ACGME Program Requirements for Graduate Medical Education in General Surgery

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Introduction

Int.A. Residency is an essential dimension of the transformation of the medical student to the independent practitioner along the continuum of medical education. It is physically, emotionally, and intellectually demanding, and requires longitudinally-concentrated effort on the part of the resident.

The specialty education of physicians to practice independently is experiential, and necessarily occurs within the context of the health care delivery system. Developing the skills, knowledge, and attitudes leading to proficiency in all the domains of clinical competency requires the resident physician to assume personal responsibility for the care of individual patients. For the resident, the essential learning activity is interaction with patients under the guidance and supervision of faculty members who give value, context, and meaning to those interactions. As residents gain experience and demonstrate growth in their ability to care for patients, they assume roles that permit them to exercise those skills with greater independence. This concept—graded and progressive responsibility—is one of the core tenets of American graduate medical education. Supervision in the setting of graduate medical education has the goals of assuring the provision of safe and effective care to the individual patient; assuring each resident’s development of the skills, knowledge, and attitudes required to enter the unsupervised practice of medicine; and establishing a foundation for continued professional growth.

Int.B. Definition and Scope of the Specialty

The goal of a surgical residency program is to prepare the resident to function as a qualified practitioner of surgery at the advanced level of performance expected of a board-certified specialist. The education of surgeons in the practice of general surgery encompasses both didactic instruction in the basic and clinical sciences of surgical diseases and conditions, as well as education in procedural skills and operative techniques. The educational process must lead to the acquisition of an appropriate fund of knowledge and technical skills, the ability to integrate the acquired knowledge into the clinical situation, and the development of surgical judgment.

Int.C. Duration and Scope of Education

The length of a surgery residency program is five clinical years. *(Core)*

I. Institutions

I.A. Sponsoring Institution

One sponsoring institution must assume ultimate responsibility for the
program, as described in the Institutional Requirements, and this responsibility extends to resident assignments at all participating sites.  

(Core)

The sponsoring institution and the program must ensure that the program director has sufficient protected time and financial support for his or her educational and administrative responsibilities to the program.  

(Core)

I.A.1. An accredited surgery program must be conducted in an institution that can document a sufficient breadth of patient care. At a minimum, the institution must routinely care for patients with a broad spectrum of surgical diseases and conditions, including all of the essential content areas in surgical education. In addition, these institutions must include facilities and staff for a variety of other services that provide a critical role in the care of patients with surgical conditions, including radiology and pathology.  

(Detail)

I.A.2. The program director must be provided with a minimum of 30% protected time, which may take the form of direct or indirect salary support, such as release from clinical activities provided by the institution.  

(Core)

I.B. Participating Sites

I.B.1. There must be a program letter of agreement (PLA) between the program and each participating site providing a required assignment. The PLA must be renewed at least every five years.  

(Detail)

The PLA should:

I.B.1.a) identify the faculty who will assume both educational and supervisory responsibilities for residents;  

(Detail)

I.B.1.b) specify their responsibilities for teaching, supervision, and formal evaluation of residents, as specified later in this document;  

(Detail)

I.B.1.c) specify the duration and content of the educational experience; and,  

(Detail)

I.B.1.d) state the policies and procedures that will govern resident education during the assignment.  

(Detail)

I.B.2. The program director must submit any additions or deletions of participating sites routinely providing an educational experience, required for all residents, of one month full time equivalent (FTE) or more through the Accreditation Council for Graduate Medical Education (ACGME) Accreditation Data System (ADS).  

(Core)

I.B.3. Integrated and Non-Integrated Sites

An integrated or non-integrated site is defined as any site to which
residents rotate for an assigned experience. There are two types of institutional relationships: integrated and non-integrated.

I.B.3.a) An integrated site contributes substantially to the educational activities of the residency program.

I.B.3.a).(1) The program director must appoint the members of the teaching staff and the local program director at an integrated site. (Detail)

I.B.3.a).(2) The faculty at an integrated site must demonstrate a commitment to scholarly pursuits. (Detail)

I.B.3.a).(3) Clinical experiences in the essential content areas should be obtained in integrated sites. Exceptions will be considered on a case-by-case basis. (Detail)

I.B.3.a).(4) An integrated site should be in geographic proximity to allow all residents to attend core conferences. If the integrated site is geographically remote and joint conferences cannot be held, an equivalent educational program of lectures and conferences in the integrated site must occur and must be fully documented. Morbidity and mortality reviews must occur at each integrated site or at a combined central location. (Detail)

I.B.3.a).(5) Integration will not be approved between two sites if both have an accredited residency program in the same specialty. (Detail)

I.B.3.a).(6) Chief residents may be assigned only to participating integrated sites or to the primary clinical site/sponsoring institution. (Detail)

I.B.3.b) A participating non-integrated site should supplement resident education by providing focused clinical experience not available at the primary clinical site or at the integrated site. (Detail)

I.B.3.b).(1) Assignment to participating non-integrated sites must have a clear educational rationale. (Detail)

I.B.3.b).(2) Advance approval of the Review Committee is required for resident assignment of six months or more at a participating non-integrated site. (Detail)

I.B.3.b).(3) Advance approval of the Review Committee is not required for resident assignment of less than six months, but the educational rationale for such assignments will be evaluated at the time of each site-visit and accreditation review. (Detail)
II. Program Personnel and Resources

II.A. Program Director

II.A.1. There must be a single program director with authority and accountability for the operation of the program. The sponsoring institution's GMEC must approve a change in program director. (Core)

II.A.1.a) The program director must submit this change to the ACGME via the ADS. (Core)

II.A.2. The program director should continue in his or her position for a length of time adequate to maintain continuity of leadership and program stability. (Detail)

II.A.2.a) The program director's initial appointment should be for at least six years. (Core)

II.A.3. Qualifications of the program director must include:

II.A.3.a) requisite specialty expertise and documented educational and administrative experience acceptable to the Review Committee; (Core)

II.A.3.b) current certification in the specialty by the American Board of Surgery, or specialty qualifications that are acceptable to the Review Committee; (Core)

II.A.3.c) current medical licensure and appropriate medical staff appointment; (Core)

II.A.3.d) unrestricted credentials at the primary clinical site/sponsoring institution, and license to practice medicine in the state where the sponsoring institution is located; and, (Detail)

II.A.3.e) scholarly activity in at least one of the areas of scholarly activity delineated in Section II.B.5 of this document. (Detail)

II.A.4. The program director must administer and maintain an educational environment conducive to educating the residents in each of the ACGME competency areas. (Core)

The program director must:

II.A.4.a) oversee and ensure the quality of didactic and clinical education in all sites that participate in the program; (Core)

II.A.4.b) approve a local director at each participating site who is accountable for resident education; (Core)

II.A.4.c) approve the selection of program faculty as appropriate; (Core)
II.A.4.d) evaluate program faculty; \((\text{Core})\)

II.A.4.e) approve the continued participation of program faculty based on evaluation; \((\text{Core})\)

II.A.4.f) monitor resident supervision at all participating sites; \((\text{Core})\)

II.A.4.g) prepare and submit all information required and requested by the ACGME. \((\text{Core})\)

II.A.4.g).(1) This includes but is not limited to the program application forms and annual program resident updates to the ADS, and ensure that the information submitted is accurate and complete. \((\text{Core})\)

II.A.4.h) ensure compliance with grievance and due process procedures as set forth in the Institutional Requirements and implemented by the sponsoring institution; \((\text{Detail})\)

II.A.4.i) provide verification of residency education for all residents, including those who leave the program prior to completion; \((\text{Detail})\)

II.A.4.j) implement policies and procedures consistent with the institutional and program requirements for resident duty hours and the working environment, including moonlighting, \((\text{Core})\)

and, to that end, must:

II.A.4.j).(1) distribute these policies and procedures to the residents and faculty; \((\text{Detail})\)

II.A.4.j).(2) monitor resident duty hours, according to sponsoring institutional policies, with a frequency sufficient to ensure compliance with ACGME requirements, \((\text{Core})\)

II.A.4.j).(3) adjust schedules as necessary to mitigate excessive service demands and/or fatigue; and, \((\text{Detail})\)

II.A.4.j).(4) if applicable, monitor the demands of at-home call and adjust schedules as necessary to mitigate excessive service demands and/or fatigue. \((\text{Detail})\)

II.A.4.k) monitor the need for and ensure the provision of back up support systems when patient care responsibilities are unusually difficult or prolonged; \((\text{Detail})\)

II.A.4.l) comply with the sponsoring institution’s written policies and procedures, including those specified in the Institutional
Requirements, for selection, evaluation and promotion of residents, disciplinary action, and supervision of residents;
(Detail)

II.A.4.m) be familiar with and comply with ACGME and Review Committee policies and procedures as outlined in the ACGME Manual of Policies and Procedures;
(Detail)

II.A.4.n) obtain review and approval of the sponsoring institution’s GMEC/DIO before submitting information or requests to the ACGME, including:
(Core)

II.A.4.n).(1) all applications for ACGME accreditation of new programs;
(Detail)

II.A.4.n).(2) changes in resident complement;
(Detail)

II.A.4.n).(3) major changes in program structure or length of training;
(Detail)

II.A.4.n).(4) progress reports requested by the Review Committee;
(Detail)

II.A.4.n).(5) responses to all proposed adverse actions;
(Detail)

II.A.4.n).(6) requests for increases or any change to resident duty hours;
(Detail)

II.A.4.n).(7) voluntary withdrawals of ACGME-accredited programs;
(Detail)

II.A.4.n).(8) requests for appeal of an adverse action;
(Detail)

II.A.4.n).(9) appeal presentations to a Board of Appeal or the ACGME; and,
(Detail)

II.A.4.n).(10) proposals to ACGME for approval of innovative educational approaches.

II.A.4.o) obtain DIO review and co-signature on all program application forms, as well as any correspondence or document submitted to the ACGME that addresses:
(Detail)

II.A.4.o).(1) program citations, and/or;
(Detail)

II.A.4.o).(2) request for changes in the program that would have significant impact, including financial, on the program or institution.
(Detail)

II.A.4.p) devote his or her principal effort to the program.
(Detail)
II.A.4.q) designate other well-qualified surgeons to assist in the supervision and education of the residents; (Detail)

II.A.4.r) be responsible for all clinical assignments and input into the teaching staff appointments at all sites; (Core)

II.A.4.s) along with the faculty, be responsible for the preparation and implementation of a comprehensive, effective, and well-organized educational curriculum; (Core)

II.A.4.t) ensure that conferences be scheduled to permit resident attendance on a regular basis, and resident time must be protected from interruption by routine clinical duties. Documentation of attendance by 75% of residents at the core conferences must be achieved; (Detail)

II.A.4.u) ensure that the following types of conferences exist within a program:

II.A.4.u).(1) a course or a structured series of lectures that ensures education in the basic and clinical sciences fundamental to surgery, including technological advances that relate to surgery and the care of patients with surgical diseases, as well as education in critical thinking, design of experiments and evaluation of data; (Detail)

II.A.4.u).(2) regular organized clinical teaching, such as grand rounds, ward rounds, and clinical conferences; (Detail)

II.A.4.u).(3) a weekly morbidity and mortality or quality improvement conference. (Core)

II.A.4.u).(3).(a) Sole reliance on textbook review is inadequate;

II.A.4.v) along with the physician faculty, assess the technical competence of each resident. (Core)

II.A.4.v).(1) The Review Committee requires that each resident perform a minimum number of certain cases for accreditation. Performance of this minimum number of cases by a resident must not be interpreted as an equivalent to competence achievement; (Detail)

II.A.4.w) ensure that each resident has at least 750 major cases across the five years of training. This must include a minimum of 150 major cases in the resident’s chief year; (Core)

II.A.4.x) ensure that residents have required experience with a variety of endoscopic procedures, including esophagastro-duodenoscopy, colonoscopy and bronchoscopy as well as experience in advanced laparoscopy; and, (Core)
II.A.4.y) ensure that residents have required experience with evolving diagnostic and therapeutic methods. (Core)

II.A.4.z) appoint an associate program director for programs with more than 20 categorical residents. (Detail)

II.B. Faculty

II.B.1. At each participating site, there must be a sufficient number of faculty with documented qualifications to instruct and supervise all residents at that location. (Core)

The faculty must:

II.B.1.a) devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities; and to demonstrate a strong interest in the education of residents; and, (Core)

II.B.1.b) administer and maintain an educational environment conducive to educating residents in each of the ACGME competency areas. (Core)

II.B.1.c) for each approved chief resident position, consist of at least one full-time faculty member in addition to the program director (i.e., if there are three approved chief residents, there must be at least four fulltime faculty). The major function of these faculty is to support the program. These faculty must be appointed for a period sufficient to ensure continuity in the educational activities of the residency program; and, (Core)

II.B.2. The physician faculty must have current certification in the specialty by the American Board of Surgery, or possess qualifications judged acceptable to the Review Committee. (Core)

II.B.3. The physician faculty must possess current medical licensure and appropriate medical staff appointment. (Core)

II.B.4. The nonphysician faculty must have appropriate qualifications in their field and hold appropriate institutional appointments. (Core)

II.B.5. The faculty must establish and maintain an environment of inquiry and scholarship with an active research component. (Core)

II.B.5.a) The faculty must regularly participate in organized clinical discussions, rounds, journal clubs, and conferences. (Detail)

II.B.5.b) Some members of the faculty should also demonstrate scholarship by one or more of the following:
II.B.5.b).(1) peer-reviewed funding; (Detail)

II.B.5.b).(2) publication of original research or review articles in peer-reviewed journals, or chapters in textbooks; (Detail)

II.B.5.b).(3) publication or presentation of case reports or clinical series at local, regional, or national professional and scientific society meetings; or, (Detail)

II.B.5.b).(4) participation in national committees or educational organizations. (Detail)

II.B.5.c) Faculty should encourage and support residents in scholarly activities. (Core)

II.B.5.d) The faculty must collectively document active involvement in scholarly activity. (Detail)

II.B.5.e) While not all members of the faculty can be investigators, clinical and/or basic science research must be:

II.B.5.e).(1) ongoing in the residency program; (Detail)

II.B.5.e).(2) based at the institution where residents spend the majority of their clinical time; and, (Detail)

II.B.5.e).(3) performed by faculty with frequent, direct resident involvement. (Detail)

II.B.5.f) Resident research is not a substitute for the involvement of the program director and faculty in research.

II.C. Other Program Personnel

The institution and the program must jointly ensure the availability of all necessary professional, technical, and clerical personnel for the effective administration of the program. (Core)

II.C.1. There must be a full-time surgery program coordinator designated specifically for surgical education. (Core)

II.C.1.a) Programs with more than 20 residents should be provided with additional administrative personnel. (Core)

II.D. Resources

The institution and the program must jointly ensure the availability of adequate resources for resident education, as defined in the specialty program requirements. (Core)

II.D.1. These resources must include:
II.D.1.a) a common office space for residents that includes a sufficient number of computers and adequate workspace at the primary clinical site; (Core)

II.D.1.b) internet access to appropriate full-text journals and electronic medical reference resources for education and patient care at all participating sites; (Core)

II.D.1.c) on-line radiographic and laboratory reporting systems at the primary clinical site and integrated sites; and, (Core)

II.D.1.d) software resources for production of presentations, manuscripts, and portfolios. (Core)

II.D.2. Resources must include simulation and skills laboratories. These facilities must address acquisition and maintenance of skills with a competency-based method of evaluation. (Core)

II.D.3. The institutional volume and variety of operative experience must be adequate to ensure a sufficient number and distribution of complex cases (as determined by the Review Committee) for each resident in the program. (Core)

II.E. Medical Information Access

Residents must have ready access to specialty-specific and other appropriate reference material in print or electronic format. Electronic medical literature databases with search capabilities should be available. (Detail)

III. Resident Appointments

III.A. Eligibility Criteria

The program director must comply with the criteria for resident eligibility as specified in the Institutional Requirements. (Core)

III.A.1. Programs must comply with the resident eligibility and admission prerequisites as outlined in the Institutional Requirements. (Core)

III.B. Number of Residents

The program’s educational resources must be adequate to support the number of residents appointed to the program. (Core)

III.B.1. The program director may not appoint more residents than approved by the Review Committee, unless otherwise stated in the specialty-specific requirements. (Core)

III.B.2. All resident positions must be approved in advance by the Review
III.B.3. Residency positions must be allocated to one of two groups: categorical or preliminary positions. (Detail)

III.B.3.a) Categorical (C) residents are accepted into the residency program with the expectation of completing the surgery program, assuming satisfactory performance. (Core)

III.B.3.a).(1) At the PG1, PG2, PG3, and PG4 levels, the number of categorical residents must not exceed the number of approved chief residency positions. (Detail)

III.B.3.b) Preliminary (P) residents are accepted into the program for one or two years before continuing their education. (Core)

III.B.3.b).(1) The number of preliminary positions in the PG1 and PG2 years combined must not exceed 300% of the number of approved categorical chief resident positions. (Detail)

III.B.3.b).(2) Documentation of continuation in graduate medical education for the preliminary residents must be provided at the time of each site visit. (Detail)

III.B.3.b).(3) It is the responsibility of the program director to counsel and assist preliminary residents in obtaining future positions. (Detail)

III.B.4. Increases in resident complement:

III.B.4.a) Both temporary and permanent increases in resident complement must be approved in advance by the Review Committee. (Core)

III.B.4.b) A sound educational rationale for an increase in complement must be submitted. Documentation of adequate clinical material and complex operative cases, as well as documentation of a quality didactic education, must also be submitted. A clearly outlined block diagram must accompany the request to illustrate the proposed clinical assignments. (Detail)

III.C. Resident Transfers

III.C.1. Before accepting a resident who is transferring from another program, the program director must obtain written or electronic verification of previous educational experiences and a summative competency-based performance evaluation of the transferring resident. (Detail)

III.C.1.a) The final two years of residency education (i.e., the PG 4 and PG 5 [chief] years) must be spent in the same program. (Core)
III.C.2. A program director must provide timely verification of residency education and summative performance evaluations for residents who may leave the program prior to completion. (Detail)

III.D. Appointment of Fellows and Other Learners

The presence of other learners (including, but not limited to, residents from other specialties, subspecialty fellows, PhD students, and nurse practitioners) in the program must not interfere with the appointed residents' education. (Core)

III.D.1. The program director must report the presence of other learners to the DIO and GMEC in accordance with sponsoring institution guidelines. (Detail)

III.D.2. All trainees in both ACGME-accredited and non-accredited programs in the sponsoring and integrated sites that may impact the educational experience of the surgery residents must be identified and their relationship to the surgery residents must be detailed. (Detail)

III.D.3. A chief resident and a fellow (whether the fellow is in an ACGME-accredited position or not) must not have primary responsibility for the same patient except that general surgeon and surgical critical care fellows may co-manage the non-operative care of the same patient. (Core)

IV. Educational Program

IV.A. The curriculum must contain the following educational components:

IV.A.1. Overall educational goals for the program, which the program must make available to residents and faculty; (Core)

IV.A.2. Competency-based goals and objectives for each assignment at each educational level, which the program must distribute to residents and faculty at least annually, in either written or electronic form; (Core)

IV.A.3. Regularly scheduled didactic sessions; (Core)

IV.A.4. Delineation of resident responsibilities for patient care, progressive responsibility for patient management, and supervision of residents over the continuum of the program; and, (Core)

IV.A.5. ACGME Competencies

The program must integrate the following ACGME competencies into the curriculum: (Core)

IV.A.5.a) Patient Care and Procedural Skills

IV.A.5.a).1) Residents must be able to provide patient care that is
compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. (Outcome)

IV.A.5.a).(2) Residents must be able to competently perform all medical, diagnostic, and surgical procedures considered essential for the area of practice. Residents: (Outcome)

IV.A.5.a).(2).(a) must demonstrate competence in manual dexterity appropriate for their level; and, (Outcome)

IV.A.5.a).(2).(b) must develop competence in and execute patient care plans appropriate for the resident's level, including management of pain. (Outcome)

IV.A.5.b) Medical Knowledge

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents: (Outcome)

IV.A.5.b).(1) must demonstrate competence in the critical evaluation and demonstration of knowledge of pertinent scientific information; (Outcome)

IV.A.5.b).(2) must demonstrate knowledge of the fundamentals of basic science as applied to clinical surgery; and, (Outcome)

IV.A.5.b).(2).(a) Residents must participate in an educational program that includes: applied surgical anatomy and surgical pathology; the elements of wound healing; homeostasis, shock and circulatory physiology; hematologic disorders; immunobiology and transplantation; oncology; surgical endocrinology; surgical nutrition, fluid and electrolyte balance; and the metabolic response to injury, including burns. (Core)

IV.A.5.b).(3) must demonstrate knowledge of the principles of immunology, immunosuppression, and the management of general surgical conditions arising in transplant patients. (Outcome)

IV.A.5.c) Practice-based Learning and Improvement

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning.
Residents are expected to develop skills and habits to be able to meet the following goals:

**IV.A.5.c).(1)** identify strengths, deficiencies, and limits in one’s knowledge and expertise; **(Outcome)**

**IV.A.5.c).(2)** set learning and improvement goals; **(Outcome)**

**IV.A.5.c).(3)** identify and perform appropriate learning activities; **(Outcome)**

**IV.A.5.c).(4)** systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; **(Outcome)**

**IV.A.5.c).(5)** incorporate formative evaluation feedback into daily practice; **(Outcome)**

**IV.A.5.c).(6)** locate, appraise, and assimilate evidence from scientific studies related to their patients’ health problems; **(Outcome)**

**IV.A.5.c).(7)** use information technology to optimize learning; **(Outcome)**

**IV.A.5.c).(8)** participate in the education of patients, families, students, residents and other health professionals; **(Outcome)**

**IV.A.5.c).(9)** participate in mortality and morbidity conferences that evaluate and analyze patient care outcomes; and, **(Outcome)**

**IV.A.5.c).(10)** utilize an evidence-based approach to patient care. **(Outcome)**

**IV.A.5.d)** Interpersonal and Communication Skills

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. **(Outcome)**

Residents are expected to:

**IV.A.5.d).(1)** communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds; **(Outcome)**

**IV.A.5.d).(2)** communicate effectively with physicians, other health professionals, and health related agencies; **(Outcome)**
IV.A.5.d).(3) work effectively as a member or leader of a health care team or other professional group; (Outcome)

IV.A.5.d).(4) act in a consultative role to other physicians and health professionals; (Outcome)

IV.A.5.d).(5) maintain comprehensive, timely, and legible medical records, if applicable; (Outcome)

IV.A.5.d).(6) counsel and educate patients and families; and, (Outcome)

IV.A.5.d).(7) effectively document practice activities. (Outcome)

IV.A.5.e) Professionalism

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. (Outcome)

Residents are expected to demonstrate:

IV.A.5.e).(1) compassion, integrity, and respect for others; (Outcome)

IV.A.5.e).(2) responsiveness to patient needs that supersedes self-interest; (Outcome)

IV.A.5.e).(3) respect for patient privacy and autonomy; (Outcome)

IV.A.5.e).(4) accountability to patients, society and the profession; (Outcome)

IV.A.5.e).(5) sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation; (Outcome)

IV.A.5.e).(6) high standards of ethical behavior; and, (Outcome)

IV.A.5.e).(7) a commitment to continuity of patient care. (Outcome)

IV.A.5.f) Systems-based Practice

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. (Outcome)

Residents are expected to:
IV.A.5.f).(1) work effectively in various health care delivery settings and systems relevant to their clinical specialty; (Outcome)

IV.A.5.f).(2) coordinate patient care within the health care system relevant to their clinical specialty; (Outcome)

IV.A.5.f).(3) incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate; (Outcome)

IV.A.5.f).(4) advocate for quality patient care and optimal patient care systems; (Outcome)

IV.A.5.f).(5) work in interprofessional teams to enhance patient safety and improve patient care quality; (Outcome)

IV.A.5.f).(6) participate in identifying system errors and implementing potential systems solutions (Outcome)

IV.A.5.f).(7) practice high quality, cost effective patient care; (Outcome)

IV.A.5.f).(8) demonstrate knowledge of risk-benefit analysis; and, (Outcome)

IV.A.5.f).(9) demonstrate an understanding of the role of different specialists and other health care professionals in overall patient management. (Outcome)

IV.A.6. Curriculum Organization and Resident Experiences

IV.A.6.a) Residents will participate in a program that must document a clinical curriculum that is sequential, comprehensive, and organized from basic to complex. (Core)

IV.A.6.a).(1) The clinical assignments should be carefully structured to ensure that graded levels of responsibility, continuity in patient care, a balance between education and service, and progressive clinical experiences are achieved for each resident. (Core)

IV.A.6.a).(2) The 60-month clinical program should be organized as follows: (Core)

IV.A.6.a).(2).(a) At least 54 months of the 60-month program must be spent on clinical assignments in surgery, with documented experience in emergency care and surgical critical care in order to enable residents to manage patients with severe and complex illnesses and with major injuries. (Core)
IV.A.6.a).(2).(b) 42 months of these 54 months must be spent on clinical assignments in the essential content areas of surgery. (Core)

IV.A.6.a).(2).(b).(i) The essential content areas are: the abdomen and its contents; the alimentary tract; skin, soft tissues, and breast; endocrine surgery; head and neck surgery; pediatric surgery; surgical critical care; surgical oncology; trauma and non-operative trauma (burn experience that includes patient management may be counted toward non-operative trauma); and the vascular system; (Core)

IV.A.6.a).(2).(c) A formal rotation in burn care, gynecology, neurological surgery, orthopaedic surgery, cardiac surgery, and urology is not required. Clearly documented goals and objectives must be presented if these components are included as rotations. (Detail)

IV.A.6.a).(2).(c).(i) Knowledge of burn physiology and initial burn management is required; (Core)

IV.A.6.a).(2).(d) A formal transplant experience is required. It must include patient management. (Core)

IV.A.6.a).(2).(d).(i) Clearly documented goals and objectives must be presented for this experience; (Detail)

IV.A.6.a).(2).(e) No more than six months total may be allocated to research or to non-surgical disciplines such as anesthesiology, internal medicine, pediatrics, or surgical pathology. (Core)

IV.A.6.a).(2).(e).(i) Gastroenterology is exempt from this limit if this rotation provides endoscopic experiences. (Detail)

IV.A.6.a).(2).(f) The Chief Year

IV.A.6.a).(2).(f).(i) Clinical assignments at the chief resident level should be scheduled in the final (5th) year of the program. (Core)

IV.A.6.a).(2).(f).(i).(a) To take advantage of a unique
IV.A.6.a).(2).(f).(ii) This experience must not occur any earlier than the 4th clinical year. Any special Program of this type must be approved in advance by the Review Committee. Operative cases counted as the chief cases must be performed during the 12 months designated as the chief year. (Detail)

IV.A.6.a).(2).(f).(iii) The clinical assignments during the chief year must be scheduled at the primary clinical site or at participating integrated site(s). (Core)

IV.A.6.a).(2).(f).(iv) Clinical assignments during the chief year must be in the essential content areas of general surgery. No more than six months of the chief year may be devoted exclusively to only one essential content area. (Core)

IV.A.6.a).(2).(f).(v) Noncardiac thoracic surgery and transplantation rotations may be considered an acceptable chief resident assignment as long as the chief resident performs an appropriate number of complex cases with documented participation in pre and post-operative care (program director may use the flexibility outlined in Program Requirement IV.A.6.a).(2).(f).(i).(a)). (Detail)

IV.A.6.b) Operative Experience

IV.A.6.b).(1) The program must document that residents are performing a sufficient breadth of complex procedures to graduate qualified surgeons. (Core)

IV.A.6.b).(2) All residents (categorical and preliminary residents in ACGME-accredited positions) must enter their operative experience concurrently during each year of the residency in the ACGME case log system. (Core)

IV.A.6.b).(3) A resident may be considered the surgeon only when he or she can document a significant role in the following aspects of management: determination or confirmation of the diagnosis, provision of preoperative care, selection, and accomplishment of the appropriate operative procedure, and direction of the postoperative care. (Core)
IV.A.6.b).(4) When justified by experience, a PG 5 (chief) resident may act as a teaching assistant (TA) to a more junior resident with appropriate faculty supervision. Up to 50 cases listed by the chief resident as TA will be credited for the total requirement of 750 cases. TA cases may not count towards the 150 minimum cases needed to fulfill the operative requirements for the chief resident year. The junior resident performing the case will also be credited as surgeon for these cases. (Detail)

IV.A.6.b).(5) Each program is required to provide residents with an outpatient experience to evaluate patients both pre-operatively, including initial evaluation, and post-operatively. (Core)

IV.A.6.b).(6) At least 75% of the assignments in the essential content areas must include an outpatient experience of 1/2 day per week. (An outpatient experience is not required for assignments in the secondary components of surgery or surgical critical care). (Detail)

IV.B. Residents’ Scholarly Activities

IV.B.1. The curriculum must advance residents’ knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care. (Core)

IV.B.2. Residents should participate in scholarly activity. (Core)

IV.B.2.a) The participation of residents in clinical and/or laboratory research is encouraged. (Detail)

IV.B.3. The sponsoring institution and program should allocate adequate educational resources to facilitate resident involvement in scholarly activities. (Detail)

V. Evaluation

V.A. Resident Evaluation

V.A.1. The program director must appoint the Clinical Competency Committee. (Core)

V.A.1.a) At a minimum the Clinical Competency Committee must be composed of three members of the program faculty. (Core)

V.A.1.a).(1) Others eligible for appointment to the committee include faculty from other programs and non-physician members of the health care team. (Detail)
V.A.1.b) There must be a written description of the responsibilities of the Clinical Competency Committee. (Core)

V.A.1.b).(1) The Clinical Competency Committee should:

V.A.1.b).(1).(a) review all resident evaluations semi-annually; (Core)

V.A.1.b).(1).(b) prepare and assure the reporting of Milestones evaluations of each resident semi-annually to ACGME; and, (Core)

V.A.1.b).(1).(c) advise the program director regarding resident progress, including promotion, remediation, and dismissal. (Detail)

V.A.2. Formative Evaluation

V.A.2.a) The faculty must evaluate resident performance in a timely manner during each rotation or similar educational assignment, and document this evaluation at completion of the assignment. (Core)

V.A.2.b) The program must:

V.A.2.b).(1) provide objective assessments of competence in patient care and procedural skills, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice based on the specialty-specific Milestones; (Core)

V.A.2.b).(2) use multiple evaluators (e.g., faculty, peers, patients, self, and other professional staff); (Detail)

V.A.2.b).(3) document progressive resident performance improvement appropriate to educational level; and, (Core)

V.A.2.b).(4) provide each resident with documented semiannual evaluation of performance with feedback. (Core)

V.A.2.c) The evaluations of resident performance must be accessible for review by the resident, in accordance with institutional policy. (Detail)

V.A.2.d) Semiannual assessment must include a review of case volume, breadth, and complexity, and must ensure that residents are entering cases concurrently. (Core)

V.A.2.e) Assessment should specifically monitor the resident's knowledge
by use of a formal exam such as the American Board of Surgery In Training Examination (ABSITE) or other cognitive exams. Test results should not be the sole criterion of resident knowledge, and should not be used as the sole criterion for promotion to a subsequent PG level. (Core)

V.A.3. Summative Evaluation
V.A.3.a) The specialty-specific Milestones must be used as one of the tools to ensure residents are able to practice core professional activities without supervision upon completion of the program. (Core)

V.A.3.b) The program director must provide a summative evaluation for each resident upon completion of the program. (Core)

This evaluation must:

V.A.3.b).(1) become part of the resident's permanent record maintained by the institution, and must be accessible for review by the resident in accordance with institutional policy; (Detail)

V.A.3.b).(2) document the resident's performance during the final period of education; and, (Detail)

V.A.3.b).(3) verify that the resident has demonstrated sufficient competence to enter practice without direct supervision. (Detail)

V.B. Faculty Evaluation
V.B.1. At least annually, the program must evaluate faculty performance as it relates to the educational program. (Core)

V.B.2. These evaluations should include a review of the faculty’s clinical teaching abilities, commitment to the educational program, clinical knowledge, professionalism, and scholarly activities. (Detail)

V.B.3. This evaluation must include at least annual written confidential evaluations by the residents. (Detail)

V.C. Program Evaluation and Improvement
V.C.1. The program director must appoint the Program Evaluation Committee (PEC). (Core)

V.C.1.a) The Program Evaluation Committee:

V.C.1.a).(1) must be composed of at least two program faculty members and should include at least one resident;
V.C.1.a).(2) must have a written description of its responsibilities; and,
V.C.1.a).(3) should participate actively in:

V.C.1.a).(3).(a) planning, developing, implementing, and evaluating educational activities of the program;
V.C.1.a).(3).(b) reviewing and making recommendations for revision of competency-based curriculum goals and objectives;
V.C.1.a).(3).(c) addressing areas of non-compliance with ACGME standards; and,
V.C.1.a).(3).(d) reviewing the program annually using evaluations of faculty, residents, and others, as specified below.

V.C.2. The program, through the PEC, must document formal, systematic evaluation of the curriculum at least annually, and is responsible for rendering a written and Annual Program Evaluation (APE).

The program must monitor and track each of the following areas:

V.C.2.a) resident performance;
V.C.2.b) faculty development;
V.C.2.c) graduate performance, including performance of program graduates on the certification examination;

V.C.2.c).(1) The performance of program graduates on the certification examination should be used as one measure of evaluating program effectiveness. At minimum, for the most recent five-year period, 65% of the graduates must pass each of the qualifying and certifying examinations on the first attempt.

V.C.2.d) program quality; and,

V.C.2.d).(1) Residents and faculty must have the opportunity to evaluate the program confidentially and in writing at least annually, and
V.C.2.d).(2) The program must use the results of residents’ and faculty members’ assessments of the program together with other program evaluation results to
improve the program. (Detail)

V.C.2.e) progress on the previous year’s action plan(s). (Core)

V.C.3. The PEC must prepare a written plan of action to document initiatives to improve performance in one or more of the areas listed in section V.C.2., as well as delineate how they will be measured and monitored. (Core)

V.C.3.a) The action plan should be reviewed and approved by the teaching faculty and documented in meeting minutes. (Detail)

VI. Resident Duty Hours in the Learning and Working Environment

VI.A. Professionalism, Personal Responsibility, and Patient Safety

VI.A.1. Programs and sponsoring institutions must educate residents and faculty members concerning the professional responsibilities of physicians to appear for duty appropriately rested and fit to provide the services required by their patients. (Core)

VI.A.2. The program must be committed to and responsible for promoting patient safety and resident well-being in a supportive educational environment. (Core)

VI.A.3. The program director must ensure that residents are integrated and actively participate in interdisciplinary clinical quality improvement and patient safety programs. (Core)

VI.A.4. The learning objectives of the program must:

VI.A.4.a) be accomplished through an appropriate blend of supervised patient care responsibilities, clinical teaching, and didactic educational events; and, (Core)

VI.A.4.b) not be compromised by excessive reliance on residents to fulfill non-physician service obligations. (Core)

VI.A.5. The program director and institution must ensure a culture of professionalism that supports patient safety and personal responsibility. (Core)

VI.A.6. Residents and faculty members must demonstrate an understanding and acceptance of their personal role in the following:

VI.A.6.a) assurance of the safety and welfare of patients entrusted to their care; (Outcome)

VI.A.6.b) provision of patient- and family-centered care; (Outcome)

VI.A.6.c) assurance of their fitness for duty; (Outcome)
VI.A.6.d) management of their time before, during, and after clinical assignments; (Outcome)

VI.A.6.e) recognition of impairment, including illness and fatigue, in themselves and in their peers; (Outcome)

VI.A.6.f) attention to lifelong learning; (Outcome)

VI.A.6.g) the monitoring of their patient care performance improvement indicators; and, (Outcome)

VI.A.6.h) honest and accurate reporting of duty hours, patient outcomes, and clinical experience data. (Outcome)

VI.A.7. All residents and faculty members must demonstrate responsiveness to patient needs that supersedes self-interest. They must recognize that under certain circumstances, the best interests of the patient may be served by transitioning that patient's care to another qualified and rested provider. (Outcome)

VI.B. Transitions of Care

VI.B.1. Programs must design clinical assignments to minimize the number of transitions in patient care. (Core)

VI.B.2. Sponsoring institutions and programs must ensure and monitor effective, structured hand-over processes to facilitate both continuity of care and patient safety. (Core)

VI.B.3. Programs must ensure that residents are competent in communicating with team members in the hand-over process. (Outcome)

VI.B.4. The sponsoring institution must ensure the availability of schedules that inform all members of the health care team of attending physicians and residents currently responsible for each patient’s care. (Detail)

VI.C. Alertness Management/Fatigue Mitigation

VI.C.1. The program must:

VI.C.1.a) educate all faculty members and residents to recognize the signs of fatigue and sleep deprivation; (Core)

VI.C.1.b) educate all faculty members and residents in alertness management and fatigue mitigation processes; and, (Core)

VI.C.1.c) adopt fatigue mitigation processes to manage the potential negative effects of fatigue on patient care and learning, such as naps or back-up call schedules. (Detail)
VI.C.2. Each program must have a process to ensure continuity of patient care in the event that a resident may be unable to perform his/her patient care duties. (Core)

VI.C.3. The sponsoring institution must provide adequate sleep facilities and/or safe transportation options for residents who may be too fatigued to safely return home. (Core)

VI.D. Supervision of Residents

VI.D.1. In the clinical learning environment, each patient must have an identifiable, appropriately-credentialed and privileged attending physician (or licensed independent practitioner as approved by each Review Committee) who is ultimately responsible for that patient's care. (Core)

VI.D.1.a) This information should be available to residents, faculty members, and patients. (Detail)

VI.D.1.b) Residents and faculty members should inform patients of their respective roles in each patient's care. (Detail)

VI.D.2. The program must demonstrate that the appropriate level of supervision is in place for all residents who care for patients. (Core)

Supervision may be exercised through a variety of methods. Some activities require the physical presence of the supervising faculty member. For many aspects of patient care, the supervising physician may be a more advanced resident or fellow. Other portions of care provided by the resident can be adequately supervised by the immediate availability of the supervising faculty member or resident physician, either in the institution, or by means of telephonic and/or electronic modalities. In some circumstances, supervision may include post-hoc review of resident-delivered care with feedback as to the appropriateness of that care. (Detail)

VI.D.3. Levels of Supervision

To ensure oversight of resident supervision and graded authority and responsibility, the program must use the following classification of supervision: (Core)

VI.D.3.a) Direct Supervision – the supervising physician is physically present with the resident and patient. (Core)

VI.D.3.b) Indirect Supervision:

VI.D.3.b).(1) with direct supervision immediately available – the supervising physician is physically within the hospital or other site of patient care, and is immediately
VI.D.3.b).(2) with direct supervision available – the supervising physician is not physically present within the hospital or other site of patient care, but is immediately available by means of telephonic and/or electronic modalities, and is available to provide Direct Supervision. (Core)

VI.D.3.c) Oversight – the supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered. (Core)

VI.D.4. The privilege of progressive authority and responsibility, conditional independence, and a supervisory role in patient care delegated to each resident must be assigned by the program director and faculty members. (Core)

VI.D.4.a) The program director must evaluate each resident’s abilities based on specific criteria. When available, evaluation should be guided by specific national standards-based criteria. (Core)

VI.D.4.b) Faculty members functioning as supervising physicians should delegate portions of care to residents, based on the needs of the patient and the skills of the residents. (Detail)

VI.D.4.c) Senior residents or fellows should serve in a supervisory role of junior residents in recognition of their progress toward independence, based on the needs of each patient and the skills of the individual resident or fellow. (Detail)

VI.D.5. Programs must set guidelines for circumstances and events in which residents must communicate with appropriate supervising faculty members, such as the transfer of a patient to an intensive care unit, or end-of-life decisions. (Core)

VI.D.5.a) Each resident must know the limits of his/her scope of authority, and the circumstances under which he/she is permitted to act with conditional independence. (Outcome)

VI.D.5.a).(1) In particular, PGY-1 residents should be supervised either directly or indirectly with direct supervision immediately available. (Core)

VI.D.5.a).(1).(a) The program must define those physician tasks for which PGY-1 residents may be supervised indirectly, with direct supervision available, and must define “direct supervision” in the context of the program. (Detail)

VI.D.5.a).(1).(b) The program must define those physician tasks for
which PGY-1 residents must be supervised directly until they have demonstrated competence as defined by the program director, and must maintain records of such demonstrations of competence.

VI.D.5.a).(1).(c) The program should use the template of definitions provided in the FAQ or a variation of the template to develop these definitions.

VI.D.6. Faculty supervision assignments should be of sufficient duration to assess the knowledge and skills of each resident and delegate to him/her the appropriate level of patient care authority and responsibility.

VI.E. Clinical Responsibilities

The clinical responsibilities for each resident must be based on PGY-level, patient safety, resident education, severity and complexity of patient illness/condition and available support services.

VI.E.1. The workload associated with optimal clinical care of surgical patients is a continuum from the moment of admission to the point of discharge.

VI.E.2. During the residency education process, surgical teams should be made up of attending surgeons, residents at various PG levels, medical students (when appropriate), and other health care providers.

VI.E.3. The work of the caregiver team should be assigned to team members based on each resident’s level of education, experience, and competence.

VI.F. Teamwork

Residents must care for patients in an environment that maximizes effective communication. This must include the opportunity to work as a member of effective interprofessional teams that are appropriate to the delivery of care in the specialty.

VI.F.1. Effective surgical practices entail the involvement of members with a mix of complementary skills and attributes (physicians, nurses, and other staff). Success requires both an unwavering mutual respect for those skills and contributions, and a shared commitment to the process of patient care.

VI.F.2. Residents must collaborate with fellow surgical residents, and especially with faculty, other physicians outside of their specialty, and non-traditional health care providers, to best formulate treatment plans for an increasingly diverse patient population.

VI.F.3. Residents must assume personal responsibility to complete all tasks to
which they are assigned (or which they voluntarily assume) in a timely fashion. These tasks must be completed in the hours assigned, or, if that is not possible, residents must learn and utilize the established methods for handing off remaining tasks to another member of the resident team so that patient care is not compromised. 

VI.F.4. Lines of authority should be defined by programs, and all residents must have a working knowledge of these expected reporting relationships to maximize quality care and patient safety. 

VI.G. Resident Duty Hours

VI.G.1. Maximum Hours of Work per Week

Duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities and all moonlighting. 

VI.G.1.a) Duty Hour Exceptions

A Review Committee may grant exceptions for up to 10% or a maximum of 88 hours to individual programs based on a sound educational rationale. The Review Committee for General Surgery will not consider requests for exceptions to the 80-hour limit to the residents’ work week.

VI.G.1.a).(1) In preparing a request for an exception the program director must follow the duty hour exception policy from the ACGME Manual on Policies and Procedures.

VI.G.1.a).(2) Prior to submitting the request to the Review Committee, the program director must obtain approval of the institution’s GMEC and DIO.

VI.G.2. Moonlighting

VI.G.2.a) Moonlighting must not interfere with the ability of the resident to achieve the goals and objectives of the educational program.

VI.G.2.b) Time spent by residents in Internal and External Moonlighting (as defined in the ACGME Glossary of Terms) must be counted towards the 80-hour Maximum Weekly Hour Limit.

VI.G.2.c) PGY-1 residents are not permitted to moonlight.

VI.G.3. Mandatory Time Free of Duty
Residents must be scheduled for a minimum of one day free of duty every week (when averaged over four weeks). At-home call cannot be assigned on these free days. (Core)

VI.G.4. Maximum Duty Period Length

VI.G.4.a) Duty periods of PGY-1 residents must not exceed 16 hours in duration. (Core)

VI.G.4.b) Duty periods of PGY-2 residents and above may be scheduled to a maximum of 24 hours of continuous duty in the hospital. (Core)

VI.G.4.b).(1) Programs must encourage residents to use alertness management strategies in the context of patient care responsibilities. Strategic napping, especially after 16 hours of continuous duty and between the hours of 10:00 p.m. and 8:00 a.m., is strongly suggested. (Detail)

VI.G.4.b).(2) It is essential for patient safety and resident education that effective transitions in care occur. Residents may be allowed to remain on-site in order to accomplish these tasks; however, this period of time must be no longer than an additional four hours. (Core)

VI.G.4.b).(3) Residents must not be assigned additional clinical responsibilities after 24 hours of continuous in-house duty. (Core)

VI.G.4.b).(4) In unusual circumstances, residents, on their own initiative, may remain beyond their scheduled period of duty to continue to provide care to a single patient. Justifications for such extensions of duty are limited to reasons of required continuity for a severely ill or unstable patient, academic importance of the events transpiring, or humanistic attention to the needs of a patient or family. (Detail)

VI.G.4.b).(4).(a) Under those circumstances, the resident must:

VI.G.4.b).(4).(a).(i) appropriately hand over the care of all other patients to the team responsible for their continuing care; and, (Detail)

VI.G.4.b).(4).(a).(ii) document the reasons for remaining to care for the patient in question and submit that documentation in every circumstance to the program director. (Detail)
VI.G.4.b).(4).(b) The program director must review each submission of additional service, and track both individual resident and program-wide episodes of additional duty. (Detail)

VI.G.5. Minimum Time Off between Scheduled Duty Periods

VI.G.5.a) PGY-1 residents should have 10 hours, and must have eight hours, free of duty between scheduled duty periods. (Core)

VI.G.5.b) Intermediate-level residents should have 10 hours free of duty, and must have eight hours between scheduled duty periods. They must have at least 14 hours free of duty after 24 hours of in-house duty. (Core)

PGY-2 and PGY-3 residents are considered to be at the intermediate level.

VI.G.5.c) Residents in the final years of education must be prepared to enter the unsupervised practice of medicine and care for patients over irregular or extended periods. (Outcome)

Residents at the PGY-4 level and beyond are considered to be in the final years of education.

VI.G.5.c).(1) This preparation must occur within the context of the 80-hour, maximum duty period length, and one-day-off-in-seven standards. While it is desirable that residents in their final years of education have eight hours free of duty between scheduled duty periods, there may be circumstances when these residents must stay on duty to care for their patients or return to the hospital with fewer than eight hours free of duty. (Detail)

VI.G.5.c).(1).(a) Circumstances of return-to-hospital activities with fewer than eight hours away from the hospital by residents in their final years of education must be monitored by the program director. (Detail)

VI.G.5.c).(1).(b) The Review Committee defines such circumstances as: required continuity of care for a severely ill or unstable patient, or a complex patient with whom the resident has been involved; events of exceptional educational value; or, humanistic attention to the needs of a patient or family.

VI.G.6. Maximum Frequency of In-House Night Float

Residents must not be scheduled for more than six consecutive
nights of night float. (Core)

VI.G.6.a) Night float rotations must not exceed two months in duration, four months of night float per PGY level, and 15 months for the entire program. (Core)

VI.G.7. Maximum In-House On-Call Frequency

PGY-2 residents and above must be scheduled for in-house call no more frequently than every-third-night (when averaged over a four-week period). (Core)

VI.G.8. At-Home Call

VI.G.8.a) Time spent in the hospital by residents on at-home call must count towards the 80-hour maximum weekly hour limit. The frequency of at-home call is not subject to the every-third-night limitation, but must satisfy the requirement for one-day-in-seven free of duty, when averaged over four weeks. (Core)

VI.G.8.a).(1) At-home call must not be so frequent or taxing as to preclude rest or reasonable personal time for each resident. (Core)

VI.G.8.b) Residents are permitted to return to the hospital while on at-home call to care for new or established patients. Each episode of this type of care, while it must be included in the 80-hour weekly maximum, will not initiate a new “off-duty period”. (Detail)

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*Core Requirements:* Statements that define structure, resource, or process elements essential to every graduate medical educational program.

*Detail Requirements:* Statements that describe a specific structure, resource, or process, for achieving compliance with a Core Requirement. Programs in substantial compliance with the Outcome Requirements may utilize alternative or innovative approaches to meet Core Requirements.

*Outcome Requirements:* Statements that specify expected measurable or observable attributes (knowledge, abilities, skills, or attitudes) of residents or fellows at key stages of their graduate medical education.