I. Introduction

WELCOME to Hematology and Oncology!

Hematology and Oncology is a dynamic and challenging field. As the population ages, patients with problems in this area are likely to become more prevalent. Thus, it is imperative that an internist has adequate knowledge in this area. In addition, historically 13% of the content of the Internal Medicine (IM) Certifying Examination is in the area of Hematology and Oncology, making it second only to Cardiology (14%).

The Hematology Oncology Rotation has evolved considerably over the last decade. We now have a required Ward component and an elective Clinic/Consult component. This curriculum will describe the Ward component.

The guiding principle of our service: DON’T BE SHY, CALL US IF YOU ARE IN DOUBT. We realize that the nature of our practice is highly specialized and daunting to understand. The fellows and faculty will answer your questions in a courteous and timely fashion. If you find this to be a problem, please let me know and the matter will be rectified.

Rotation Duration: 1 Block

Medical Team Composition:
- Three internal medicine interns
- One Hematology Oncology Fellow
- One Hematology Oncology Faculty Physician

Other Health Professions Part of the Hematology Oncology Ward Service:
- RN, typically with Oncology Certified Nurses (OCN)
- Advanced Practice Oncology Nurse
- Oncology Pharmacist
- Pharmacy Interns
- Pharmacy Students
- Oncology Social Worker
- Specialized Discharge Planner
II. Educational Purpose and Rationale:

It is desirable for IM interns to be able to adequately evaluate, diagnose, and provide initial treatment for patients with hematological and oncologic problems. An IM intern will acquire the requisite knowledge and skill for this task only through direct patient care responsibility in the inpatient setting.

III. Principal Teaching Methods:

The main method of teaching is clinical experience and patient-centered discussion. Didactic presentations by faculty, fellows, and pharmacists also take place on a regular basis. IM interns will have primary care responsibility for their patients (daily notes, ordering and follow-up on studies, discharge summaries, etc.). They will be supervised by the Fellow and Attending.

IV. Educational Content and Structure of Rotation

a. Mix of diseases: The IM intern will be exposed to a broad range of diseases during this rotation spanning the spectrum of hematology and oncology. Patients with solid tumors include those with lung, breast, ovarian, cervical, and esophageal cancer; complications of treatment including esophagitis and diarrhea; oncologic emergencies including hypercalcemia, hyponatremia, epidural cord compression, cerebral metastasis, febrile neutropenia; and patients admitted for aggressive palliation. Hematological problems include severe thrombocytopenia resulting from ITP, TTP, or treatment-related; acute leukemia for induction or consolidation; and patients with congenital bleeding diatheses. Common medical problems encountered include pneumonia, renal insufficiency, and deep venous thrombosis.

b. Procedures: Procedures that may be performed during this rotation include bone marrow biopsy, aspiration, and interpretation; diagnostic and therapeutic thoracentesis and paracentesis; lumbar puncture with intrathecal therapy; and central venous catheter placement and care. Of course, interns will become familiar with the administration of both single agent and multiagent chemotherapy and biotherapy, and combined modality therapy.

c. Ancillary Services: include a phlebotomy team, IV access service, and Oncology-trained nurses. Chemotherapy is mixed by the Pharmacy Service and given by a chemotherapy certified R.N.

V. Educational Goals and Objectives

The Ward Hematology Oncology Rotation is only for PGY-1 residents. Thus, it is expected that they will demonstrate the following rotation specific competencies by the end of their rotation. This list is not exhaustive and general competency-based goals in internal medicine are also applicable.
## Rotation-Specific Competencies

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<th>Competency</th>
<th>Major Goals</th>
<th>Specific Example(s)</th>
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| Patient care                      | Able to perform and accurate history and physical and present pertinent positives and negatives relevant to oncologic and hematological diagnoses; synthesize these data and arrive at an initial plan for diagnosis and treatment | 1. Evaluate a patient who complains of fever after chemotherapy.  
2. Assess and manage pain in a patient with bone metastases. |
| Medical Knowledge                 | To understand the basic principles of diagnosis (e.g., the importance of pathological diagnosis) and therapy for malignant diseases and blood disorders                                                   | 1. Be able to describe the diagnostic evaluation for a mediastinal mass  
2. Describe the natural history of metastatic breast cancer                                                     |
| Practice-Based Learning and Teaching | Be open to learning from other health professional and staff; accept and provide constructive criticism; provide instruction to other learners, such as Pharmacy residents  
Minimized the use of unnecessary tests and studies                                                                 | 1. Use information from antibiotic susceptibility data from isolates on the HMO Service to inform antibiotic decisions  
2. Review anti-emetics with Pharmacy resident  
3. Discontinue laboratory monitoring of comfort care patients                                                          |
| Interpersonal and Communication Skills | Develops a good working relationship with other physicians, health care professionals, and patients  
Presents in a well-thought out manner  
Maintains clear, concise, and accurate medical records                                                              | 1. Is able to clearly explain plans to patients and put them at ease  
2. Care presentations are concise, accurate, and provide adequate information for initial diagnosis and treatment |
| Professionalism                   | Demonstrates respect, compassion, and integrity to patients, families, and other health professionals                                                                                                       | 1. Treats nurses and staff with courtesy at all times  
2. Provides timely                                                                                                 |
Takes “ownership” for a patient’s care and accurate sign-outs for patients

| Systems-Based Practice | Works with the medical system to provide optimal care | 1. Arranging for follow-up for patients that do not have insurance |

VI. Ancillary Educational Materials

Pathology specimens reviewed generally consist of peripheral blood smears, bone marrow biopsies and aspirates. A hematopathology fellow also attends clinical care conferences on a regular basis for review of pathological material. A slide set of bone marrow specimens is available for review with fellows and faculty. Although there are a number of excellent reference sources in hematology oncology, it is recommended that your primary reference sources to be:

Short Textbooks:
- Foley, Vose, Armitage: Current Therapy in Cancer
- Hillman and Ault: Hematology in Clinical Practice (2nd Edition)

Big Books (suitable for in-depth reading):
- DeVita et al. Principles and practice of oncology.
- Haskell. Cancer Treatment
- Williams’ Hematology
- Hoffman et al. Principles and Practice of Hematology

Journals:
- Blood
- British Journal of Haematology
- American Journal of Hematology
- Journal of Clinical Oncology
- Cancer
- Hematology Oncology Clinics of North America

It is not recommended that review programs such as MKSAP and MedStudy serve as your primary reference source, but these are useful to guide reading.

The ubiquitous availability of Internet-based bibliographic search engines also greatly facilitates acquisition of pertinent literature. We urge that all IM interns become facile in the use of these services. The librarians at the Medical Center library will be happy to assist you. URL’s that are useful:

http://www.medscape.com
http://www-informatics.ucdmc.ucdavis.edu
http://www.hematology.org
(website for the American Society of Hematology with online educational books)
VII. Structure of the Rotation

a. **Work Hours and Call Schedule**

   Call Schedule: Each intern takes call every 3rd day from 7 am to 5 pm. There is no overnight call. Sign outs will be to the IM night team intern. Fellows are the direct backups for the intern. As always, the faculty on Service is also available for any questions. The Night Float team (R2/3 and Intern) will cover the Hem Oncology Ward Service between 8 PM to 7 AM.

   The on call intern will be responsible for any patients that were admitted by the Night Float team to Hematology Oncology from the night before, as well as new admissions until 5PM of the day they are on. It is imperative that there be direct verbal communication between the Night Float team and the new admitting team in order to smooth the hand over of new patients. It is expected that this will occur between 7-8 AM of the on-call day. If the Hematology Oncology Ward Service is at cap, then there will be no further admissions. Exceptions to the cap will be made for patients that cannot be reasonably managed on another service, such as newly diagnosed acute leukemia. Because there may be imbalances between the interns that result in one being at the cap and the other not, patients may be handed off to the other intern in order to balance the size of the intern teams.

   Interns will have one day off per 7-day period. When one intern is off, it is expected that the other interns will cover for the direct care of the patients. Again, the entire service should be thought of as ONE team. When an intern is off, it will be the expectation that the rest of the team will help the each other with all of the patients.

   An intern will not have responsibility for more than 12 patients. The maximum number of patients on the Ward Service shall not exceed 24 at any time, and it will not exceed more than 30 on the entire Hematology Oncology service (including the chemotherapy patients on the Consult Service). In an emergent or urgent situation, the intern may be called upon to see a BMT patient. The intern will be in direct communication with the BMT Fellow or Attending, who will generally be en route to the hospital in such a situation.

b. **Supervision:** The faculty physician and fellow on Ward Service is the supervisor of the IM intern during this rotation. Fellows will also help supervise you in the care of your patients and will be the primary educator on the Service. The Hematology Oncology Chief Fellow is charged with orientation of the interns and supervision of the rotation.

c. **Conferences:** It is expected that IM interns will attend the Tuesday morning multidisciplinary conference ("MegaRounds") unless their CCC is not at
UCDMC. Interns will participate in case presentations and discussions. Unless otherwise indicated, the conferences occur at noon.

Interns are also invited to attend any of the conferences of the Division. These include:

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| Monday   | Fellow Core Lecture Series: 2\textsuperscript{nd} and 4\textsuperscript{th} Mondays  
Hematology Tumor Board (3\textsuperscript{rd} Mondays)  
Cancer Center Break-out Rooms |
| Tuesday  | MegaRounds: 7:30-9:00 AM  
Cancer Center Breakout Room  
GU Oncology Conference |
| Wednesday| Thoracic Oncology Conference  
GI Oncology Tumor Board  
Cancer Center Breakout Rooms |
| Thursday | Breast Conference  
Cancer Center Breakout Rooms |
| Friday   | Journal Club 8:00-9:00 AM  
Cancer Center Breakout Rooms |

VIII. Evaluation:
IM interns will be evaluated by their supervising faculty and fellows for the parameters given in the standardized evaluation form on E-value. They are also given continuous feedback daily during the rotation. IM interns evaluate the rotation and the faculty physician using a standard evaluation form. Concern during the rotation should be brought to Ted Wun, M.D., Vice Chief of the Division of Hematology and Oncology or to one of the Internal Medicine Associate Program Directors.

IX. Strength and Limitations of the Rotation

The strengths of this rotation include the broad exposure to multiple, complex hematological and oncologic problems in a diverse population (socioeconomic and ethnic) of patients. IM interns are closely supervised by the faculty and fellows. The intern will become involved in difficult conversations with patients and caregivers, and learn techniques for dealing with these situations. The Unit has experienced, dedicated, and oncology certified nurses, and interns will be exposed to a truly multidisciplinary field.

Limitations include time to truly learn the tremendous body of factual knowledge in a highly specialized field and to feeling occasionally overwhelmed. As faculty rotations are off track, there may not be sufficient continuity with them. As with many specialties, the inpatient population does not accurately reflect how the majority of time as a hematologist oncologist is spent.