Accreditation Council for
Graduate Medical Education

ACGME Program Requirements for Graduate Medical Education in Clinical Informatics (Subspecialty of Anesthesiology, Emergency Medicine, Medical Genetics, Pathology, Pediatrics, or Preventive Medicine)

ACGME Program Requirements for Graduate Medical Education in Clinical Informatics

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 fellow physician to assume personal responsibility for the care of individual patients. For the fellow, 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 fellows 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 responsibility 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. Clinical informatics is the subspecialty of all medical specialties that transforms health care by analyzing, designing, implementing, and evaluating information and communication systems to improve patient care, enhance access to care, advance individual and population health outcomes, and strengthen the clinician-patient relationship.

Physicians who practice clinical informatics draw from the broader field of biomedical and health informatics as they apply informatics methods, concepts, and tools to the practice of medicine. Thus, they must understand the culture, boundaries, and complexities of the field. Further, the stakeholders, structures, and processes that constitute the health system affect the information and knowledge needs of health care professionals and influence the selection and implementation of clinical information processes and systems.

Physicians who practice clinical informatics collaborate with other health care and information technology professionals and provide consultative services that use their knowledge of patient care combined with their understanding of informatics concepts, methods, and tools to improve clinical practice by:

Int.B.1. leading initiatives designed to enhance health care quality and access through the procurement, customization, development, implementation, management, evaluation, and continuous improvement of clinical information systems;

Int.B.2. securing the legal and ethical use of clinical information;

Int.B.3. assessing information and knowledge needs of health care professionals and patients;

Int.B.4. characterizing, evaluating, and refining clinical processes;

Int.B.5. analyzing, developing, implementing, and refining clinical decision support systems; and,

Int.B.6. participating in projects designed to use technology to promote patient care that is safe, efficient, effective, timely patient-centered and equitable.

Int.C. The educational program in clinical informatics must be 24 months in length. (Core)

Int.C.1. Fellows must complete the program within 48 months of matriculation. (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 fellow 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. A clinical informatics fellowship must function as an integral part of an Accreditation Council for Graduate Medical Education (ACGME)-accredited residency program in anesthesiology, emergency medicine, medical genetics, pathology, pediatrics, or preventive medicine. (Core)

I.A.2. There must be an institutional policy governing the educational resources committed to the fellowship that ensures collaboration among multiple disciplines and professions involved in educating fellows. (Core)

I.A.3. There may be only one ACGME-accredited clinical informatics program within a sponsoring institution. (Detail)

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 fellows;** (Detail)

I.B.1.b) **specify their responsibilities for teaching, supervision, and formal evaluation of fellows, 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 fellow 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 fellows, of one month full time equivalent (FTE) or more through the Accreditation Council for Graduate Medical Education (ACGME) Accreditation Data System (ADS).** (Core)

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.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 subspecialty** of clinical informatics by a member board of **the American Board** of Medical Specialties**, or subspecialty qualifications that are acceptable to the Review Committee;** (Core)

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

II.A.3.d) at least five years of experience in clinical informatics. (Detail)

II.A.4. **The program director must administer and maintain an educational environment conducive to educating the fellows 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 fellow education;** (Core)

II.A.4.c) **approve the selection of program faculty as appropriate;** (Core)

II.A.4.d) **evaluate program faculty;** (Core)

II.A.4.e) **approve the continued participation of program faculty based on evaluation;** (Core)

II.A.4.f) **monitor fellow supervision at all participating sites;** (Core)

II.A.4.g) **prepare and submit all information required and requested by the ACGME;** (Core)

II.A.4.g).(1) **This includes but is not limited to the program information forms and annual program fellow updates to the ADS, and ensure that the information submitted is accurate and complete.** (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;** (Detail)

II.A.4.i) **provide verification of fellowship education for all fellows, including those who leave the program prior to completion;** (Detail)

II.A.4.j) **implement policies and procedures consistent with the institutional and program requirements for fellow duty hours and the working environment, including moonlighting,** (Core)

II.A.4.j).(1) **and, to that end, must:**

II.A.4.j).(2) **distribute these policies and procedures to the fellows and faculty;** (Detail)

II.A.4.j).(3) **monitor fellow duty hours, according to sponsoring institutional policies, with a frequency sufficient to ensure compliance with ACGME requirements;** (Core)

II.A.4.j).(4) **adjust schedules as necessary to mitigate excessive**

service demands and/or fatigue; and, (Detail)

II.A.4.j).(5) **if applicable, monitor the demands of at-home call and adjust schedules as necessary to mitigate excessive service demands and/or fatigue.** (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;** (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 fellows, disciplinary action, and supervision of fellows;** (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 fellow 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 fellow 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.** (Detail)

II.A.4.o) **obtain DIO review and co-signature on all program**

information 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.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 fellows at that location.** (Core)

II.B.1.a) In addition to the program director, there must be at least two faculty members. (Core)

II.B.1.a).(1) The faculty members and program director should equal at least two FTE. (Detail)

The faculty must:

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

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

II.B.2. **The physician faculty must have current certification in the subspecialty** of clinical informatics by a member board of **the American Board of** Medical Specialties (ABMS), **or possess qualifications judged acceptable to the Review Committee.** (Core)

II.B.2.a).(1) At least one of the physician faculty members must be certified in clinical informatics by a member board of the ABMS. (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 fellows in scholarly activities.** (Core)

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. Administrative support must include a program coordinator to provide adequate administrative and technological support to the fellowship. (Detail)

II.D. Resources

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

II.D.1. There must be space and equipment for the educational program, including meeting rooms, classrooms, computers, Internet access, visual and other educational aids, and work/study space. (Detail)

II.D.2. The primary clinical site must operate a clinical information system that is able to: (Core)

II.D.2.a) collect, store, retrieve, and manage health and wellness data and information; (Core)

II.D.2.b) provide clinical decision support; and,(Core)

II.D.2.c) support ambulatory, inpatient, and remote care settings, as needed. (Core)

II.E. Medical Information Access

Fellows 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. Fellow Appointments

III.A. Eligibility Criteria

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

III.A.1. Prior to appointment in the program, each fellow must have successfully completed an ACGME-accredited residency program. **(Core)**

III.B. Number of Fellows

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

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

III.C. Fellow Transfers

III.C.1. Before accepting a fellow 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 fellow. (Detail)

III.C.2. A program director must provide timely verification of fellowship education and summative performance evaluations for fellows 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 fellows' 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)

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 fellows and faculty; (Core)

IV.A.2. **Competency-based goals and objectives for each assignment at each educational level, which the program must distribute to fellows 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 fellow responsibilities for patient care, progressive responsibility for patient management, and supervision of fellows 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) **Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Fellows must:** (Outcome)

IV.A.5.a).(1).(a) demonstrate competence in the leverage of information and communication technology to: (Outcome)

IV.A.5.a).(1).(a).(i) use informatics across the dimensions of health care: health promotion, disease prevention, diagnosis, and treatment of individuals and their families across the lifespan; (Outcome)

IV.A.5.a).(1).(a).(ii) use informatics tools to improve assessment, interdisciplinary care planning, management, coordination, and follow-up of patients; (Outcome)

IV.A.5.a).(1).(a).(iii) use informatics tools, such as electronic health records or personal health records, to facilitate the coordination and documentation of key events in patient care, such as family communication, consultation around goals of care, immunizations, advance directive completion, and involvement of multiple team members as appropriate; and, (Outcome)

IV.A.5.a).(1).(a).(iv) use informatics tools to promote confidentiality and security of patient data.

(Outcome)

IV.A.5.a).(1).(b) demonstrate skill in fundamental programming, data base design, and user interface design; (Outcome)

IV.A.5.a).(1).(c) demonstrate competence in the identification of changes needed in organizational processes and clinician practices to optimize health system operational effectiveness; (Outcome)

IV.A.5.a).(1).(d) demonstrate competence in the analysis of patient care workflow and processes to identify information system features that will support improved quality, efficiency, effectiveness, and safety of clinical services; (Outcome)

IV.A.5.a).(1).(e) demonstrate competence in the assessment of user needs for a clinical information or telecommunication system or application; (Outcome)

IV.A.5.a).(1).(f) combine an understanding of informatics concepts, methods, and tools to develop, implement, and refine clinical decision support systems; and, (Outcome)

IV.A.5.a).(1).(g) evaluate the impact of information system implementation and use on patient care and users. (Outcome)

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

IV.A.5.b) **Medical Knowledge**

Fellows 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. Fellows: (Outcome)

must demonstrate knowledge of:

IV.A.5.b).(1) fundamental informatics vocabulary, concepts, models, and theories; (Outcome)

IV.A.5.b).(2) the health care environment, to include how business processes and financial considerations, including resourcing information technology, influence health care delivery and the flow of data among the major domains of the health system; (Outcome)

IV.A.5.b).(3) how information systems and processes enhance or compromise the decision making and actions of health care team members; (Outcome)

IV.A.5.b).(4) process improvement or change management for health care processes; (Outcome)

IV.A.5.b).(5) fundamental information system concepts, including project management, the life cycle of information systems, the constantly evolving capabilities of information technology and health care, and the technical and non-technical issues surrounding system implementation; (Outcome)

IV.A.5.b).(6) the impact of clinical information systems on users and patients; (Outcome)

IV.A.5.b).(7) strategies to support clinician users and promote clinician adoption of systems; (Outcome)

IV.A.5.b).(8) clinical decision support, use, and implementation; (Outcome)

IV.A.5.b).(9) evaluation of information systems to provide feedback for system improvement; (Outcome)

IV.A.5.b).(10) leadership in organizational change, fostering collaboration, communicating effectively, and managing large scale projects related to clinical information systems; and, (Outcome)

IV.A.5.b).(11) risk management and mitigation related to patient safety and privacy. (Outcome)

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

Fellows 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. (Outcome)

Fellows 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; and,** (Outcome)

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

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

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

Fellows 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).(2).(a) Fellows must demonstrate the ability to serve as a liaison between information technology professionals, administrators, and clinicians. (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; and,** (Outcome)

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

IV.A.5.e) **Professionalism**

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

Fellows 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).(4).(a) Fellows must demonstrate the ability to recognize the causes and prevention of security breaches and their consequences to the individual, system, organization, and society at large. (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; and,** (Outcome)

IV.A.5.e).(6) sensitivity to the impact information system changes have on practice patterns and physician-patient relations. (Outcome)

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

Fellows 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)

Fellows 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).(6).(a) Fellows must demonstrate the ability to recognize one's own role and the role of systems in prevention and disclosure of medical error.(Outcome)

IV.A.5.f).(7) identify, evaluate, and implement systems improvement based on clinical practice or patient and family satisfaction data in personal practice, in team practice, and within institutional settings; (Outcome)

IV.A.5.f).(8) demonstrate knowledge of the various settings and related structures for organizing, regulating, and financing care for patients; (Outcome)

IV.A.5.f).(9) analyze the impact of business strategies on information technology; (Outcome)

IV.A.5.f).(10) analyze patient care workflow and processes; (Outcome)

IV.A.5.f).(11) identify information system features that will support improved quality, efficiency, effectiveness, and safety of clinical services; (Outcome)

IV.A.5.f).(12) analyze systems for potential unintended consequences of changes; and, (Outcome)

IV.A.5.f).(13) demonstrate awareness of issues related to patient privacy. (Outcome)

IV.A.6. Curriculum Organization and Fellow Experiences

IV.A.6.a) Fellows must participate in planning and in conducting conferences. (Detail)

IV.A.6.b) Fellows must have clearly defined, written descriptions of responsibilities and a reporting structure for all educational assignments. (Core)

IV.A.6.c) Educational assignments must be designed to provide fellows with exposure to different types of clinical and health information systems.(Core)

IV.A.6.d) Educational assignments should have a particular focus (or foci), such as: (Detail)

IV.A.6.d).(1) bioinformatics/computational biology; (Detail)

IV.A.6.d).(2) laboratory information systems/pathology informatics; (Detail)

IV.A.6.d).(3) remote systems/telemedicine; (Detail)

IV.A.6.d).(4) algorithm development; (Detail)

IV.A.6.d).(5) diagnostics; (Detail)

IV.A.6.d).(6) imaging; (Detail)

IV.A.6.d).(7) public health informatics; (Detail)

IV.A.6.d).(8) clinical translational research; (Detail)

IV.A.6.d).(9) regulatory informatics; (Detail)

IV.A.6.d).(10) information technology business strategy and management; (Detail)

IV.A.6.d).(11) data organization/user interface; and, (Detail)

IV.A.6.d).(12) specialty-specific focus. (Detail)

IV.A.6.e) Educational assignments should be conducted within at least three of the following settings: inpatient, ambulatory, remote applications, government agencies, industry, health record banking, or consulting firms. (Detail)

IV.A.6.f) Each fellow must have an individualized learning plan that is specific to his or her primary specialty. (Core)

IV.A.6.g) Fellows should have long-term assignments to integrate their knowledge and prior experience in a clinical setting that poses real-world clinical informatics challenges. (Core)

IV.A.6.g).(1) Each fellow must participate as a member of at least one interdisciplinary team that is addressing clinical informatics needs for the health system. (Core)

IV.A.6.g).(1).(a) This experience must include analyzing issues, planning, and implementing recommendations from the team. (Detail)

IV.A.6.g).(1).(b) The interdisciplinary team should include physicians, nurses, other health care professionals, administrators, and information technology/system personnel. (Detail)

IV.A.6.g).(1).(c) Each fellow should be an active participant in a team or teams for at least 12 months.(Detail)

IV.A.6.h) Fellows should spend at least one half-day per week maintaining their skills in their primary specialty areas. (Detail)

IV.A.6.h).(1) The program should not require that the fellows provide more than, on average, 12 hours per week in clinical practice outside the requirements of the clinical informatics program. (Detail)

IV.B. Fellows' Scholarly Activities

IV.B.1. The curriculum must advance fellows' 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. Fellows should participate in scholarly activity. (Core)

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

V. Evaluation

V.A. Fellow 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 fellow 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 fellow performance improvement appropriate to educational level; and,** (Core)

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

V.A.2.b).(4).(a) The semiannual evaluation should include review of an individualized learning e-portfolio, which may include IT applications used, projects participated in, presentations given, team/committee work, courses taken, externships, or other educational product. (Detail)

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

V.A.3. Summative Evaluation

V.A.3.a) **The specialty-specific Milestones must be used as one of the tools to ensure fellows 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 fellow upon completion of the program.** (Core)

This evaluation must:

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

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

V.A.3.b).(3) **verify that the fellow 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 fellows.** (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;** (Core)

V.C.1.a).(2) **must have a written description of its responsibilities; and,** (Core)

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;** (Detail)

V.C.1.a).(3).(b) **reviewing and making recommendations for revision of competency-based curriculum goals and objectives;** (Detail)

V.C.1.a).(3).(c) **addressing areas of non-compliance with**

ACGME standards; and, (Detail)

V.C.1.a).(3).(d) **reviewing the program annually using evaluations of faculty, residents, and others, as specified below.** (Detail)

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).** (Core)

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

V.C.2.a) **resident performance;** (Core)

V.C.2.b) **faculty development;** (Core)

V.C.2.c) **graduate performance, including performance of program graduates on the certification examination;** (Core)

V.C.2.d) **program quality; and,** (Core)

V.C.2.d).(1) **Residents and faculty must have the opportunity to evaluate the program confidentially and in writing at least annually, and** (Detail)

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. Fellow 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 fellows 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 fellow well-being in a supportive educational**

environment. (Core)

VI.A.3. **The program director must ensure that fellows 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 fellows 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. **Fellows 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 fellows 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 fellows 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 fellows 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 fellows to recognize the signs of fatigue and sleep deprivation;** (Core)

VI.C.1.b) **educate all faculty members and fellows 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 fellow 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 fellows who may be too fatigued to safely return home.** (Core)

VI.D. Supervision of Fellows

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 fellows, faculty members, and patients.** (Detail)

VI.D.1.b) **Fellows 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 fellows 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 fellow can be adequately supervised by the immediate availability of the supervising faculty member or fellow physician, either in the institution, or by means of telephonic and/or electronic modalities. In some circumstances, supervision may include post-hoc review of fellow-delivered care with feedback as to the appropriateness of that care. (Detail)

VI.D.3. **Levels of Supervision**

To ensure oversight of fellow 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 fellow 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 available to provide Direct Supervision.** (Core)

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 fellow must be assigned by the program director and faculty members.** (Core)

VI.D.4.a) **The program director must evaluate each fellow'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 fellows, based on the needs of the patient and the skills of the fellows. (Detail)

VI.D.4.c) **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 fellows 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 fellow 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.6. **Faculty supervision assignments should be of sufficient duration to assess the knowledge and skills of each fellow and delegate to him/her the appropriate level of patient care authority and responsibility.** (Detail)

VI.E. **Clinical Responsibilities**

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

VI.F. **Teamwork**

Fellows 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. (Core)

VI.G. **Fellow 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. (Core)

VI.G.1.a) **Duty Hour Exceptions**

VI.G.1.a).(1) **A Review Committee may grant exceptions for up to 10 percent or a maximum of 88 hours to individual**

programs based on a sound educational rationale. (Detail)

VI.G.1.a).(2) **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.** (Detail)

VI.G.1.a).(3) **Prior to submitting the request to the Review Committee, the program director must obtain approval of the institution's GMEC and DIO.** (Detail)

VI.G.2. Moonlighting

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

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

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

VI.G.3. Mandatory Time Free of Duty

Fellows 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 fellows 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 fellow education that effective transitions in care occur. Fellows 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) **Fellows must not be assigned additional clinical responsibilities after 24 hours of continuous in-house duty.** (Core)

VI.G.4.b).(4) **In unusual circumstances, fellows, 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 fellow 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 fellow 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)

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)

Clinical informatics fellows 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 fellows 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.6. **Maximum Frequency of In-House Night Float**

Fellows must not be scheduled for more than six consecutive nights of night float. (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 fellows 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 fellow.** (Core)

VI.G.8.b) **Fellows 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.