

**Hematology and Medical Oncology Elective**  
Inova Fairfax Medical Campus  
Internal Medicine Residency Program

Course Director: Ray Wadlow, MD

**1. Educational Purpose and Goals**

- a. Expose residents to common hematologic and oncologic problems seen in outpatient and inpatient settings.
- b. Learn how to take a detailed history pertaining to complaints related to hematology and oncology.
- c. Perform and interpret a detailed physical exam in a patient with a suspected hematologic or oncologic problem.
- d. Develop a rational diagnostic and therapeutic approach to problems in hematology and oncology.
- e. With rare exceptions, this elective will be limited to PGY2 and PGY3 level residents. PGY-1 level residents will get experience in inpatient hematology-oncology as part of their general inpatient ward rotation.

**2. Principal Teaching/Learning Methods**

- a. *Supervised patient care*: Residents will encounter patients in hematology/oncology clinic and in the hospital setting. Time in the inpatient and outpatient settings will be nearly equivalent, and can be adjustable to some degree based on house-staff preference. Residents will perform initial inpatient hematology or oncology consultations when requested by the attending. The resident will formulate a hypothesis and a treatment plan and present it to the attending. Both the resident and attending will examine the patient and discuss the plan of care. Residents will continue to follow patients after the initial consultation. **Residents will also follow established patients on the hematology and oncology inpatient services.** In the outpatient clinic, a faculty hematologist/oncologist will supervise the resident, and residents will evaluate in the same fashion as above.
- b. *Didactics/Small group sessions*
  - i. Monthly noon conference hematology/oncology medicine lecture series
  - ii. Faculty will provide **daily teaching** on core topics in hematology and oncology.
  - iii. Residents will attend morning reports when in the hospital, medical-pathology-radiology conference when in the hospital as well as **various related** Inova Fairfax hospital tumor boards and hematology- oncology meetings during their rotation.
- c. *Brief (30 minutes) lecture* on a hematology or oncology topic - to the office faculty.
- d. *Independent reading* – All residents are expected to read about patients they see in the hospital and office (suggested resources below)

### 3. Educational Content

- a. Patient/Disease mix – Inpatients at Inova Fairfax Hospital who are over 18 years old provide an ethnically diverse patient population with a broad array of common and rare diseases. Patients with local and metastatic solid tumors, metastatic cancer of unknown primary, hematologic/oncologic emergencies, disorders of hematopoiesis, leukemias and other “liquid tumors”, lymphomas, inherited and acquired thrombophilias, hemolytic anemia, thrombocytopenia, complications of chemotherapy (including neutropenic fever) and disorders of hemostasis will be seen. Transfusion medicine will be reviewed and analysis of the peripheral smear will be emphasized. Residents will be exposed to a multidisciplinary approach to treatment with emphasis on palliative care and palliative chemotherapy/radiation/surgery/procedures when appropriate. ~~Finally, residents will have opportunities to perform bone marrow aspirates under supervision by the attending hematologist.~~ In the outpatient setting, similar disorders will be seen. Additional focus will be placed on identification of patients at risk for malignancy and counseling about risk reduction and screening as well as anticoagulation management. The approach to the patient with cancer, principles of cancer treatment, and late consequences of cancer and treatment will be emphasized in all venues.
- b. Learning venues
  - i. Inova Fairfax Hospital
  - ii. Inova Schar Cancer Institute at ICPH portion of IFMC.
- c. Structure – The rotation is a two to four week block. Residents will not be on call for this service, although they may be on disaster call for the program during this elective. There are no weekend duties. Residents will continue to attend their continuity clinic during this rotation. The educational coordinator will orient the resident to the rotation at the beginning of the block and will review the specific schedule at that time. Residents will never work more than 14 hours in a day and typically will work for approximately 10 hours per day, five days per week.

### 4. Principal Educational Materials

- a. At the beginning of the rotation, the educational director will provide materials, including this curriculum, and a resource list.

### 5. Methods of Evaluation

- a. At the end of the rotation, a core faculty hematologist/oncologist will complete a web-based evaluation and review it with the resident.
- b. The residents will also evaluate faculty and the rotation in an anonymous fashion (summarized annually in a composite form).
- c. ITE exam data to assist in curriculum and structure adjustment
- ~~d. A nurse or office manager from the clinic will be chosen as applicable to evaluate the resident (360-degree component)~~
- ~~e.d. Lectures will be evaluated by the supervising faculty immediately after the session, and an evaluation will be placed in the resident portfolio.~~

## 6. Resource List

- a. Harrison's Principles of Internal Medicine, Section 10 of Cardinal Manifestations of Disease – "Hematologic Alterations." & Part Six "Hematology and Oncology."
- b. ACCP website for guidelines on antithrombotic and thrombolytic therapy
- c. NEJM website – August, 2005 – "Diagnosis from the Blood Smear."; February, 1999 – Series of 2 articles on "Blood Transfusion."
- d. The MD Anderson Manual of Medical Oncology
- e. DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology. 8<sup>th</sup> Edition, 2008. DeVita VT Jr, Lawrence TS, Rosenberg SA et al. Lippincott Williams Wilkins.
- f. Abeloff's Clinical Oncology. 4<sup>th</sup> Edition, 2008. Abeloff M; Armitage J; Niederhuber J, et al. Churchill Livingstone.
- g. National Comprehensive Cancer Center Network (NCCN) guidelines, on [www.nccn.org](http://www.nccn.org)
- h. Hematology: Basic Principles and Practice. 4<sup>th</sup> Edition, 2008. Hoffman R; Hoffbrand AV; Furie B, et al. Churchill Livingstone.
- i. Wintrobe's Clinical Hematology. 12<sup>th</sup> Edition, 2008. Greer JP, Foerster; Rodgers G, et al. Lippincott Williams Wilkins
- j. William's Hematology. 7<sup>th</sup> Edition, 2005. Lichtman M; Beutler E; Kaushansky K, et al. McGraw Hill.

## Learning Venues

1. Supervised patient care/Attending rounds/Attending review of cases in clinic
2. Small group and Didactic sessions
3. Lecture to hematology/oncology group
4. Independent reading
5. ITE scores, Hopkins modules

The following are expected progressive management expectations for PGY2 vs. PGY3 based on competencies outlined below.

### PGY-2 Residents:

Second year residents should be experts in interpreting basic labs (urinalysis, cultures, complete blood counts, etc) and radiology (chest X-ray, etc). They should have in depth knowledge of malignant disease processes and tests, such as staging and prognosis. They should understand initial management of benign and malignant hematologic and oncologic processes and in particular management of the toxicities of treatments for those processes.

### PGY-3 Residents:

Third year residents should be proficient in all the responsibilities listed above for second year residents. In addition, they should have a greater knowledge of screening and prevention of malignant disease processes, and the genetic processes that may pre-dispose patients to hematologic and malignant diseases. They should ~~start to~~ be able to

provide some initial counseling for patients on management options and risks/benefits of current modalities for the treatment of their conditions.

**Methods of Evaluation – Competency based objectives and evaluation methods are applicable to PGY-2 and PGY-3 level residents.**

A. Attending evaluation

~~B. Nurse evaluation~~

~~C.~~ B. Direct observation with feedback

~~D.~~ C. Lecture evaluation as part of the summative evaluation

~~E. ITE scores, Hopkins modules~~

<b>Competency: Patient Care</b>	<b>Learning Venues</b>	<b>Evaluation Methods</b>
Demonstrate the ability to obtain an accurate patient history regarding risks for cancer / prior malignancy / hematologic abnormalities / bleeding disorders / status of disease / prior treatment	1,2,4, <del>5</del>	AC <del>E</del>
Demonstrate the ability to perform a thorough physical examination on patients with malignancy and/or hematologic disease	1	AC
Demonstrate ability to generate differential diagnosis, diagnostic strategy, and to define appropriate therapeutic plan and modifications to ongoing therapy in patients with malignancy	1- <del>4</del> 5	ACD <del>E</del>
Demonstrate the ability to generate differential diagnosis, diagnostic strategy, and to define appropriate therapeutic plan and modifications to ongoing therapy in patients with a hematologic disorder	“	“
Demonstrate the ability to analyze a peripheral blood smear	“	“
<b>Competency: Medical Knowledge</b>	<b>Learning Venues</b>	<b>Evaluation Methods</b>
Demonstrate the ability to recognize an oncologic or hematologic emergency	1- <del>4</del> 5	ACD <del>E</del>
Articulate the genetic predisposition to, and the pathophysiology, evaluation, and management of common hematologic disorders	“	“

Articulate the genetic predisposition to, and the pathophysiology, evaluation, and management of common malignancies	“	“
Demonstrate the ability to monitor a patient’s progress and respond to a change in the patient’s condition during treatment for malignancy (chemotherapy)	“	“
Demonstrate the ability to order and interpret the appropriate diagnostic tests and studies for a given patient with hematologic abnormalities (bleeding/clotting disorders)	“	“
Demonstrate the ability to order and interpret the appropriate diagnostic tests and studies for a given patient with malignancy	“	“
Demonstrate an understanding of pertinent procedures in the work-up and treatment of hematologic/oncologic disease (bone marrow biopsy, lymph node biopsy, etc.), including indications, risks and complications of the procedures	“	“
<b>Competency: Interpersonal and Communication Skills</b>	<b>Learning Venues</b>	<b>Evaluation Methods</b>
Interact in an effective way with physicians and nurses participating in the care of patients with hematologic/oncologic diseases (including physicians requesting consultation, attendings, and infusion unit personnel)	1	ABC
Show understanding of differing patient preferences in diagnostic evaluation and management of malignancy	“	AC
Demonstrate the ability to maintain accurate medical records	“	“
<b>Competency: Professionalism</b>	<b>Learning Venues</b>	<b>Evaluation Methods</b>
Treat team members, primary care-givers, and patients with respect and empathy	1	ABC
Actively engage in the academic process	1- <del>4</del> 5	ACDE
Attend and participate in all scheduled conferences	2,3	AC

<b>Competency: Practice-Based Learning</b>	<b>Learning Venues</b>	<b>Evaluation Methods</b>
Identify limitations of medical knowledge in evaluation and management of patients with hematologic and oncologic disorders and use medical literature (primary and reference), attendings, colleagues, and ancillary staff to address these gaps in medical knowledge	1- <del>4</del> 5	AC
<b>Competency: Systems-Based Practice</b>	<b>Learning Venues</b>	<b>Evaluation Methods</b>
Understand need for effective communication between multiple caregivers and sites (eg, hematologists, oncologists, primary care physicians, surgeons, radiation oncologists, chemo nurses, social workers, hospitals, in- and out-patient infusion units) in delivering optimal care to heme/onc patients	1,2	A <del>B</del> C
Appropriately practice palliative care in patients with hematologic and oncologic problems	1	AC