

HEMATOLOGY/ONCOLOGY AND BMT

Contact: Pediatric Hem-Onc Office (559-7257)

When to contact: One month prior

Preceptors: James Harper, M.D. and attendings on service at UNMC and CMH.

Where to meet: University Hospital Room 5121 (Dr. Harper's office)

Purpose:

The goal of this four week rotation is to provide the intern with the clinical experience of evaluating and treating patients with common hematologic and oncologic problems of childhood and to provide the intern with exposure to the care of children with multi-organ system disease using the BMT setting.

Objectives:

1. The intern should be able to demonstrate knowledge of:
 - A. Development, structure, and function of the formed elements of the blood and blood forming organs.
 - B. Mechanisms underlying abnormal increases or decreases in the formed elements of the blood.
 - C. Age-related changes in the formed elements of blood
 - D. Principles and techniques underlying blood transfusion
 - i. Indications and rationale for RBC and platelet transfusion
 - ii. Indications and rationale for leukocyte reduced blood products
 - iii. Indications and rationale for CMV negative blood products
 - iv. Transfusion reactions
 1. Febrile reaction
 2. Allergic/Anaphylactic reaction
 3. Acute Hemolytic reaction
 4. Delayed Hemolytic reaction
 - E. Physiology of hemostasis
 - i. Age-related differences
 - ii. Pathophysiology and clinical presentations of Von Willebrand's disease, hemophilia, ITP, microangiopathic processes (i.e.: HUS, HSP, DIC)
 - iii. Pathophysiology of procoagulant conditions of childhood, their clinical presentations and risk factors.
 1. Sickle Cell Disease
 2. Acquired anticoagulant deficiencies
 3. Congenital anticoagulant deficiencies
 - F. Characteristics of common tumors in childhood
 - i. Clinical presentation of the following common childhood tumors

Acute Lymphoblastic Leukemia	Brain tumors
Lymphoma	Neuroblastoma
Wilms tumor	Sarcomas
 - ii. Principles of investigation of childhood cancer
 - iii. Basic principles underlying cancer therapy in children
 - iv. Common late effects of cancer therapy

1. Growth retardation
 2. Pubertal delay
 3. Learning disabilities
 - G. Bone Marrow Transplantation
 - i. Common indications for HSCT
 - ii. Pathophysiology, clinical presentations, and principles underlying therapy of the following common infectious complications
 1. Central line infections
 2. Fungal infections (Candida, Aspergillus)
 3. Viral infections (HSV, CMV, Varicella)
 - H. Social, Familial, and Personal effects of chronic hematologic conditions and cancer.
2. The intern will develop the following clinical skills:
- A. Clinical assessment of common hematologic and oncologic problems in children
 - i. Neutropenic fever
 - ii. Relapse of tumor
 - iii. Endocrine dysfunction
 - iv. Fluid imbalance
 - v. Mucositis
 - vi. Nausea
 - B. Technical skills
 - i. Technique for successful lumbar punctures
 - ii. Technique for placement of a bone marrow aspirate needle
 - iii. Technique for accessing portacaths and Hickman catheters
 - iv. Technique for proper examination of a peripheral blood smear
3. The intern, using relevant knowledge and clinical data be able to recognize, diagnose, and manage problems in the field of hematology and oncology, including the following:
- A. Anemia
 - i. Decreased production
 - ii. Increased destruction
 - B. Bleeding
 - C. Transfusion reaction
 - D. Enlargement of the liver or spleen
 - E. Lymph node enlargement
 - F. Abdominal mass
 - G. Masses detected clinically or radiographically
 - H. Abnormal increases or decreases in the formed elements of blood
 - I. Pain control

Methods:

The intern will be involved in the following activities during the rotation:

1. Will be an active member of the pediatric hematology team, which includes the attendings, nurse coordinators, interns, and medical students.

- A. The intern will attain knowledge objectives by review of available pediatric hematology and oncology texts, as well as by literature review.
 - B. Teaching sessions during rounds as well as in the clinic will also be used to attain these objectives.
 - C. Skill objectives will be obtained through observation, and practice of technical skills in the clinic and inpatient units.
2. Evaluate inpatients and outpatients in the clinic and BMT settings.
 - A. Clinical evaluation and assessment skills will be developed with the attendings by participation in the clinic and on the inpatient units.
 3. Complete the suggested reading as outlined at the beginning of the rotation.
 4. Participate in the teaching sessions and conferences held during the rotation

Implementation:

The curriculum will be outlined to the intern in the information packet provided at orientation. Reading suggestions will be made at the orientation session with Dr. Harper at the beginning of the rotation.

Evaluation:

The intern will be evaluated by the attending. This evaluation will be based upon the intern's performance with respect to the above objectives. Input as to the intern's performance will be sought from the nurse coordinators, and from medical students that are under the supervision of the intern. The intern will meet with Dr. Harper, and/or the attending on service regularly to discuss his/her continuing performance relative to the objectives outlined above.

The intern's evaluation of the curriculum/rotation will be sought at the middle and end of the rotations with respect to the learning opportunities at each site.