

NAME OF ROTATION: Hematology /Oncology

COURSE DIRECTOR: Louis Rapkin, M.D.
Office 404- 202-9070

LOCATIONS: AFLAC Children’s Cancer –
Children’s Healthcare of Atlanta at Scottish Rite
1001 Johnson Ferry Rd NE
Atlanta, GA 30342
404-785-6000

TRAINING LEVEL: PGY-1

LENGTH OF ROTATION: 1 month

COURSE DESCRIPTION:

During the first year of residency, the resident will spend a one month block designed to teach the trainees current methods of diagnosis and treatment of common hematologic and oncologic disorders encountered in the primary care setting. The resident will learn to recognize when patients require subspecialty referrals. Particular emphasis will be placed upon learning how to recognize the presenting symptoms of major pediatric malignancies and understand common therapies employed for cancer treatment. Residents will also become well versed in the management of patients with sickle cell anemia as relates to the primary care setting including preventive care, anticipatory guidance, early identification of complications, and outpatient management of pain. Proper utilization and interpretation of laboratory tests will also be stressed.

The Hematology/Oncology rotation will be an Inpatient experiences designed to provide a comprehensive overview. They will see at least 6 patients per day, performing physical examinations, chart review and writing consultation or progress notes. The resident will see patients first and formulate his/her assessment and plan prior to presenting to the supervising physician for discussion. The inpatient experience will be at the AFLAC Children’s Cancer Clinic at Children’s Healthcare of Atlanta at Scottish Rite. There are over 1,300 patient admissions per year, for a total of 5,500 patient days a year. Residents will participate actively in-patient care under the supervision of an attending physician, soliciting the relevant history, performing a focused physical examination, and formulating an assessment and management plan, in both the inpatient and outpatient setting. They will also observe procedures; be shown relevant physical findings such as masses, neurologic abnormalities associated with brain tumors or chemotherapy complications, rashes; review bone marrow slides and peripheral blood smears and x-rays. A didactic series is also included.

Transfusion medicine will be taught during both Hematology and Oncology rotations. Residents will see with the supervising physician patients who are being treated in the transfusion centers. In both hematology and oncology components, residents will learn indications, dosages, and potential side effects of transfusion therapies and the most commonly used medications, e.g. steroids, anticoagulants, chemotherapeutic agents, iron chelators and opioid analgesics. Clinical research protocols will be explained as they relate to participating patients and the role of clinical trials in hematology/oncology will be discussed.

Clinical laboratory experience will occur during both Hematology and Oncology portions of the rotation. Residents will be taught how to use a microscope to view peripheral blood smears and to recognize normal and abnormal cells. They will also be taught normal values of routinely ordered hematologic tests and the interpretation of abnormal values, especially in the most commonly encountered and severe diseases.

GOALS, OBJECTIVES, AND CORE CURRICULUM:

GOAL 1: Determine normal hematologic values and their variation with age.

Objective 1.1: The resident will be able to identify the changes that occur overtime in the hematologic indices in the normal child (e.g., hemoglobin, hematocrit, MCV etc).

Objective 1.2: The resident will be able to properly utilize and interpret laboratory tests as relates to patient age, medical history, and chief complaint.

Objective 1.3: The resident will be able to appropriately use a microscope to review blood smears and be able to recognize normal and abnormal blood cells.

GOAL 2: Understand how to diagnose and manage hematologic disorders which generally do not need referral.

Objective 2.1: The resident will be able to recognize, evaluate, and manage without referral common conditions including:

1. Iron deficiency
2. Thalassemia trait
3. Transient erythroblastopenia of childhood
4. Minor, common reactions to blood transfusions
5. Sickle cell trait
6. Uncomplicated Henoch Schonlein purpura

GOAL 3: Understand how to diagnose and initiate management of hematologic/oncologic disorders which generally need referral.

Objective 3.1: The resident will be able to recognize, evaluate, and refer conditions including:

1. Anemia (exclusive of those in #2)
2. Abnormal bruising or bleeding (inherited and acquired)
3. Major complications of inherited bleeding disorders
4. Hemoglobinopathies
5. Urgent conditions in children under treatment for cancer
6. Neutropenia
7. Thrombocytopenia
8. Abdominal mass
9. Mediastinal mass

GOAL 4: Understand common malignancies which present in childhood.

Objective 4.1: The resident will be able to understand the presentation, pathophysiology, and prognosis of such malignancies including:

1. leukemia
2. brain tumor
3. lymphoma
4. neuroblastoma
5. Wilm's tumor
6. Soft tissue sarcoma
7. Bone tumors
8. Retinoblastoma
9. Langerhans cell histiocytosis

Objective 4.2: The resident will be able to recognize and fully comprehend the methods for diagnosis, natural course of the disease, and treatment options for diseases which predispose to malignancies such as:

1. Neurofibromatosis
2. Familial cancer
3. Down Syndrome
4. Hemihypertrophy
5. Beckwith Wedeman

Objective 4.3: The resident will be able to describe clinical findings that warrant screening for malignancies associated with common pediatric signs and symptoms including:

1. Adenopathy
2. Limb pain
3. Hepatomegaly
4. Persistent fever and malaise
5. Seizures
6. Weight loss

Objective 4.4: The resident will be able to describe common acute side effects of commonly used chemotherapeutic drugs and common late complications of cancer treatment.

GOAL 5: Understand indications and complications related to use of blood products.

Objective 5.1: The resident will be able to understand indications and complications related to the use of blood products.

Objective 5.2: The resident will fully comprehend the indications and potential risks of various blood products (red cells, platelet concentrates, coagulation factors).

Objective 5.3: The resident will be aware of alternatives to blood transfusions (erythropoietin and other cytokines).

Objective 5.4: The resident will understand the rationale for leukofiltration and/or irradiation of blood products.

GOAL 6: Understand the appropriate methods of diagnosis and management of a child with disorders relating to iron.

Objective 6.1: The resident will be able to describe and discuss the normal requirements, absorption, and metabolism of iron from birth through adolescence.

Objective 6.2: The resident will be able to identify the features of iron deficiency anemia.

Objective 6.3: The resident will be able to describe and demonstrate appropriate utilization of laboratory tests to screen, treat, and follow up therapy for iron deficiency anemia.

Objective 6.4: The resident will be able to manage iron deficiency appropriately including the following aspects of therapy;

1. Dietary management
2. Replacement therapy
3. Parent and patient education

GOAL 7: Understand the pediatrician's role in the preventive management of hematologic/oncologic disorders.

Objective 7.1: The resident will be able to provide dietary counseling to parents about prevention of iron deficiency anemia including dispensing relevant literature.

Objective 7.2: The resident will be able to counsel patients who have sickle hemoglobinopathy about the importance of antibiotic prophylaxis and urgency of evaluation for fever.

GOAL 8: The resident will demonstrate an understanding of the rationale and a mastery of certain laboratory procedures including a spun hematocrit, blood smear, stain, and review, interpretation of an automated CBC and coagulation test, and lumbar puncture. The resident will also observe and be able to explain the technique used in a bone marrow aspiration, interpret the aspirate, and review radiographic studies on oncologic patients.

COMPETENCIES:

Competency 1: Patient Care. Provide family centered patient care that is developmentally and age appropriate, compassionate, and effective for the treatment of health problems and the promotion of health

1.1: Gather essential and accurate information using the following clinical skills: medical interviewing, physical examination, diagnostic studies and developmental assessments.

1.2: Make informed diagnostic and therapeutic decisions based on patient information, current scientific evidence and clinical judgment, using clinical problem-solving skills, recognizing the limits of one's knowledge and expertise, gathering appropriate information and using colleagues and consultants appropriately.

1.3: Develop and carry out patient care plans, using principles of evidence-based decision-making and appropriate prioritization, and taking into account the needs, beliefs and resources of patient and family.

1.4: Effectively use common therapies within the scope of general pediatric practice, including a variety of prescription and non-prescription medications, intravenous fluids, and inhalation treatments, as well as special diets and nutritional supplements. Be familiar with therapies commonly used by subspecialists and other professionals who care for children.

1.5: Prescribe and perform competently all medical procedures considered essential for the scope of general pediatric practice; be familiar with those procedures commonly used by subspecialists and other professionals who care for children.

1.6: Counsel patients and families in a supportive manner so they can understand their illness or injury and its treatment, share in decision-making, make informed consent and participate actively in the care plan.

1.7: Provide effective preventive health care and anticipatory guidance to patients and families.

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

2.1: Demonstrate that you know or can efficiently access the knowledge base needed for effective patient care.

2.2: Critically evaluate current medical information and scientific evidence and modify your knowledge base accordingly.

2.3: Recognize the limits of one's knowledge and expertise by seeking information needed to answer clinical questions and using consultants and referrals appropriately. Use this process to guide life-long learning plans.

2.4: Apply current medical information and scientific evidence effectively to patient care (e.g., use an open-minded, analytical approach, sound clinical judgment, and appropriate attention to priorities).

Competency 3: Communication Skills. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

3.1: Communicate effectively in a developmentally appropriate manner with patients and families to create and sustain a therapeutic relationship across the broad range of socioeconomic and cultural backgrounds.

3.2: Communicate effectively with physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.

3.3: Develop effective approaches for teaching students, colleagues, other professionals and lay groups.

3.4: Work effectively as a member or leader of a health care team, and collaborate productively with professional organizations.

3.5: Serve as a consultant on pediatric matters to other physicians and health professionals.

3.6: Maintain comprehensive, timely and legible medical records.

Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.

4.1: Use scientific methods and evidence to investigate, evaluate and improve one's own patient care practice; continually strive to integrate best evidence into one's daily practice of medicine.

4.2: Systematically assess the health care needs of one's practice population, and use this information to direct population-based problem-solving, with special attention to preventable morbidity and risk.

4.3: Demonstrate willingness and capability to be a life-long learner by pursuing answers to clinical questions, using journal articles, texts, information resources, patients, colleagues and formal teaching conferences.

4.4: Be prepared to alter one's practice of medicine over time in response to new discoveries and advances in epidemiology and clinical care.

4.5: Seek and incorporate feedback and self-assessment into a plan for professional growth and practice improvement (e.g., use evaluations provided by patients, peers, superiors and subordinates to improve patient care).

Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

5.1: Demonstrate commitment, responsibility, and accountability for patient care, including continuity of care.

5.2: Be honest and use integrity in your professional duties.

5.3: Consistently use compassion and empathy in one's role as a physician.

5.4: Maintain professional boundaries in one's dealings with patients, family, staff, and professional colleagues.

5.5: Place the needs of patients and society over your own self-interest.

5.6: Demonstrate sensitivity and responsiveness to patients' and colleagues' gender, age, culture, disabilities, ethnicity, and sexual orientation.

5.7: Meet high standards of legal and ethical behavior.

5.8: Develop a healthy lifestyle, fostering behaviors that help balance personal goals and professional responsibilities. Recognize and respond to personal stress and fatigue that might interfere with professional duties.

Competency 6: Systems-Based Practice. Understand how to practice quality health care and advocate for patients within the context of the health care system.

6.1: Know how types of medical practice and delivery systems differ from one another with respect to how they control health care costs, allocate resources, and assure quality.

6.2: Practice cost-effective health care and resource allocation that does not compromise quality of care.

6.3: Advocate for patients in one's practice by helping them with system complexities and identifying resources to meet their needs.

6.4: Work with health care managers and providers to assess, coordinate, and improve patient care, consistently advocating for high quality.

6.5: Advocate for the promotion of health and the prevention of disease and injury in populations.

6.6: Acknowledge medical errors and develop practice systems to prevent them.

Source. Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: www.ambpeds.org/egweb. [Accessed 07/21/2009]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005.

SCHEDULE:

This is a one month rotation in the PL-1 year with one resident per month. Daily assignments as described below. Night call coverage is approximately every fourth night on in-patient pediatric ward or newborn nursery. Residents will attend their continuity clinic one half day session per week as previously scheduled. Instead of weekly Pediatric Resident Didactic Conferences on Monday afternoons, the Hematology/ Oncology attendings will give didactics twice per week. Instead of MSM Pediatric Grand Rounds (Thursday 8-9 am), they will attend CHOA Scottish Rite Grand Rounds (Tuesdays 7 – 8 am) and other Hem-Onc conferences as scheduled. Additional required conferences are:

4:30pm Wednesdays - Tumor Board (Clinic, 4th Floor MOB, Conference Room)

4:30pm Thursdays - Research Conference (Clinic, 4th Floor MOB, Conference Room)

7:30am Fridays - Weekend Check-out Conference (Clinic, 4th Floor MOB, Conference Room)

DIDACTIC SESSIONS:

Residents will be given case scenarios and topics to prepare, and will discuss material with attendings for 40-60 minutes. Sessions will be scheduled with individual attendings as assigned. There will be up to 8 topics (2 per week) covered:

1. Peripheral blood and bone marrow morphology
2. Abdominal Mass
3. Leukemia/Lymphoma
4. Neuro-oncology
5. Coagulation disorders

6. Cytopenias (ITP/Anemia)
7. Hemoglobinopathies
8. Blood Banking / transfusion
9. Late effects of therapy

EVALUATION:

Evaluation forms are completed by supervisors. Residents will be evaluated on the following areas and the six competencies:

Patient care activities: 30%

Clinical skills 25%

Didactics: 5%

Written documentation 20%

REFERENCES:

- Hematology/Oncology Cases by Drs. Tom Abshire and Glen Lew.
- The management of sickle cell disease, National Institutes of Health publication #02-2117, 2002, <http://www.nih.gov/>
- Selected chapters from Nathan and Oski's Hematology of Infancy and Childhood
- Selected chapters from Pizzo, P. Pediatric Oncology