



World Gastroenterology Organisation
Education & Training Committee

Standards in gastroenterology training: a comprehensive guide to basic standards in gastroenterology

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1 Introductory remarks

Over the past generation, there has been a dramatic and explosive growth of information about, and technology related to, the science and practice of gastroenterology. As a result, the practice of gastroenterology nowadays involves highly complex decision-making processes during diagnosis and treatment, as well as mastery of a growing number of endoscopic techniques, both diagnostic and therapeutic. In addition, it is important to understand the sensitivity and specificity of tests and the risk–benefit and cost–benefit ratios of a wide range of diagnostic procedures and treatment options. Gastroenterologists need to be aware of the increasingly complex science that underlies gastroenterological practice. They should also be sufficiently competent in the standard procedures and should be able to behave on the basis of professionalism in medicine.

At a meeting held in Orlando, Florida, in May 1999, the WGO Education Committee (chaired by Dr. James Toouli) set up a subcommittee—the Committee for Standards in Gastroenterology Training—in order to work towards establishing global standards for providing education and training in gastroenterology and for practicing the specialty. The project later developed into a sustained campaign conducted jointly by the respective Education Committees of the World Gastroenterology Organisation (WGO) and the *Organisation Mondiale d’Endoscopie Digestive* (OMED). This document presents a tentative consensus version of the standards developed by the national societies affiliated to these two organizations and is intended to illustrate the principles in accordance with which programs for training gastroenterologists should be designed.

The present document is based on specific information and data provided by gastroenterology organizations in 31 different countries, representing all the national organizations that responded to the WGO/OMED Committee’s inquiry in 2000, and further expanded and discussed in 2006 following circulation of the main draft document among the national societies and members of the WGO’s Standards in Gastroenterology Training committee. The national societies and members were asked to read the document critically and provide further input. This final document incorporates minor modifications to the main document, which was prepared by Dr. Elena Fosman (Uruguay) and Dr. Roque Sáenz (Chile), to whom sincere appreciation and gratitude is due.

During the preparation of the document, several of the educational programs submitted by the national societies were analyzed, and the diversity of their content was clearly evident. Some of the programs offered are very demanding and have quite advanced requirements, such as the one presented by the American Gastroenterology Association. Others were not well described in detail, and several national societies did not provide the information requested by the Committee. The programs reflect different approaches and socio-economic realities in each country and deal with both global aspects and specific local considerations. These need to be taken into account and can provide a basis for fundamental standards.

Analysis showed that there is a need to establish a framework of reference that includes recommended training standards and accreditation for institutions that provide education and training. The institutions need to incorporate the basic standards into all of their programs in order to be able to provide training in gastroenterology as a whole, including hepatology and endoscopy.

Standards are not intended to lead to uniformity, but rather to serve as catalysts for change and reform in education. Applying these basic standards will also ensure the quality of training in gastroenterology at an international level. This does not mean that the programs all need to be standardized. On the contrary, the implementation of the basic standards should be adapted to the specific characteristics of each institution, with an emphasis on distinctive local, regional, and national characteristics. For example, training in ultrasound is a component of formal training in gastroenterology in some countries, but is not included in the training programs used in others such as the USA. In addition, the “common trunk” of general training is not compulsory in some countries, such as France, although it is in the vast majority of countries. It needs to be recognized that it is not currently possible to achieve the standards set out here in some parts of the world, due to a lack of basic medical infrastructure and

technical facilities. In such areas, it is felt that rather than proposing “minimal” guidelines, the WGO’s “Standards in Gastroenterology Training” should serve as guidelines in accordance with which resources and collaborative efforts to improve the health-care infrastructure in those particular areas should be tailored.

Having well-trained gastroenterologists is the way to ensure and maintain quality services for patients. The emphasis has been placed here on aspects that can be improved throughout the world, independently of technological or equipment-related considerations.

Finally, this document should not be regarded as static, but rather as representing a dynamic position that is open to changes and additions in accordance with the needs of the specialty of gastroenterology, which are likely to expand and develop further in the years to come.

National societies that provided information about their training programs to WGO Committee:

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- Argentina
 - Australia
 - Brazil
 - China
 - Colombia
 - Croatia
 - Egypt
 - Germany
 - Hungary *
 - India
 - Iran
 - Iraq
 - Italy
 - Japan
 - Kazakhstan
 - Republic of Korea
 - Mexico
 - Netherlands
 - New Zealand
 - Philippines
 - Poland
 - Portugal
 - Slovenia
 - Sri Lanka
 - Sudan
 - Switzerland
 - Thailand
 - United Kingdom *
 - United States of America †

- Uruguay
- West Indies

* Most useful data.

† Including the American Society of Gastroenterology (AGA) document, April 2003.

2 General aspects

Gastroenterology and hepatology are branches of internal medicine, usually practiced together, that are concerned with the prevention, diagnosis, treatment of and research into illnesses involving all of the gastrointestinal tract, liver, pancreas, and other associated organs, referred to as “digestive diseases.”

Definition of “gastroenterologist”

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

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

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

Eligibility for gastroenterology training

Trainees in gastroenterology should have completed a 3-year residency in internal medicine at an accredited institution or at an academic institution belonging to a medical school or equivalent institution.

Pediatric gastroenterologists and surgical gastroenterologists will be considered separately. They need to be board-certified pediatricians and general surgeons.

3 Training in gastroenterology

Curriculum

It is beyond the scope of this document to provide full details of curricula. A curriculum is a living document that provides a framework for developing an individual plan of study and growth, tailored to meet the needs of the trainees and to enhance the strengths and special qualities of the training program. It will

continuously evolve with time as new knowledge, methods of learning, technologies, and challenges arise.

The curriculum must include not only gastroenterology, hepatology, and endoscopy, but also associated disciplines such as nutrition, pathology, radiography, surgery, and research, among others.

Teaching and learning strategies

It should be emphasized that there are various strategies for teaching and learning, which are very important in all the periods of medical education. Medical education is a lifelong learning process covering undergraduate, postgraduate, and continuing medical education.

The shift in educational theory from the traditional teacher-centered approach, in which the emphasis is on teachers and what they teach, to a student-centered approach in which the emphasis is on students and what they learn, requires a fundamental change in the role of the educator from being that of a didactic teacher to that of a facilitator of learning [1].

Knowles's principles of adult learning need to be taken into account [2]. Adults learn when they perceive that learning is relevant, on the basis of and building on their own previous experience, when they are participative and actively involved. Adults learn when learning is focused on problems and designed in such a way that they can take responsibility for their own learning, as well as if they can put their knowledge into practice and it involves reflection in action.

According to the principles of adult learning, self-directed learning is when students take the initiative for diagnosing their needs, formulating goals, identifying resources, implementing appropriate activities, and evaluating the outcome. It is an active process that results in deep learning. It has been suggested that this is the most effective approach for the continuum of medical education [3].

General objectives of gastroenterology training

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

As consultants, gastroenterologists will need the skills necessary to communicate effectively with referring physicians.

In order to become fully competent and certifiably capable of performing and/or interpreting all procedures and diagnostic tests routinely done in the evaluation and treatment of gastroenterological patients, trainees have to gain experience under direct supervision.

An adequate number of routine endoscopic procedures have to be performed in order to reach the minimum standards. Trainees should also be skilled in the principles of caring for, cleaning, handling, and maintaining endoscopic equipment.

Practice and research conducted by a gastroenterologist must be based on the highest principles of ethics, humaneness, and professionalism.

The gastroenterologist must be prepared to undertake lifelong learning based on independent and critical thinking, a desire for self-improvement, and motivation for permanent learning.

Specific objectives of gastroenterology training

The specific objectives of the training programs are expressed here in terms of knowledge, skills, attitudes, and experience in patient care, teaching, and research.

Knowledge

- Understand the anatomy, histology, molecular biology, embryology, and development of the gastrointestinal tract.
- Be familiar with the physiology and pathophysiology of the gastrointestinal system (digestion, absorption, secretion, motility, metabolism and immunology).
- Be able to diagnose and evaluate patients with digestive diseases, taking into consideration all biological and psychosocial aspects.
- Understand the pharmacology, adverse reactions, efficacy, and appropriate use of drugs in the management and treatment of the above illnesses.
- Be able to decide on timely surgery or other therapeutic options.
- Be aware of cost-effective management and treatment for patients suffering from digestive diseases.
- Know the incidence and prevalence of common digestive disorders on the basis of locally available data.
- Be able to recommend appropriate measures for the prevention of common digestive diseases and have basic knowledge about common communicable diseases, especially in the field of gastroenterology and hepatology, both for self-protection and to foster public awareness.
- Know the indications for, contraindications against and complications of major endoscopic procedures.
- Know the basic principles of disinfection of endoscopic instruments and ancillary devices.
- Act as an educator of patients, especially in cases of chronic disease.
- Be able to assess nutritional status, including specific nutrient deficiencies, protein-energy malnutrition, maldigestion, vitamin and mineral deficiency, and obesity and know the indications for nutritional support and basic management of modified diets, enteral tube feeding, and parenteral nutrition.
- Appreciate the impact of metabolism and endocrinology.
- Support patients with terminal illness and their families to maintain dignity (palliative and continued care), promoting awareness and understanding of the

need for the highest quality and standards in palliative care, which is defined by the World Health Organization as “impeccable assessment and treatment of physical symptoms and of psychosocial, social and spiritual problems.”

- Know basic bioethics in the management of patients as well as in research.
- Be able to conduct, write, and publish research in gastroenterology, as a way of fostering the inquisitive mind required of a skilled gastroenterologist.

Skills

General skills:

- Ability to behave in accordance with professional principles, such as: altruism, accountability, excellence, duty, service, honor, integrity, and respect for others; serving the interests of the patient, rather than one’s own interests.
- Commitment to the highest standards of excellence in the practice of medicine and in the generation of knowledge.
- Commitment to be responsive to the health needs of society.
- Ability to work effectively and efficiently with members of other specialties, such as cardiology, critical-care medicine, oncology, surgery, pathology, and radiology, as well as with nurses, pharmacists, social assistants, and psychologists.
- Ability to lead multidisciplinary and interdisciplinary teams and collaborate with primary caregivers.
- Ability to maintain skills in general medicine.
- Ability to care for patients with gastrointestinal diseases involving multidisciplinary and interdisciplinary approaches.
- Ability to develop appropriate lines of communication and define the responsibility for patient care with internal medicine residents and faculty.
- Ability to use information-science resources (especially in English) on evidence-based medicine and business management, to understand the extensive data resulting from medical research, as well as to make good clinical decisions.
- Ability to interpret laboratory data.
- Ability to interpret radiographic findings, including computed tomography (CT) and magnetic resonance imaging (MRI).

Endoscopic skills. Experience in the following procedural skills with the designated number of cases is required. It should be noted that whereas in some countries abdominal ultrasonography is performed by gastroenterologists, in others it is carried out by radiologists. In the first case, trainees should perform 300 procedures by themselves. The required numbers of procedures given below should be regarded as the minimum.

Level 1

- Esophagogastroduodenoscopy: 100
- Treatment of nonvariceal bleeding: 20 (10 cases of active bleeding)
- Treatment of variceal hemorrhage: 15 (five cases of active bleeding)
- Esophageal dilation: 15
- Flexible sigmoidoscopy: 25

- Colonoscopy: 100
- Polypectomy: 20
- Placement of a percutaneous endoscopic gastrostomy (PEG): 10
- Liver biopsy: 20
- Abdominal puncture: 50
- Foreign-body removal

Level 2

This is reached after completion of the training program and will depend on the interests, skills and future career goals of the trainee as well as on the assessment of the trainee's performance and capacity by the supervisor and program director and the infrastructure and needs of the institution concerned.

- Endoscopic retrograde cholangiopancreatography (ERCP), sphincterotomy, and stone extraction
- Stenting
- Diagnostic laparoscopy
- Endoscopic ultrasonography (EUS)

The numbers of supervised and independent procedures required here have yet to be defined.

Attitudes

The gastroenterologist should:

- Behave with high standards of morality and ethics.
- Manage the patient holistically and with compassion.
- Establish a good rapport with patients, peers, superiors, and subordinates, as well as with all of the health-care team.
- Understand and integrate the psychosocial aspects of functional diseases into the management of the patient.
- Establish a good relationship with the physicians who are referring the patients.
- Be prepared preparation to undertake continuing medical education and lifelong learning based on independence, critical thinking, and a desire for self-improvement.

Experience in patient care

- Caring for a sufficiently large number of patients should provide broad experience in different types of digestive diseases.
- Caring for a sufficient number of new patients (about 150 per year, to ensure adequate exposure to in-patients and outpatients) and follow-up patients—e.g., pregnant, adolescent, geriatric patients of both genders.
- Training in the in-patient and outpatient departments, in order to enable trainees to diagnose and manage a wide range of digestive diseases. The AGA Task Force

proposal has very high requirements, and we would therefore suggest that the training program should cover all of the fields and not be so demanding.

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

Nonpatient activities

- Carrying out independent study, developing a scholarly approach to education by reading current textbooks and monographs, the relevant scientific literature, and syllabus materials.
- Attending seminars, continuing medical education courses, and annual scientific meetings organized by the main societies in the field of digestive disease.
- Attending a weekly clinical conference, becoming actively involved in the planning, organization and presentation of content in these conferences. Recommended conferences may include pathology, radiography conferences in addition to clinical conferences in gastroenterology and hepatology.
- Attending basic science, journal club, and research conferences held regularly (monthly). Learning critical reading skills—detecting biases, assessing control validity, application of statistics, being able to generalize the results of scientific studies and related attributes. Trainees must have the ability to interweave basic and clinical material in a cohesive manner, and to present and defend concepts in an open forum.
- Attending monthly conferences related to radiology, pathology, and surgery services.
- Participating in lectures and discussions through the period of training to cover a core curriculum of physiology, pathophysiology, and clinical pharmacology.
- Having opportunities to carry out a formal study, learning how to work on research design—including statistics, epidemiology, etc.—so that the trainee can conduct clinical research and present the study at a national or international meeting and publish a paper dealing with the study.

Duration of training

There are several strong reasons for requiring training programs to last at least 3 years. There has been a remarkable increase in the body of knowledge in the field of gastroenterology. There have also been major changes in diagnosis and treatment in the field of hepatology, as well as an increase in the variety and difficulty of diagnostic and therapeutic procedures. The gastroenterologist now has to have greater levels of expertise in dealing with digestive diseases than the expanded roles and skills of general internal-medicine specialists. The more experience gained under supervision during training, the more skilled the specialist will be.

A 3-year training program will allow sufficient time for a gradual reduction in the level and degree of supervision, so that by the end of the training program period, trainees will feel confident in their own ability to manage the most complicated cases independently.

During these 3 years, trainees should attend the training institution for at least 30–44 hours per week. Trainees provide a substantial service for their teaching hospitals,

but service commitments should never compromise the achievement of educational goals and objectives.

Within the 3 years of gastroenterology training, there should be room for some flexibility in accordance with the trainee's own goals and the training institution's facilities and priorities. This flexibility should be reserved for the last 12 months of the training period. The first 18 months of gastroenterology training should be devoted to a core gastroenterology curriculum consisting of in-patient and outpatient consultation experience, supported by teaching sessions and conferences. In addition, 6 months of research activity should be included in the core curriculum to encourage trainees to develop critical thinking. During the final year—depending on availability, capacity, and the needs of the training institution—additional training in an area in accordance with the trainees' own career goals and their interests and skills may be provided. Thus, in the last year, trainees could obtain level 2 training in areas such as interventional endoscopy, hepatology (including or with special emphasis on transplantation hepatology, if possible), motility disorders, nutrition, and inflammatory bowel disease, all, depending on the facilities available in the program. This type of training program would go beyond traditional gastroenterology training, in which the aim was to create a competent general gastroenterologist without further specialization. This does not reflect present-day needs at a time when the science and practice of gastroenterology have expanded exponentially and the technologies involved have become considerably more complex.

The flexibility provided in the training program depends on and needs to take into account the candidate's future career goals, which could be listed as follows:

- Working in private practice or in a district general hospital
- Working as a consultant gastroenterologist in a teaching hospital
- Working as an academic gastroenterologist

All three of these options would still be compatible with a specific interest area such as interventional gastroenterology, hepatology, etc. on the part of the now fully trained gastroenterologist.

Training institutions

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

Facilities and resources

- Trainees are to be supervised by adequately experienced and certified trainers. There should be a sufficient number of new patients (about 150 per year, to ensure adequate exposure to in-patients and outpatients) and follow-up patients to allow trainees to learn about a wide range of digestive diseases.
- There should be adequate in-patient and ambulatory care facilities to provide care for acute and chronic gastrointestinal problems.
- The institution must have a fully-equipped and staffed procedure laboratory, including state-of-the-art diagnostic and therapeutic endoscopy instruments (diagnostic and therapeutic upper and lower gastrointestinal endoscopy) and motility equipment.
- The institution may also have, or have access to:
 - Radiography (diagnostic and interventional), ultrasound, nuclear medicine, CT/MRI scanning, and biopsy equipment
 - Laboratory: specialized serological, parasitological, immunologic, metabolic, toxicological studies, biochemistry, hematology, microbiology, and histopathology
 - Basic tests for gastrointestinal function
 - A full-service emergency room, general and gastroenterological surgical unit, and oncological unit
 - An intensive-care unit for critically ill patients with gastrointestinal and hepatic disorders
- Computers should be available for recording results and creating a database.
- A well-stocked library, with online capabilities for computer-assisted literature searches, is essential.

Faculty

Program director. The director of the training program should have board certification in gastroenterology and hepatology or equivalent qualifications. He or she should be committed on a full-time basis to the training program and related activities. This will depend on the working regime at the accredited institution, which may differ from country to country.

Staff. Learner-centered approaches are challenging the traditional view of the teacher as the person who determines what, when, and how learners will learn, with formal teaching being the predominant method. Creating an environment in which learners can learn effectively is becoming the new prerequisite, and this requires not only that teachers should be experts in their own fields, but also—and more importantly—that they should understand how people learn [4].

This has major implications in terms of staff development, with the recognition that changing a curriculum and maintaining it are unlikely to be effective if teachers are not able to take on new roles. This type of development needs to take place at all levels—from the institutional to the individual level [5].

The number of full-time or part-time members of staff will depend on the learning strategies adopted and the number of trainees. The AGA document presents an ideal that would be very difficult to achieve in all countries: three full-time staff members,

including a training director who is board-certified in gastroenterology or with equivalent qualifications, would be ideal. The ratio of trainers to trainees should be 1 : 1.5. One faculty member must be a fully trained hepatologist.

There must be sufficient additional full-time or part-time faculty members to provide guidance and ensure adequate supervision of the trainees and coverage of all the components of the program.

Full-time faculty members must devote at least 20 hours per week to teaching, research, and administration and to critical evaluation of the performance, progress, and competence of the trainees. They must serve as appropriate role models for the trainees by actively participating in the clinical practice of gastroenterology, their own continuing education, participation in regional and national scientific societies, research activities, presentation and publication of scientific studies, as well as scholarly reviews.

Visiting scholars, professors, and investigators should be brought in, in order to stimulate awareness of the latest discoveries and findings among trainees and faculty members.

Trainers, facilitators, and guides should have practiced gastroenterology for at least 5 years after specialization. In some countries, prospective trainers have to apply competitively for positions, after which they receive preparation on how to guide trainees.

Evaluation of trainee competence

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

- A broad knowledge base
- An ability to establish a relevant differential diagnosis on the basis of an accurate patient history and physical examination
- A firm foundation in pathophysiology
- An understanding of the indications and contraindications for diagnostic and therapeutic procedures
- Skill in performing procedures
- An ability to think critically
- An appreciation of the humane and ethical aspects of medicine
- A cost-effective approach to the use of technology

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

Elements of competence to be evaluated

- Understanding of and commitment to all elements of professionalism.
- Knowledge of clinical record-taking, including family, genetic background, psychosocial and environmental facts. Ability to perform a comprehensive and accurate physical examination.
- Knowledge of gastroenterological and hepatic physiology, pathophysiology, and clinical pharmacology, as outlined above under “objectives of gastroenterology training.”
- Procedural skills in gastrointestinal endoscopy, depending on the level of training.
- Ability to establish an appropriate differential diagnosis in order to outline a logical plan for specific and targeted management and treatment of the patient, as well as follow-up.
- Ability to carry out a consultation and to present its results both orally and in a well-written style.
- Medicolegal issues should also be taken into account in modern curricula.

Methods of evaluating trainee competence

- Observation during all the activities involved, including procedures, rounds, and conferences.
- Each faculty member who is in charge of a trainee has to carry out formal evaluation.
- Formal assessment of clinical skills, using a patient-based examination.
- Formal in-practice examination to test the trainee’s knowledge base and mastery of the interpretation of endoscopic, radiographic, and pathological findings.
- Trainees must keep logbooks (training record books) to record endoscopic procedures and clinical records—work experience, meetings attended, variety of patients seen, procedures done, research plans, etc.
- Coordinators should arrange an annual assessment of each trainee.
- Final assessment at the end of the period of training, prior to board certification.
- Feedback provided by the trainee is necessary in order to improve standards.

Board certification in gastroenterology

Board certification and examinations to qualify for it are encouraged and should be implemented in parts of the world where such assessment is not currently practiced. Eligibility for a board examination should include satisfactory completion of training and a recommendation for board certification to the relevant board of study, which will be the final authority for board certification in gastroenterology. Individuals who have received certification will be entitled to qualify as trainers themselves 5 years after board certification. Board-certified gastroenterologists must confirm their registration every 5 years (re-certification), providing details about their current position and continuing medical education.

Core competences of a gastroenterologist

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

1. Basic training in and understanding of internal medicine.
2. Specialized training in gastroenterology, resulting in:
 - A detailed understanding of the physiology and pathophysiology of the gastrointestinal tract, including:
 - Normal macroscopic and microscopic structure
 - Process of digestion and movement of gastrointestinal contents
 - Perception of sensations/symptoms arising from the gastrointestinal tract and the complex effects of psychological factors on these
 - Normal and abnormal radiographic anatomy
 - Macroscopic and microscopic pathological changes
 - A detailed understanding the physiology and pathophysiology of the liver and the biliary system, including:
 - Basic biology and pathobiology of the liver and biliary systems
 - Thorough understanding of the diagnosis and treatment of a wide range of hepatobiliary disorders
 - Skill in performing a limited number of diagnostic and therapeutic procedures (percutaneous liver biopsy, diagnostic and therapeutic paracentesis)
 - An appreciation of the indications and use of a number of diagnostic and therapeutic procedures that are needed to manage hepatobiliary diseases
 - An ability to take a comprehensive medical history and conduct an examination of patients with gastrointestinal disease
 - An ability to create an appropriate summary of the patient's history and examination to communicate to other practitioners, including a likely diagnosis and list of differential diagnoses
 - An ability to develop a plan for investigation of patients presenting with symptoms referable to the gastrointestinal tract, including:
 - Understanding the indications, risks and benefits of relevant gastrointestinal investigative procedures
 - Understanding the principles of the sensitivity, specificity, and positive and negative predictive values of investigations and the way in which these influence the odds of disease being present
 - An ability to carry out basic endoscopic investigations, including upper gastrointestinal endoscopy and colonoscopy
 - An ability to perform basic therapeutic endoscopic procedures, e.g.:
 - Mucosal biopsy
 - Dilation of strictures
 - Polypectomy
 - Treatment of esophageal varices
 - Endoscopic hemostatic therapy
 - An ability to diagnose and intervene emergency situations in gastrointestinal disorders and in general

- An understanding of the role of other professionals in the care of patients with gastrointestinal diseases, including:
 - Surgeons (including an understanding of common gastrointestinal operations)
 - Dietitians
 - Radiologists
 - Pathologists
 - Primary-care physicians (including strategies for preventing gastrointestinal diseases)
 - Emergency-unit physicians
- An ability to communicate with patients, including:
 - Medical history-taking
 - Exploring sensitive information (e.g., sexual practices/abuse)
 - Discussing the risks and benefits of diagnostic tests
 - Discussing the results of diagnostic investigations and help the patient evaluate the risks, costs and benefits of a variety of management plans
 - Helping the patient implement management plans, including long-term management strategies
 - Communicating bad news—e.g., a diagnosis of malignancy
- An ability to access information via online electronic resources
- A commitment to ongoing medical education
- An ability to critically appraise individual scientific publications and review the scientific literature
- An understanding of quality assurance/safety and service improvement processes
- An understanding of cost-effectiveness as it applies to investigation and treatment
- Understanding and practicing ethical behavior and observing local laws and regulations regarding medical practice

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