaundice due to both hepatocellular dysfunction and cholestasis. The trainee should demonstrate an ability to elicit a focussed history in a patient with jaundice and/or abnormal liver biochemistry

including attention to presentation, past medical and surgical history with attention to environment history, social history, travel history and family history. The trainee should be able to recognise the physical findings associated with specific liver diseases as well as the signs of chronic liver disease. In addition it is important that the trainees can discriminate between obstructive and hepatocellular abnormalities of liver enzymes and plan an effective and efficient blood and serum work-up which will inform the selection, immediate or otherwise, of appropriate functional, imaging, and elastographic and histological investigations.

### **ANOREXIA AND WEIGHT LOSS**

Patients with weight loss often present to gastroenterologists and trainees should have the knowledge and skills necessary to diagnose the various underlying disorders and diseases. In particular, the trainee should be able to distinguish gastrointestinal causes from eating disorders and non-GI causes of weight loss such as non-GI malignancies, psychiatric disorders (depression etc), diabetes, COPD, heart failure, AIDS, renal failure and endocrine causes.

### **ASCITES**

The differential diagnosis of ascites may prove challenging. Trainees should have knowledge of the pathogenesis of portal hypertension and other causes of ascites and demonstrate the clinical skills involved in the diagnosis of the various causes of ascites including portal hypertension, hypoalbuminaemia and other disorders including ovarian disease, pancreatic ascites, bile ascites, chylous ascites, hypothyroidism, cardiac failure and dialysis-associated ascites.

### **GI OBSTRUCTION AND ILEUS**

Patients who present with GI obstruction or ileus have a varying combination of the symptoms of vomiting, constipation, abdominal pain and abdominal distension. Trainees need to be competent in distinguishing obstruction and ileus and differentiating these from GI ischaemia. In addition, they should be competent in clinically assessing patients with obstruction and ileus in order to determine the cause of the problem and, in addition, to determine whether acute surgical, acute endoscopic or medical management are appropriate. They need to be competent in selecting appropriate investigations especially imaging modalities.

# COMPETENCIES AND TRAINING RELATED TO DISEASES AND THEIR MANAGEMENT

## FUNCTIONAL AND MOTILITY DISORDERS OF THE GI TRACT

Irritable Bowel Syndrome, functional abdominal pain syndrome and functional dyspepsia are the main functional GI disorders. Trainees should gain knowledge of pharyngoesophageal, gastroduodenal, intestinal, colonic and anorectal conditions. Trainees should show competence in making a positive diagnosis of these disorders predominantly based on clinical history. Knowledge and application of the Manning and Rome criteria is important. The significance of ALARM symptoms needs to be appreciated and applied. Trainees should be skilled in history taking, using open questions and building a close rapport with the patient. In addition, they should be able to sensitively and competently enquire into psychosocial factors such as family and social environment, losses and bereavements, sexual and physical abuse, depression and anxiety and cancer phobia. Trainees should have the ability to refer to psychiatric services if necessary but culturally this is not accepted by many patients. Trainees should therefore be able to compassionately and competently discuss upsetting emotional matters with patients, so-called simply psychotherapy.

## ORO-OESOPHAGEAL DISORDERS

Trainees should have a knowledge of oesophageal motor function and its related disorders along with the pathogenesis and clinical significance of GORD, Barrett's oesophagus (especially screening protocols) and tumours of the oesophagus. In addition, they must be aware of oesophageal disorders caused by caustic agents, medications, infection and trauma along with other miscellaneous disorders of the oesophagus such as diverticula, foreign body impaction etc. They must acquire the skills to make a clinical assessment of these disorders, select appropriate investigations and devise a plan for management and follow-up. They must be familiar with the indications and interpretation of imaging modalities for swallowing disorders and also the indications and interpretations of 24-hour oesophageal pH monitoring. They should be able to incrementally prescribe for GORD including the use of 'on demand' treatment. Trainees should have a knowledge of and be able to diagnose and manage oral diseases.

## STOMACH AND DUODENUM

Trainees should have a knowledge of peptic ulcer disease and its relationship to acid secretion, the presence of H.pylori and non-steroidal anti-inflammatory drugs. The role of gastrin and gastrin-producing tumours is also of relevance. They will also need to have an understanding of gastritis and gastropathies and the relationship and non-relationship between the presence of Helicobacter pylori and symptoms. They should also show competence in the therapeutic management of ulcers associated with Helicobacter pylori infection and non-steroidal anti-inflammatory drugs, refractory ulcers and stress related ulcers. They should also be aware of the possibility of malignant gastric ulcers and be able to manage complications of peptic ulcer disease including haemorrhage, perforation and obstruction. In addition, they need to be aware of and be able to manage the long-term complications of gastric surgery for peptic ulcer disease and surgical procedures performed for obesity (bariatric surgery).

Trainees also need to show competence in the diagnosis and management of stomach polyps and tumours including premalignant conditions. They need to be aware of the staging of gastric cancer and treatment options including surgical therapy, endoscopic therapy, chemotherapy and radiation. They should also have knowledge of gastric lymphomas, carcinoid tumours, gastro intestinal stromal tumours and other tumours of the stomach.

## PANCREATIC DISORDERS

Trainees should demonstrate the knowledge and skills to be able to manage acute and chronic pancreatitis including hereditary, familial and genetic disorders of the pancreas. Trainees should demonstrate the ability to assess the severity of acute pancreatitis clinically, metabolically and radiologically, including complications such as infective necrosis, pseudocysts and portal vein

thrombosis. During the long and varying course of acute pancreatitis, they should be able to manage the complications pharmacologically and advise on nutritional support, appropriate radiological drainage and surgical debridement procedures as appropriate. In Chronic Pancreatitis, they should be able to prescribe appropriate enzyme replacement therapy and analgesia and advise on the need for nerve blocks etc. In addition, they should be skilled in the diagnosis and management of pancreatic tumours.

## **BILIARY TRACT DISORDERS**

Trainees should demonstrate knowledge in the physiology and biochemistry of bile formation and the pathogenesis of gallstones. They should be able to recognise the symptoms and signs of the complications of gallstones disease including biliary colic, acute cholecystitis, bile obstruction and cholangitis. They should be able to distinguish between symptomatic and asymptomatic gallstones and understand the clinical implications of this differentiation. They should know the various treatment options and their complications and the indications for operative and non-operative management. A knowledge of sclerosing cholangitis and other causes of cholangitis is necessary, along with that of tumours of the bile duct, gall bladder and ampulla. Trainees should be aware of the indications and complications of endoscopic and radiological treatment of biliary disease.

## **LIVER**

All prospective specialists in gastroenterology and hepatology should receive basic training in hepatology. Some trainees may opt to undertake an advanced module in hepatology which particularly will involve training in therapy of viral hepatitis, severe liver failure, endovascular intervention and liver transplantation. Basic training should make it clear to the trainees when advanced competencies are necessary and when more specialised hepatology services should be involved in patient care. Trainees should understand the micro-anatomy, physiology and biochemistry of the liver as it relates to disease process. They should recognise and understand the patterns of presentation of liver disease including altered transaminases, jaundice, fulminant hepatitis and liver failure, acute hepatitis, chronic hepatitis, cirrhosis, iron and copper overload, intra- and extra-hepatic cholestasis, cholangitis, infiltrative liver diseases, vascular liver diseases (especially hepatic and portal vein obstruction), abscesses/localised infections and tumours. They should be able to elicit the symptoms experienced by patients with these various presentations and the relevant physical signs and identify the patterns of abnormalities of blood tests, imaging, elastographic, functional and histological evaluation.

They should understand the causes of acute hepatitis, including viral, drug and toxin induced, alcohol induced, and auto immune liver disease and be able to put in place an appropriate plan for the investigation and management of these diseases including the role of serological investigation, non-invasive tests and liver biopsy. They should be able to investigate the causation of liver disease in a structured manner.

Trainees should be able to apply prognostic scoring systems in acute liver disease especially in acute paracetamol toxicity and alcoholic hepatitis. They should develop the ability to treat hepatotoxic poisoning with antidotes. They should be able to identify and manage patients with acute alcohol withdrawal symptoms and distinguish this presentation from the many other causes of encephalopathy/coma and acute cognitive impairment in alcoholics.

With viral hepatitis, trainees should recognise 'at risk' patients and be able to interpret serological testing and its implications for infectivity and chronicity. They should have knowledge about the prevention of viral hepatitis and vaccination schedules. They should be aware of international and European guidelines on the management of viral hepatitis and the use of anti-viral drugs and the need for expert clinician involvement in patient care. Many trainees will achieve competence and experience in the management of Hepatitis B and Hepatitis C, and the details of this are included in the Advanced Hepatology Module.

They should also gain competence in the recognition and management of auto immune liver disease, metabolic liver disease (especially fatty liver disease), drug-induced liver disease, and the indications for liver biopsy in these conditions. Trainees should be able to diagnose the presence of liver cirrhosis in patients presenting with chronic liver disease and define the underlying cause in conjunction with histopathology and/or radiology consultation as necessary. They should have experience in the management of hereditary forms of liver disease (e.g. Haemochromatosis, Alpha 1 Anti Trypsin Deficiency and Wilson's Disease). Trainees should develop the ability to assess the changes in liver function during pregnancy and identify and manage pregnancy-related liver diseases (e.g. benign cholestasis, acute fatty liver of pregnancy and HELLP syndrome). With alcohol-induced liver damage, trainees should develop the abilities to differentiate and manage

the various different clinical scenarios including elevated transaminases, fatty liver, acute hepatitis and established cirrhosis. They should be able to co-ordinate a multi-disciplinary approach to the management of alcoholic liver disease, including liaison with psychiatry.

Trainees will need to become competent in the initial management of the complications of cirrhosis, including variceal bleeding, portal gastropathy, ascites, spontaneous bacterial peritonitis, hepato renal syndrome, hepatic encephalopathy and bacterial infections.

In patients with portal hypertension, trainees should develop the ability to determine the severity of the condition and the patency of the splanchnic vasculature. They should be able to identify the clinical presentation of hepatic vein (Budd-Chiari Syndrome), portal vein and splenic vein thrombosis, and congestion. Trainees should acquire the ability to manage acute variceal bleeding along with the primary and secondary prophylaxis of variceal bleeding and assessment of ectopic varices.

Trainees will need to be competent in making objective assessment of nutritional status in patients with liver disease and undertake nutritional support as necessary in conjunction with a nutritional multi disciplinary team.

Trainees will need to know the indications for liver transplantation and transfer to special care units of patients with fulminant, acute and chronic liver disease and how prognostic scoring indices are used in the pre-assessment of liver transplant patients. Trainees will need to be able to temporarily care for pre and post-liver transplant patients and liaise decisively with liver-transplant hepatologists.

Trainees will need to have gained competence in the assessment of patients with primary and secondary liver cancer including the guidelines for surveillance for hepatocellular carcinoma in cirrhosis. They should have knowledge of treatment principles for primary tumour and metastasis with surgery, chemotherapy (general and local), transplant, local ablation and radiotherapy, as well as targeted treatment.

### **SMALL INTESTINE**

Trainees should gain competence in the management of disorders with global malabsorption and specific nutrient malabsorption especially Coeliac Disease. They should be able to manage infections of the small Intestine including small bowel bacterial overgrowth, acute bacterial infections and infections with parasites, worm infestations and tropical diseases including Whipple's Disease. They must have knowledge of and experience, if possible, of small intestinal ulcerating diseases and tumours. They must have experience of the management of Crohn's Disease and the short gut syndrome. They should have knowledge of video capsule, double-balloon enteroscopy and CT/MRI small bowel imaging.

### **LARGE INTESTINE**

With the increasing incidence of infectious diarrhoea and antibiotic related diarrhoea, especially *Clostridium difficile*, trainees need to gain confidence in the clinical management of this disease, including infection control and public health considerations. Trainees must be competent in managing Diverticular Disease and intestinal ischaemia and other miscellaneous diseases of the colorectum including diseases of the ano-rectum. They must be competent in dealing with colorectal polyp syndromes and colorectal cancer diagnosis and be aware of oncological and surgical management.

### **INFLAMMATORY BOWEL DISEASE**

Trainees must be competent in the diagnosis, differential diagnoses and therapeutic management of Ulcerative Colitis and Crohn's Disease. They must be competent in assessing the severity and extent of these diseases and be able to select appropriate imaging modalities. They should be able to undertake iterative protocols for the therapeutic management of these conditions with experience in the selection of and ongoing monitoring of the most appropriate treatment. Trainees should show proficiency in the rapid detection of fulminant colitis and in its decisive management. They must be competent in communicating with the patient about both of these illnesses which are chronic and not fully curable and are reliant on an intense doctor/patient relationship for successful management. They should show competence in consulting with surgeons early in the course of fulminant colitis and appropriately for patients with chronic unresponsive disease, as well as consulting with nutritionists and specialist nurses as appropriate. The trainee must be familiar with the management of local and extraintestinal manifestations of these diseases.

## **RADIATION AND CHEMOTHERAPY INDUCED ENTEROPATHIES**

Trainees should be aware of, and where necessary demonstrate, competence in the diagnosis and management of acute intestinal and colonic radiation damage and in the progressive long term sequelae of this injury. They should be able to advise on the value of bowel resection or bypass and nutritional support if necessary. They should have a knowledge of and be able to recognise and manage the effects of chemotherapeutic drugs on the gut, particularly in immunocompromised patients.

## **ANORECTAL DISEASE**

Trainees should gain knowledge of and be able to diagnose and manage organic diseases affecting the anorectum (including haemorrhoids, fissures, abscesses, fistula, solitary rectal ulcer, pruritis, infections and tumours) and functional disorders (including pain/discomfort, incontinence and outlet obstruction). The trainee must be familiar with the appropriate surgical options in the management of these conditions.

## **CONDITIONS INVOLVING SYSTEMIC DISEASES, GENETIC DISEASES, MULTIPLE ORGANS AND THE ELDERLY**

With the average age of the population rising and a larger proportion of people living into old age, the trainee gastroenterologist/hepatologist needs to have knowledge of involutionary changes in the GI tract and liver and be able to manage clinically relevant conditions in the elderly. Trainees will need to have knowledge and experience of clinical genetics as it impacts on GI and liver disease and be able to provide genetic counselling and liaise with and refer to genetic counselling services as appropriate.

The GI tract and liver are often involved in systemic conditions including infectious, endocrine, haematological, infiltrative, rheumatological and vascular diseases. The trainee should have knowledge of these conditions and be able to manage these patients from a hepato-gastroenterological perspective.

## **NUTRITION**

Trainees should be familiar with the basic principles of clinical nutrition including body composition and calorie and nutrient requirements. They should be able to assess malnourishment and nutritional deficiencies including micronutrients. They should have an ability to initiate and follow-up appropriate basic enteral and parenteral feeding and take care of nutritional matters peri-operatively and towards the end of life. They should be able to initiate nasogastric feeding at the bedside.

# ENDOSCOPY TRAINING

Endoscopy Training is not solely about the acquisition of motor skills to complete procedures. It involves a much broader range of knowledge and generic skills, the acquisition of which is often underestimated.

## FUNDAMENTAL CLINICAL AND GENERAL SKILLS AND KNOWLEDGE FOR ENDOSCOPY

- Appropriateness and correct indications
- Informed consent including difficult complex consent situations
- Patient safety and comfort assessment and measurement
- Safe administration of sedation including its monitoring, e.g. Ramsey Scale of Sedation
- Communication with patients before and after procedure, especially communicating 'bad news'
- Patient Aftercare
- Endoscope design, function and capabilities
- Use and complications of diathermy
- Endoscopic unit design and management including finance and personnel
- Endoscope decontamination
- Quality Measures of outcome

## SPECIFIC ENDOSCOPY SKILLS

Trainees should be able to recognise endoscopic abnormalities and be able to use severity scores for these abnormalities.

### 1. Upper GI Endoscopy

- Diagnostic Endoscopy with biopsy and vital staining
- Therapeutic Endoscopy
  - Hemostasis techniques (ligation, thermal haemostasis, injection techniques, clip insertion)
  - Balloon dilatation
- PEG insertion and retrieval

### 2. Lower GI Endoscopy

- Diagnostic lower endoscopy with biopsy and vital staining
  - Proctoscopy, Rectoscopy
  - Sigmoidoscopy
  - Total Colonoscopy
- Therapeutic Endoscopy
  - Snare Polypectomy
  - Hemostasis techniques (e.g. ligation, endoloop, thermal hemostasis, injection techniques, clip insertion)
  - Balloon dilatation of stenosis

During the basic endoscopic training, a minimum number of procedures needs to be carried out by the trainee:

Diagnostic esophago-gastro-duodenoscopy	200
Haemostatic techniques for esophageal varices and other upper GI-bleeding	30
Diagnostic total colonoscopy	200
Diagnostic sigmoidoscopy	50
Rectoscopy/Proctoscopy	50
Polypectomy and hemostatic procedures in the lower GI-tract	50
Balloon dilatation (upper and lower tract)	10
PEG	15

As well as carrying out the minimum number of procedures, the competence in these procedures must be validated according to local, national or international criteria.

# ULTRASOUND

The EBGH is unanimous in the belief that training in ultrasound techniques is highly desirable for specialists in hepatogastroenterology. The Board, however, recognises that there are still centres throughout Europe in which this training is not available. In these conditions, links have to be made with radiological colleagues or/and hepatogastroenterology colleagues inside or outside centres in order to find ways to secure ultrasound training for those trainees who are interested. The trainee should have carried out 200 abdominal examinations to achieve competence during his/her formation. Training in abdominal ultrasound is a prerequisite for training in endoscopic ultrasound (EUS).

In all European Countries, the appropriate use of abdominal ultrasound is central to patient care. In some countries, personal 'hands-on' training in abdominal ultrasound is mandatory for hepatogastroenterologists; whereas in other countries, it is not. The EBGH believes that all trainees in all countries should aspire to a personal 'hands-on' proficiency in abdominal ultrasound and take steps to acquire this proficiency as far as is practical. As mentioned previously, those hepatogastroenterologists who have acquired the FEBGH have an ethical responsibility not to misrepresent their procedural or other proficiencies.

# PERCUTANEOUS LIVER BIOPSY

Increasingly, percutaneous liver biopsy is aided and directed by simultaneous ultrasound. Non-ultrasound directed liver biopsy, however, is still performed for local reasons with decreasing frequency. During his/her training period, a trainee should have carried out 20 percutaneous liver biopsies, either with or without the aid of ultrasound depending on local or national practice.

# ADVANCED TRAINING MODULES

During the four year higher specialist training in hepatogastroenterology, trainees may wish to have more intensive training in certain aspects of the speciality. They may wish to undertake these modules concurrently with the basic hepatogastroenterology training or have a dedicated period of up to one year of training in these modules. In particular, there are four areas which attract special attention by both trainers and trainees because of their clinical significance. These are Hepatology, Nutrition, GI Oncology and Interventional Endoscopy. The EBGH herein has developed a detailed curriculum for these four modules. The basic curriculum contains essential elements of all these four advanced modules. Thus trainees may, depending on local training and personal circumstances, develop competence in components of the advanced modules or may, if they wish, concentrate on wholly completing the curriculum in one advanced module. Trainees may also complete training in Advanced Modules also in a dedicated period after the acquisition of the basic diploma. The advanced modules are not stand-alone training modules; training in these advanced modules pre-supposes that the basic training in hepatogastroenterology is being undertaken successfully. Likewise, some competencies mentioned in these Advanced Modules may be successfully acquired by trainees completing the core basic curriculum even though they have not completed an entire advanced module curriculum.

The practicalities of training Documentation, Supervision, Assessment and Appraisal as outlined previously also apply to the Advanced Training Modules.

# ADVANCED HEPATOLOGY CURRICULUM

## INTRODUCTION

During the dedicated year of formation the trainee is expected to widen and deepen her or his knowledge and experience in all areas of hepatology covered by the basic core curriculum. In addition the trainee should get wide experience and develop specific clinical competence in the following six areas:

1. Liver transplantation.
2. Intensive care management of patients with fulminant hepatic failure.
3. Intensive care management of patients with acute-on-chronic hepatic failure.
4. In-depth management of viral hepatitis B and C including management of viral resistance.
5. Management of patients with severe portal hypertension, to include specialized investigation methods and treatment such as portal pressure measurements, transjugular liver biopsy and TIPS, expanding esophageal stents, and the Sengstaken Blakemore tube.
6. Nutritional counsel to patients with chronic liver disease, prior to and after transplantation, and to patients with co-morbidities in addition to liver disease.

## LIVER TRANSPLANTATION

It is expected that the trainee will be directly involved in the pre-, peri- and post-transplant care of at least 10 to 15 liver transplant patients during this year.

- Knowledge of indications for liver transplantation - acute and chronic disease.
- Knowledge about the principles of living donor selection, including appropriate surgical, psychosocial and ethical considerations and questions related to living donors, non-heart-beating donors, criteria for brain death and appropriate recipients.
- Knowledge of the scoring systems used in transplant assessment e.g. MELD and Child-Pugh scores and eligibility criteria for hepatocellular carcinoma and the ability to apply these.
- Knowledge of the evaluation and management of hepato-pulmonary syndrome, porto-pulmonary hypertension and cirrhotic cardiomyopathy.
- Knowledge about transplant immunology, including blood group matching, histocompatibility, tissue typing and application of standard and second line immunosuppression and their infectious and malignant complications.
- Ability to detect and manage primary graft non-function, early cellular graft rejection and later ductopaenic chronic rejection.
- Knowledge of the common liver biopsy findings post transplant and the scoring systems used in assessment.
- Ability to manage early and late complications requiring medical, endoscopic or surgical intervention.
- Ability to communicate relevant patient/relative information concerning the disease, its treatment and prognosis.

## INTENSIVE CARE MANAGEMENT OF PATIENTS WITH FULMINANT HEPATIC FAILURE

- Knowledge of the clinical course and prognosis in acute and subacute liver failure respectively, particularly paracetamol poisoning, other drug and toxin induced damage, ischemic hepatitis, shock liver, fulminant viral and autoimmune hepatitis and post-liver transplant
- Ability to manage dehydration, cerebral oedema, hypoglycaemia and electrolyte imbalance
- Ability to identify signs of poor prognosis and criteria for acceptance into a special care unit
- Ability to identify and manage life-threatening liver disease in pregnant women
- Ability, using internationally validated scoring scales, to identify and care for patients needing urgent/emergency liver transplantation.
- Ability to communicate relevant patient/relative information concerning the disease, its treatment and prognosis

## **INTENSIVE CARE MANAGEMENT OF PATIENTS WITH ACUTE-ON-CHRONIC HEPATIC FAILURE**

- Trainees should acquire the competencies to manage patients with severe acute liver disease, especially liver failure in an ICU setting with (or without) the collaboration of respiratory physicians or those physicians supervising and managing artificial ventilation
- Trainees should have the ability to wholly assess multiple organ function, impairment and failure including the cardiovascular, GI, neurological, respiratory and renal systems in ventilated patients and manage the support of these systems appropriately
- Trainees should seek to acquire competence in invasive procedures required in ICU patients including endotracheal tube, central line and arterial line insertion
- Knowledge of liver support techniques including artificial support
- During the year trainees should be personally responsible for the management of at least 5 patients in intensive care for the management of fulminant hepatic failure and at least 10 patients in intensive care for the management of acute-on-chronic liver failure
- Knowledge of intensive prognostic scoring systems including the apache score and SOFA score
- Responsibility for the management of at least 10 post-operative liver transplant patients in intensive care or high dependency units
- Ability to assess and treat coagulation disorders in severely ill liver patients.
- Ability to communicate with patients, advocates and relatives in ICU settings.

## **VIRAL HEPATITIS**

- Knowledge of epidemiology, clinical courses and prognosis in acute and chronic viral hepatitis
- Ability to carry out patient assessment and interpretation of blood work including examination for relevant viruses and genotypes
- Detailed knowledge of and ability to correctly treat Hepatitis B and C - taking into account indications, side effects and expected treatment outcomes. Trainees are expected to be familiar with EASL, AASLD and National treatment guidelines
- Knowledge of the liver biopsy findings and the scoring systems in viral hepatitis
- Knowledge of the assessment and treatment of combined viral disease infection e.g. HIV / HCV co-infection, HBV HDV and HCV HBV co-infection
- Management of prophylaxis of stab wounds, needle-stick injuries, conditions concerning pregnancy and advice concerning travel abroad
- Ability to communicate relevant patient information regarding risks of infection, treatment options, side effects and prognosis.

## **AUTO-IMMUNE LIVER DISEASE**

- Knowledge of assessment and clinical course for patients with progressive autoimmune hepatitis, primary sclerosing cholangitis, primary biliary cirrhosis and overlap syndromes
- Ability to interpret liver biochemistry, auto antibodies and histology in preparation for conclusive diagnostics, treatment and monitoring in complicated and progressive scenarios
- Ability to deliver treatment to patients with uncomplicated and complicated disease, and ability to offer further treatment options in case of treatment failure.

## **MANAGEMENT OF PATIENTS WITH SEVERE PORTAL HYPERTENSION**

- Ability to complete patient assessment in preparation for diagnostics of the severity of the condition and the anatomical state of the portal vein and other splanchnic vessels
- Experience with rescue treatment including glue injection and acute TIPS for initially unresponsive bleeding oesophageal or gastric varices
- Experience in the management of ectopic varices e.g. stomal varices and portal hypertensive gastropathy.

## **RESISTANT ASCITES AND ITS COMPLICATIONS**

- Ability to deliver treatment for resistant ascites including salt-poor diet, fluid restriction, diuretics, paracentesis and TIPS
- Ability to manage the complications of resistant ascites (tense ascites, spontaneous bacterial peritonitis, hydrothorax, hernia development)
- Ability to diagnose and treat progressive hepatorenal syndrome. Ability to diagnose and to distinguish it from dehydration and other causes of renal failure
- Knowledge and experience of clinical course and prognosis with or without spontaneous bacterial peritonitis
- Knowledge of the increased operative risk in patients with chronic liver disease

## **SEVERE HEPATIC ENCEPHALOPHATHY**

- Ability to take relevant medical history regarding clinical course, earlier episodes, possible trigger mechanisms, other complications of cirrhosis and relevant differential diagnostic considerations
- Ability to carry out focused physical examination with emphasis on signs of cirrhosis, portal hypertension, evaluation of HE and alternative causes for altered level of consciousness
- Ability to complete patient assessment with reference to the severity of the condition, trigger mechanisms and exclusion of possible relevant alternative causes of altered level of consciousness
- Ability to plan and implement initial treatment of HE
- Ability to plan course of treatment including prevention of new episodes of HE as well as mapping other complications in cirrhosis, including application of clinical scores (i.e. Child-Pugh)
- Ability to inform the patient concerning treatment, side effects and prognosis and of what the patient and relatives must be aware of in order to prevent new episodes
- Knowledge of epidemiologic and prognostic conditions including the significance of whether HE forms a part of an acute or chronic disease
- Knowledge of trigger mechanisms of HE and its treatment in patient with cirrhosis
- Knowledge of possible prevention of HE, including the precautions the patients should take
- Knowledge of the implication of infection in cirrhosis
- Knowledge of HE treatment principles in acute liver disease

## **ADVANCED CLINICAL NUTRITIONAL THERAPY IN LIVER DISEASES**

- Relevant capability to evaluate severity and clinical course for patients with hepatic malnutrition
- Ability to evaluate severity and type of malnutrition (e.g. BMI, biochemistry, muscular fullness, Subjective Global Assessment) and identify the nutritionally challenged patient
- Ability to carry out patient assessment that considers underlying disease, in order to evaluate protein and energy needs as well as the need for micronutrition supplements etc
- Ability to correctly prescribe enteral and parenteral nutritional therapy (including hyperalimentation in hepatic malnutrition) with reference to substitution or curative treatment, including assessment of complications of the treatment
- Ability to communicate relevant patient/relative information concerning the disease, its treatment and prognosis.

## **INFILTRATIVE LIVER DISEASE**

- Knowledge of and capability to manage or direct management of infiltrative diseases of the liver including storage diseases, granulomatous diseases and haematological diseases
- Knowledge of and capability to manage or direct management of localized infectious diseases of the liver including bacterial liver abscesses, amoebic abscesses and hydatid cysts.

**PRIMARY AND SECONDARY LIVER CANCER - ADVANCED MANAGEMENT**

- Knowledge of causes and epidemiologic conditions
- Ability to carry out initial diagnostics, stage classification and assessment regarding resectability utilising tumour markers, endoscopy, radiological diagnostics (including operational radiological diagnostics) and histology
- Knowledge of clinical course and outcome of primary and secondary liver cancer (from gastrointestinal cancer, neuroendocrine tumors, lung cancer and breast cancer)
- Knowledge of and experience of complications of e.g. portal vein thrombosis, extrahepatic metastases, malignant ascites, icterus, carcinoid syndrome/paraneoplastic syndromes
- Knowledge and application of screening protocol for hepatocellular carcinoma in cirrhosis
- Knowledge and application of assessment strategy after radiological diagnostic detection of liver tumor
- Knowledge of and application of treatment principles for primary tumour and metastases with surgery, chemotherapy (general and local), transplant, local ablation, radiotherapy as well as targeted treatment
- Ability to communicate relevant patient/relative information concerning the disease, its treatment and prognosis

**PROCEDURAL SKILLS**

Overall Procedural Skills the trainee should acquire can be summarised as follows:

- Liver Biopsy
- Transjugular liver biopsy
- Hepatobiliary ultrasound
  - ▶ Contrast enhanced
  - ▶ Interventional (biopsy, abscess or cyst drainage)
- Fibroscan
- Insertion and management of expanding distal oesophageal stents
- Insertion and Management of Sengstaken - Blakemore tube
- Variceal ligation and in the relevant clinical scenario, sclerotherapy
- Hepatic venous and portal pressure measurements
- Insertion of TIPS
- ERCP
- Endoscopic Ultrasound

# ADVANCED NUTRITION CURRICULUM

During their 4 year general gastroenterology and Hepatology training, trainees may have a period of intense training in a variety of modules (sub specialities), one of which is nutrition. A module of intense training in nutrition may occur over a period of 3-6 months or more during which the trainee may also be involved in general gastroenterology training also. Trainees should develop experience with a broad spectrum of patients requiring nutritional support, for instance those with severe malnutrition, pre- and post- operative patients, critically ill and septic patients, patients with severe IBD, hepatic or renal disease, patients with pancreatitis, patients with burns, patients with cancer, cardiac or pulmonary disease, patients with diabetes, pregnant patients etc. This intense module in nutrition should occur in a unit in which at least one consultant hepatogastroenterologist has a special interest in nutrition and works with a multi professional nutrition support team (including doctor, nurse, dietician and pharmacist). Trainees will also be expected to have attended national and/or international training courses or conferences with an emphasis on nutrition.

During this module, trainees should become an integral member of the nutrition support team and fulfil the following roles:

- Attend weekly nutrition ward rounds
- Review and supervise nutritional needs of patients between ward rounds and provide clinical input at ward rounds
- Assess patients for consideration of gastrostomy placement
- Assess patients for consideration of parenteral and enteral nutrition

Trainees will be expected to maintain an e-logbook

## COMPETENCIES

### General

- Knowledge about body composition, fluid and electrolyte balance, energy homeostasis, micro- and macronutrient requirements and their measurement
- Understand the clinical and metabolic sequelae of malnourishment on a macro level and for specific nutrients
- Clinical and laboratory assessment of nutritional status including overall nutritional state and specific micronutrient deficiencies
- Ability to assess a patient's requirements for fluid and electrolytes, macro- and micro-nutrients and trace elements in various clinical situations and disease states, especially those associated with injury, inflammation, sepsis and stress
- Understands and has the ability to recognise, prevent and manage refeeding syndrome
- Ability to assess and investigate weight loss and distinguish GI and non-GI causes of weight loss
- Knowledge of and ability to implement strategies for management of obesity

### Team Working

- Ability to form or join a multidisciplinary nutrition support team composed of clinician, nurse, dietician, pharmacist and others as appropriate
- Ability to take the lead role in a multidisciplinary nutrition support team
- Ability to work closely with colleagues whose patients require nutrition support, especially hepatogastroenterologists, surgeons, oncologists, palliative care physicians and intensive care physicians.

### Dysphagia

- Ability to clinically assess the causes of dysphagia and assess swallowing using imaging modalities if necessary
- Ability to determine the short-term and long-term prognosis in patients with dysphagia.

### Intestinal Failure and Adaption

- Can clinically recognise, investigate, classify and grade the severity of intestinal failure
- Understands the process of adaption to intestinal failure and its progress over time
- Understands and can assess clinically fluid absorption and secretion in the GI tract in health and various disease states including post-surgical acclimatization, the effects of stomas and fistulas and the importance of colonic continuity
- Can diagnose and manage intestinal dysmotility associated with neuropathy, myopathy, scleroderma, amyloid, diabetes and congenital motor dysfunction.

**Short Bowel Syndrome and Post-Surgery Problems**

- Understands and has the ability to assess the degree of macro- and micro-nutrient deficits including fluid balance in patients with short bowel syndrome with and without colonic continuity
- Understands and can advise on the use of oral glucose-saline solutions, magnesium oral preparations, subcutaneous replacement and pharmacological anti-secretory and anti-diarrhoea agents
- Understands and can advise on the appropriateness or not and the timing of surgical solutions
- Is aware of and can manage the metabolic and non-GI complications of the short-gut syndrome including rapid dehydration, renal failure with sudden GI upset, gallstones, renal stones, liver fibrosis, osteoporosis, d-lactic acidosis and progressive slow malnourishment
- Is able to manage complex post-surgery complications especially enterocutaneous fistulae, wound dehiscence, prolonged ileus, intestinal obstruction and continuing sepsis and to advise when is best to re-operate if necessary.

**Enteral Nutrition (EN)**

- Knows and is able to deliver EN by the correct method in preference to parenteral nutrition (PN) in patients with residual intestinal function appropriately
- Can determine when EN is not being a success and when PN is preferable
- Can transfer a patient from PN to EN appropriately
- Knows about the composition of various EN preparations and can prescribe them appropriately in varying circumstances, e.g. in patients with fistulas and short gut syndrome.

**Parenteral Nutrition (PN)**

- Knows when EN is likely to be unsuccessful and is able to deliver PN in preference to EN in these situations
- Can prescribe appropriate PN regimes (peripheral or central) for patients taking into account calorie requirements and other macro and micro-nutrient requirements
- Knows the principles of feeding bag composition, make-up limitations, compatibilities and the different systems for PN and admixtures
- Is aware of varying catheter types and their ports, the practice of strict aseptic techniques and the care of catheters including possible complications
- Can diagnose and care for catheter problems and complications including septicaemia, exit and tunnel infections, central vein thrombosis and obstructed catheters
- Can recognise adverse metabolic sequelae of PN, including osteoporosis, gallstones and abnormal liver biochemistry, and can distinguish this from the more common causes of abnormal liver biochemistry which occur in patients receiving PN
- Can institute home parenteral nutrition (HPN) including assessing and directing the financial and supply logistics, educating the patient, preventing and managing ongoing problems with sepsis and venous access in conjunction with a HPN team.

**Ethical Considerations and Nutrition towards the end-of-life**

- Knows the ethical considerations (as promulgated by local/national Physicians body and others) and local/national legal considerations surrounding nutritional support as appropriate
- Is able to assess the benefits, disadvantages and outcome of nutritional support in patients with advanced cerebral dysfunction, those unwilling to eat and those with advanced incurable diseases including cancer
- Can determine whether a patient is mentally competent to make decisions regarding his/her medical care, including nutritional support and if so to respect these decisions
- In the instance where patients are unable to make decisions about their own care, to make decisions about the nutritional and medical care of the patient taking into account previous decisions and directives of the patient and the input of authorized patient advocates, the patient's spouse and family and other relevant people according to local, legal and ethical frameworks
- Can compassionately and honestly discuss these matters with the patient and/or other relevant people.

**Procedures**

- Nasogastric tube insertion endoscopically
- Nasojejunal tube insertion endoscopically
- Placement of Percutaneous Endoscopic Jejunostomy (PEJ) tube
- Central intravenous line insertion (jugular or subclavian)
- Peripheral intravenous long-line insertion
- Tunnelled insertion of intravenous central line
- Unblocking of obstructed PEG/PEJ tube
- Unblocking of blocked venous lines
- Removal of cuffed intravenous feeding line.

# DIGESTIVE ONCOLOGY CURRICULUM

The proportion of patients with cancer presenting to hepatogastroenterology care is increasing. An ever-widening array of management modalities, of varying efficacy, are being advocated for GI and liver cancers, and patients are requesting access to these. HGE-specialists are not comfortable with their care of these patients being limited to a diagnostic role, and increasingly, for the sake of continuity of patient care, which involves management of associated GI and liver problems, hepatogastroenterologists are becoming intimately involved in the ongoing care of their patients with cancers and providing cancer therapies. Patients with colorectal, oesophageal, pancreatic, gastric, liver and biliary tract cancers are frequently encountered by hepatogastroenterologists. In order to care for these patients, hepatogastroenterologists need to be able to confirm the diagnosis (including grade and stage), deliberate with the patient regarding treatment options, select the agreed treatment and administer it safely and efficiently. In addition, they will be involved in endoscopic management, nutritional support, amelioration of treatment side effects, symptom palliation, emotional support and end-of-life care.

Thus all hepatogastroenterologists must receive exposure to patients with GI and liver cancers and receive training in the care of these patients. Some hepatogastroenterologists may wish to have intensive training in digestive oncology such that they can safely, efficiently and effectively completely diagnose gastrointestinal and liver cancers and administer potentially toxic therapies such as chemotherapy and other agents. In addition, patients with gastrointestinal and liver cancer may need highly advanced and technical endoscopic therapeutic procedures, and these should be delivered by practitioners who are competent in these procedures; these endoscopists may or may not be the patient's primary digestive oncologist.

Training should occur in Hepatogastroenterology Units with a special interest in Digestive Oncology which have a critical mass of patients needing ongoing care both as in-patients and out-patients. Trainees undertaking the Digestive Oncology Advanced Module should complete one year of training in a Digestive Oncology Centre out of their four-year specialist Hepatogastroenterology Training. Involvement in a one-year Digestive Oncology Advanced Module pre-supposes that the basic training in Hepatogastroenterology is being or will be undertaken.

## COMPETENCIES

### 1. General

- Knowledge of the basic biological behaviour of tumours including initiation, evolution and progression
- Knowledge of primary and secondary prevention of digestive tumours along with hereditary cancers and polyposis syndromes
- Knowledge of and the ability to use or deploy the modalities necessary to detect and diagnose liver and GI malignancies including clinical appraisal, endoscopy (including narrow band imaging and chromoendoscopy), ultrasound (including contrast enhanced imaging and endoscopic ultrasound), computerised tomography, MRI scanning, PET and radionuclide scanning
- Knowledge of and ability to stage according to recognised classification (e.g. TNM) the large array of liver and GI tumours, in association with imaging specialist practitioners as necessary
- Knowledge of and ability to lead multidisciplinary teams involved in the assessment of tumour diagnosis, staging and grading and initial selection of care options for patient (i.e. with radiologists, histopathologists, endoscopists, surgeons, radiotherapists, palliative care physicians etc)
- Ability to honestly, sensitively and compassionately deliberate with patients regarding the advantages, disadvantages and outcome of various treatment options, including comfort/palliative support alone with no tumour-directed treatment
- Ability to obtain and document informed consent regarding treatment approaches
- Ability to work with and lead care-management teams including nurses, physiotherapists, nutritionists, other oncologists, radiotherapists, surgeons, other endoscopists and palliative care physicians
- Ability to correctly sequence treatment when multi-modality care is appropriate - e.g. surgery before or after chemotherapy
- Ability to deliver palliative symptom relief for a wide array of problems due to the tumour itself or its complications and the complications of treatment, but particularly pain relief management of intestinal obstruction, drainage of malignant ascites and appropriate nutritional and hydration care

- Ability to care for the patient's emotional concerns and reactions
- Ability to deal with end-of-life matters
- Ability to communicate with and reassure the patient's family, relatives, friends and loved ones, including the patient's lawyers and advocates as necessary.

## **2. Administration of Chemotherapy Agents**

- Knowledge of chemotherapeutic agents, their intended effects, side-effects, benefits and disadvantages, as well as methods of delivery
- Knowledge of and ability to safely handle (personally and for others) chemotherapeutic agents including storage, transport, make-up and compatibilities
- Ability to safely determine and/or manage dosage regimes, infusion rates, sequential infusions and 'rescue' therapy for chemotherapeutic agents
- Ability to safely administer chemotherapeutic agents intravenously including vein selection (central or large veins), vein cannulation and avoidance of extravasation
- Ability to rapidly detect and deal with extravasation of chemotherapeutic agents
- Ability to safely administer chemotherapeutic agents via non-intravenous routes as necessary, e.g. intraperitoneal and intrathecal
- Ability to quickly and decisively detect and manage reactions to chemotherapeutic agents during or immediately after administration
- Knowledge of and ability to manage the side-effects of chemotherapy particularly mucositis and sepsis in the immunocompromised patient.

## **3. Prescription and Administration of Biological Agents**

- Detailed knowledge of the efficacy, advantages, disadvantages, side-effects and routes of administration and the ability to select and administer the appropriate biological agents used in digestive oncology (of which there is an increasing array).

## **4. Radiotherapy**

- Knowledge of the benefits, problems, advantages, disadvantages and outcomes of radiotherapy in the treatment of selected GI and liver tumours
- Ability to confer with radiotherapists regarding selection of radiotherapy programmes for appropriate liver and GI malignancies
- Knowledge of and ability to manage the short-term and long-term sequelae of radiation therapy.

## **5. Surgery**

- Knowledge of and ability to confer with surgical colleagues regarding the various surgical options for liver and GI malignancies including specific procedures, benefits, advantages, disadvantages and outcome
- Knowledge of and ability to manage the immediate and long-term fluid and electrolyte metabolic and nutritional sequelae of abdominal surgery including pancreatic surgery
- Knowledge of and ability to manage the care of post-operative stomas, fistulas, anastomatic leaks and sepsis.

## **6. Therapeutic Endoscopy**

- Knowledge of and ability to personally or with competent colleagues to deploy
  - Endoscopic Mucosal Resection (oesophagus, stomach, colon and duodenum)
  - Ablation therapies including photo-dynamic therapy, electrocoagulation, oxygen lower plasma coagulation etc
  - Stent placement (oesophagus, colon)
  - Endoscopic anastomatic leak repair
  - Percutaneous Endoscopic Gastrostomy
  - Intraluminal Radiotherapy
  - ERCP
  - ERCP Rendezvous Procedures
  - Percutaneous Biliary Drainage

## **7. Oesophageal Cancer**

- Ability to distinguish the different histological types of oesophageal cancer particularly squamous carcinoma and adenocarcinoma
- Ability to determine the preferred therapy in conjunction with a multidisciplinary team in sequence, be it surgery, radiotherapy, chemotherapy, palliation, ablation or stent placement, depending on histological type and tumour stage

### **8. Stomach Cancer**

- Ability to distinguish the different histological types, particularly squamous carcinoma, linitis plastica and MALT
- Ability to determine the preferred therapy in conjunction with a multidisciplinary team in sequence, be it surgery, radiotherapy, chemotherapy, biological treatment, endoscopic resection or palliation, depending on tumour site, stage and histological type.

### **9. Pancreatic Cancer**

- Ability to distinguish the different histological types particularly adenocarcinoma or islet cell tumours
- Ability to determine the preferred therapy in conjunction with a multidisciplinary team in sequence
- Ability to manage post-operative metabolic and endocrine sequelae including enzyme replacement.

### **10. Liver and Biliary Tumours**

- Ability to clinically distinguish the different liver and biliary tumours, be they primary or secondary (with or without primary source known)
- Ability to determine in conjunction with multidisciplinary team the sequence of preferred therapies, be they endoscopic, chemotherapy, surgery, radiation, intra-arterial ablation or palliation.

### **11. Colorectal Tumours**

- Ability to stage colorectal cancers
- Ability to determine in conjunction with a multidisciplinary team the sequence of preferred therapies be they surgery, chemotherapy, radiation or endoscopy
- Ability to determine if there is a familial or hereditary component involved, counsel the patient and his/her family accordingly and set up endoscopic and/or genetic screening programmes accordingly.

### **12. Rare Tumours**

- Knowledge and some experience of rare GI and liver tumours including anal carcinomas, hepatocellular carcinomas, lymphomas (MALT and enteropathy associated T-cell lymphomas, GIST tumours, neuroendocrine tumours, carcinoid and cystic pancreatic tumours)
- Ability to determine in conjunction with a multidisciplinary team and other specialists the preferred therapies including the use of biological and endocrine therapies.

# INTERVENTIONAL ENDOSCOPY CURRICULUM

After having acquired the basic requirements in endoscopy, a trainee may wish to extend his/her endoscopic competencies. This specialized training has to be done in an endoscopic unit guaranteeing a critical number of specialized procedures per year in order to give the trainee the possibility to learn these techniques in a reasonable period of time. The training period cannot be shorter than one year and should be ideally two years.

The main focus of training, besides treatment options for benign and malignant stenosis in the upper and lower GI tract (bougienage, dilatation, stent insertion), is diagnostic and therapeutic ERCP. The trainee must gain competences in sphincterotomy, stone removal (including the lithotripsy techniques) and bilio-pancreatic stent insertion. Optionally, he/she can gain experience in the percutaneous approach to the biliary tree.

Further, endoscopic mucosa resection in the upper and lower GI tract is an integral part of this advanced training program; whereas mucosal dissection techniques are optional. Optional competencies can be gained in small bowel investigations techniques like capsule endoscopy or enteroscopy.

Endoscopic ultrasound and especially therapeutic ultrasound with fine needle biopsy and drainage of collection is a further optional competence in the module of specialized endoscopy.

To gain these specialized competences, a minimum number of procedures are required:

<b>1.</b>	<b>Stenosis Treatment Upper and Lower Tract (benign and malignant)</b>	
	With at least 20 stent placements in 2 different organs	50
<b>2.</b>	<b>ERCP</b>	
	Diagnostic and /or therapeutic procedures	150
	Sphincterotomy (biliary/pancreatic)	75
	Stent placement (plastic/metal)	30
	Gall stones treatment (Balloon extraction, Dormia basket, mechanical lithotripsy)	40
	Percutaneous transhepatic cholangiography (optional)	50
<b>3.</b>	<b>Endoscopic Local Tumour Treatment</b>	
	Mucosectomy (independent of the organ, esophagus, stomach, duodenum, colorectum)	40
	Endoscopic submucosal dissection (ESD)	optional
<b>4.</b>	<b>Small Bowel Endoscopy</b>	
	Flexible intestinoscopy	20
	Diagnostic capsule endoscopy (analysis)	30
<b>5.</b>	<b>Endosonography</b>	
	Diagnostic procedures upper and lower tract	150
	Therapeutic procedures	40
	Fine needle puncture	20
	Transgastric/transintestinal pancreatic cyst drainage	10



