



## **ACGME International**

### **Advanced Specialty Program Requirements for Graduate Medical Education in Pediatric Hematology-Oncology (Pediatrics)**

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# **ACGME International Program Requirements for Graduate Medical Education in Pediatric Hematology-Oncology (Pediatrics)**

## **I. Introduction**

### **I.A. Definition and Scope of Specialty**

Specialists in pediatric hematology-oncology provide care to infants, children, and adolescents with oncologic and chronic hematologic disorders. When providing care, specialists in pediatric hematology-oncology use an understanding of pathophysiology and clinical diagnosis and management, as well as knowledge of the emotional aspects of providing care to children and their families.

### **I.B. Duration of Education**

I.B.1. The educational program in pediatric hematology-oncology must be 36 or 48 months in length.

## **II. Institutions**

### **II.A. Sponsoring Institution**

II.A.1. A fellowship in pediatric hematology-oncology must function as an integral part of an ACGME-I-accredited residency program in pediatrics.

II.A.1.a) The pediatric hematology-oncology program should be geographically proximate to the core pediatrics residency program.

II.A.2. The educational program in pediatric hematology-oncology must not negatively affect the education of residents in the affiliated pediatrics residency program.

### **II.B. Participating Sites**

See International Subspecialty Foundational Requirements, Section I.B.

## **III. Program Personnel and Resources**

### **III.A. Program Director**

III.A.1. The program director must demonstrate a record of ongoing involvement in scholarly activity.

III.A.2. The program director must demonstrate a record of mentoring or guiding fellows in the acquisition of competence in the clinical, teaching, research, quality improvement, and advocacy skills pertinent to the discipline.

III.A.3. The program director must ensure that each fellow:

III.A.3.a) is provided with mentorship in development of the necessary clinical, educational, scholarship, and administrative skills; and,

III.A.3.b) documents experience in procedures.

- III.A.3.b).(1) The program director must ensure that such documentation is available for review.
- III.A.4. The program director must coordinate, with the core residency and other related subspecialty program directors, the incorporation of the Competencies into fellowship education to foster consistent expectations for fellows' achievement and faculty members' evaluation processes.
- III.A.5. Meetings with the program directors of the core residency program and all pediatric subspecialties should take place at least semiannually.
- III.A.5.a) There must be documentation of the meetings.
- III.A.5.b) The meetings should address a departmental approach to common educational issues and concerns that may include core curriculum, the Competencies, and evaluation.
- III.A.6. The program director must have the authority and responsibility to set and adjust the clinical responsibilities and ensure that fellows have appropriate clinical responsibilities and an appropriate patient load.

**III.B. Faculty**

- III.B.1. To ensure the quality of the education and scholarly activity of the program, and to provide adequate supervision of fellows, there must be at least four faculty members, including the program director.
- III.B.2. Faculty members must encourage and support fellows in scholarly activities.
- III.B.2.a) This must include mentoring fellows in the application of scientific principles, epidemiology, biostatistics, and evidence-based medicine to the clinical care of patients.
- III.B.2.b) Scholarly activities must be in basic science, clinical care, education, health policy, health services, patient safety, or quality improvement with implications for the field of pediatric hematology-oncology.
- III.B.3. Qualified faculty members in the following pediatric subspecialties should be available for the education of fellows:
- III.B.3.a) pediatric cardiology;
- III.B.3.b) pediatric critical care medicine;
- III.B.3.c) pediatric gastroenterology;
- III.B.3.d) pediatric infectious disease; and,
- III.B.3.e) pediatric nephrology.

III.B.4. The faculty should also include the following specialists with substantial experience in treating pediatric problems:

- III.B.4.a) anesthesiologist(s);
- III.B.4.b) child and adolescent psychiatrist(s) or psychologist(s);
- III.B.4.c) child neurologist(s);
- III.B.4.d) emergency medicine physician(s);
- III.B.4.e) endocrinologist(s);
- III.B.4.f) neonatal-perinatal medicine physician(s);
- III.B.4.g) neurological surgeon(s);
- III.B.4.h) neuroradiologist(s);
- III.B.4.i) obstetrician and gynecologist(s);
- III.B.4.j) orthopaedic surgeon(s);
- III.B.4.k) ophthalmologist(s);
- III.B.4.l) pathologist(s);
- III.B.4.m) pediatric surgeon(s);
- III.B.4.n) pulmonologist(s).
- III.B.4.o) radiation oncologist(s);
- III.B.4.p) radiologist(s); and,
- III.B.4.q) urologist(s).

III.B.5. Consultants should be available in adult hematology-oncology for transition care of young adults.

**III.C. Other Program Personnel**

III.C.1. To ensure multidisciplinary and interprofessional practice in pediatric hematology-oncology, the following personnel with pediatric focus and experience should be available:

- III.C.1.a) audiologist(s);
- III.C.1.b) child life therapist(s);
- III.C.1.c) dietitian(s);
- III.C.1.d) hospice and palliative medicine professional(s);

- III.C.1.e) mental health professional(s)
- III.C.1.f) nurse(s);
- III.C.1.g) pain management professional(s);
- III.C.1.h) pharmacist(s);
- III.C.1.i) physical and occupational therapist(s);
- III.C.1.j) respiratory therapist(s);
- III.C.1.k) school and special education liaison(s);
- III.C.1.l) social worker(s); and,
- III.C.1.m) speech and language therapist(s).

### **III.D. Resources**

- III.D.1. The program must provide access to outpatient infusion facilities.
- III.D.2. Facilities and services, including comprehensive laboratory, pathology, and imaging services, must be available.
- III.D.3. The program must have access to laboratories in order to perform testing specific to pediatric hematology-oncology.
- III.D.4. An adequate number and variety of both hematologic and oncologic patients ranging in age from newborn through young adulthood must be available to provide a broad experience for fellows.
- III.D.4.a) A sufficient number of patients must be available in inpatient and outpatient settings to meet the educational needs of the program.

## **IV. Fellow Appointments**

### **IV.A. Eligibility Criteria**

- IV.A.1. Prior to appointment in the program, fellows should have completed an ACGME- or ACGME-I-accredited residency program in pediatrics, or a pediatric residency program acceptable to the Sponsoring Institution's Graduate Medical Education Committee.

### **IV.B. Number of Fellows**

See International Subspecialty Foundational Requirements, Section III.B.

## **V. Specialty-Specific Educational Program**

### **V.A. Regularly Scheduled Didactic Sessions**

- V.A.1. Fellows must have a formally structured educational program in the clinical and basic sciences related to pediatric hematology-oncology.

- V.A.1.a) The program must utilize didactic experiences, such as lectures, seminars, case discussions, journal clubs, and clinical experience.
- V.A.1.b) Pediatric hematology-oncology conferences must occur regularly, and must involve active participation by the fellows in planning and implementation.
- V.A.1.c) Fellow education must include instruction in:
- V.A.1.c).(1) basic and fundamental disciplines, as appropriate to pediatric hematology-oncology, such as anatomy, physiology, biochemistry, embryology, pathology, microbiology, pharmacology, immunology, genetics, and nutrition/metabolism;
- V.A.1.c).(1).(a) This instruction should include the following topics within a clinically meaningful context: the structure and function of hemoglobin and iron metabolism; the phagocytic system; splenic function; cell kinetics; immunology; coagulation; genetics; the principles of radiation therapy; the characteristics of malignant cells; tissue typing; blood groups; pharmacology of chemotherapeutic agents; molecular biology; microbiology and anti-infective agents in the compromised host; and nutrition.
- V.A.1.c).(2) pathophysiology of disease, reviews of recent advances in clinical medicine and biomedical research, and conferences dealing with bioethics, complications, end-of-life care, palliation and death, and the scientific, ethical, and legal implications of confidentiality and informed consent; and,
- V.A.1.c).(2).(a) This should include relationships between physicians and with patients, families, allied health professionals, and society at large.
- V.A.1.c).(3) the economics of health care and current health care management issues, such as cost-effective patient care, practice management, preventive care, population health, quality improvement, resource allocation, and clinical outcomes.
- V.A.2. Within the research conferences and clinical experiences, the program must address the concepts of multi-site or multi-center collaborative clinical and research activities, as well as the advantages and challenges of participating in those trials, patient enrollment, issues of data collection, and data analysis and interpretation.

**V.B. Clinical Experience**

- V.B.1. Fellows must have longitudinal responsibility for providing care to a panel of patients throughout their educational program that is supervised by one or more members of the pediatric hematology-oncology faculty.

- V.B.1.a) This must include longitudinal care of outpatients.
- V.B.1.b) The panel of patients must be representative of the types of cancers and blood disorders fellows are likely to encounter once they complete their educational program.
- V.B.2. Fellows must have experiences in pediatric oncology, including:
  - V.B.2.a) staging and classification of tumors;
  - V.B.2.b) the application of multimodal therapy;
  - V.B.2.c) the epidemiology and etiology of childhood cancer;
  - V.B.2.d) making appropriate observations and keeping accurate patient data; and,
  - V.B.2.e) the use and management of chemotherapy, surgical therapy, and radiotherapy in managing patients with malignant diseases.
- V.B.3. Experiences in pediatric oncology must include formal and structured education in the elements of long-term, follow-up care, including monitoring for late effects of treatment of disease.
- V.B.4. Each fellow must have experience functioning as a member of a multidisciplinary and interprofessional team serving patients with cancer and chronic hematologic disorders.
- V.B.5. Fellows must have structured educational experiences in psychological and social support of patients, families, and staff members.
- V.B.6. Fellows must participate in the activities of the tumor board.
- V.B.7. Fellows must have appropriate structured educational experiences in the laboratories, including blood bank and tissue pathology.

**V.C. Fellows' Scholarly Activities**

- V.C.1. The program must have a core curriculum in research and scholarship.
  - V.C.1.a) Where appropriate, the curriculum should be a collaborative effort involving all pediatric subspecialty programs at the institution.
- V.C.2. Each fellow must design and conduct a scholarly project in the area of pediatric hematology-oncology with guidance from the fellowship director and a designated mentor. The designated mentor must:
  - V.C.2.a) be approved by the scholarship oversight committee; and,
  - V.C.2.b) have expertise in the fellow's area of scholarly interest, either as a faculty member in pediatric hematology-oncology or through collaboration with other departments or divisions.

- V.C.3. The program must provide a Scholarship Oversight Committee for each fellow to oversee and evaluate the fellow's progress as related to scholarly activity.
- V.C.3.a) Where applicable, the Scholarship Oversight Committee should be a collaborative effort involving other pediatric subspecialty programs or other experts.
- V.C.4. Fellows' scholarly experience must begin in the first year and continue for the entire length of the educational program.
- V.C.4.a) The experience must be structured to allow development of requisite skills in research and scholarship, and to provide sufficient time for project completion and presentation of results to the Scholarship Oversight Committee.

**V.D. Duty Hour and Work Limitations**

See International Subspecialty Foundational Requirements, Sections VI.I and VI.J.

**VI. ACGME-I Competencies**

**VI.A. Patient Care**

Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Fellows must demonstrate proficiency in:

- VI.A.1. the clinical skills necessary in pediatric hematology-oncology, including:
  - VI.A.1.a) providing consultation, performing a history and physical examination, making informed diagnostic and therapeutic decisions that result in optimal clinical judgement, and developing and carrying out management plans;
  - VI.A.1.b) providing transfer of care that ensures seamless transitions, counseling patients and families, using information technology to optimize patient care, and providing appropriate role modeling and supervision;
  - VI.A.1.c) providing for or coordinating care for patients complex and chronic diseases with the appropriate physician and/or agency;
  - VI.A.1.d) enrolling and treating patients in clinical research trials;
  - VI.A.1.e) diagnosing and managing children with hematologic and oncologic diseases, including:
    - VI.A.1.e).(1) hematologic disorders of the newborn;
    - VI.A.1.e).(2) hemoglobinopathies, to include the thalassemia syndromes;
    - VI.A.1.e).(3) inherited and acquired disorders of the red blood cell membrane and of red blood cell metabolism;

- VI.A.1.e).(4) autoimmune disorders, to include hemolytic anemia;
- VI.A.1.e).(5) nutritional anemia;
- VI.A.1.e).(6) inherited and acquired disorders of white blood cells;
- VI.A.1.e).(7) hemophilia, von Willebrand's disease, and other inherited and acquired coagulopathies;
- VI.A.1.e).(8) platelet disorders, to include idiopathic thrombocytopenia purpura (ITP), and acquired and inherited platelet function defects;
- VI.A.1.e).(9) congenital and acquired thrombotic disorders;
- VI.A.1.e).(10) leukemias, to include acute lymphoblastic leukemia, acute and chronic myeloid leukemias, and myelodysplastic syndromes;
- VI.A.1.e).(11) Hodgkin's disease and non-Hodgkin's lymphomas;
- VI.A.1.e).(12) solid tumors of organs, soft tissue, bone, and central nervous system;
- VI.A.1.e).(13) bone marrow failure; and,
- VI.A.1.e).(14) graft versus host disease.
- VI.A.1.f) integrating palliative care for patients with hematologic and oncologic conditions;
- VI.A.1.g) applying new diagnostic techniques relevant to patient care;
- VI.A.1.h) diagnosing and managing complications of disease and therapy, including treatment of infections in the compromised host;
- VI.A.1.i) providing physiologic support to the patient, including provision of nutrition (both parenteral and enteral), control of nausea and vomiting, and management of pain; and,
- VI.A.1.j) recognizing and managing psychosocial stresses and problems.
- VI.A.2. Fellows must be able to competently perform all medical, diagnostic, and surgical procedures considered essential for the practice of pediatric hematology-oncology. Fellows must:
  - VI.A.2.a) competently use and interpret the results of laboratory tests and imaging;
  - VI.A.2.b) acquire the necessary procedural skills and develop an understanding of their indications, contraindications, risks, and limitations as needed; and,

- VI.A.2.c) demonstrate competence in the performance and interpretation of:
- VI.A.2.c).(1) bone marrow aspiration and biopsy;
  - VI.A.2.c).(2) hematologic laboratory diagnostic tests;
  - VI.A.2.c).(3) lumbar puncture with evaluation of cerebrospinal fluid and infusion of intrathecal chemotherapy;
  - VI.A.2.c).(4) microscopic interpretation of peripheral blood films; and,
  - VI.A.2.c).(5) peripheral blood smear.

## **VI.B. Medical Knowledge**

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

- VI.B.1. biostatistics, bioethics, clinical and laboratory research methodology, study design, preparation of applications for funding and/or approval of clinical research protocols, critical literature review, principles of evidence-based medicine, ethical principles involving clinical research, and teaching methods;
- VI.B.2. the indications and procedures for transfusion therapy; and,
- VI.B.3. the indications and procedures for stem cell treatment.

## **VI.C. Practice-based Learning and Improvement**

Fellows must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

## **VI.D. Interpersonal and Communication Skills**

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

- VI.D.1. Fellows must demonstrate skill in teaching both individuals and groups of learners in clinical settings, classrooms, lectures, and seminars, as well as by electronic and print modalities.
- VI.D.2. Fellows must demonstrate skill in providing feedback to learners and assessing educational outcomes.

## **VI.E. Professionalism**

Fellows must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles, including:

- VI.E.1. trustworthiness that makes colleagues feel secure when the fellow is responsible for the care of patients;
- VI.E.2. leadership skills that enhance team function, the learning environment, and/or the health care delivery system/environment to improve patient care;
- VI.E.3. the capacity to recognize that ambiguity is part of clinical medicine and to respond by utilizing appropriate resources in dealing with uncertainty;\_and,
- VI.E.4. a willingness to accept questions of clarification and feedback in a non-defensive, collaborative, and welcoming manner.

**VI.F. Systems-based Practice**

Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care in the country or region in which they practice, as well as the ability to call effectively on other resources in the system to provide optimal health care.