ACGME Program Requirements for Graduate Medical Education in Interventional Radiology

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Contents

Proposed ACGME Program Requirements for Graduate Medical Education in Interventional Radiology

Common Program Requirements (Residency) are in BOLD

Where applicable, text in italics describes the underlying philosophy of the requirements in that section. These philosophic statements are not program requirements and are therefore not citable.

Introduction

Int.A. ***Graduate medical education is the crucial step of professional development between medical school and autonomous clinical practice. It is in this vital phase of the continuum of medical education that residents learn to provide optimal patient care under the supervision of faculty members who not only instruct, but serve as role models of excellence, compassion, professionalism, and scholarship.***

Graduate medical education transforms medical students into physician scholars who care for the patient, family, and a diverse community; create and integrate new knowledge into practice; and educate future generations of physicians to serve the public. Practice patterns established during graduate medical education persist many years later.

Graduate medical education has as a core tenet the graded authority and responsibility for patient care. The care of patients is undertaken with appropriate faculty supervision and conditional independence, allowing residents to attain the knowledge, skills, attitudes, and empathy required for autonomous practice. Graduate medical education develops physicians who focus on excellence in delivery of safe, equitable, affordable, quality care; and the health of the populations they serve. Graduate medical education values the strength that a diverse group of physicians brings to medical care.

Graduate medical education occurs in clinical settings that establish the foundation for practice-based and lifelong learning. The professional development of the physician, begun in medical school, continues through faculty modeling of the effacement of self-interest in a humanistic environment that emphasizes joy in curiosity, problem-solving, academic rigor, and discovery. This transformation is often physically, emotionally, and intellectually demanding and occurs in a variety of clinical learning environments committed to graduate medical education and the well-being of patients, residents, fellows, faculty members, students, and all members of the health care team.

Int.B. **Definition of Specialty**

Interventional radiology focuses on diagnostic and therapeutic aspects of patient care through expertise in diagnostic imaging, image-guided, minimally invasive procedures, and the evaluation and clinical management of patients with conditions amenable to these methods. The residency program in interventional

radiology offers quality medical educational experience in image-based diagnosis, as well as image-guided procedural education, and the peri- and post-procedural care of patients. Education in both the integrated and independent program formats includes resident development of mature technical skills and clinical judgment. On completion of the interventional radiology program, residents should be able to demonstrate competence in the specialty with sufficient expertise to act as independent providers of interventional procedures and care as consultants.

Int.C. Length of Educational Program

Int.C.1. Education in interventional radiology must be provided in one of the following formats, and all residents must be notified in writing of the required program length: (Core)*

Int.C.1.a) Independent Format: The educational program in the independent format must be 24 months in length. (Core)

Int.C.1.b) Integrated Format: The educational program in the integrated format must be either 60 months or 72 months in length. (Core)

Int. C.1.b).(1) The 60-month program must be comprised of 60 months of radiology education. (Core)

Int. C.1.b).(2) The 72-month program must be comprised of 12 months of education in fundamental clinical skills of medicine followed by 60 months of radiology education. (Core)

Int.C.1.b).(2).(a) Integrated programs seeking to utilize the 72-month format must submit an educational justification for using this format to the Review Committee for approval prior to implementation. The educational effectiveness of this format will be subject to evaluation at each subsequent program accreditation review. (Core)

Int.C.2. A Sponsoring Institution may sponsor both the integrated and independent program formats. (Detail)†

I. Oversight

I.A. Sponsoring Institution

The Sponsoring Institution is the organization or entity that assumes the ultimate financial and academic responsibility for a program of graduate medical education, consistent with the ACGME Institutional Requirements.

When the Sponsoring Institution is not a rotation site for the program, the most commonly utilized site of clinical activity for the program is the primary clinical site.

Background and Intent: Participating sites will reflect the health care needs of the community and the educational needs of the residents. A wide variety of organizations may provide a robust educational experience and, thus, Sponsoring Institutions and participating sites may encompass inpatient and outpatient settings including, but not limited to a university, a medical school, a teaching hospital, a nursing home, a school of public health, a health department, a public health agency, an organized health care delivery system, a medical examiner's office, an educational consortium, a teaching health center, a physician group practice, federally qualified health center, or an educational foundation.

I.A.1. **The program must be sponsored by one ACGME-accredited Sponsoring Institution.** (Core)

I.B. Participating Sites

A participating site is an organization providing educational experiences or educational assignments/rotations for residents.

I.B.1. **The program, with approval of its Sponsoring Institution, must designate a primary clinical site.** (Core)

I.B.1.a) Interventional radiology education should occur in environments with other residents and/or fellows from other specialties at the Sponsoring Institution and/or participating sites to facilitate the interchange of knowledge and experience among the residents. (Core)

I.B.2. **There must be a program letter of agreement (PLA) between the program and each participating site that governs the relationship between the program and the participating site providing a required assignment.** (Core)

I.B.2.a) **The PLA must:**

I.B.2.a).(1) **be renewed at least every 10 years; and,** (Core)

I.B.2.a).(2) **be approved by the designated institutional official (DIO).** (Core)

I.B.3. **The program must monitor the clinical learning and working environment at all participating sites.** (Core)

I.B.3.a) **At each participating site there must be one faculty member, designated by the program director as the site director, who is accountable for resident education at that site, in collaboration with the program director.** (Core)

Background and Intent: While all residency programs must be sponsored by a single ACGME-accredited Sponsoring Institution, many programs will utilize other clinical settings to provide required or elective training experiences. At times it is appropriate to utilize community sites that are not owned by or affiliated with the Sponsoring

Institution. Some of these sites may be remote for geographic, transportation, or communication issues. When utilizing such sites the program must ensure the quality of the educational experience. The requirements under I.B.3. are intended to ensure that this will be the case.

Suggested elements to be considered in PLAs will be found in the ACGME Program Director's Guide to the Common Program Requirements. These include:

- **Identifying the faculty members who will assume educational and supervisory responsibility for residents**
- **Specifying the responsibilities for teaching, supervision, and formal evaluation of residents**
- **Specifying the duration and content of the educational experience**
- **Stating the policies and procedures that will govern resident education during the assignment**

I.B.4. **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 ACGME's Accreditation Data System (ADS).** **(Core)**

I.B.5. Programs with multiple participating sites must ensure the provision of a cohesive educational experience. (Core)

I.B.6. Each participating site must offer meaningful educational opportunities that enrich the overall program. (Core)

I.C. **The program, in partnership with its Sponsoring Institution, must engage in practices that focus on mission-driven, ongoing, systematic recruitment and retention of a diverse and inclusive workforce of residents, fellows (if present), faculty members, senior administrative staff members, and other relevant members of its academic community.** **(Core)**

Background and Intent: It is expected that the Sponsoring Institution has, and programs implement, policies and procedures related to recruitment and retention of minorities underrepresented in medicine and medical leadership in accordance with the Sponsoring Institution's mission and aims. The program's annual evaluation must include an assessment of the program's efforts to recruit and retain a diverse workforce, as noted in V.C.1.c).(5).(c).

I.D. **Resources**

I.D.1. **The program, in partnership with its Sponsoring Institution, must ensure the availability of adequate resources for resident education.** **(Core)**

I.D.1.a) The program must provide adequate space, necessary equipment, and modern facilities to ensure an effective educational experience for residents in all of the specialty/subspecialty rotations. (Core)

I.D.1.a).(1) There should be adequate personal or shared office space, conference space, and access to computers. (Core)

I.D.1.a).(2) Modern imaging equipment and procedure rooms must be available with adequate space to permit the performance of all radiologic and interventional radiologic procedures, including vascular and non-vascular invasive imaging and image-guided interventional radiological procedures broadly distributed over the domain of interventional radiology. (Core)

I.D.1.a).(3) Imaging modalities must include fluoroscopy, digital subtraction angiography, computed tomography (CT), ultrasonography, magnetic resonance imaging (MRI), and radionuclide scintigraphy. (Core)

I.D.1.a).(3).(a) Fluoroscopic and digital imaging equipment should be high resolution and have digital display with post-procedure image processing capability. (Core)

I.D.1.a).(4) Rooms in which interventional procedures are performed must be equipped with physiologic monitoring and resuscitative equipment. (Core)

I.D.1.a).(5) There should be facilities for storing catheters, guide wires, contrast materials, embolic agents, and other supplies adjacent to or within procedure rooms. (Core)

I.D.1.a).(6) Patient recovery and holding areas must be available. (Core)

I.D.1.a).(7) There must be space and facilities for image display, image interpretation, and consultation with other clinicians. (Core)

I.D.1.a).(8) An interventional radiology clinic or outpatient office, separate from the procedure rooms, must be available for patient consultations and non-procedural follow-up visits. (Core)

I.D.1.a).(8).(a) This space should be conducive to patient privacy and conducting physical examinations. (Core)

I.D.1.b) Support Services

I.D.1.b).(1) Pathology and medical laboratory services must be regularly and conveniently available to meet the needs of patients. (Core)

I.D.1.b).(1).(a) Laboratory services must be available 24 hours a day. (Core)

I.D.1.b).(2) Diagnostic laboratories for the non-invasive assessment of peripheral vascular disease must be available. (Core)

I.D.1.b).(3) The sponsoring institution and program should provide laboratory and ancillary facilities to support research projects. (Core)

I.D.2. The program, in partnership with its Sponsoring Institution, must ensure healthy and safe learning and working environments that promote resident well-being and provide for: (Core)

I.D.2.a) access to food while on duty; (Core)

I.D.2.b) safe, quiet, clean, and private sleep/rest facilities available and accessible for residents with proximity appropriate for safe patient care; (Core)

Background and Intent: Care of patients within a hospital or health system occurs continually through the day and night. Such care requires that residents function at their peak abilities, which requires the work environment to provide them with the ability to meet their basic needs within proximity of their clinical responsibilities. Access to food and rest are examples of these basic needs, which must be met while residents are working. Residents should have access to refrigeration where food may be stored. Food should be available when residents are required to be in the hospital overnight. Rest facilities are necessary, even when overnight call is not required, to accommodate the fatigued resident.

I.D.2.c) clean and private facilities for lactation that have refrigeration capabilities, with proximity appropriate for safe patient care; (Core)

Background and Intent: Sites must provide private and clean locations where residents may lactate and store the milk within a refrigerator. These locations should be in close proximity to clinical responsibilities. It would be helpful to have additional support within these locations that may assist the resident with the continued care of patients, such as a computer and a phone. While space is important, the time required for lactation is also critical for the well-being of the resident and the resident's family, as outlined in VI.C.1.d).(1).

I.D.2.d) security and safety measures appropriate to the participating site; and, (Core)

I.D.2.e) accommodations for residents with disabilities consistent with the Sponsoring Institution's policy. (Core)

I.D.3. Residents must have ready access to specialty-specific and other appropriate reference material in print or electronic format. This must include access to electronic medical literature databases with full text capabilities. (Core)

I.D.4. **The program's educational and clinical resources must be adequate to support the number of residents appointed to the program.** (Core)

I.D.4.a) Patient Population

I.D.4.a).(1) The program must ensure a sufficient volume and variety of pediatric and adult patients for residents to gain experience in the full spectrum of radiological and interventional radiological examinations, procedures, interpretations, outpatient clinic visits, and inpatient consultations. (Core)

I.D.4.a).(1).(a) For integrated programs, the program must have at least 7,000 radiological examinations per year per resident in both the diagnostic radiology program and in the PGY-2-4 years of the integrated interventional radiology program, if applicable. (Core)

I.D.4.a).(2) The patient population must provide a diversity of illnesses from which a broad experience in interventional radiology can be obtained. (Core)

I.D.4.a).(2).(a) This must include patients with, arterial disease, cancer, gastrointestinal disease, gynecologic disorder, hepatobiliary disease, endocrine disease, musculoskeletal disease, pulmonary disease, venous disease, and urologic disorder. (Core)

I.E. **The presence of other learners and other care providers, including, but not limited to, residents from other programs, subspecialty fellows, and advanced practice providers, must enrich the appointed residents' education.** (Core)

I.E.1. **The program must report circumstances when the presence of other learners has interfered with the residents' education to the DIO and Graduate Medical Education Committee (GMEC).** (Core)

Background and Intent: The clinical learning environment has become increasingly complex and often includes care providers, students, and post-graduate residents and fellows from multiple disciplines. The presence of these practitioners and their learners enriches the learning environment. Programs have a responsibility to monitor the learning environment to ensure that residents' education is not compromised by the presence of other providers and learners.

Specialty-Specific Background and Intent: In providing oversight of the clinical resources available to the residents, programs have a responsibility to ensure that the educational opportunities available to interventional radiology residents are not diluted or detracted by the presence of diagnostic radiology residents.

II. Personnel

II.A. Program Director

II.A.1. There must be one faculty member appointed as program director with authority and accountability for the overall program, including compliance with all applicable program requirements. (Core)

II.A.1.a) The Sponsoring Institution's GMEC must approve a change in program director. (Core)

II.A.1.b) Final approval of the program director resides with the Review Committee. (Core)

Background and Intent: While the ACGME recognizes the value of input from numerous individuals in the management of a residency, a single individual must be designated as program director and have overall responsibility for the program. The program director's nomination is reviewed and approved by the GMEC. Final approval of the program director resides with the applicable ACGME Review Committee.

II.A.1.c) The program must demonstrate retention of the program director for a length of time adequate to maintain continuity of leadership and program stability. (Core)

Background and Intent: The success of residency programs is generally enhanced by continuity in the program director position. The professional activities required of a program director are unique and complex and take time to master. All programs are encouraged to undertake succession planning to facilitate program stability when there is necessary turnover in the program director position.

II.A.2. The program director and, as applicable, the program's leadership team, must be provided with support adequate for administration of the program based upon its size and configuration. (Core)

II.A.2.a) At a minimum, the IR-independent only program director must be provided with support equal to a dedicated minimum of 20 percent FTE for administration of the program. (Core)

II.A.2.b) At a minimum, the 60-month IR-integrated only program director must be provided with the dedicated time and support specified below for administration of the program: (Core)

Number of Approved IR-Integrated Resident Positions	Minimum support required (FTE or number of hours)
1 to 6	0.20
7 to 12	0.25
13 to 18	0.25
19 to 24	0.30

II.A.2.b).(1) At a minimum, program directors who oversee both independent and integrated interventional radiology

programs at the same institution must be provided with an additional .1 FTE for administration of the program. (Core)

II.A.2.c) In addition to the support requirements above, program directors of 72-month integrated programs with more than six approved IR-integrated resident positions must be provided additional support for the administration and oversight of the clinical year as follows: (Core)

Number of Approved Interventional Radiology-Independent Resident Positions	Minimum Additional Support FTE
1-3	0.10
4 or more residents	0.15

Background and Intent: To achieve successful graduate medical education, individuals serving as education and administrative leaders of residency programs, as well as those significantly engaged in the education, supervision, evaluation, and mentoring of residents, must have sufficient dedicated professional time to perform the vital activities required to sustain an accredited program.

The ultimate outcome of graduate medical education is excellence in resident education and patient care.

The program director and, as applicable, the program leadership team, devote a portion of their professional effort to the oversight and management of the residency program, as defined in II.A.4.-II.A.4.a).(16). Both provision of support for the time required for the leadership effort and flexibility regarding how this support is provided are important. Programs, in partnership with their Sponsoring Institutions, may provide support for this time in a variety of ways. Examples of support may include, but are not limited to, salary support, supplemental compensation, educational value units, or relief of time from other professional duties.

Program directors and, as applicable, members of the program leadership team, who are new to the role may need to devote additional time to program oversight and management initially as they learn and become proficient in administering the program. It is suggested that during this initial period the support described above be increased as needed.

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

II.A.3.a) must include specialty expertise and at least three years of documented educational and/or administrative experience, or qualifications acceptable to the Review Committee; (Core)

Background and Intent: Leading a program requires knowledge and skills that are established during residency and subsequently further developed. The time period from completion of residency until assuming the role of program director allows the

individual to cultivate leadership abilities while becoming professionally established. The three-year period is intended for the individual's professional maturation.

The broad allowance for educational and/or administrative experience recognizes that strong leaders arise through diverse pathways. These areas of expertise are important when identifying and appointing a program director. The choice of a program director should be informed by the mission of the program and the needs of the community.

In certain circumstances, the program and Sponsoring Institution may propose and the Review Committee may accept a candidate for program director who fulfills these goals but does not meet the three-year minimum.

Specialty-Specific Background and Intent: The Review Committee considers three years of educational and/or administrative experience an important quality for new program director candidates. Examples of educational and/or administrative experiences may include previous participation as an active faculty member in an ACGME-accredited or AOA-approved diagnostic radiology residency, interventional radiology residency, or vascular and interventional radiology fellowship program. In submitting a new program director request in ADS, the Review Committee will additionally request a letter of support from the DIO and a copy of the candidate's full CV for review.

II.A.3.b) **must include current certification in the specialty for which they are the program director by the American Board of** Radiology (ABR) **or by the American Osteopathic Board of** Radiology**, or specialty qualifications that are acceptable to the Review Committee;** **(Core)**

II.A.3.b).(1) The program director must have certification by either the ABR or the American Osteopathic Board of Radiology (AOBR) in interventional radiology/diagnostic radiology, or in diagnostic radiology with subspecialty certification in vascular and interventional radiology. (Core)

II.A.3.b).(2) The Review Committee accepts only ABMS and AOA certification as acceptable qualifications for program director certification. (Core)

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

II.A.3.d) **must include ongoing clinical activity; and,** **(Core)**

Background and Intent: A program director is a role model for faculty members and residents. The program director must participate in clinical activity consistent with the specialty. This activity will allow the program director to role model the Core Competencies for the faculty members and residents.

II.A.3.e) must include demonstration of commitment of at least 80 percent of his or her clinical time in the specialty and to the administrative

and educational activities of the interventional radiology program; (Core)

II.A.4. Program Director Responsibilities

The program director must have responsibility, authority, and accountability for: administration and operations; teaching and scholarly activity; resident recruitment and selection, evaluation, and promotion of residents, and disciplinary action; supervision of residents; and resident education in the context of patient care. (Core)

II.A.4.a) The program director must:

II.A.4.a).(1) be a role model of professionalism; (Core)

Background and Intent: The program director, as the leader of the program, must serve as a role model to residents in addition to fulfilling the technical aspects of the role. As residents are expected to demonstrate compassion, integrity, and respect for others, they must be able to look to the program director as an exemplar. It is of utmost importance, therefore, that the program director model outstanding professionalism, high quality patient care, educational excellence, and a scholarly approach to work. The program director creates an environment where respectful discussion is welcome, with the goal of continued improvement of the educational experience.

II.A.4.a).(2) design and conduct the program in a fashion consistent with the needs of the community, the mission(s) of the Sponsoring Institution, and the mission(s) of the program; (Core)

Background and Intent: The mission of institutions participating in graduate medical education is to improve the health of the public. Each community has health needs that vary based upon location and demographics. Programs must understand the social determinants of health of the populations they serve and incorporate them in the design and implementation of the program curriculum, with the ultimate goal of addressing these needs and health disparities.

II.A.4.a).(3) administer and maintain a learning environment conducive to educating the residents in each of the ACGME Competency domains; (Core)

Background and Intent: The program director may establish a leadership team to assist in the accomplishment of program goals. Residency programs can be highly complex. In a complex organization, the leader typically has the ability to delegate authority to others, yet remains accountable. The leadership team may include physician and non-physician personnel with varying levels of education, training, and experience.

Specialty-Specific Background and Intent: Due to the intricate relationship between the interventional radiology program(s) and the diagnostic radiology program, routine

collaboration between the leadership of these programs is essential in administering and maintaining a learning environment that ensures a cohesive educational experience for all diagnostic and interventional radiology residents.

II.A.4.a).(4) **develop and oversee a process to evaluate candidates prior to approval as program faculty members for participation in the residency program education and at least annually thereafter, as outlined in V.B.;** (Core)

II.A.4.a).(5) **have the authority to approve program faculty members for participation in the residency program education at all sites;** (Core)

II.A.4.a).(6) **have the authority to remove program faculty members from participation in the residency program education at all sites;** (Core)

II.A.4.a).(7) **have the authority to remove residents from supervising interactions and/or learning environments that do not meet the standards of the program;** (Core)

Background and Intent: The program director has the responsibility to ensure that all who educate residents effectively role model the Core Competencies. Working with a resident is a privilege that is earned through effective teaching and professional role modeling. This privilege may be removed by the program director when the standards of the clinical learning environment are not met.

There may be faculty in a department who are not part of the educational program, and the program director controls who is teaching the residents.

II.A.4.a).(8) **submit accurate and complete information required and requested by the DIO, GMEC, and ACGME;** (Core)

II.A.4.a).(9) **provide applicants who are offered an interview with information related to the applicant's eligibility for the relevant specialty board examination(s);** (Core)

II.A.4.a).(10) **provide a learning and working environment in which residents have the opportunity to raise concerns and provide feedback in a confidential manner as appropriate, without fear of intimidation or retaliation;** (Core)

II.A.4.a).(11) **ensure the program's compliance with the Sponsoring Institution's policies and procedures related to grievances and due process;** (Core)

II.A.4.a).(12) **ensure the program's compliance with the Sponsoring Institution's policies and procedures for due process when action is taken to suspend or dismiss, not to**

promote, or not to renew the appointment of a resident; (Core)

Background and Intent: A program does not operate independently of its Sponsoring Institution. It is expected that the program director will be aware of the Sponsoring Institution's policies and procedures, and will ensure they are followed by the program's leadership, faculty members, support personnel, and residents.

II.A.4.a).(13) **ensure the program's compliance with the Sponsoring Institution's policies and procedures on employment and non-discrimination;** (Core)

II.A.4.a).(13).(a) **Residents must not be required to sign a non-competition guarantee or restrictive covenant.** (Core)

II.A.4.a).(14) **document verification of program completion for all graduating residents within 30 days;** (Core)

II.A.4.a).(15) **provide verification of an individual resident's completion upon the resident's request, within 30 days; and,** (Core)

Background and Intent: Primary verification of graduate medical education is important to credentialing of physicians for further training and practice. Such verification must be accurate and timely. Sponsoring Institution and program policies for record retention are important to facilitate timely documentation of residents who have previously completed the program. Residents who leave the program prior to completion also require timely documentation of their summative evaluation.

II.A.4.a).(16) **obtain review and approval of the Sponsoring Institution's DIO before submitting information or requests to the ACGME, as required in the Institutional Requirements and outlined in the ACGME Program Director's Guide to the Common Program Requirements.** (Core)

II.B. Faculty

Faculty members are a foundational element of graduate medical education – faculty members teach residents how to care for patients. Faculty members provide an important bridge allowing residents to grow and become practice-ready, ensuring that patients receive the highest quality of care. They are role models for future generations of physicians by demonstrating compassion, commitment to excellence in teaching and patient care, professionalism, and a dedication to lifelong learning. Faculty members experience the pride and joy of fostering the growth and development of future colleagues. The care they provide is enhanced by the opportunity to teach. By employing a scholarly approach to patient care, faculty members, through the graduate medical education system, improve the health of the individual and the population.

Faculty members ensure that patients receive the level of care expected from a specialist in the field. They recognize and respond to the needs of the patients, residents, community, and institution. Faculty members provide appropriate levels of supervision to promote patient safety. Faculty members create an effective learning environment by acting in a professional manner and attending to the well-being of the residents and themselves.

Background and Intent: "Faculty" refers to the entire teaching force responsible for educating residents. The term "faculty," including "core faculty," does not imply or require an academic appointment.

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

II.B.1.a) There must be a minimum of one physician faculty member for every resident in the program. (Core)

II.B.1.b) The faculty must include, in aggregate, at least two FTE interventional radiologists, including the program director. (Core)

II.B.1.b).(1) While the expertise of any one interventional radiology faculty member may be limited to a particular aspect of interventional radiology, the program must ensure that appropriately qualified faculty members are available to provide an experience that includes all aspects of interventional radiology. (Core)

II.B.1.b).(2) Integrated programs with greater than four residents must maintain a ratio of no less than one interventional radiologist faculty member for every two residents in the final 24 months of residency according to the following: (Core)

Total Number of PGY-5-6 Integrated Residents	Minimum Number of Interventional Radiologists
5 residents	3
6 residents	3
7 residents	4
8 residents	4
9 residents	5
10 residents	5

II.B.1.b).(3) Independent programs with greater than four residents must maintain a ratio of no less than one interventional radiologist for every two residents. (Core)

II.B.1.c) Integrated Programs

II.B.1.c).(1) In addition to the practice domains, there should be designated physician faculty members with expertise in and responsibility for developing didactic content in the following educational content areas:

II.B.1.c).(1).(a) CT; (Core)

II.B.1.c).(1).(b) MRI; (Core)

II.B.1.c).(1).(c) radiography/fluoroscopy; and, (Core)

II.B.1.c).(1).(d) ultrasonography. (Core)

Specialty-Specific Background and Intent: Programs do not need to have additional faculty members to provide the didactic content for the educational content areas of CT, MRI, radiography/fluoroscopy, and ultrasonography. Any of the required eight core faculty members with additional expertise in any of the educational content areas may also provide education in these areas to fulfill this requirement and develop the didactic content for the related area.

II.B.1.c).(2) There should be physician faculty, non-physician faculty, or other staff members available to the program, within the institution, with expertise in quality, safety, and informatics. (Core)

II.B.1.c).(2).(a) These faculty or staff members should develop didactic content related to their areas of expertise. (Core)

Specialty-Specific Background and Intent: The faculty or staff members who fulfill the roles for expertise in quality, safety, and informatics are not required to have formal certification in their respective area(s) of expertise. It is not the Committee's expectation that there be dedicated staff members for each area of expertise. For example, programs may have an information technology staff member or administrator with relevant expertise in informatics, and this would satisfy the requirement as long as the individual was available to the program to dedicate the time to develop the necessary didactic content related to the area of expertise. The Committee's expectation is that there be some resident education in each area.

II.B.1.c).(3) Faculty members for all other educational experiences should be active teaching faculty members in ACGME-accredited programs. (Core)

II.B.1.c).(4) An assistant or associate program director that is clinically active in diagnostic radiology should be appointed. (Detail)

II.B.2. Faculty members must:

II.B.2.a) be role models of professionalism; (Core)

II.B.2.b) demonstrate commitment to the delivery of safe, quality, cost-effective, patient-centered care; (Core)

Background and Intent: Patients have the right to expect quality, cost-effective care with patient safety at its core. The foundation for meeting this expectation is formed during residency and fellowship. Faculty members model these goals and continually strive for improvement in care and cost, embracing a commitment to the patient and the community they serve.

II.B.2.c) demonstrate a strong interest in the education of residents; (Core)

II.B.2.d) devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities; (Core)

II.B.2.e) administer and maintain an educational environment conducive to educating residents; (Core)

II.B.2.f) regularly participate in organized clinical discussions, rounds, journal clubs, and conferences; and, (Core)

II.B.2.g) pursue faculty development designed to enhance their skills at least annually: (Core)

Background and Intent: Faculty development is intended to describe structured programming developed for the purpose of enhancing transference of knowledge, skill, and behavior from the educator to the learner. Faculty development may occur in a variety of configurations (lecture, workshop, etc.) using internal and/or external resources. Programming is typically needs-based (individual or group) and may be specific to the institution or the program. Faculty development programming is to be reported for the residency program faculty in the aggregate.

II.B.2.g).(1) as educators; (Core)

II.B.2.g).(2) in quality improvement and patient safety; (Core)

II.B.2.g).(3) in fostering their own and their residents' well-being; and, (Core)

II.B.2.g).(4) in patient care based on their practice-based learning and improvement efforts. (Core)

Background and Intent: Practice-based learning serves as the foundation for the practice of medicine. Through a systematic analysis of one's practice and review of the literature, one is able to make adjustments that improve patient outcomes and care. Thoughtful consideration to practice-based analysis improves quality of care, as well as patient safety. This allows faculty members to serve as role models for residents in practice-based learning.

II.B.2.h) At least one interventional radiology faculty member must have hospital admitting privileges. (Core)

II.B.2.i) For programs not affiliated with a medical school, all physician faculty members should be members of the medical staff of at least one of the participating sites. (Core)

II.B.2.j) Faculty members must always be available when residents are on call after hours, on weekends, or on holidays. (Core)

II.B.2.k) Faculty members must review all resident-interpreted studies. (Core)

II.B.2.k).(1) Faculty members should sign and verify these reports within 24 hours. (Detail)

II.B.2.l) Faculty members must provide didactic teaching and direct supervision of resident performance in peri-procedural patient management, and of the procedural, interpretative, and consultative aspects of interventional radiology. (Core)

II.B.2.m) Faculty members must supervise all percutaneous image-guided invasive procedures. (Core)

II.B.2.m).(1) Faculty members should determine the appropriate level of direct or indirect supervision for all procedures based on demonstrated resident competence. (Core)

II.B.2.n) The interventional radiology division must participate in dedicated interventional radiology outpatient clinics. (Core)

II.B.2.o) Faculty members representing each practice domain must be responsible for the educational content of his/her respective practice domain, and must organize conferences that cover topics in that domain. (Core)

II.B.2.p) Faculty members representing each practice domain must not have primary responsibility for the educational content of more than one practice domain, but may have clinical responsibilities and/or teaching responsibilities in multiple practice domains. (Core)

II.B.2.q) Faculty members representing each practice domain must devote at least 0.50 FTE in their practice domain. (Core)

II.B.2.r) Faculty members responsible for the educational content of their respective practice domain must demonstrate a commitment to the his or her respective practice domain by any two of the following:

II.B.2.r).(1) specialty/subspecialty certification in the practice domain, fellowship education, or three years of practice in the domain; (Core)

II.B.2.r).(2) active participation in specialty/subspecialty societies, including CME activities in the practice domain; (Core)

II.B.2.r).(3) publications or presentations in the specialty/subspecialty practice domain; or, (Core)

II.B.2.r).(4) participation in Maintenance of Certification with emphasis on the specialty/subspecialty practice domain. (Core)

II.B.3. Faculty Qualifications

II.B.3.a) Faculty members must have appropriate qualifications in their field and hold appropriate institutional appointments. (Core)

II.B.3.a).(1) At least two FTE interventional radiology physician faculty members, including the program director, must have certification by the ABR or the AOBR in interventional radiology/diagnostic radiology, or in diagnostic radiology with subspecialty certification in vascular and interventional radiology. (Core)

II.B.3.b) Physician faculty members must:

II.B.3.b).(1) have current certification in the specialty by the American Board of Radiology **or the American Osteopathic Board of** Radiology**, or possess qualifications judged acceptable to the Review Committee. (Core)**

II.B.3.b).(2) Other faculty qualifications acceptable to the Review Committee include certification by other American Board of Medical Specialties (ABMS) member boards, or other American Osteopathic Association (AOA) certifying boards. (Core)

II.B.3.c) Any non-physician faculty members who participate in residency program education must be approved by the program director. (Core)

Background and Intent: The provision of optimal and safe patient care requires a team approach. The education of residents by non-physician educators enables the resident to better manage patient care and provides valuable advancement of the residents' knowledge. Furthermore, other individuals contribute to the education of the resident in the basic science of the specialty or in research methodology. If the program director determines that the contribution of a non-physician individual is significant to the education of the residents, the program director may designate the individual as a program faculty member or a program core faculty member.

II.B.4. Core Faculty

Core faculty members must have a significant role in the education and supervision of residents and must devote a significant portion of their entire effort to resident education and/or administration, and must, as a component of their activities, teach, evaluate, and provide formative feedback to residents. (Core)

Background and Intent: Core faculty members are critical to the success of resident education. They support the program leadership in developing, implementing, and assessing curriculum, mentoring residents, and assessing residents' progress toward achievement of competence in and the independent practice of the specialty. Core faculty members should be selected for their broad knowledge of and involvement in the program, permitting them to effectively evaluate the program. Core faculty members may also be selected for their specific expertise and unique contribution to the program. Core faculty members are engaged in a broad range of activities, which may vary across programs and specialties. Core faculty members provide clinical teaching and supervision of residents, and also participate in non-clinical activities related to resident education and program administration. Examples of these non-clinical activities include, but are not limited to, interviewing and selecting resident applicants, providing didactic instruction, mentoring residents, simulation exercises, completing the annual ACGME Faculty Survey, and participating on the program's Clinical Competency Committee, Program Evaluation Committee, and other GME committees.

II.B.4.a) **Core faculty members must be designated by the program director.** (Core)

II.B.4.b) **Core faculty members must complete the annual ACGME Faculty Survey.** (Core)

II.B.4.c) Integrated Programs

II.B.4.c).(1) There must be at least eight core physician faculty members to represent each of the following practice domains: (Core)

II.B.4.c).(1).(a) abdominal (gastrointestinal and genitourinary) radiology; (Core)

II.B.4.c).(1).(b) breast radiology; (Core)

II.B.4.c).(1).(c) cardiothoracic (cardiac and thoracic) radiology; (Core)

II.B.4.c).(1).(d) interventional radiology; (Core)

II.B.4.c).(1).(e) musculoskeletal radiology; (Core)

II.B.4.c).(1).(f) neuroradiology; (Core)

II.B.4.c).(1).(g) nuclear radiology and molecular imaging; and, (Core)

II.B.4.c).(1).(h) pediatric radiology. (Core)

Specialty-Specific Background and Intent: A pediatric radiologist may have a primary appointment at another site and still be the designated faculty member supervising pediatric radiologic education for the program.

II.C. Program Coordinator

II.C.1. There must be a program coordinator. (Core)

II.C.2. The program coordinator must be provided with dedicated time and support adequate for administration of the program based upon its size and configuration. (Core)

II.C.2.a) At a minimum, the IR-independent program coordinator must be provided with support equal to a dedicated minimum of 50 percent FTE for administration of the program. (Core)

II.C.2.b) At a minimum, the IR-integrated program coordinator must be provided with the dedicated time and support specified below for administration of the program: (Core)

Number of Approved Resident Positions	Minimum FTE
1-6	0.5
7-12	0.6
13-18	0.7
19-24	0.8
25 or More	1.0

Background and Intent: The requirement does not address the source of funding required to provide the specified salary support.

Each program requires a lead administrative person, frequently referred to as a program coordinator, administrator, or as otherwise titled by the institution. This person will frequently manage the day-to-day operations of the program and serve as an important liaison and facilitator between the learners, faculty and other staff members, and the ACGME. Individuals serving in this role are recognized as program coordinators by the ACGME.

The program coordinator is a key member of the leadership team and is critical to the success of the program. As such, the program coordinator must possess skills in leadership and personnel management appropriate to the complexity of the program. Program coordinators are expected to develop in-depth knowledge of the ACGME and Program Requirements, including policies and procedures. Program coordinators assist the program director in meeting accreditation requirements, educational programming, and support of residents.

Programs, in partnership with their Sponsoring Institutions, should encourage the professional development of their program coordinators and avail them of

opportunities for both professional and personal growth. Programs with fewer residents may not require a full-time coordinator; one coordinator may support more than one program.

II.D. Other Program Personnel

The program, in partnership with its Sponsoring Institution, must jointly ensure the availability of necessary personnel for the effective administration of the program. (Core)

II.D.1. At least one qualified interventional radiology technologist must be on duty or available at all times. (Core)

II.D.2. Nursing support adequate to prepare, monitor, and recover patients must be available. (Core)

II.D.2.a) Nurses competent to administer moderate sedation must also be available. (Core)

Background and Intent: Multiple personnel may be required to effectively administer a program. These may include staff members with clerical skills, project managers, education experts, and staff members to maintain electronic communication for the program. These personnel may support more than one program in more than one discipline.

III. Resident Appointments

III.A. Eligibility Requirements

III.A.1. An applicant must meet one of the following qualifications to be eligible for appointment to an ACGME-accredited program: (Core)

III.A.1.a) graduation from a medical school in the United States or Canada, accredited by the Liaison Committee on Medical Education (LCME) or graduation from a college of osteopathic medicine in the United States, accredited by the American Osteopathic Association Commission on Osteopathic College Accreditation (AOACOCA); or, (Core)

III.A.1.b) graduation from a medical school outside of the United States or Canada, and meeting one of the following additional qualifications: (Core)

III.A.1.b).(1) holding a currently valid certificate from the Educational Commission for Foreign Medical Graduates (ECFMG) prior to appointment; or, (Core)

III.A.1.b).(2) holding a full and unrestricted license to practice medicine in the United States licensing jurisdiction in which the ACGME-accredited program is located. (Core)

III.A.2. **All prerequisite post-graduate clinical education required for initial entry or transfer into ACGME-accredited residency programs must be completed in ACGME-accredited residency programs, AOA-approved residency programs, Royal College of Physicians and Surgeons of Canada (RCPSC)-accredited or College of Family Physicians of Canada (CFPC)-accredited residency programs located in Canada, or in residency programs with ACGME International (ACGME-I) Advanced Specialty Accreditation.** (Core)

III.A.2.a) **Residency programs must receive verification of each resident's level of competency in the required clinical field using ACGME, CanMEDS, or ACGME-I Milestones evaluations from the prior training program upon matriculation.** (Core)

III.A.2.b) Prerequisite Postgraduate Clinical Education

III.A.2.b).(1) Independent Programs

III.A.2.b).(1).(a) Prior to appointment in the independent program, residents must complete a diagnostic radiology program that satisfies the requirements in III.A.2. (Core)

III.A.2.b).(1).(b) All entering residents must be eligible to take the ABR Core Examination or the AOBR Diagnostic Radiology Combined Physics and Diagnostic Imaging Written Exam. (Core)

III.A.2.b).(1).(c) To be eligible for appointment in the second year of education in an independent program, residents must have completed an Early Specialization in Interventional Radiology (ESIR) curriculum in a diagnostic radiology program that has prior approval from the Review Committee for ESIR participation. (Core)

III.A.2.b).(1).(c).(i) Residents must have completed 11 interventional radiology or interventional radiology-related rotations, one ICU rotation, and at least 500 image-guided procedures within the domain of interventional radiology during their diagnostic radiology residency (a rotation is defined as an experience of at least four weeks in duration). (Core)

III.A.2.b).(1).(c).(ii) A Milestones assessment of resident competence must be completed by the program director after the first 12 weeks of the educational program. (Core)

III.A.2.b).(2) Integrated Programs

III.A.2.b).(2).(a) To be eligible for appointment to the 60-month integrated program, residents must have successfully completed a prerequisite year of direct patient care in a program that satisfies the requirements in III.A.2. in anesthesiology, emergency medicine, family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, surgery or surgical specialties, the transitional year, or any combination of these. (Core)

III.A.2.b).(2).(a).(i) The prerequisite year must include a minimum of 36 weeks in direct patient care. (Core)

III.A.2.b).(2).(a).(ii) During the prerequisite year, elective rotations in interventional radiology, diagnostic radiology, or nuclear medicine must occur only in radiology departments with a diagnostic radiology, interventional radiology, or nuclear medicine residency program that satisfies the requirements in III.A.2., and must not exceed a combined total of eight weeks. (Core)

III.A.2.b).(2).(a).(ii).(a) The elective rotations in radiology should involve active resident participation and must not be observational only. (Detail)

III.A.2.b).(2).(a).(ii).(b) The elective rotations in radiology should be supervised by a radiology program faculty member. (Detail)

Specialty-Specific Background and Intent: When considering whether to count a resident's participation in elective rotations in interventional radiology, diagnostic radiology, or nuclear medicine taken during the resident's prerequisite clinical year in radiology departments without an accredited diagnostic radiology, interventional radiology, or nuclear medicine program, it is up to the receiving diagnostic radiology program director to determine whether the elective experience will count toward the resident's required 12 months of diagnostic radiology experience for call responsibilities or interpreting exams without direct supervision.

Background and Intent: Programs with ACGME-I Foundational Accreditation or from institutions with ACGME-I accreditation do not qualify unless the program has also achieved ACGME-I Advanced Specialty Accreditation. To ensure entrants into ACGME-accredited programs from ACGME-I programs have attained the prerequisite milestones for this training, they must be from programs that have ACGME-I Advanced Specialty Accreditation.

III.A.3. **A physician who has completed a residency program that was not accredited by ACGME, AOA, RCPSC, CFPC, or ACGME-I (with Advanced Specialty Accreditation) may enter an ACGME-accredited residency program in the same specialty at the PGY-1 level and, at the discretion of the program director of the ACGME-accredited program and with approval by the GMEC, may be advanced to the PGY-2 level based on ACGME Milestones evaluations at the ACGME-accredited program. This provision applies only to entry into residency in those specialties for which an initial clinical year is not required for entry.** (Core)

III.A.4. **Resident Eligibility Exception**

The Review Committee for Radiology **will allow the following exception to the resident eligibility requirements** (for residents entering the program via III.A.2.b).(1)**:** (Core)

Specialty-Specific Background and Intent: The Review Committee will allow the eligibility exception for interventional radiology-independent programs only.

III.A.4.a) **An ACGME-accredited residency program may accept an exceptionally qualified international graduate applicant who does not satisfy the eligibility requirements listed in III.A.1.-III.A.3., but who does meet all of the following additional qualifications and conditions:** (Core)

III.A.4.a).(1) **evaluation by the program director and residency selection committee of the applicant's suitability to enter the program, based on prior training and review of the summative evaluations of this training; and,** (Core)

III.A.4.a).(2) **review and approval of the applicant's exceptional qualifications by the GMEC; and,** (Core)

III.A.4.a).(3) **verification of Educational Commission for Foreign Medical Graduates (ECFMG) certification.** (Core)

III.A.4.b) **Applicants accepted through this exception must have an evaluation of their performance by the Clinical Competency Committee within 12 weeks of matriculation.** (Core)

III.B. **The program director must not appoint more residents than approved by the Review Committee.** (Core)

III.B.1. **All complement increases must be approved by the Review Committee.** (Core)

III.C. **Resident Transfers**

The program must obtain verification of previous educational experiences and a summative competency-based performance evaluation prior to

acceptance of a transferring resident, and Milestones evaluations upon matriculation. (Core)

III.C.1. Integrated Programs

III.C.1.a) The program director must conduct a Milestones assessment of a resident's clinical competence in both interventional and diagnostic radiology within 12 weeks of transfer into the program. (Core)

III.C.1.b) Resident transfers from ACGME-accredited diagnostic radiology programs into integrated interventional radiology programs must be limited to transfers from within the same Sponsoring Institution and must meet the following qualifications for transfer: (Core)

III.C.1.b).(1) Transfers into the PGY-3 or PGY-4 must be from the equivalent level in the diagnostic radiology program. (Core)

III.C.1.b).(2) Residents transferring into the PGY-5 must have taken or be eligible to take the ABR Core Examination or the AOBR Diagnostic Radiology Combined Physics and Diagnostic Imaging Written Exam, and must have successfully completed at least three rotations in interventional radiology. (Core)

IV. Educational Program

The ACGME accreditation system is designed to encourage excellence and innovation in graduate medical education regardless of the organizational affiliation, size, or location of the program.

The educational program must support the development of knowledgeable, skillful physicians who provide compassionate care.

In addition, the program is expected to define its specific program aims consistent with the overall mission of its Sponsoring Institution, the needs of the community it serves and that its graduates will serve, and the distinctive capabilities of physicians it intends to graduate. While programs must demonstrate substantial compliance with the Common and specialty-specific Program Requirements, it is recognized that within this framework, programs may place different emphasis on research, leadership, public health, etc. It is expected that the program aims will reflect the nuanced program-specific goals for it and its graduates; for example, it is expected that a program aiming to prepare physician-scientists will have a different curriculum from one focusing on community health.

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

IV.A.1. a set of program aims consistent with the Sponsoring Institution's mission, the needs of the community it serves, and the desired distinctive capabilities of its graduates; (Core)

IV.A.1.a) **The program's aims must be made available to program applicants, residents, and faculty members.** (Core)

IV.A.2. **competency-based goals and objectives for each educational experience designed to promote progress on a trajectory to autonomous practice. These must be distributed, reviewed, and available to residents and faculty members;** (Core)

Background and Intent: The trajectory to autonomous practice is documented by Milestones evaluation. The Milestones detail the progress of a resident in attaining skill in each competency domain. They are developed by each specialty group and allow evaluation based on observable behaviors. Milestones are considered formative and should be used to identify learning needs. This may lead to focused or general curricular revision in any given program or to individualized learning plans for any specific resident.

IV.A.3. **delineation of resident responsibilities for patient care, progressive responsibility for patient management, and graded supervision;** (Core)

Background and Intent: These responsibilities may generally be described by PGY level and specifically by Milestones progress as determined by the Clinical Competency Committee. This approach encourages the transition to competency-based education. An advanced learner may be granted more responsibility independent of PGY level and a learner needing more time to accomplish a certain task may do so in a focused rather than global manner.

IV.A.4. **a broad range of structured didactic activities;** (Core)

IV.A.4.a) **Residents must be provided with protected time to participate in core didactic activities.** (Core)

Background and Intent: It is intended that residents will participate in structured didactic activities. It is recognized that there may be circumstances in which this is not possible. Programs should define core didactic activities for which time is protected and the circumstances in which residents may be excused from these didactic activities. Didactic activities may include, but are not limited to, lectures, conferences, courses, labs, asynchronous learning, simulations, drills, case discussions, grand rounds, didactic teaching, and education in critical appraisal of medical evidence.

IV.A.5. **advancement of residents' knowledge of ethical principles foundational to medical professionalism; and,** (Core)

IV.A.6. **advancement in the residents' knowledge of the basic principles of scientific inquiry, including how research is designed, conducted, evaluated, explained to patients, and applied to patient care.** (Core)

IV.B. **ACGME Competencies**

Background and Intent: The Competencies provide a conceptual framework describing the required domains for a trusted physician to enter autonomous practice. These Competencies are core to the practice of all physicians, although the specifics are further defined by each specialty. The developmental trajectories in each of the Competencies are articulated through the Milestones for each specialty.

IV.B.1. **The program must integrate the following ACGME Competencies into the curriculum:** (Core)

IV.B.1.a) **Professionalism**

Residents must demonstrate a commitment to professionalism and an adherence to ethical principles. (Core)

IV.B.1.a).(1) **Residents must demonstrate competence in:**

IV.B.1.a).(1).(a) **compassion, integrity, and respect for others;** (Core)

IV.B.1.a).(1).(b) **responsiveness to patient needs that supersedes self-interest;** (Core)

Background and Intent: This includes the recognition that under certain circumstances, the interests of the patient may be best served by transitioning care to another provider. Examples include fatigue, conflict or duality of interest, not connecting well with a patient, or when another physician would be better for the situation based on skill set or knowledge base.

IV.B.1.a).(1).(c) **respect for patient privacy and autonomy;** (Core)

IV.B.1.a).(1).(d) **accountability to patients, society, and the profession;** (Core)

IV.B.1.a).(1).(e) **respect and responsiveness to diverse patient populations, including but not limited to diversity in gender, age, culture, race, religion, disabilities, national origin, socioeconomic status, and sexual orientation;** (Core)

IV.B.1.a).(1).(f) **ability to recognize and develop a plan for one's own personal and professional well-being; and,** (Core)

IV.B.1.a).(1).(g) **appropriately disclosing and addressing conflict or duality of interest.** (Core)

IV.B.1.b) **Patient Care and Procedural Skills**

Background and Intent: Quality patient care is safe, effective, timely, efficient, patient-centered, equitable, and designed to improve population health, while reducing per

capita costs. (See the Institute of Medicine [IOM]'s *Crossing the Quality Chasm: A New Health System for the 21st Century*, 2001 and Berwick D, Nolan T, Whittington J. *The Triple Aim: care, cost, and quality. Health Affairs.* 2008; 27(3):759-769.). In addition, there should be a focus on improving the clinician's well-being as a means to improve patient care and reduce burnout among residents, fellows, and practicing physicians.

These organizing principles inform the Common Program Requirements across all Competency domains. Specific content is determined by the Review Committees with input from the appropriate professional societies, certifying boards, and the community.

IV.B.1.b).(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.** (Core)

IV.B.1.b).(1).(a) Residents must competently perform the following under close, graded responsibility and supervision:

IV.B.1.b).(1).(a).(i) provide patient care through safe, efficient, appropriately utilized, quality-controlled diagnostic and/or interventional radiological techniques; (Core)

IV.B.1.b).(1).(a).(ii) practice using standards of care in a safe environment, attempt to reduce errors, and improve patient outcomes; (Core)

IV.B.1.b).(1).(a).(iii) take a patient history and perform an appropriate physical exam; (Core)

IV.B.1.b).(1).(a).(iv) communicate indications for, contraindications for, and risks of radiologic and interventional procedures, and understand the medical and surgical alternatives to those procedures; (Core)

IV.B.1.b).(1).(a).(v) provide appropriate pre-procedural and follow-up care related to interventional radiology, including inpatient rounds and post-procedure follow-up management of outpatients via clinic visits; (Core)

IV.B.1.b).(1).(a).(vi) participate in the multidisciplinary approach to continuity of procedure-related care; (Core)

IV.B.1.b).(1).(a).(vii) apply radiation safety principles in performing interventional procedures; (Core)

IV.B.1.b).(1).(a).(viii) administer pharmacologic agents, including sedatives, analgesics, antibiotics, and other drugs commonly employed in conjunction with endovascular, invasive, and non-vascular procedures; (Core)

IV.B.1.b).(1).(a).(ix) consult with patients and referring physicians regarding the indications for, and risks, expected outcomes, and appropriateness of interventional radiology procedures; (Core)

IV.B.1.b).(1).(a).(x) formulate a treatment plan, including appropriate additional work-up, consultations, and procedural recommendations, to include risk assessment, consideration of other treatments, and delivery of care in a collaborative model, when appropriate; (Core)

IV.B.1.b).(1).(a).(xi) provide follow-up communications with referring physicians; and, (Core)

IV.B.1.b).(1).(a).(xii) recognize and treat or refer for treatment of complications of interventional radiology procedures, including contrast reactions. (Core)

IV.B.1.b).(1).(b) Residents must demonstrate the ability to interpret imaging appropriate for their educational level, including demonstration of competence in: (Core)

IV.B.1.b).(1).(b).(i) planning, executing, and assessing the adequacy of interventions based on independent review of plain film, ultrasound, CT, MR, and nuclear medicine studies; (Core)

IV.B.1.b).(1).(b).(ii) interpreting images obtained during the performance of interventional procedures, and skillfully integrating the imaging findings into the procedure; and, (Core)

IV.B.1.b).(1).(b).(iii) modifying and directing the intervention based on these interpretations, and demonstrating their use in aiding the determination of procedural endpoints. (Core)

IV.B.1.b).(1).(c) Integrated 72-Month Programs

IV.B.1.b).(1).(c).(i) Residents must demonstrate competence in fundamental clinical skills of medicine, including: (Core)

IV.B.1.b).(1).(c).(i).(a) obtaining a comprehensive medical history; (Core)

IV.B.1.b).(1).(c).(i).(b) performing a comprehensive physical examination; (Core)

IV.B.1.b).(1).(c).(i).(c) assessing a patient's medical conditions; (Core)

IV.B.1.b).(1).(c).(i).(d) making appropriate use of diagnostic studies and tests; (Core)

IV.B.1.b).(1).(c).(i).(e) integrating information to develop a differential diagnosis; and, (Core)

IV.B.1.b).(1).(c).(i).(f) implementing a treatment plan. (Core)

IV.B.1.b).(2) **Residents must be able to perform all medical, diagnostic, and surgical procedures considered essential for the area of practice. (Core)**

IV.B.1.b).(2).(a) Residents must demonstrate competence in the interpretation of CT, MRI, radiography, and radionuclide imaging of the cardiovascular system (heart and great vessels); (Core)

IV.B.1.b).(2).(b) Residents must demonstrate competence in the management of contrast reactions; (Core)

IV.B.1.b).(2).(c) Residents must demonstrate competence in the ongoing awareness of radiation exposure, protection, and safety, and the application of these principles in practice; (Core)

IV.B.1.b).(2).(d) Residents must competently apply low-dose radiation techniques for both adults and children; (Core)

IV.B.1.b).(2).(e) Residents must demonstrate competence in the use of needles, catheters, guide wires, balloons, stents, stent-grafts, vascular filters, embolic agents, biopsy devices, ablative technologies, and other interventional devices; (Core)

IV.B.1.b).(2).(f) Residents must demonstrate the clinical judgment and technical ability to perform complex vascular and non-vascular image-guided interventions on a

sufficient variety of patients and pathological conditions to allow for competent post-graduate practice; (Core)

IV.B.1.b).(2).(f).(i) Residents must participate in a minimum of 1000 invasive imaging and image-guided vascular and non-vascular interventional procedures (Core)

IV.B.1.b).(2).(f).(i).(a) This should include both adult and pediatric interventional procedures. (Core)

IV.B.1.b).(2).(f).(i).(b) Vascular procedures must include at least: arteriography; venography; arterial and venous angioplasty; arterial and venous stenting; arterial and venous percutaneous revascularization procedures; percutaneous embolization; transcatheter infusion therapy; intravascular foreign body removal; hemodialysis interventions; percutaneous placement of endovascular prostheses such as stent grafts and vena cava filters; transvascular biopsy; and insertion and removal of vascular access devices. (Core)

IV.B.1.b).(2).(f).(i).(b).(i) Vascular procedures should also include neurovascular interventions. (Detail)

IV.B.1.b).(2).(f).(i).(c) Non-vascular procedures must include at least: percutaneous imaging-guided biopsy; percutaneous gastrointestinal access and interventions; percutaneous urinary tract access and interventions; percutaneous biliary access and interventions; percutaneous drainage for diagnosis and treatment of infections and other fluid collections; and percutaneous imaging-guided ablative procedures such as ablation of neoplasms. (Core)

IV.B.1.b).(2).(f).(i).(c).(i) Non-vascular procedures may also include musculoskeletal, spine, and

pain management interventions. (Detail)

IV.B.1.b).(2).(g) Residents must demonstrate procedural competence in:

IV.B.1.b).(2).(g).(i) performance of basic image-guided procedures; (Core)

IV.B.1.b).(2).(g).(ii) invasive diagnostic venous and arterial imaging; (Core)

IV.B.1.b).(2).(g).(iii) endovascular revascularization procedures, to include: angioplasty; stent placement; endograft placement; pharmacologic and/or mechanical thrombolysis and/or thrombectomy; and intravascular foreign body retrieval; (Core)

IV.B.1.b).(2).(g).(iv) endovascular embolization therapy; (Core)

IV.B.1.b).(2).(g).(v) invasive diagnostic imaging and interventions in the hepatobiliary and urinary systems; and, (Core)

IV.B.1.b).(2).(g).(vi) non-vascular interventions, to include: solid and hollow organ access; non-vascular angioplasty/stent/stent graft placement; biopsy; drainage; and tissue ablation. (Core)

IV.B.1.b).(2).(h) Integrated Programs

IV.B.1.b).(2).(h).(i) Residents must demonstrate competence in the generation of ultrasound images using the transducer and imaging system, and in the interpretation of ultrasonographic examinations of various types. (Core)

IV.B.1.b).(2).(h).(i).(a) Residents should have sufficient hands-on scanning experience. (Core)

IV.B.1.b).(2).(h).(i).(a).(i) This should include the performance of 75 hands-on scans. (Core)

IV.B.1.b).(2).(h).(i).(b) Programs should incorporate a process to document resident proficiency in ultrasonographic skills. (Core)

Specialty-Specific Background and Intent: The Review Committee has defined "sufficient" hands-on ultrasound scanning experience to mean that residents are to experience the basic aspects of ultrasound, such as ultrasound physics, knobology, image generation, and interpretation. Examples of the types of routine ultrasound examinations that could provide these opportunities include, but are not limited to, abdominal ultrasound, obstetrical/gynecological ultrasound, pediatric ultrasound, musculoskeletal ultrasound, vascular ultrasound, and breast ultrasound. Ultrasound-guided interventional procedures also qualify.

IV.B.1.c) **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. **(Core)**

IV.B.1.c).(1) Residents must demonstrate knowledge of:

IV.B.1.c).(1).(a) interventional radiology clinical and general didactic content; (Core)

IV.B.1.c).(1).(b) clinical and basic sciences related to interventional radiology, including: (Core)

IV.B.1.c).(1).(b).(i) anatomy; (Core)

IV.B.1.c).(1).(b).(ii) physiology; (Core)

IV.B.1.c).(1).(b).(iii) pathophysiology of the hematological, circulatory, respiratory, gastrointestinal, genitourinary, musculoskeletal, and neurologic systems; (Core)

IV.B.1.c).(1).(b).(iv) relevant pharmacology; (Core)

IV.B.1.c).(1).(b).(v) patient evaluation; (Core)

IV.B.1.c).(1).(b).(vi) management skills; and, (Core)

IV.B.1.c).(1).(b).(vii) diagnostic techniques. (Core)

IV.B.1.c).(1).(c) non-interpretive skills, including health care economics, coding and billing compliance, and the business of medicine; (Core)

IV.B.1.c).(1).(d) appropriate and patient-centered imaging utilization; (Core)

IV.B.1.c).(1).(e) quality improvement techniques; (Core)

IV.B.1.c).(1).(f) radiologic/pathologic correlation; and, (Core)

IV.B.1.c).(1).(g) physiology, utilization, and safety of contrast agents and pharmaceuticals. (Core)

IV.B.1.c).(2) Integrated Programs – Diagnostic Radiology

IV.B.1.c).(2).(a) the principles of medical imaging physics including: CT, dual-energy X-ray absorptiometry, fluoroscopy, gamma camera and hybrid imaging technologies, MRI, radiography, and ultrasonography. (Core)

IV.B.1.d) 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 lifelong learning. (Core)

Background and Intent: Practice-based learning and improvement is one of the defining characteristics of being a physician. It is the ability to investigate and evaluate the care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

The intention of this Competency is to help a physician develop the habits of mind required to continuously pursue quality improvement, well past the completion of residency.

IV.B.1.d).(1) Residents must demonstrate competence in:

IV.B.1.d).(1).(a) identifying strengths, deficiencies, and limits in one's knowledge and expertise; (Core)

IV.B.1.d).(1).(b) setting learning and improvement goals; (Core)

IV.B.1.d).(1).(c) identifying and performing appropriate learning activities; (Core)

IV.B.1.d).(1).(d) systematically analyzing practice using quality improvement methods, and implementing changes with the goal of practice improvement; (Core)

IV.B.1.d).(1).(e) incorporating feedback and formative evaluation into daily practice; (Core)

IV.B.1.d).(1).(f) locating, appraising, and assimilating evidence from scientific studies related to their patients' health problems; and, (Core)

IV.B.1.d).(1).(g) **using information technology to optimize learning.** (Core)

IV.B.1.e) **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. (Core)

IV.B.1.e).(1) **Residents must demonstrate competence in:**

IV.B.1.e).(1).(a) **communicating effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds;** (Core)

IV.B.1.e).(1).(a).(i) Residents must demonstrate competence in obtaining informed consent and effectively describing imaging appropriateness, safety issues, and the results of diagnostic imaging and procedures to patients. (Core)

IV.B.1.e).(1).(b) **communicating effectively with physicians, other health professionals, and health-related agencies;** (Core)

IV.B.1.e).(1).(b).(i) Residents must demonstrate competence in communicating the results of examinations and procedures to the referring provider and/or other appropriate individuals effectively and in a timely manner. (Core)

IV.B.1.e).(1).(c) **working effectively as a member or leader of a health care team or other professional group;** (Core)

IV.B.1.e).(1).(d) **educating patients, families, students, residents, and other health professionals;** (Core)

IV.B.1.e).(1).(e) **acting in a consultative role to other physicians and health professionals;** (Core)

IV.B.1.e).(1).(f) **maintaining comprehensive, timely, and legible medical records, if applicable; and,** (Core)

IV.B.1.e).(1).(g) supervising, providing consultation to, and teaching medical students and/or residents. (Core)

IV.B.1.e).(2) **Residents must learn to communicate with patients and families to partner with them to assess their care**

goals, including, when appropriate, end-of-life goals. (Core)

Background and Intent: When there are no more medications or interventions that can achieve a patient's goals or provide meaningful improvements in quality or length of life, a discussion about the patient's goals, values, and choices surrounding the end of life is one of the most important conversations that can occur. Residents must learn to participate effectively and compassionately in these meaningful human interactions, for the sake of their patients and themselves.

Programs may teach this skill through direct clinical experience, simulation, or other means of active learning.

IV.B.1.f) Systems-based Practice

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

IV.B.1.f).(1) Residents must demonstrate competence in:

IV.B.1.f).(1).(a) working effectively in various health care delivery settings and systems relevant to their clinical specialty; (Core)

Background and Intent: Medical practice occurs in the context of an increasingly complex clinical care environment where optimal patient care requires attention to compliance with external and internal administrative and regulatory requirements.

IV.B.1.f).(1).(b) coordinating patient care across the health care continuum and beyond as relevant to their clinical specialty; (Core)

Background and Intent: Every patient deserves to be treated as a whole person. Therefore it is recognized that any one component of the health care system does not meet the totality of the patient's needs. An appropriate transition plan requires coordination and forethought by an interdisciplinary team. The patient benefits from proper care and the system benefits from proper use of resources.

IV.B.1.f).(1).(c) advocating for quality patient care and optimal patient care systems; (Core)

IV.B.1.f).(1).(d) working in interprofessional teams to enhance patient safety and improve patient care quality; (Core)

IV.B.1.f).(1).(e) participating in identifying system errors and implementing potential systems solutions; (Core)

IV.B.1.f).(1).(f) **incorporating considerations of value, cost awareness, delivery and payment, and risk-benefit analysis in patient and/or population-based care as appropriate; (Core)**

IV.B.1.f).(1).(g) **understanding health care finances and its impact on individual patients' health decisions; and, (Core)**

IV.B.1.f).(1).(h) compliance with institutional and departmental policies, such as HIPAA, the Joint Commission, patient safety, and infection control. (Core)

IV.B.1.f).(2) **Residents must learn to advocate for patients within the health care system to achieve the patient's and family's care goals, including, when appropriate, end-of-life goals. (Core)**

IV.C. Curriculum Organization and Resident Experiences

IV.C.1. **The curriculum must be structured to optimize resident educational experiences, the length of these experiences, and supervisory continuity. (Core)**

IV.C.1.a) The assignment of educational experiences should be structured to minimize the frequency of transitions. (Detail)

IV.C.1.b) Educational experiences should be of sufficient length to provide a quality educational experience defined by ongoing supervision, longitudinal relationships with faculty members, and high-quality assessment and feedback. (Detail)

Background and Intent: In some specialties, frequent rotational transitions, inadequate continuity of faculty member supervision, and dispersed patient locations within the hospital have adversely affected optimal resident education and effective team-based care. The need for patient care continuity varies from specialty to specialty and by clinical situation, and may be addressed by the individual Review Committee.

IV.C.2. **The program must provide instruction and experience in pain management if applicable for the specialty, including recognition of the signs of addiction. (Core)**

IV.C.3. Didactic Curriculum

IV.C.3.a) The core didactic curriculum must be documented. (Core)

IV.C.3.b) The core didactic curriculum must include the following core content areas of interventional radiology:

IV.C.3.b).(1) focused history and physical examination; (Core)

IV.C.3.b).(2) health care team coordination; (Core)

IV.C.3.b).(3) informed consent for interventional radiology procedures; (Core)

IV.C.3.b).(4) inpatient care; (Core)

IV.C.3.b).(5) interventional radiology clinic; (Core)

IV.C.3.b).(6) medical conditions relevant to interventional radiology procedures; (Core)

IV.C.3.b).(7) pharmacology relevant to interventional radiology; (Core)

IV.C.3.b).(8) procedural sedation for interventional radiology procedures; and, (Core)

IV.C.3.b).(9) recognition and initial management of intra- and peri-procedural emergencies. (Core)

IV.C.3.c) The didactic curriculum must include interactive conferences in addition to the core didactic series. (Core)

IV.C.3.d) The didactic curriculum should include interdisciplinary conferences in which both residents and faculty members participate on a regular basis. (Core)

Specialty-Specific Background and Intent: Interdisciplinary conferences include any clinical or didactic conferences at which representation from multiple clinical specialties is present. Examples include an oncology conference with representation from the medical, surgical, and/or radiation oncology departments, or a peripheral vascular conference with representation from the vascular surgery and/or cardiology departments.

IV.C.3.e) Conferences should provide for progressive resident participation. (Core)

IV.C.3.f) Didactic conferences must be resident-level-specific, and must provide formal review of the topics in the curriculum. (Core)

IV.C.3.g) Residents must participate in didactic activities on a regular basis. (Core)

IV.C.3.g).(1) Residents must be provided protected time to attend didactic activities scheduled by the program. (Core)

IV.C.3.g).(2) The program must provide mechanisms for residents to participate in all didactic activities either in-person or by electronic means. (Core)

IV.C.3.g).(3) Residents must be provided with:

IV.C.3.g).(3).(a) five hours of didactic activities per week during the PGY-2-4 of an integrated program; and, (Core)

IV.C.3.g).(3).(b) two hours of didactic activities per week during the PGY-5 and PGY-6 of an integrated program, and in all years of the independent program. (Core)

IV.C.3.g).(4) Residents' participation in didactic activities should be documented throughout the duration of their educational program. (Detail)

IV.C.3.g).(5) Residents' teaching experience should include active participation in educating diagnostic radiology residents, and if appropriate, medical students and other professional personnel in the care and management of patients. (Core)

IV.C.3.h) Interventional Radiology Didactic Content

IV.C.3.h).(1) Morbidity and mortality related to the performance of interventional procedures must be reviewed during a conference at least monthly and be documented. (Core)

IV.C.3.h).(1).(a) Residents must actively participate in this review. (Core)

IV.C.3.h).(2) Residents should participate in local or national vascular and interventional radiology societies. (Detail)

IV.C.3.h).(3) Residents should prepare and present clinically- or pathologically-proven cases at departmental conferences. (Core)

IV.C.3.i) Integrated Programs - Diagnostic Radiology Didactic Content

IV.C.3.i).(1) The core didactic curriculum must be repeated at least every two years. (Core)

Specialty-Specific Background and Intent: While the core didactic curriculum must be repeated every two years at a minimum, programs are encouraged to repeat the didactic curriculum on a 1.5-year cycle so that residents can be exposed to all essential topics twice before the ABR Core Examination or the AOBR Combined Physics and Diagnostic Imaging written exam.

IV.C.3.i).(2) The core didactic curriculum must include the following diagnostic radiology content:

IV.C.3.i).(2).(a) anatomy, disease processes, imaging, and physiology; (Core)

IV.C.3.i).(2).(b) specialty/subspecialty clinical and general content; (Core)

IV.C.3.i).(2).(c) topics related to professionalism, physician well-being, diversity, and ethics; (Core)

IV.C.3.i).(2).(d) training in the clinical application of medical physics distributed throughout the 60 months of the educational program; and, (Core)

IV.C.3.i).(2).(d).(i) A medical physicist must oversee the development of the physics curriculum. (Core)

IV.C.3.i).(2).(d).(ii) The curriculum should include real-time expert discussions and interactive educational experiences. (Core)

Specialty-Specific Background and Intent: It is not the Committee's expectation that all physics education be delivered in person by a physicist faculty member or a physicist on site; this resource could be an area physicist at another site or program. Programs can share this resource and collaborate on the curriculum and lectures.

Essentially, the physics didactic curriculum should not consist entirely of online-recorded lectures for the residents to review without real-time interaction. While programs are free to use alternative educational tools such as online modules, these tools should provide a real-time and interactive component that allows residents to engage with the lecturer.

IV.C.3.i).(2).(e) a minimum of 80 hours of classroom and laboratory training in basic radionuclide handling techniques applicable to the medical use of unsealed byproduct material for imaging and localization studies (10 CFR 35.290) and oral administration of sodium iodide I-131 for procedures requiring a written directive (10 CFR 35.392, 10 CFR 35.394). (Core)

IV.C.3.i).(2).(e).(i) Integral to the practice of nuclear radiology, these didactics must include, at a minimum, the following subjects: (Core)

IV.C.3.i).(2).(e).(i).(a) radiation physics and instrumentation; (Core)

IV.C.3.i).(2).(e).(i).(b) radiation protection; (Core)

IV.C.3.i).(2).(e).(i).(c) mathematics pertaining to use and measurement of radioactivity; (Core)

IV.C.3.i).(2).(e).(i).(d) chemistry of byproduct material for medical use; and, (Core)

IV.C.3.i).(2).(e).(i).(e) radiation biology. (Core)

IV.C.4. Resident Experiences

IV.C.4.a) Resident participation in patient care and radiology-related activities must occur throughout all levels of education. (Core)

IV.C.4.b) Resident participation in on-call activities, including being on duty after-hours and on weekends or holidays, should occur throughout the PGY-3-6 years of the integrated program and both years of the independent program. (Core)

IV.C.4.b).(1) Resident competence must be assessed and documented prior to assuming independent responsibilities. (Core)

IV.C.4.b).(2) Resident supervision during on-call activities must be provided by a senior resident, fellow, or radiology faculty member. (Core)

IV.C.4.b).(2).(a) A radiology faculty member must be available for direct or indirect supervision. (Core)

IV.C.4.b).(3) Resident on-call experiences must include interpretation, reporting, and management of active cases, and must not include administrative roles or duties consisting primarily of re-review of previously reported cases. (Core)

IV.C.4.b).(4) Integrated Programs - Relief from after-hours duty granted to residents, at the program director's discretion, must not exceed 12 weeks preceding the ABR Core Examination or the AOBR Diagnostic Radiology Combined Physics and Diagnostic Imaging Written Exam. (Core)

IV.C.4.b).(5) Integrated Programs – If residents, as ~~an~~ individuals or as a group, are ~~must not be~~ provided with protected study time for the ABR Core Examination or the AOBR Diagnostic Radiology Combined Physics and Diagnostic Imaging Written Exam, the following must apply:~~.~~ (Core)

IV.C.4.b).(5).(a) the duration of protected study time must not exceed three months, starting three months prior to the examination and ending on the date of the examination; (Core)

IV.C.4.b).(5).(b) protected study time must not exceed 20 hours per week during the work week, Monday through Friday; (Core)

IV.C.4.b).(5).(c) if residents are relieved of on-call duty during this time, this relief must not exceed three months, beginning three months prior to the examination

and ending on the date of the examination; and, (Core)

IV.C.4.b).(5).(d) the allowance of independent study time must not adversely affect other radiology residents on the clinical services. (Core)

Specialty-Specific Background and Intent: The Review Committee expects residents to be engaged in clinical (or research-related) work throughout all 60 or 72 months of the educational program. In preparation for the ABR Core examination or AOBR Combined Physics and Diagnostic Imaging Exam, prolonged resident absence from supervised and on-call clinical education beyond what is stated in the requirements above may adversely affect the quality of residency education and training. Faculty member-run examination review sessions or faculty member-directed conferences are acceptable study activities if the time away from clinical service for these activities does not adversely affect other radiology residents on the clinical services.

The Review Committee acknowledges that independent unsupervised examination preparation is important for learning examination content not readily encountered in the clinical learning environment. Further, the Committee acknowledges that protected independent study time immediately before the examination may serve to preserve residents' work-life balance and promote their well-being.

These requirements are meant to promote professionalism and fairness within and between residency programs. Programs may determine that the amount of independent study time appropriate for their residents is less than three months/20 hours per week. Protected study time is expected to be distributed fairly and equally among all residents in a given residency program who are preparing for the examination.

~~Specialty-Specific Background and Intent: The Review Committee expects residents to be engaged in clinical (or research-related) work throughout all 60 months of residency. Examination preparation or other non-research-related activities that do not interfere with clinical training are permitted. Specifically, in preparation for the ABR Core Examination or AOBR Combined Physics and Diagnostic Imaging Exam, faculty member-run review sessions or faculty member-directed conferences are acceptable activities, if this time away from clinical service for these activities does not adversely affect other interventional radiology residents on the clinical services. Residents' protected time away from clinical duties during normal workdays for independent or unsupervised examination preparation is not allowed.~~

IV.C.4.c) Residents must be provided with education and specific clinical time dedicated to the performance and interpretation of non-invasive vascular testing, including vascular ultrasound studies, physiologic vascular tests, MR angiograms, and CT angiograms. (Core)

IV.C.4.c).(1) These studies must be documented in the residents' Case Logs. (Core)

IV.C.4.d) Residents should be instructed in proper use and interpretation of laboratory tests and methods that are adjunctive to vascular and interventional procedures, including the use of physiologic

monitoring devices, non-invasive vascular testing, and non-invasive vascular imaging. (Core)

IV.C.4.e) Residents must have supervised progressive responsibility in a dedicated interventional radiology clinic, the admission and routine procedure-related inpatient care of interventional radiology patients, discharge planning, and procedure-related follow-up. (Core)

IV.C.4.f) Residents' patient care experience must be of sufficient duration to provide continuity of care that enables residents to attain competence in the peri-procedural management of patients. (Core)

Specialty-Specific Background and Intent: "Continuity of care" refers to residents' active participation in the full gamut of clinical care, including pre-clinical evaluation, procedural patient care, and post-clinical care. Just observing an interventional radiology attending is inadequate. If not logistically possible, interventional radiology residents do not need to see the same patient throughout each clinical stage, so long as they see similar types of patients and/or similar disease states within each clinical stage. For example, within a single clinic day, the interventional radiology resident may evaluate and care for a new patient with a diagnosis of peripheral vascular disease, assess a patient who recently underwent a limb revascularization procedure two weeks prior; and see three-month, six-month, and 12-month post-intervention follow-up patients. This type of clinic experience, while it does not constitute continuity of care for one single patient, does provide a continuity of care experience within a disease state and provides a meaningful experience for the resident.

IV.C.4.g) Residents must maintain current certification in advanced cardiac life-support (ACLS). (Core)

IV.C.4.h) Residents should have experience in sedation analgesia. (Detail)

IV.C.4.i) Residents' procedural experiences must be tracked using the ACGME Case Log System, and must at least meet the procedural minimums defined by the Review Committee. (Core)

IV.C.4.j) Residents must maintain a Resident Learning Portfolio which must include, at a minimum, documentation of the following: (Core)

IV.C.4.j).(1) Patient Care – Integrated Programs

IV.C.4.j).(1).(a) participation in therapies involving oral administration of sodium iodide I-131, to include the date, diagnosis, and dosage; (Core)

IV.C.4.j).(1).(b) interpretation/multi-reading of mammograms; and, (Core)

IV.C.4.j).(1).(c) performance of 75 hands-on ultrasonographic examinations of various types. (Core)

IV.C.4.j).(2) Case/Procedure Logs – All Programs

IV.C.4.j).(2).(a) resident experience in the performance, interpretation, and complications of vascular, interventional, and invasive procedures, including image-guided biopsies, drainage procedures, angioplasty, embolization and infusion procedures, and other percutaneous interventional procedures. (Core)

IV.C.4.j).(3) Medical Knowledge – All Programs

IV.C.4.j).(3).(a) conferences, courses/meetings attended, and self-assessment modules completed; and, (Core)

IV.C.4.j).(3).(b) performance on rotation-specific and/or annual objective examinations. (Core)

IV.C.4.j).(4) Practice-based Learning and Improvement – All Programs

IV.C.4.j).(4).(a) evidence of a reflective process that must result in the annual documentation of an individual learning plan and self-assessment; and, (Core)

IV.C.4.j).(4).(b) scholarly activity, such as publications and/or presentations. (Core)

IV.C.4.j).(5) Interpersonal and Communication Skills – All Programs

IV.C.4.j).(5).(a) formal documented assessment of oral and written communication. (Core)

IV.C.4.j).(6) Professionalism – All Programs

IV.C.4.j).(6).(a) compliance with institutional and departmental policies such as but not limited to HIPAA, Joint Commission, patient safety, infection control, and dress code; and, (Core)

IV.C.4.j).(6).(b) status of medical license, if appropriate. (Core)

IV.C.4.j).(7) Systems-based Practice – All Programs

IV.C.4.j).(7).(a) a learning activity that involves deriving a solution to a system problem at the departmental, institutional, local, regional, national, or international level. (Core)

IV.C.5. Curriculum

IV.C.5.a) By the completion of the program, residents must have completed at least 23 interventional radiology or interventional radiology-related rotations. (Core)

IV.C.5.a).(1) Of these, at least 18 rotations must be core interventional radiology rotations in the interventional radiology division under the supervision of an interventional radiologist. (Core)

IV.C.5.b) Residents must complete one rotation in critical care medicine. (Core)

IV.C.5.b).(1) For integrated programs, the critical care experience should occur during the PGY-5 or PGY-6. (Detail)

IV.C.5.b).(2) The critical care experience must be completed on a continuous full-time basis in a critical care setting under the supervision of a critical care specialist. (Core)

Specialty-Specific Background and Intent: The critical care experience is not intended to provide residents with sufficient skills and knowledge to assume primary responsibility for ICU patients. Rather, it is intended to provide adequate skills to allow for the peri-procedural care of ICU patients during procedures, and to provide a background of knowledge regarding the ways in which ICU and interventional radiology physicians can complement each other in the care of patients they have in common.

IV.C.5.c) Independent Programs

IV.C.5.c).(1) The independent program curriculum must consist of 24 months of interventional radiology education under the direction of the program director. (Core)

IV.C.5.d) Integrated 72-Month Programs

IV.C.5.d).(1) Programs using the 72-month format must provide a clinical experience during the first 12 months of the program, including: (Core)

IV.C.5.d).(1).(a) at least nine months of rotations designed to provide the fundamental clinical skills of medicine, which must include: (Core)

IV.C.5.d).(1).(a).(i) six months of inpatient care, which must include at least one month of critical care; (Core)

IV.C.5.d).(1).(a).(ii) one month of emergency medicine; and, (Core)

IV.C.5.d).(1).(a).(iii) two months of additional inpatient or outpatient care. (Core)

IV.C.5.d).(1).(b) The nine months of fundamental clinical skills of medicine should occur in the disciplines of anesthesiology, emergency medicine, family medicine, internal medicine or internal medicine subspecialties, neurology, obstetrics and gynecology, pediatrics, surgery or surgical specialties, or any combination of these. (Core)

IV.C.5.d).(1).(c) Elective rotations in diagnostic radiology, interventional radiology, or nuclear medicine must only occur in radiology departments with a diagnostic radiology, interventional radiology, or nuclear medicine residency program accredited by the ACGME, AOA, RCPSC or College of Family Physicians of Canada, or in ACGME International (ACGME-I)-accredited programs with Advanced Specialty accreditation. (Core)

IV.C.5.d).(1).(c).(i) These electives must not exceed a combined total of two months. (Core)

IV.C.5.d).(1).(c).(ii) The elective rotations in radiology should involve active resident participation and must not be observational only. (Core)

IV.C.5.d).(1).(c).(iii) The electives rotations in radiology should be supervised by a radiology program faculty member. (Core)

IV.C.5.d).(2) The program director must maintain oversight of resident education in fundamental clinical skills of medicine. (Core)

IV.C.5.e) All Integrated Programs

IV.C.5.e).(1) The program must demonstrate collaboration with the ACGME-accredited diagnostic radiology program, if applicable, to ensure a cohesive curriculum and educational experience for all diagnostic radiology and interventional radiology residents. (Core)

IV.C.5.e).(2) The integrated curriculum must consist of 60 months of diagnostic and interventional radiology education under the direction of the program director. (Core)

IV.C.5.e).(2).(a) During the PGY-2-4, 36 months must be concentrated in diagnostic radiology education. (Core)

IV.C.5.e).(2).(a).(i) This should include at least three rotations in interventional radiology. (Detail)

IV.C.5.e).(2).(b) PGY-2-4 residents on interventional radiology rotations must:

IV.C.5.e).(2).(b).(i) fully participate in all of the clinical and educational activities, including non-procedural patient care; and, (Core)

IV.C.5.e).(2).(b).(ii) be provided responsibilities and supervision commensurate with their level of education and experience. (Core)

IV.C.5.e).(2).(c) The final 24 months of the program should be focused primarily on interventional radiology training and education. (Core)

IV.C.5.e).(2).(c).(i) Diagnostic radiology educational content during the final 24 months should be limited to a maximum of four rotations. (Core)

IV.C.5.e).(2).(d) Residents must not interpret examinations without direct supervision until they have completed at least 12 months of radiology rotations. (Core)

IV.C.5.e).(2).(e) Each resident must complete a minimum of 700 hours of training and work experience under the supervision of an Authorized User (AU) in basic radionuclide handling techniques and radiation safety applicable to the medical use of unsealed byproduct material for imaging and localization studies (10 CFR 35.290) and oral administration of sodium iodide I-131 for procedures requiring a written directive (10 CFR 35.392, 10 CFR 35.394). (Core)

Specialty-Specific Background and Intent: According to Nuclear Regulatory Commission (NRC) guidelines § 35.290 Training for imaging and localization studies, the NRC requires "700 hours of training and experience, including a minimum of 80 hours of classroom and laboratory training." Thus, there is the option to count the 80 hours of classroom and laboratory training toward the 700-hour total. In any case, the 80-hour requirement (IV.C.3.i).(2).(e)) must be met, either in addition to the 700 hours (more than 700 hours total) or as part of the 700 hours.

IV.C.5.e).(2).(e).(i) Supervised work experience, at a minimum, must involve all operational and quality control procedures integral to the practice of nuclear radiology, including but not limited to: (Core)

IV.C.5.e).(2).(e).(i).(a) receiving packages; (Core)

IV.C.5.e).(2).(e).(i).(b) using generator systems; (Core)

IV.C.5.e).(2).(e).(i).(c)	calibrating and administering unsealed radioactive materials for diagnostic and therapeutic use; (Core)
IV.C.5.e).(2).(e).(i).(d)	completing written directives; (Core)
IV.C.5.e).(2).(e).(i).(e)	adhering to ALARA (as low as reasonably achievable) principles; (Core)
IV.C.5.e).(2).(e).(i).(f)	ensuring radiation protection in practice, to include dosimeters, exposure limits, and signage; (Core)
IV.C.5.e).(2).(e).(i).(g)	using radiation-measuring instruments; (Core)
IV.C.5.e).(2).(e).(i).(h)	conducting area surveys; (Core)
IV.C.5.e).(2).(e).(i).(i)	managing radioactive waste; (Core)
IV.C.5.e).(2).(e).(i).(j)	preventing medical events; and, (Core)
IV.C.5.e).(2).(e).(i).(k)	responding to radiation spills and accidents. (Core)
IV.C.5.e).(2).(e).(ii)	Under AU preceptor supervision each resident must:
IV.C.5.e).(2).(e).(ii).(a)	participate in at least three cases involving the oral administration of less than or equal to 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131 and at least three cases involving the oral administration of greater than 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131; (Core)
IV.C.5.e).(2).(e).(ii).(b)	participate in patient selection and preparation; (Core)
IV.C.5.e).(2).(e).(ii).(c)	complete documentation, including the written directive and informed consent; (Core)
IV.C.5.e).(2).(e).(ii).(d)	understand and calculate the administered dosage; (Core)

IV.C.5.e).(2).(e).(ii).(e) counsel patients and their families on radiation safety issues; (Core)

IV.C.5.e).(2).(e).(ii).(f) determine release criteria; (Core)

IV.C.5.e).(2).(e).(ii).(g) arrange patient follow-up; and, (Core)

IV.C.5.e).(2).(e).(ii).(h) make pregnancy and breastfeeding recommendations. (Core)

IV.C.5.e).(2).(f) Each resident must complete a minimum of 12 weeks of clinical rotations in breast imaging. (Core)

IV.C.5.e).(2).(g) Each resident must interpret the minimum number of mammograms within the specified time period as designated by the US Food and Drug Administration's (FDA) Mammography Quality Standards Act (MQSA) regulations. (Core)

IV.D. Scholarship

Medicine is both an art and a science. The physician is a humanistic scientist who cares for patients. This requires the ability to think critically, evaluate the literature, appropriately assimilate new knowledge, and practice lifelong learning. The program and faculty must create an environment that fosters the acquisition of such skills through resident participation in scholarly activities. Scholarly activities may include discovery, integration, application, and teaching.

The ACGME recognizes the diversity of residencies and anticipates that programs prepare physicians for a variety of roles, including clinicians, scientists, and educators. It is expected that the program's scholarship will reflect its mission(s) and aims, and the needs of the community it serves. For example, some programs may concentrate their scholarly activity on quality improvement, population health, and/or teaching, while other programs might choose to utilize more classic forms of biomedical research as the focus for scholarship.

IV.D.1. Program Responsibilities

IV.D.1.a) The program must demonstrate evidence of scholarly activities consistent with its mission(s) and aims. (Core)

IV.D.1.b) The program, in partnership with its Sponsoring Institution, must allocate adequate resources to facilitate resident and faculty involvement in scholarly activities. (Core)

IV.D.1.c) The program must advance residents' knowledge and practice of the scholarly approach to evidence-based patient care. (Core)

Background and Intent: The scholarly approach can be defined as a synthesis of teaching, learning, and research with the aim of encouraging curiosity and critical thinking based on an understanding of physiology, pathophysiology, differential diagnosis, treatments, treatment alternatives, efficiency of care, and patient safety. While some faculty members are responsible for fulfilling the traditional elements of scholarship through research, integration, and teaching, all faculty members are responsible for advancing residents' scholarly approach to patient care.

Elements of a scholarly approach to patient care include:

- **Asking meaningful questions to stimulate residents to utilize learning resources to create a differential diagnosis, a diagnostic algorithm, and treatment plan**
- **Challenging the evidence that the residents use to reach their medical decisions so that they understand the benefits and limits of the medical literature**
- **When appropriate, dissemination of scholarly learning in a peer-reviewed manner (publication or presentation)**
- **Improving resident learning by encouraging them to teach using a scholarly approach**

The scholarly approach to patient care begins with curiosity, is grounded in the principles of evidence-based medicine, expands the knowledge base through dissemination, and develops the habits of lifelong learning by encouraging residents to be scholarly teachers.

IV.D.2. Faculty Scholarly Activity

IV.D.2.a) Among their scholarly activity, programs must demonstrate accomplishments in at least three of the following domains: (Core)

- **Research in basic science, education, translational science, patient care, or population health**
- **Peer-reviewed grants**
- **Quality improvement and/or patient safety initiatives**
- **Systematic reviews, meta-analyses, review articles, chapters in medical textbooks, or case reports**
- **Creation of curricula, evaluation tools, didactic educational activities, or electronic educational materials**
- **Contribution to professional committees, educational organizations, or editorial boards**
- **Innovations in education**

IV.D.2.b) The program must demonstrate dissemination of scholarly activity within and external to the program by the following methods:

Background and Intent: For the purposes of education, metrics of scholarly activity represent one of the surrogates for the program's effectiveness in the creation of an environment of inquiry that advances the residents' scholarly approach to patient care. The Review Committee will evaluate the dissemination of scholarship for the

program as a whole, not for individual faculty members, for a five-year interval, for both core and non-core faculty members, with the goal of assessing the effectiveness of the creation of such an environment. The ACGME recognizes that there may be differences in scholarship requirements between different specialties and between residencies and fellowships in the same specialty.

IV.D.2.b).(1) **faculty participation in grand rounds, posters, workshops, quality improvement presentations, podium presentations, grant leadership, non-peer-reviewed print/electronic resources, articles or publications, book chapters, textbooks, webinars, service on professional committees, or serving as a journal reviewer, journal editorial board member, or editor; (Outcome)‡**

IV.D.2.b).(2) **peer-reviewed publication. (Outcome)**

IV.D.3. Resident Scholarly Activity

IV.D.3.a) **Residents must participate in scholarship. (Core)**

IV.D.3.b) Residents must have training in critical thinking skills and research design. (Core)

IV.D.3.c) All residents must engage in a scholarly project under faculty member supervision. (Core)

IV.D.3.c).(1) The results of such projects must be published or presented at institutional, local, regional, national, or international meetings, and must be included in each resident's Learning Portfolio. (Core)

IV.D.3.c).(2) The program should specify how each project will be evaluated. (Detail)

IV.D.3.d) All graduating residents should have submitted at least one scholarly work to a national, regional, or local meeting, or for publication. (Core)

V. Evaluation

V.A. Resident Evaluation

V.A.1. Feedback and Evaluation

Background and Intent: Feedback is ongoing information provided regarding aspects of one's performance, knowledge, or understanding. The faculty empower residents to provide much of that feedback themselves in a spirit of continuous learning and self-reflection. Feedback from faculty members in the context of routine clinical care should be frequent, and need not always be formally documented.

Formative and summative evaluation have distinct definitions. Formative evaluation is *monitoring resident learning* and providing ongoing feedback that can be used by residents to improve their learning in the context of provision of patient care or other educational opportunities. More specifically, formative evaluations help:

- **residents identify their strengths and weaknesses and target areas that need work**
- **program directors and faculty members recognize where residents are struggling and address problems immediately**

Summative evaluation is *evaluating a resident's learning* by comparing the residents against the goals and objectives of the rotation and program, respectively. Summative evaluation is utilized to make decisions about promotion to the next level of training, or program completion.

End-of-rotation and end-of-year evaluations have both summative and formative components. Information from a summative evaluation can be used formatively when residents or faculty members use it to guide their efforts and activities in subsequent rotations and to successfully complete the residency program.

Feedback, formative evaluation, and summative evaluation compare intentions with accomplishments, enabling the transformation of a neophyte physician to one with growing expertise.

V.A.1.a) **Faculty members must directly observe, evaluate, and frequently provide feedback on resident performance during each rotation or similar educational assignment.** (Core)

Background and Intent: Faculty members should provide feedback frequently throughout the course of each rotation. Residents require feedback from faculty members to reinforce well-performed duties and tasks, as well as to correct deficiencies. This feedback will allow for the development of the learner as they strive to achieve the Milestones. More frequent feedback is strongly encouraged for residents who have deficiencies that may result in a poor final rotation evaluation.

V.A.1.b) **Evaluation must be documented at the completion of the assignment.** (Core)

V.A.1.b).(1) **For block rotations of greater than three months in duration, evaluation must be documented at least every three months.** (Core)

V.A.1.b).(2) **Longitudinal experiences, such as continuity clinic in the context of other clinical responsibilities, must be evaluated at least every three months and at completion.** (Core)

V.A.1.b).(3) Written end-of-rotation evaluations by faculty members must be provided to the residents within one month of completion of each rotation. (Core)

V.A.1.c) **The program must provide an objective performance evaluation based on the Competencies and the specialty-specific Milestones, and must:** (Core)

V.A.1.c).(1) **use multiple evaluators (e.g., faculty members, peers, patients, self, and other professional staff members);** (Core)

V.A.1.c).(2) **provide that information to the Clinical Competency Committee for its synthesis of progressive resident performance and improvement toward unsupervised practice;** (Core)

V.A.1.c).(3) ensure that assessment for progressive resident responsibility or independence is based upon knowledge, skills, and experience; and, (Core)

V.A.1.c).(4) ensure that resident assessment includes: (Core)

V.A.1.c).(4).(a) global faculty evaluations (all competencies); (Core)

V.A.1.c).(4).(b) multi-source evaluations (for Interpersonal and Communication Skills and Professionalism); (Core)

V.A.1.c).(4).(c) resident ability to take independent call; and, (Core)

V.A.1.c).(4).(d) the Resident Learning Portfolio. (Core)

V.A.1.d) **The program director or their designee, with input from the Clinical Competency Committee, must:**

V.A.1.d).(1) **meet with and review with each resident their documented semi-annual evaluation of performance, including progress along the specialty-specific Milestones;** (Core)

V.A.1.d).(2) **assist residents in developing individualized learning plans to capitalize on their strengths and identify areas for growth; and,** (Core)

V.A.1.d).(3) **develop plans for residents failing to progress, following institutional policies and procedures.** (Core)

V.A.1.d).(3).(a) The program must have a clearly defined process for remediation of resident underperformance. (Core)

V.A.1.d).(3).(a).(i) The program should provide more frequent performance reviews of residents experiencing difficulties or receiving unfavorable evaluations. (Core)

V.A.1.d).(3).(a).(ii) When a resident fails to progress satisfactorily, the program should develop a written plan identifying the problems, and address how they can be corrected, and then discuss this plan with the resident. (Core)

V.A.1.d).(3).(a).(ii).(a) This plan should be signed by the resident and placed in his or her individual file. (Core)

Background and Intent: Learning is an active process that requires effort from the teacher and the learner. Faculty members evaluate a resident's performance at least at the end of each rotation. The program director or their designee will review those evaluations, including their progress on the Milestones, at a minimum of every six months. Residents should be encouraged to reflect upon the evaluation, using the information to reinforce well-performed tasks or knowledge or to modify deficiencies in knowledge or practice. Working together with the faculty members, residents should develop an individualized learning plan.

Residents who are experiencing difficulties with achieving progress along the Milestones may require intervention to address specific deficiencies. Such intervention, documented in an individual remediation plan developed by the program director or a faculty mentor and the resident, will take a variety of forms based on the specific learning needs of the resident. However, the ACGME recognizes that there are situations which require more significant intervention that may alter the time course of resident progression. To ensure due process, it is essential that the program director follow institutional policies and procedures.

V.A.1.e) **At least annually, there must be a summative evaluation of each resident that includes their readiness to progress to the next year of the program, if applicable. (Core)**

V.A.1.e).(1) This should include a review of the resident's procedural experiences to ensure complete and accurate tracking in the ACGME Case Log System throughout the duration of the educational program. (Core)

V.A.1.f) **The evaluations of a resident's performance must be accessible for review by the resident. (Core)**

V.A.2. Final Evaluation

V.A.2.a) **The program director must provide a final evaluation for each resident upon completion of the program. (Core)**

V.A.2.a).(1) **The specialty-specific Milestones, and when applicable the specialty-specific Case Logs, must be used as tools to ensure residents are able to engage in autonomous practice upon completion of the program. (Core)**

V.A.2.a).(2) The final evaluation must:

V.A.2.a).(2).(a) 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; (Core)

V.A.2.a).(2).(b) verify that the resident has demonstrated the knowledge, skills, and behaviors necessary to enter autonomous practice; (Core)

V.A.2.a).(2).(c) consider recommendations from the Clinical Competency Committee; and, (Core)

V.A.2.a).(2).(d) be shared with the resident upon completion of the program. (Core)

V.A.3. A Clinical Competency Committee must be appointed by the program director. (Core)

V.A.3.a) At a minimum, the Clinical Competency Committee must include three members of the program faculty, at least one of whom is a core faculty member. (Core)

V.A.3.a).(1) Additional members must be faculty members from the same program or other programs, or other health professionals who have extensive contact and experience with the program's residents. (Core)

Background and Intent: The requirements regarding the Clinical Competency Committee do not preclude or limit a program director's participation on the Clinical Competency Committee. The intent is to leave flexibility for each program to decide the best structure for its own circumstances, but a program should consider: its program director's other roles as resident advocate, advisor, and confidante; the impact of the program director's presence on the other Clinical Competency Committee members' discussions and decisions; the size of the program faculty; and other program-relevant factors. The program director has final responsibility for resident evaluation and promotion decisions.

Program faculty may include more than the physician faculty members, such as other physicians and non-physicians who teach and evaluate the program's residents. There may be additional members of the Clinical Competency Committee. Chief residents who have completed core residency programs in their specialty may be members of the Clinical Competency Committee.

V.A.3.b) The Clinical Competency Committee must:

V.A.3.b).(1) review all resident evaluations at least semi-annually; (Core)

V.A.3.b).(2) determine each resident's progress on achievement of the specialty-specific Milestones; and, (Core)

V.A.3.b).(3) meet prior to the residents' semi-annual evaluations and advise the program director regarding each resident's progress. (Core)

V.B. Faculty Evaluation

V.B.1. The program must have a process to evaluate each faculty member's performance as it relates to the educational program at least annually. (Core)

Background and Intent: The program director is responsible for the education program and for whom delivers it. While the term "faculty" may be applied to physicians within a given institution for other reasons, it is applied to residency program faculty members only through approval by a program director. The development of the faculty improves the education, clinical, and research aspects of a program. Faculty members have a strong commitment to the resident and desire to provide optimal education and work opportunities. Faculty members must be provided feedback on their contribution to the mission of the program. All faculty members who interact with residents desire feedback on their education, clinical care, and research. If a faculty member does not interact with residents, feedback is not required. With regard to the diverse operating environments and configurations, the residency program director may need to work with others to determine the effectiveness of the program's faculty performance with regard to their role in the educational program. All teaching faculty members should have their educational efforts evaluated by the residents in a confidential and anonymous manner. Other aspects for the feedback may include research or clinical productivity, review of patient outcomes, or peer review of scholarly activity. The process should reflect the local environment and identify the necessary information. The feedback from the various sources should be summarized and provided to the faculty on an annual basis by a member of the leadership team of the program.

V.B.1.a) This evaluation must include a review of the faculty member's clinical teaching abilities, engagement with the educational program, participation in faculty development related to their skills as an educator, clinical performance, professionalism, and scholarly activities. (Core)

V.B.1.b) This evaluation must include written, anonymous, and confidential evaluations by the residents. (Core)

V.B.2. Faculty members must receive feedback on their evaluations at least annually. (Core)

V.B.3. Results of the faculty educational evaluations should be incorporated into program-wide faculty development plans. (Core)

Background and Intent: The quality of the faculty's teaching and clinical care is a determinant of the quality of the program and the quality of the residents' future clinical care. Therefore, the program has the responsibility to evaluate and improve the

program faculty members' teaching, scholarship, professionalism, and quality care. This section mandates annual review of the program's faculty members for this purpose, and can be used as input into the Annual Program Evaluation.

V.C. Program Evaluation and Improvement

V.C.1. The program director must appoint the Program Evaluation Committee to conduct and document the Annual Program Evaluation as part of the program's continuous improvement process. (Core)

V.C.1.a) The Program Evaluation Committee must be composed of at least two program faculty members, at least one of whom is a core faculty member, and at least one resident. (Core)

V.C.1.b) Program Evaluation Committee responsibilities must include:

V.C.1.b).(1) acting as an advisor to the program director, through program oversight; (Core)

V.C.1.b).(2) review of the program's self-determined goals and progress toward meeting them; (Core)

V.C.1.b).(3) guiding ongoing program improvement, including development of new goals, based upon outcomes; and, (Core)

V.C.1.b).(4) review of the current operating environment to identify strengths, challenges, opportunities, and threats as related to the program's mission and aims. (Core)

Background and Intent: In order to achieve its mission and train quality physicians, a program must evaluate its performance and plan for improvement in the Annual Program Evaluation. Performance of residents and faculty members is a reflection of program quality, and can use metrics that reflect the goals that a program has set for itself. The Program Evaluation Committee utilizes outcome parameters and other data to assess the program's progress toward achievement of its goals and aims.

V.C.1.c) The Program Evaluation Committee should consider the following elements in its assessment of the program:

V.C.1.c).(1) curriculum; (Core)

V.C.1.c).(2) outcomes from prior Annual Program Evaluation(s); (Core)

V.C.1.c).(3) ACGME letters of notification, including citations, Areas for Improvement, and comments; (Core)

V.C.1.c).(4) quality and safety of patient care; (Core)

V.C.1.c).(5) aggregate resident and faculty:

V.C.1.c).(5).(a) well-being; (Core)

V.C.1.c).(5).(b) recruitment and retention; (Core)

V.C.1.c).(5).(c) workforce diversity; (Core)

V.C.1.c).(5).(d) engagement in quality improvement and patient safety; (Core)

V.C.1.c).(5).(e) scholarly activity; (Core)

V.C.1.c).(5).(f) ACGME Resident and Faculty Surveys; and, (Core)

V.C.1.c).(5).(g) written evaluations of the program. (Core)

V.C.1.c).(6) aggregate resident:

V.C.1.c).(6).(a) achievement of the Milestones; (Core)

V.C.1.c).(6).(b) in-training examinations (where applicable); (Core)

V.C.1.c).(6).(c) board pass and certification rates; and, (Core)

V.C.1.c).(6).(d) graduate performance. (Core)

V.C.1.c).(7) aggregate faculty:

V.C.1.c).(7).(a) evaluation; and, (Core)

V.C.1.c).(7).(b) professional development. (Core)

V.C.1.d) The Program Evaluation Committee must evaluate the program's mission and aims, strengths, areas for improvement, and threats. (Core)

V.C.1.e) The annual review, including the action plan, must:

V.C.1.e).(1) be distributed to and discussed with the members of the teaching faculty and the residents; and, (Core)

V.C.1.e).(2) be submitted to the DIO. (Core)

V.C.2. The program must complete a Self-Study prior to its 10-Year Accreditation Site Visit. (Core)

V.C.2.a) A summary of the Self-Study must be submitted to the DIO. (Core)

Background and Intent: Outcomes of the documented Annual Program Evaluation can be integrated into the 10-year Self-Study process. The Self-Study is an objective, comprehensive evaluation of the residency program, with the aim of improving it. Underlying the Self-Study is this longitudinal evaluation of the program and its learning environment, facilitated through sequential Annual Program Evaluations that focus on the required components, with an emphasis on program strengths and self-identified areas for improvement. Details regarding the timing and expectations for the Self-Study and the 10-Year Accreditation Site Visit are provided in the *ACGME Manual of Policies and Procedures*. Additionally, a description of the Self-Study process, as well as information on how to prepare for the 10-Year Accreditation Site Visit, is available on the ACGME website.

V.C.3. ***One goal of ACGME-accredited education is to educate physicians who seek and achieve board certification. One measure of the effectiveness of the educational program is the ultimate pass rate.***

The program director should encourage all eligible program graduates to take the certifying examination offered by the applicable American Board of Medical Specialties (ABMS) member board or American Osteopathic Association (AOA) certifying board.

V.C.3.a) **For specialties in which the ABMS member board and/or AOA certifying board offer(s) an annual written exam, in the preceding three years, the program's aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that specialty.** **(Outcome)**

Specialty-Specific Background and Intent: For interventional radiology programs, the annual written exam referenced in V.C.3.a) will be considered equivalent to the ABR's Core Exam or the AOBR's Combined Physics and Diagnostic Imaging Examination and will be the basis for the aggregate program pass rate.

V.C.3.b) **For specialties in which the ABMS member board and/or AOA certifying board offer(s) a biennial written exam, in the preceding six years, the program's aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that specialty.** **(Outcome)**

V.C.3.c) **For specialties in which the ABMS member board and/or AOA certifying board offer(s) an annual oral exam, in the preceding three years, the program's aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that specialty.** **(Outcome)**

Specialty-Specific Background and Intent: For interventional radiology programs, the annual oral exam referenced in V.C.3.c) will be equivalent to both the ABR's oral component and

computer-based component or the AOBR's oral Certification of Added Qualifications (CAQ) in interventional radiology.

V.C.3.d) **For specialties in which the ABMS member board and/or AOA certifying board offer(s) a biennial oral exam, in the preceding six years, the program's aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that specialty.** (Outcome)

V.C.3.e) **For each of the exams referenced in V.C.3.a)-d), any program whose graduates over the time period specified in the requirement have achieved an 80 percent pass rate will have met this requirement, no matter the percentile rank of the program for pass rate in that specialty.** (Outcome)

Background and Intent: Setting a single standard for pass rate that works across specialties is not supportable based on the heterogeneity of the psychometrics of different examinations. By using a percentile rank, the performance of the lower five percent (fifth percentile) of programs can be identified and set on a path to curricular and test preparation reform.

There are specialties where there is a very high board pass rate that could leave successful programs in the bottom five percent (fifth percentile) despite admirable performance. These high-performing programs should not be cited, and V.C.3.e) is designed to address this.

V.C.3.f) **Programs must report, in ADS, board certification status annually for the cohort of board-eligible residents that graduated seven years earlier.** (Core)

Background and Intent: It is essential that residency programs demonstrate knowledge and skill transfer to their residents. One measure of that is the qualifying or initial certification exam pass rate. Another important parameter of the success of the program is the ultimate board certification rate of its graduates. Graduates are eligible for up to seven years from residency graduation for initial certification. The ACGME will calculate a rolling three-year average of the ultimate board certification rate at seven years post-graduation, and the Review Committees will monitor it.

The Review Committees will track the rolling seven-year certification rate as an indicator of program quality. Programs are encouraged to monitor their graduates' performance on board certification examinations.

In the future, the ACGME may establish parameters related to ultimate board certification rates.

VI. The Learning and Working Environment

Residency education must occur in the context of a learning and working environment that emphasizes the following principles:

- ***Excellence in the safety and quality of care rendered to patients by residents today***

- ***Excellence in the safety and quality of care rendered to patients by today's residents in their future practice***

- ***Excellence in professionalism through faculty modeling of:***

  - ***the effacement of self-interest in a humanistic environment that supports the professional development of physicians***

  - ***the joy of curiosity, problem-solving, intellectual rigor, and discovery***

- ***Commitment to the well-being of the students, residents, faculty members, and all members of the health care team***

Background and Intent: The revised requirements are intended to provide greater flexibility within an established framework, allowing programs and residents more discretion to structure clinical education in a way that best supports the above principles of professional development. With this increased flexibility comes the responsibility for programs and residents to adhere to the 80-hour maximum weekly limit (unless a rotation-specific exception is granted by a Review Committee), and to utilize flexibility in a manner that optimizes patient safety, resident education, and resident well-being. The requirements are intended to support the development of a sense of professionalism by encouraging residents to make decisions based on patient needs and their own well-being, without fear of jeopardizing their program's accreditation status. In addition, the proposed requirements eliminate the burdensome documentation requirement for residents to justify clinical and educational work hour variations.

Clinical and educational work hours represent only one part of the larger issue of conditions of the learning and working environment, and Section VI has now been expanded to include greater attention to patient safety and resident and faculty member well-being. The requirements are intended to support programs and residents as they strive for excellence, while also ensuring ethical, humanistic training. Ensuring that flexibility is used in an appropriate manner is a shared responsibility of the program and residents. With this flexibility comes a responsibility for residents and faculty members to recognize the need to hand off care of a patient to another provider when a resident is too fatigued to provide safe, high quality care and for programs to ensure that residents remain within the 80-hour maximum weekly limit.

VI.A. Patient Safety, Quality Improvement, Supervision, and Accountability

VI.A.1. Patient Safety and Quality Improvement

All physicians share responsibility for promoting patient safety and enhancing quality of patient care. Graduate medical education must prepare residents to provide the highest level of clinical care with continuous focus on the safety, individual needs, and humanity of their patients. It is the right of each patient to be cared for by

residents who are appropriately supervised; possess the requisite knowledge, skills, and abilities; understand the limits of their knowledge and experience; and seek assistance as required to provide optimal patient care.

Residents must demonstrate the ability to analyze the care they provide, understand their roles within health care teams, and play an active role in system improvement processes. Graduating residents will apply these skills to critique their future unsupervised practice and effect quality improvement measures.

It is necessary for residents and faculty members to consistently work in a well-coordinated manner with other health care professionals to achieve organizational patient safety goals.

VI.A.1.a) Patient Safety

VI.A.1.a).(1) Culture of Safety

A culture of safety requires continuous identification of vulnerabilities and a willingness to transparently deal with them. An effective organization has formal mechanisms to assess the knowledge, skills, and attitudes of its personnel toward safety in order to identify areas for improvement.

VI.A.1.a).(1).(a) The program, its faculty, residents, and fellows must actively participate in patient safety systems and contribute to a culture of safety. (Core)

VI.A.1.a).(1).(b) The program must have a structure that promotes safe, interprofessional, team-based care. (Core)

VI.A.1.a).(2) Education on Patient Safety

Programs must provide formal educational activities that promote patient safety-related goals, tools, and techniques. (Core)

Background and Intent: Optimal patient safety occurs in the setting of a coordinated interprofessional learning and working environment.

VI.A.1.a).(3) Patient Safety Events

Reporting, investigation, and follow-up of adverse events, near misses, and unsafe conditions are pivotal mechanisms for improving patient safety, and are essential for the success of any patient safety program. Feedback and experiential learning are

essential to developing true competence in the ability to identify causes and institute sustainable systems-based changes to ameliorate patient safety vulnerabilities.

VI.A.1.a).(3).(a) **Residents, fellows, faculty members, and other clinical staff members must:**

VI.A.1.a).(3).(a).(i) **know their responsibilities in reporting patient safety events at the clinical site; (Core)**

VI.A.1.a).(3).(a).(ii) **know how to report patient safety events, including near misses, at the clinical site; and, (Core)**

VI.A.1.a).(3).(a).(iii) **be provided with summary information of their institution's patient safety reports. (Core)**

VI.A.1.a).(3).(b) **Residents must participate as team members in real and/or simulated interprofessional clinical patient safety activities, such as root cause analyses or other activities that include analysis, as well as formulation and implementation of actions. (Core)**

VI.A.1.a).(4) **Resident Education and Experience in Disclosure of Adverse Events**

Patient-centered care requires patients, and when appropriate families, to be apprised of clinical situations that affect them, including adverse events. This is an important skill for faculty physicians to model, and for residents to develop and apply.

VI.A.1.a).(4).(a) **All residents must receive training in how to disclose adverse events to patients and families. (Core)**

VI.A.1.a).(4).(b) **Residents should have the opportunity to participate in the disclosure of patient safety events, real or simulated. (Detail)**

VI.A.1.b) **Quality Improvement**

VI.A.1.b).(1) **Education in Quality Improvement**

A cohesive model of health care includes quality-related goals, tools, and techniques that are necessary

in order for health care professionals to achieve quality improvement goals.

VI.A.1.b).(1).(a) **Residents must receive training and experience in quality improvement processes, including an understanding of health care disparities.** (Core)

VI.A.1.b).(2) **Quality Metrics**

Access to data is essential to prioritizing activities for care improvement and evaluating success of improvement efforts.

VI.A.1.b).(2).(a) **Residents and faculty members must receive data on quality metrics and benchmarks related to their patient populations.** (Core)

VI.A.1.b).(3) **Engagement in Quality Improvement Activities**

Experiential learning is essential to developing the ability to identify and institute sustainable systems-based changes to improve patient care.

VI.A.1.b).(3).(a) **Residents must have the opportunity to participate in interprofessional quality improvement activities.** (Core)

VI.A.1.b).(3).(a).(i) **This should include activities aimed at reducing health care disparities.** (Detail)

VI.A.2. **Supervision and Accountability**

VI.A.2.a) ***Although the attending physician is ultimately responsible for the care of the patient, every physician shares in the responsibility and accountability for their efforts in the provision of care. Effective programs, in partnership with their Sponsoring Institutions, define, widely communicate, and monitor a structured chain of responsibility and accountability as it relates to the supervision of all patient care.***

Supervision in the setting of graduate medical education provides safe and effective care to patients; ensures each resident's development of the skills, knowledge, and attitudes required to enter the unsupervised practice of medicine; and establishes a foundation for continued professional growth.

VI.A.2.a).(1) **Each patient must have an identifiable and appropriately-credentialed and privileged attending physician (or licensed independent practitioner as specified by the applicable Review Committee) who is**

responsible and accountable for the patient's care. (Core)

VI.A.2.a).(1).(a) **This information must be available to residents, faculty members, other members of the health care team, and patients.** (Core)

VI.A.2.a).(1).(b) **Residents and faculty members must inform each patient of their respective roles in that patient's care when providing direct patient care.** (Core)

VI.A.2.b) ***Supervision may be exercised through a variety of methods. 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 appropriate availability of the supervising faculty member, fellow, or senior resident physician, either on site or by means of telecommunication technology. Some activities require the physical presence of the supervising faculty member. In some circumstances, supervision may include post-hoc review of resident-delivered care with feedback.***

Background and Intent: Appropriate supervision is essential for patient safety and high-quality teaching. Supervision is also contextual. There is tremendous diversity of resident patient interactions, education and training locations, and resident skills and abilities even at the same level of the educational program. The degree of supervision is expected to evolve progressively as a resident gains more experience, even with the same patient condition or procedure. All residents have a level of supervision commensurate with their level of autonomy in practice; this level of supervision may be enhanced based on factors such as patient safety, complexity, acuity, urgency, risk of serious adverse events, or other pertinent variables.

VI.A.2.b).(1) **The program must demonstrate that the appropriate level of supervision in place for all residents is based on each resident's level of training and ability, as well as patient complexity and acuity. Supervision may be exercised through a variety of methods, as appropriate to the situation.** (Core)

VI.A.2.b).(2) **The program must define when physical presence of a supervising physician is required.** (Core)

VI.A.2.c) **Levels of Supervision**

To promote appropriate resident supervision while providing for graded authority and responsibility, the program must use the following classification of supervision: (Core)

VI.A.2.c).(1) **Direct Supervision:**

VI.A.2.c).(1).(a) **the supervising physician is physically present with the resident during the key portions of the patient interaction; or, (Core)**

VI.A.2.c).(1).(a).(i) **PGY-1 residents must initially be supervised directly, only as described in VI.A.2.c).(1).(a). (Core)**

VI.A.2.c).(1).(b) **the supervising physician and/or patient is not physically present with the resident and the supervising physician is concurrently monitoring the patient care through appropriate telecommunication technology. (Core)**

VI.A.2.c).(1).(b).(i) The program must have clear guidelines that delineate which competencies must be demonstrated to determine when a resident can progress to indirect supervision. (Core)

VI.A.2.c).(1).(b).(ii) The program director must ensure that clear expectations exist and are communicated to the residents, and that these expectations outline specific situations in which a resident would still require direct supervision. (Core)

VI.A.2.c).(2) **Indirect Supervision: the supervising physician is not providing physical or concurrent visual or audio supervision but is immediately available to the resident for guidance and is available to provide appropriate direct supervision. (Core)**

VI.A.2.c).(3) **Oversight – the supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered. (Core)**

VI.A.2.d) **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.A.2.d).(1) **The program director must evaluate each resident's abilities based on specific criteria, guided by the Milestones. (Core)**

VI.A.2.d).(2) **Faculty members functioning as supervising physicians must delegate portions of care to residents based on the needs of the patient and the skills of each resident. (Core)**

VI.A.2.d).(3) **Senior residents or fellows should serve in a supervisory role to 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.A.2.e) Programs must set guidelines for circumstances and events in which residents must communicate with the supervising faculty member(s). (Core)

VI.A.2.e).(1) Each resident must know the limits of their scope of authority, and the circumstances under which the resident is permitted to act with conditional independence. (Outcome)

Background and Intent: The ACGME Glossary of Terms defines conditional independence as: Graded, progressive responsibility for patient care with defined oversight.

VI.A.2.f) Faculty supervision assignments must be of sufficient duration to assess the knowledge and skills of each resident and to delegate to the resident the appropriate level of patient care authority and responsibility. (Core)

VI.B. Professionalism

VI.B.1. Programs, in partnership with their Sponsoring Institutions, must educate residents and faculty members concerning the professional responsibilities of physicians, including their obligation to be appropriately rested and fit to provide the care required by their patients. (Core)

VI.B.2. The learning objectives of the program must:

VI.B.2.a) be accomplished through an appropriate blend of supervised patient care responsibilities, clinical teaching, and didactic educational events; (Core)

VI.B.2.b) be accomplished without excessive reliance on residents to fulfill non-physician obligations; and, (Core)

Background and Intent: Routine reliance on residents to fulfill non-physician obligations increases work compression for residents and does not provide an optimal educational experience. Non-physician obligations are those duties which in most institutions are performed by nursing and allied health professionals, transport services, or clerical staff. Examples of such obligations include transport of patients from the wards or units for procedures elsewhere in the hospital; routine blood drawing for laboratory tests; routine monitoring of patients when off the ward; and clerical duties, such as scheduling. While it is understood that residents may be expected to do any of these things on occasion when the need arises, these activities should not be performed by residents routinely and must be kept to a minimum to optimize resident education.

VI.B.2.c) ensure manageable patient care responsibilities. (Core)

Background and Intent: The Common Program Requirements do not define "manageable patient care responsibilities" as this is variable by specialty and PGY level. Review Committees will provide further detail regarding patient care responsibilities in the applicable specialty-specific Program Requirements and accompanying FAQs. However, all programs, regardless of specialty, should carefully assess how the assignment of patient care responsibilities can affect work compression, especially at the PGY-1 level.

VI.B.3. The program director, in partnership with the Sponsoring Institution, must provide a culture of professionalism that supports patient safety and personal responsibility. (Core)

VI.B.4. Residents and faculty members must demonstrate an understanding of their personal role in the:

VI.B.4.a) provision of patient- and family-centered care; (Outcome)

VI.B.4.b) safety and welfare of patients entrusted to their care, including the ability to report unsafe conditions and adverse events; (Outcome)

Background and Intent: This requirement emphasizes that responsibility for reporting unsafe conditions and adverse events is shared by all members of the team and is not solely the responsibility of the resident.

VI.B.4.c) assurance of their fitness for work, including: (Outcome)

Background and Intent: This requirement emphasizes the professional responsibility of faculty members and residents to arrive for work adequately rested and ready to care for patients. It is also the responsibility of faculty members, residents, and other members of the care team to be observant, to intervene, and/or to escalate their concern about resident and faculty member fitness for work, depending on the situation, and in accordance with institutional policies.

VI.B.4.c).(1) management of their time before, during, and after clinical assignments; and, (Outcome)

VI.B.4.c).(2) recognition of impairment, including from illness, fatigue, and substance use, in themselves, their peers, and other members of the health care team. (Outcome)

VI.B.4.d) commitment to lifelong learning; (Outcome)

VI.B.4.e) monitoring of their patient care performance improvement indicators; and, (Outcome)

VI.B.4.f) accurate reporting of clinical and educational work hours, patient outcomes, and clinical experience data. (Outcome)

VI.B.5. **All residents and faculty members must demonstrate responsiveness to patient needs that supersedes self-interest. This includes the recognition 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.6. **Programs, in partnership with their Sponsoring Institutions, must provide a professional, equitable, respectful, and civil environment that is free from discrimination, sexual and other forms of harassment, mistreatment, abuse, or coercion of students, residents, faculty, and staff.** (Core)

VI.B.7. **Programs, in partnership with their Sponsoring Institutions, should have a process for education of residents and faculty regarding unprofessional behavior and a confidential process for reporting, investigating, and addressing such concerns.** (Core)

VI.C. Well-Being

Psychological, emotional, and physical well-being are critical in the development of the competent, caring, and resilient physician and require proactive attention to life inside and outside of medicine. Well-being requires that physicians retain the joy in medicine while managing their own real-life stresses. Self-care and responsibility to support other members of the health care team are important components of professionalism; they are also skills that must be modeled, learned, and nurtured in the context of other aspects of residency training.

Residents and faculty members are at risk for burnout and depression. Programs, in partnership with their Sponsoring Institutions, have the same responsibility to address well-being as other aspects of resident competence. Physicians and all members of the health care team share responsibility for the well-being of each other. For example, a culture which encourages covering for colleagues after an illness without the expectation of reciprocity reflects the ideal of professionalism. A positive culture in a clinical learning environment models constructive behaviors, and prepares residents with the skills and attitudes needed to thrive throughout their careers.

Background and Intent: The ACGME is committed to addressing physician well-being for individuals and as it relates to the learning and working environment. The creation of a learning and working environment with a culture of respect and accountability for physician well-being is crucial to physicians' ability to deliver the safest, best possible care to patients. The ACGME is leveraging its resources in four key areas to support the ongoing focus on physician well-being: education, influence, research, and collaboration. Information regarding the ACGME's ongoing efforts in this area is available on the ACGME website: www.acgme.org/physicianwellbeing.

The ACGME also created a repository for well-being materials, assessments, presentations, and more on the Well-Being Tools and Resources page in Learn at

ACGME for programs seeking to develop or strengthen their own well-being initiatives. There are many activities that programs can implement now to assess and support physician well-being. These include the distribution and analysis of culture of safety surveys, ensuring the availability of counseling services, and paying attention to the safety of the entire health care team.

VI.C.1. **The responsibility of the program, in partnership with the Sponsoring Institution, to address well-being must include:**

VI.C.1.a) **efforts to enhance the meaning that each resident finds in the experience of being a physician, including protecting time with patients, minimizing non-physician obligations, providing administrative support, promoting progressive autonomy and flexibility, and enhancing professional relationships; (Core)**

VI.C.1.b) **attention to scheduling, work intensity, and work compression that impacts resident well-being; (Core)**

VI.C.1.c) **evaluating workplace safety data and addressing the safety of residents and faculty members; (Core)**

Background and Intent: This requirement emphasizes the responsibility shared by the Sponsoring Institution and its programs to gather information and utilize systems that monitor and enhance resident and faculty member safety, including physical safety. Issues to be addressed include, but are not limited to, monitoring of workplace injuries, physical or emotional violence, vehicle collisions, and emotional well-being after adverse events.

VI.C.1.d) **policies and programs that encourage optimal resident and faculty member well-being; and, (Core)**

Background and Intent: Well-being includes having time away from work to engage with family and friends, as well as to attend to personal needs and to one's own health, including adequate rest, healthy diet, and regular exercise.

VI.C.1.d).(1) **Residents must be given the opportunity to attend medical, mental health, and dental care appointments, including those scheduled during their working hours. (Core)**

Background and Intent: The intent of this requirement is to ensure that residents have the opportunity to access medical and dental care, including mental health care, at times that are appropriate to their individual circumstances. Residents must be provided with time away from the program as needed to access care, including appointments scheduled during their working hours.

VI.C.1.e) **attention to resident and faculty member burnout, depression, and substance use disorders. The program, in partnership with its Sponsoring Institution, must educate**

faculty members and residents in identification of the symptoms of burnout, depression, and substance use disorders, including means to assist those who experience these conditions. Residents and faculty members must also be educated to recognize those symptoms in themselves and how to seek appropriate care. The program, in partnership with its Sponsoring Institution, must: (Core)

Background and Intent: Programs and Sponsoring Institutions are encouraged to review materials to create systems for identification of burnout, depression, and substance use disorders. Materials and more information are available in Learn at ACGME (https://dl.acgme.org/pages/well-being-tools-resources).

VI.C.1.e).(1) **encourage residents and faculty members to alert the program director or other designated personnel or programs when they are concerned that another resident, fellow, or faculty member may be displaying signs of burnout, depression, a substance use disorder, suicidal ideation, or potential for violence;** (Core)

Background and Intent: Individuals experiencing burnout, depression, a substance use disorder, and/or suicidal ideation are often reluctant to reach out for help due to the stigma associated with these conditions, and are concerned that seeking help may have a negative impact on their career. Recognizing that physicians are at increased risk in these areas, it is essential that residents and faculty members are able to report their concerns when another resident or faculty member displays signs of any of these conditions, so that the program director or other designated personnel, such as the department chair, may assess the situation and intervene as necessary to facilitate access to appropriate care. Residents and faculty members must know which personnel, in addition to the program director, have been designated with this responsibility; those personnel and the program director should be familiar with the institution's impaired physician policy and any employee health, employee assistance, and/or wellness programs within the institution. In cases of physician impairment, the program director or designated personnel should follow the policies of their institution for reporting.

VI.C.1.e).(2) **provide access to appropriate tools for self-screening; and,** (Core)

VI.C.1.e).(3) **provide access to confidential, affordable mental health assessment, counseling, and treatment, including access to urgent and emergent care 24 hours a day, seven days a week.** (Core)

Background and Intent: The intent of this requirement is to ensure that residents have immediate access at all times to a mental health professional (psychiatrist, psychologist, Licensed Clinical Social Worker, Primary Mental Health Nurse Practitioner, or Licensed Professional Counselor) for urgent or emergent mental health issues. In-person, telemedicine, or telephonic means may be utilized to satisfy this

requirement. Care in the Emergency Department may be necessary in some cases, but not as the primary or sole means to meet the requirement.

The reference to affordable counseling is intended to require that financial cost not be a barrier to obtaining care.

VI.C.2. **There are circumstances in which residents may be unable to attend work, including but not limited to fatigue, illness, family emergencies, and parental leave. Each program must allow an appropriate length of absence for residents unable to perform their patient care responsibilities.** (Core)

VI.C.2.a) **The program must have policies and procedures in place to ensure coverage of patient care.** (Core)

VI.C.2.b) **These policies must be implemented without fear of negative consequences for the resident who is or was unable to provide the clinical work.** (Core)

Background and Intent: Residents may need to extend their length of training depending on length of absence and specialty board eligibility requirements. Teammates should assist colleagues in need and equitably reintegrate them upon return.

VI.D. **Fatigue Mitigation**

VI.D.1. **Programs must:**

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

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

VI.D.1.c) **encourage residents to use fatigue mitigation processes to manage the potential negative effects of fatigue on patient care and learning.** (Detail)

Background and Intent: Providing medical care to patients is physically and mentally demanding. Night shifts, even for those who have had enough rest, cause fatigue. Experiencing fatigue in a supervised environment during training prepares residents for managing fatigue in practice. It is expected that programs adopt fatigue mitigation processes and ensure that there are no negative consequences and/or stigma for using fatigue mitigation strategies.

This requirement emphasizes the importance of adequate rest before and after clinical responsibilities. Strategies that may be used include, but are not limited to, strategic napping; the judicious use of caffeine; availability of other caregivers; time management to maximize sleep off-duty; learning to recognize the signs of fatigue, and self-monitoring performance and/or asking others to monitor performance; remaining active

to promote alertness; maintaining a healthy diet; using relaxation techniques to fall asleep; maintaining a consistent sleep routine; exercising regularly; increasing sleep time before and after call; and ensuring sufficient sleep recovery periods.

VI.D.2. **Each program must ensure continuity of patient care, consistent with the program's policies and procedures referenced in VI.C.2–VI.C.2.b), in the event that a resident may be unable to perform their patient care responsibilities due to excessive fatigue.** (Core)

VI.D.3. **The program, in partnership with its Sponsoring Institution, must ensure adequate sleep facilities and safe transportation options for residents who may be too fatigued to safely return home.** (Core)

VI.E. Clinical Responsibilities, Teamwork, and Transitions of Care

VI.E.1. Clinical Responsibilities

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

Background and Intent: The changing clinical care environment of medicine has meant that work compression due to high complexity has increased stress on residents. Faculty members and program directors need to make sure residents function in an environment that has safe patient care and a sense of resident well-being. Some Review Committees have addressed this by setting limits on patient admissions, and it is an essential responsibility of the program director to monitor resident workload. Workload should be distributed among the resident team and interdisciplinary teams to minimize work compression.

VI.E.2. Teamwork

Residents must care for patients in an environment that maximizes 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 and larger health system. (Core)

VI.E.3. Transitions of Care

VI.E.3.a) **Programs must design clinical assignments to optimize transitions in patient care, including their safety, frequency, and structure.** (Core)

VI.E.3.b) **Programs, in partnership with their Sponsoring Institutions, must ensure and monitor effective, structured hand-over processes to facilitate both continuity of care and patient safety.** (Core)

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

VI.E.3.d) **Programs and clinical sites must maintain and communicate schedules of attending physicians and residents currently responsible for care.** (Core)

VI.E.3.e) **Each program must ensure continuity of patient care, consistent with the program's policies and procedures referenced in VI.C.2-VI.C.2.b), in the event that a resident may be unable to perform their patient care responsibilities due to excessive fatigue or illness, or family emergency.** (Core)

VI.F. Clinical Experience and Education

Programs, in partnership with their Sponsoring Institutions, must design an effective program structure that is configured to provide residents with educational and clinical experience opportunities, as well as reasonable opportunities for rest and personal activities.

Background and Intent: In the new requirements, the terms "clinical experience and education," "clinical and educational work," and "clinical and educational work hours" replace the terms "duty hours," "duty periods," and "duty." These changes have been made in response to concerns that the previous use of the term "duty" in reference to number of hours worked may have led some to conclude that residents' duty to "clock out" on time superseded their duty to their patients.

VI.F.1. Maximum Hours of Clinical and Educational Work per Week

Clinical and educational work hours must be limited to no more than 80 hours per week, averaged over a four-week period, inclusive of all in-house clinical and educational activities, clinical work done from home, and all moonlighting. (Core)

Background and Intent: Programs and residents have a shared responsibility to ensure that the 80-hour maximum weekly limit is not exceeded. While the requirement has been written with the intent of allowing residents to remain beyond their scheduled work periods to care for a patient or participate in an educational activity, these additional hours must be accounted for in the allocated 80 hours when averaged over four weeks.

Scheduling

While the ACGME acknowledges that, on rare occasions, a resident may work in excess of 80 hours in a given week, all programs and residents utilizing this flexibility will be required to adhere to the 80-hour maximum weekly limit when averaged over a four-week period. Programs that regularly schedule residents to work 80 hours per week and still permit residents to remain beyond their scheduled work period are likely to exceed the 80-hour maximum, which would not be in substantial compliance with the requirement. These programs should adjust schedules so that residents are scheduled to work fewer than 80 hours per week, which would allow residents to remain beyond

their scheduled work period when needed without violating the 80-hour requirement. Programs may wish to consider using night float and/or making adjustments to the frequency of in-house call to ensure compliance with the 80-hour maximum weekly limit.

Oversight

With increased flexibility introduced into the Requirements, programs permitting this flexibility will need to account for the potential for residents to remain beyond their assigned work periods when developing schedules, to avoid exceeding the 80-hour maximum weekly limit, averaged over four weeks. The ACGME Review Committees will strictly monitor and enforce compliance with the 80-hour requirement. Where violations of the 80-hour requirement are identified, programs will be subject to citation and at risk for an adverse accreditation action.

Work from Home

While the requirement specifies that clinical work done from home must be counted toward the 80-hour maximum weekly limit, the expectation remains that scheduling be structured so that residents are able to complete most work on site during scheduled clinical work hours without requiring them to take work home. The new requirements acknowledge the changing landscape of medicine, including electronic health records, and the resulting increase in the amount of work residents choose to do from home. The requirement provides flexibility for residents to do this while ensuring that the time spent by residents completing clinical work from home is accomplished within the 80-hour weekly maximum. Types of work from home that must be counted include using an electronic health record and taking calls from home. Reading done in preparation for the following day's cases, studying, and research done from home do not count toward the 80 hours. Resident decisions to leave the hospital before their clinical work has been completed and to finish that work later from home should be made in consultation with the resident's supervisor. In such circumstances, residents should be mindful of their professional responsibility to complete work in a timely manner and to maintain patient confidentiality.

During the public comment period many individuals raised questions and concerns related to this change. Some questioned whether minute by minute tracking would be required; in other words, if a resident spends three minutes on a phone call and then a few hours later spends two minutes on another call, will the resident need to report that time. Others raised concerns related to the ability of programs and institutions to verify the accuracy of the information reported by residents. The new requirements are not an attempt to micromanage this process. Residents are to track the time they spend on clinical work from home and to report that time to the program. Decisions regarding whether to report infrequent phone calls of very short duration will be left to the individual resident. Programs will need to factor in time residents are spending on clinical work at home when schedules are developed to ensure that residents are not working in excess of 80 hours per week, averaged over four weeks. There is no requirement that programs assume responsibility for documenting this time. Rather, the program's responsibility is ensuring that residents report their time from home and that schedules are structured to ensure that residents are not working in excess of 80 hours per week, averaged over four weeks.

PGY-1 and PGY-2 Residents

PGY-1 and PGY-2 residents may not have the experience to make decisions about when it is appropriate to utilize flexibility or may feel pressured to use it when unnecessary.

Programs are responsible for ensuring that residents are provided with manageable workloads that can be accomplished during scheduled work hours. This includes ensuring that a resident's assigned direct patient load is manageable, that residents have appropriate support from their clinical teams, and that residents are not overburdened with clerical work and/or other non-physician duties.

VI.F.2. Mandatory Time Free of Clinical Work and Education

VI.F.2.a) The program must design an effective program structure that is configured to provide residents with educational opportunities, as well as reasonable opportunities for rest and personal well-being. (Core)

VI.F.2.b) Residents should have eight hours off between scheduled clinical work and education periods. (Detail)

VI.F.2.b).(1) There may be circumstances when residents choose to stay to care for their patients or return to the hospital with fewer than eight hours free of clinical experience and education. This must occur within the context of the 80-hour and the one-day-off-in-seven requirements. (Detail)

Background and Intent: While it is expected that resident schedules will be structured to ensure that residents are provided with a minimum of eight hours off between scheduled work periods, it is recognized that residents may choose to remain beyond their scheduled time, or return to the clinical site during this time-off period, to care for a patient. The requirement preserves the flexibility for residents to make those choices. It is also noted that the 80-hour weekly limit (averaged over four weeks) is a deterrent for scheduling fewer than eight hours off between clinical and education work periods, as it would be difficult for a program to design a schedule that provides fewer than eight hours off without violating the 80-hour rule.

VI.F.2.c) Residents must have at least 14 hours free of clinical work and education after 24 hours of in-house call. (Core)

Background and Intent: Residents have a responsibility to return to work rested, and thus are expected to use this time away from work to get adequate rest. In support of this goal, residents are encouraged to prioritize sleep over other discretionary activities.

VI.F.2.d) Residents must be scheduled for a minimum of one day in seven free of clinical work and required education (when averaged over four weeks). At-home call cannot be assigned on these free days. (Core)

Background and Intent: The requirement provides flexibility for programs to distribute days off in a manner that meets program and resident needs. It is strongly recommended that residents' preference regarding how their days off are distributed be considered as schedules are developed. It is desirable that days off be distributed throughout the month, but some residents may prefer to group their days off to have a

"golden weekend," meaning a consecutive Saturday and Sunday free from work. The requirement for one free day in seven should not be interpreted as precluding a golden weekend. Where feasible, schedules may be designed to provide residents with a weekend, or two consecutive days, free of work. The applicable Review Committee will evaluate the number of consecutive days of work and determine whether they meet educational objectives. Programs are encouraged to distribute days off in a fashion that optimizes resident well-being, and educational and personal goals. It is noted that a day off is defined in the ACGME Glossary of Terms as "one (1) continuous 24-hour period free from all administrative, clinical, and educational activities."

VI.F.3. Maximum Clinical Work and Education Period Length

VI.F.3.a) Clinical and educational work periods for residents must not exceed 24 hours of continuous scheduled clinical assignments. (Core)

Background and Intent: The Task Force examined the question of "consecutive time on task." It examined the research supporting the current limit of 16 consecutive hours of time on task for PGY-1 residents; the range of often conflicting impacts of this requirement on patient safety, clinical care, and continuity of care by resident teams; and resident learning found in the literature. Finally, it heard a uniform request by the specialty societies, certifying boards, membership societies and organizations, and senior residents to repeal this requirement. It heard conflicting perspectives from resident unions, a medical student association, and a number of public advocacy groups, some arguing for continuation of the requirement, others arguing for extension of the requirement to all residents.

Of greatest concern to the Task Force were the observations of disruption of team care and patient care continuity brought about with residents beyond the PGY-1 level adhering to differing requirements. The graduate medical education community uniformly requested that the Task Force remove this requirement. The most frequently-cited reason for this request was the complete disruption of the team, separating the PGY-1 from supervisory faculty members and residents who were best able to judge the ability of the resident and customize the supervision of patient care for each PGY-1. Cited nearly as frequently was the separation of the PGY-1 from the team, delaying maturation of clinical skills, and threatening to create a "shift" mentality in disciplines where overnight availability to patients is essential in delivery of care.

The Task Force examined the impact of the request to consider 16-consecutive-hour limits for all residents, and rejected the proposition. It found that model incompatible with the actual practice of medicine and surgery in many specialties, excessively limiting in configuration of clinical services in many disciplines, and potentially disruptive of the inculcation of responsibility and professional commitment to altruism and placing the needs of patients above those of the physician.

After careful consideration of the information available, the testimony and position of all parties submitting information, and presentations to the Task Force, the Task Force removed the 16-hour-consecutive-time-on-task requirement for PGY-1 residents. It remains crucial that programs ensure that PGY-1 residents are supervised in

compliance with the applicable Program Requirements, and that resident well-being is prioritized as described in Section VI.C. of these requirements.

VI.F.3.a).(1) **Up to four hours of additional time may be used for activities related to patient safety, such as providing effective transitions of care, and/or resident education.** (Core)

VI.F.3.a).(1).(a) **Additional patient care responsibilities must not be assigned to a resident during this time.** (Core)

Background and Intent: The additional time referenced in VI.F.3.a).(1) should not be used for the care of new patients. It is essential that the resident continue to function as a member of the team in an environment where other members of the team can assess resident fatigue, and that supervision for post-call residents is provided. This 24 hours and up to an additional four hours must occur within the context of 80-hour weekly limit, averaged over four weeks.

VI.F.4. **Clinical and Educational Work Hour Exceptions**

VI.F.4.a) **In rare circumstances, after handing off all other responsibilities, a resident, on their own initiative, may elect to remain or return to the clinical site in the following circumstances:**

VI.F.4.a).(1) **to continue to provide care to a single severely ill or unstable patient;** (Detail)

VI.F.4.a).(2) **humanistic attention to the needs of a patient or family; or,** (Detail)

VI.F.4.a).(3) **to attend unique educational events.** (Detail)

VI.F.4.b) **These additional hours of care or education will be counted toward the 80-hour weekly limit.** (Detail)

Background and Intent: This requirement is intended to provide residents with some control over their schedules by providing the flexibility to voluntarily remain beyond the scheduled responsibilities under the circumstances described above. It is important to note that a resident may remain to attend a conference, or return for a conference later in the day, only if the decision is made voluntarily. Residents must not be required to stay. Programs allowing residents to remain or return beyond the scheduled work and clinical education period must ensure that the decision to remain is initiated by the resident and that residents are not coerced. This additional time must be counted toward the 80-hour maximum weekly limit.

VI.F.4.c) **A Review Committee may grant rotation-specific exceptions for up to 10 percent or a maximum of 88 clinical and educational work hours to individual programs based on a sound educational rationale.**

The Review Committee for Radiology will not consider requests for exceptions to the 80-hour limit to the residents' work week.

VI.F.5. Moonlighting

VI.F.5.a) Moonlighting must not interfere with the ability of the resident to achieve the goals and objectives of the educational program, and must not interfere with the resident's fitness for work nor compromise patient safety. (Core)

VI.F.5.b) Time spent by residents in internal and external moonlighting (as defined in the ACGME Glossary of Terms) must be counted toward the 80-hour maximum weekly limit. (Core)

VI.F.5.c) PGY-1 residents are not permitted to moonlight. (Core)

Background and Intent: For additional clarification of the expectations related to moonlighting, please refer to the Common Program Requirement FAQs (available at http://www.acgme.org/What-We-Do/Accreditation/Common-Program-Requirements).

VI.F.6. In-House Night Float

Night float must occur within the context of the 80-hour and one-day-off-in-seven requirements. (Core)

Background and Intent: The requirement for no more than six consecutive nights of night float was removed to provide programs with increased flexibility in scheduling.

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

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

VI.F.8. At-Home Call

VI.F.8.a) Time spent on patient care activities by residents on at-home call must count toward the 80-hour maximum weekly 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 clinical work and education, when averaged over four weeks. (Core)

VI.F.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.F.8.b) Residents are permitted to return to the hospital while on at-home call to provide direct care for new or established patients. These hours of inpatient patient care must be included in the 80-hour maximum weekly limit. (Detail)

Background and Intent: This requirement has been modified to specify that clinical work done from home when a resident is taking at-home call must count toward the 80-hour maximum weekly limit. This change acknowledges the often significant amount of time residents devote to clinical activities when taking at-home call, and ensures that taking at-home call does not result in residents routinely working more than 80 hours per week. At-home call activities that must be counted include responding to phone calls and other forms of communication, as well as documentation, such as entering notes in an electronic health record. Activities such as reading about the next day's case, studying, or research activities do not count toward the 80-hour weekly limit.

In their evaluation of residency/fellowship programs, Review Committees will look at the overall impact of at-home call on resident/fellow rest and personal time.

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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 and sponsoring institutions 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.

Osteopathic Recognition

For programs with or applying for Osteopathic Recognition, the Osteopathic Recognition Requirements also apply (www.acgme.org/OsteopathicRecognition).