

A Journey Toward Excellence: Training Future Gastroenterologists— The Gastroenterology Core Curriculum, Third Edition

American Association for the Study of Liver Diseases, American College of Gastroenterology, AGA Institute, and American Society for Gastrointestinal Endoscopy

OVERVIEW OF TRAINING IN GASTROENTEROLOGY

Importance

Gastroenterology consultants must possess a range of attributes, including a broad knowledge base, the ability to generate a relevant differential diagnosis based on an accurate history and physical examination, an understanding of the indications and contraindications for diagnostic and therapeutic procedures, skill at performing these procedures, the ability to think critically, and an appreciation of the humanistic and ethical aspects of medicine. Such attributes can emanate only from a clinical training program that provides a firm foundation in pathophysiology as well as abundant exposure to patients under the supervision of experienced, thoughtful educators. This exposure must be long enough for trainees to understand the natural history of disease and the impact of treatment both on the disease and on the patient. Instructors in procedures must impart a thoughtful, cost-conscious approach to the use of technology as an extension of the subspecialist's craft rather than as an end in itself. Facilities must be available for trainees to participate actively in research as a means of fostering the inquisitive thought processes demanded of skilled consultants, to create new knowledge, and to improve patient care. Surrounding all of these activities must be a dedication to the patient as a person; technical expertise in the absence of humanism represents the antithesis of the skilled practitioner, whether generalist or subspecialist.

General Aspects of Training

Prerequisites for Training

Trainees in gastroenterology must have completed a 3-year residency in internal medicine, or be in the American Board of Internal Medicine (ABIM) Research Pathway, at an institution accredited by the ACGME or a foreign equivalent. The training requirements referenced herein reflect the ACGME's *Program Requirements for Fellowship Education in the Subspecialties of Internal Medicine and the Program Requirements for Fellowship Education in Gastroenterology*, effective July 2005 (see www.acgme.org).

Training Institutions

Gastroenterology training must take place only in medical institutions that are accredited for internal medicine and gastroenterology training by the ACGME and are affiliated with established medical schools. As outlined in the July 2005 ACGME Program Requirements for Fellowship Education in the Subspecialties of Internal Medicine and the Program Requirements for Fellowship Education in Gastroenterology, evidence of institutional commitment to education must include financial resources adequate to support appropriate compensation for sufficient faculty and trainees, adequate and modern facilities, sufficient space and current equipment to accomplish the overall educational program.

Specifically, as directed by the ACGME, section II.A.4:

“The sponsoring institution must assure that adequate salary support is provided to the program director for the administrative activities of the internal medicine subspecialty program. The program director must not be required to generate clinical or other income to provide this administrative support. It is suggested that this support be 25-50% of the program director’s salary, depending on the size of the program. (See Section III.A.4f).”

In addition, training institutions must provide adequate clinical support services on a 24-hour basis, foster peer interaction among specialty and subspecialty trainees, and sponsor meaningful biomedical research.

Educational Program

Gastroenterology training programs must provide an intellectual environment for acquiring the knowledge, skills, clinical judgment, attitudes, and values of professionalism that are essential to the practice of gastroenterology. As defined by the ABIM in the 2001 Project Professionalism:

“Professionalism in medicine requires the physician to serve the interests of the patient above his or her self-interest. Professionalism aspires to altruism, accountability, excellence, duty, service, honor, integrity, and respect for others. The elements of professionalism encompass a commitment to the highest standards of excellence in the practice of medicine and in the generation of knowledge, a commitment to sustain the interests and welfare of patients, and a commitment to be responsive to the health needs of society.”

The program also must stress the role of gastroenterologists as consultants and the need to establish the skills necessary to communicate effectively with referring physicians. The objectives of training can be achieved only when the program leadership, supporting staff, faculty, and administration are fully committed to the educational program and when appropriate resources and facilities are available. While it is recognized that trainees provide substantial service to their teaching hospital, service commitments should never compromise the achievement of educational goals and objectives.

Every aspect of training should include the cultivation of an attitude of skepticism and inquiry and a dedication to continuing education that will remain with the trainees throughout their professional careers. A major contributor to the enhancement of a scholarly attitude is active participation in one or more research projects, ideally followed by presentation of the work at a national meeting and publication of a paper in a peer-reviewed journal.

Duration of Training

Training programs must be at least 3 years in duration and must include a minimum of 18 months of clinical training experience. A premium is placed on experience. The more experience gained under supervision during training, the more skilled the specialist will become. Such experience should include the long-term management of patients with a variety of diseases and exposure of trainees to the natural history of gastrointestinal and hepatic diseases as well as the effectiveness and limitations of therapy. As training progresses, it is important for the trainees to develop independence. A 3-year training program allows sufficient time for a gradual reduction in the level and degree of supervision so that, by the end of the training period, trainees feel confident in their own abilities to independently manage complicated disorders.

Duty Hours

Trainee duty hours should be monitored to ensure that they meet guidelines established by the ACGME (see Section VI).

Levels of Training

The curriculum continues to require a minimum of 3 years of training in gastroenterology. The core clinical curriculum requires a minimum of 18 months of patient care experience and consists of traditional inpatient and outpatient consultative and specialized care experience. A longitudinal outpatient ambulatory experience is mandated for the full 3 years of training. Explicit programmatic recommendations are indicated in the areas of acid-peptic disease, biliary tract diseases and pancreatic disorders, cellular and molecular physiology, endoscopy, ethics, medical economics and system-based practice, geriatric gastroenterology, hepatic pathology, hepatology, inflammation and enteric infectious disease, malignancy, motility and functional illnesses, nutrition, pediatric gastroenterology, radiology, research, surgery, and women's health issues. A central feature of training in gastroenterology remains the requirement for dedicated training in hepatology. Included in the guidelines for training in hepatology is the requirement that at least one faculty member is recognized as having expertise in liver disease.

ASGE guidelines for training in basic endoscopic skills are affirmed with the explicit requirement that certification of competency in basic endoscopy cannot be considered before minimum threshold levels are met; competency-based assessment demands attainment of substantial skill and experience before program directors can attest to the competence of the trainees in endoscopy. Achievement of expertise in endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasonography (EUS) is not included as an objective for all trainees, but is reserved for selected trainees desiring enhanced skills in interventional endoscopy. See Appendix II for the *Diagnostic Colonoscopy Procedural Competency Form* and the *Diagnostic Upper Endoscopy Procedural Competency Form*.

A substantive research experience of 3–6 months as a stimulus for developing an inquiring and critical mind is required. As important as direct patient care, and woven throughout the 3-year fellowship, is the requirement for an array of conferences and didactic sessions. Trainees are expected to have specific instruction throughout the fellowship in the clinical, translational, and basic sciences that underlie the scientific basis of practice today and to have the opportunity to participate in meaningful scholarly activity.

Beyond the 18-month core clinical curriculum and the 3–6 month research requirement, 12 additional months are required to complete fellowship training. This time will permit flexibility for activities outside of the prerequisites of the core clinical curriculum that meets the trainee's needs, interests, and career goals. This may translate into 12 months of additional clinical training or research training, specialized training in specific skills, or elective experiences.

Level 2 training, or enhanced clinical training, is specifically for any gastroenterologist who wishes to provide specialized services as a consultant to other physicians and is detailed for geriatrics, nutrition, advanced endoscopic procedures, motility studies, biliary tract diseases and pancreatic disorders, and hepatology. Detailed criteria that mirror the requirements set by the ABIM before sitting for the examination for added qualifications in transplant hepatology are included, but would necessarily be accomplished during a fourth year of training.

In most cases, up to 12 additional months of clinical or research training beyond the core clinical curriculum may be required to attain level 2 expertise in a given area. It is anticipated that under most circumstances, level 2 training can be accomplished for some within the context of the 3-year training period. However, in some circumstances, such as expertise in advanced therapeutic procedures, an additional year, that is, a fourth year may be necessary to satisfactorily complete all requirements for level 2 training.

For trainees preparing for careers in laboratory or clinical investigation, an intensive research experience during fellowship training is recommended, with the recognition that such training may need to be continued well beyond the standard 3-year period of training to prepare the trainee for a career as an independent investigator. This training may include university course work appropriate for careers in clinical or basic research, for example, epidemiology, statistics, research methodology, outcomes and effectiveness research, decision analysis, cell biology, molecular genetics, and/or ethics as well as supervised research activity under the guidance of qualified mentors.

Throughout this document, the paramount importance of practice and research based on the highest principles of ethics, humanism, and professionalism is reinforced. The importance of the scientific method and of preparation for lifelong learning based on independent and critical thinking, a desire for self-improvement, and a love of learning is emphasized.

Program Faculty

Program Director

A single training director must be responsible for the program. She or he must be board certified in gastroenterology or possess equivalent qualifications and must have 5 years of participation as an active faculty member in the subspecialty. The training director is expected to ensure adequate time to coordinate and direct training-related activities. In accordance with ACGME guidelines, the director must be based at the primary training site of the program (see Section III.4.c) and must dedicate an average of 20 hours per week to the training program (see Section III.4.f).

Faculty

In addition to the program director, the program must provide a minimum of four institutionally-based key clinical faculty members who all must be certified in gastroenterology or possess equivalent qualifications. For programs with an approved compliment of more than six, a ratio of key clinical faculty to fellows of at least 1:1.5 must be maintained (see Section XII).

At least one full-time faculty member must be a fully trained hepatologist, as defined within the Training in Hepatology chapter. At least one full-time faculty member must be skilled and demonstrate expertise in advanced endoscopic procedures, as defined within the Training in Gastrointestinal Endoscopy chapter. Above and beyond a minimum number of faculty, there must be enough additional full-time or part-time faculty to ensure adequate supervision of trainees and coverage of all programmatic components. At all times, fellows will be adequately supervised by staff physicians.

Each full-time faculty member must devote at least 10 hours per week, averaged over 1 year, to teaching, research, administration, and/or the critical evaluation of the performance, progress, and competence of trainees. In addition, faculty members must serve as appropriate role models

by active participation in the clinical practice of gastroenterology, their own continuing education, regional and national scientific societies, research activities, and the presentation and publication of scientific studies and scholarly reviews.

Faculty should be evaluated at intervals by trainees to assure that the trainees' needs are being met. Please visit www.acgme.org for more information on program faculty requirements for gastroenterology.

Environment for Training in Gastroenterology

Relationship to Training in Internal Medicine

Gastroenterology fellows must maintain their skills in general internal medicine and develop appropriate lines of communication and responsibility with internal medicine residents and faculty.

Relationship to Other Disciplines

Care of patients with digestive diseases often involves a multidisciplinary approach. Therefore, trainees must learn to work effectively and efficiently with members of other specialties and subspecialties. This is especially true for the internal medicine subspecialties of cardiology, critical care medicine, and oncology as well as the specialties of surgery, pathology, and radiology. Increasingly, trainees will need to develop skills in management to enable them to lead multidisciplinary teams. Particular instruction and experience in collaborating with primary caregivers in a managed care setting is essential.

Facilities and Resources

The following facilities and resources are essential for the training program:

1. There must be a sufficient number of new and follow-up patients, with a broad variety of gastrointestinal and hepatic diseases, to ensure adequate inpatient and outpatient experiences. Both men and women and—to the extent possible pregnant women and adolescents—and geriatric patients of both sexes must be included in the fellow's panel of patients. Patient backgrounds should be diverse and represent a range of ethnic, cultural, and socioeconomic groups. Qualified faculty must supervise trainees in all aspects of patient care, including care delivered in both inpatient and outpatient settings and during procedures.
2. Up-to-date inpatient and ambulatory care facilities are essential to accomplish the overall mission of the training program.
3. There must be a fully equipped and staffed procedure laboratory that includes state-of-the-art diagnostic and therapeutic endoscopic instruments and motility equipment. The laboratory must be capable of performing, or have access to, specialized serological, parasitological, immunologic, metabolic, and toxicological studies applicable to gastrointestinal and hepatobiliary disorders. Computers should be available with appropriate software to permit trainees to access medical literature online, perform Internet searches, record results of procedures, and establish a database. The capability to perform basic gastrointestinal function tests is essential.
4. Supporting services, such as a full-service emergency department, diagnostic and interventional radiology department, medical imaging and nuclear medicine facility, pathology laboratory, general and hepatobiliary surgical unit, and oncology unit must be available.
5. There must be a modern, fully-staffed unit for the intensive care of critically ill patients with gastrointestinal and hepatic disorders.

6. A library with online capabilities for providing adequate access to the literature and including computer-assisted literature searches is required.
7. Adequate administrative support for the fellowship program, including financial support for a fellowship coordinator or assistant, access to computers for personnel management and scheduling, and a budget to provide office supplies and other administrative expenses to run a program.

Specific Program Content

Patient Care Experience

The patient care experience for trainees is comprised of three major elements.

1. While training should be tailored to reflect the ultimate career goals of the individual fellow, every gastroenterology training program must include a core clinical training experience of 18 months to be completed by all trainees. This period will consist of clinical training in the inpatient and outpatient diagnosis and management of digestive diseases as outlined by each of the relevant chapters on training, with approximately 5 months of this experience devoted to training in liver disorders (see Section XI.C). During the core clinical training, adequate numbers of routine endoscopic procedures must be performed to exceed the minimum standards as described within the chapter, Training in Endoscopy. Trainees must have appropriate supervised experience to develop skills in providing consultative services and communicating with physicians and other members of the health care team.
2. For those individuals whose career goals consist primarily of patient care, a further 18 months of training will include a total of at least 6 months of scholarly activity consisting of basic or clinical research, course work, or other structured activity not primarily involving direct patient care (see Training in Research). The remaining months will include additional experience in general consultative gastroenterology and experience in specialized areas, depending on the interests and career goals of the trainees and the opportunities available in the programs. Such areas of study might include enhanced competence in hepatic diseases, motility disorders, inflammatory bowel disease, nutrition, or interventional endoscopy (see appropriate chapters).

Where formal guidelines for attaining enhanced competence in an area are provided, the designation of level 2 training is applied. Level 2 training will designate that the trainee can act as a consultant to other gastroenterologists and other clinicians in that area of expertise. Upon satisfactory completion of level 2 training, the trainee will receive a letter or other document that indicates that this level of expertise has been reached.

3. In recognition of the importance of outpatient medicine to the practice of gastroenterology, all trainees must spend at least one half-day per week for the entire 3-year period in an ambulatory care clinic in which both new and continuing care patients with gastroenterological and hepatic diseases are evaluated and managed. The arrangements must be such that patients recognize the fellow as the physician who is involved in providing their continuous care. To understand the natural history and long-term outcome of digestive diseases, trainees must attend the same clinic for a minimum of 6 months.

Training Through Conferences and Other Nonpatient Care Activities

In addition to the patient care experience, trainees should have extensive involvement in other types of experiences.

1. Trainees should, through independent study, develop a scholarly approach to education by reading current textbooks and monographs, relevant scientific literature, and distributed syllabus materials. Trainees should be encouraged to attend seminars, postgraduate courses, and annual scientific meetings of the major digestive diseases societies.
2. Clinical conferences should be held on a weekly basis. Trainees must be actively involved in the planning and content of these conferences.
3. Basic science, journal club, and research conferences should be held regularly, at least monthly. The journal club should be used as a tool to teach the skills of critical reading, detection of biases, assessment of validity of controls, application of statistics, generalizability of results, and related attributes of scientific studies.
4. Interdisciplinary conferences with radiology, pathology, and surgery services should be held at least monthly.
5. A series of lectures/discussions should be held throughout the period of training to cover a core curriculum of physiology, pathophysiology, and clinical pharmacology.
6. Visiting scholars, professors, and investigators should be brought in to stimulate new thoughts and ideas among trainees as well as faculty.
7. Participation in quality assurance and continuous quality improvement programs should be required. Discussion of systems-based practice should be an integral part of this effort.
8. The opportunity to formally study the elements of study design, decision analysis, outcomes and effectiveness research, statistics, epidemiology, and other skills necessary to conduct and evaluate clinical investigation should be available to all trainees yearly.

Teaching Experience

Trainees should actively participate in the teaching of medical students, medical residents, and less advanced trainees in gastroenterology. In addition, ample opportunity must be provided for trainees to participate in seminars and conferences. The ability to interweave basic and clinical material in a cohesive manner and to present and defend concepts in an open forum is invaluable for a career as a subspecialty consultant.

I. Evaluation of Trainees

Formal evaluations of each trainee's progress and final competence are required by the ACGME and for objective documentation for purposes of credentialing. Training programs must have established methods to evaluate trainee competence, regular written records detailing the progress of all trainees, and a defined program of verbal and written feedback to the trainees. The trainee must receive appropriate and timely feedback throughout the training experience, including formative and summative evaluations in all areas being evaluated.

Elements of Competence to be Assessed

As outlined in the ACGME General Competencies, trainees should be evaluated in the following areas (Table 1):

1. **Patient care** – Trainees must be able to provide patient care that is appropriate, effective and compassionate. This would include, but not be limited to, the following: history-taking, including family, genetic, psychosocial, and environmental histories, and the ability to perform a comprehensive and accurate physical examination. The ability to arrive at an appropriate differential diagnosis, outline a logical plan for specific and targeted investigations pertaining to the patient’s complaints, and formulate a plan for management and follow-up treatment of the patient is critical. The ability to effectively present the results of a consultation orally and in writing and to defend the clinical assessment, differential diagnosis, and diagnostic and management plans is essential. In addition, trainees must demonstrate procedural skills essential for the practice of gastroenterology and hepatology.
2. **Medical knowledge** – Trainees must demonstrate a core fund of knowledge in gastroenterological and hepatic physiology, pathophysiology, clinical pharmacology, radiology, and surgery as outlined in the goals of each chapter on training. Trainees must be able to demonstrate an analytic approach and use appropriate investigations, including the practice of evidence-based medicine.
3. **Practice-based learning and improvement** – Trainees must be able to investigate, evaluate, and improve their patient care practice by analyzing and assimilating both scientific evidence as well as their own prior experience into their practices. They should be able to apply knowledge of statistical methods to critically appraise clinical studies and be able to use information technology to support their own education. They must be involved in teaching and be able to facilitate the learning of other students and health care professionals.
4. **Interpersonal and communication skills** – Trainees must be able to demonstrate interpersonal and communication skills that result in effective information exchange with their patients, families, and other health care professionals. This would include, but not be limited to, verbal and written communication as a consultant and to generation of endoscopic reports that are accurate and timely. Trainees must be able to work effectively as members and leaders of the health care team.
5. **Professionalism** – Trainees must demonstrate an understanding of and commitment to all elements of professionalism, including respect, compassion and integrity toward their patients, patient families, and other health care professionals. They must demonstrate ethical behavior, responsiveness, and sensitivity to a diverse gender, ethnic, socioeconomic, and aging patient population.
6. **Systems-based practice** – Trainees must demonstrate an understanding of, awareness of, and responsiveness to the larger context and system of health care delivery. The trainees should understand how their patient care practice impacts other health care professionals, the larger health care system, and society in general. They should be able to practice cost-effective health care without compromising quality of care for their patients. The trainee should be able to advocate for timely, quality patient care and know how to partner with other health care providers to provide the optimal health care for their patients.

Methods for Assessing Trainee Competence

Depending upon the specific area that the trainee is being evaluated in, the following methods may be used to evaluate the trainee's performance:

- Direct observation by qualified faculty during a) work and teaching rounds, b) patient history-taking and physical examination, c) procedures, and d) conferences
- Log books (preferably computerized) and objective competency determinations for all endoscopic procedures and all level 2 skills
- Periodic patient care record reviews
- Portfolios (a collection of products prepared by the trainee that provides evidence of learning and achievement related to the learning plan. It might include a log of clinical procedures performed; a summary of the research literature reviewed when selecting a treatment option; a quality improvement project plan and report of results; ethical dilemmas faced and how they were handled; a computer program that tracks patient care outcomes; or a recording or transcript of counseling provided to patients, etc.)
- Patient surveys
- 360° evaluations (an evaluation method that incorporates feedback by all members of the health care team, colleagues, and patients). This "full circle" evaluation provides multiple perspectives on one's performance.
- Formal in-service examinations to test the clinical skills and medical knowledge of the trainee, including mastery of interpretation of endoscopic, radiologic, and pathologic findings

II. Evaluation of Graduates

The training director should attempt to evaluate the performance of graduates from the program on a routine basis. Suggested components of this evaluation include the following:

- a. Scores on Certification and Recertification examinations administered by the ABIM
- b. Licensure and practice status of graduates
- c. Involvement in postgraduate educational courses and other Continuing Medical Education (CME) programs
- d. Involvement in teaching and research activities
- e. Publications

III. Evaluation of Training Program and Faculty

Training programs, including curricular and faculty performance, must be evaluated in a rigorous and meaningful fashion on a regular basis.

- a. Graduates should be surveyed at intervals about the relevance of what they were taught to their current activities and areas in which additional educational efforts by the training programs are needed.
- b. Trainees must be given the opportunity to anonymously evaluate the faculty and training program at regular intervals, but minimally at the end of each rotation.
- c. The program director must regularly meet with the faculty and trainees to evaluate the curriculum and whether the training objectives are being met.
- d. Standardized testing should be used to assess the individual performance of trainees, as well as the program's success in achieving its specified educational milestones.