Teaching Goals & Objectives by Competency for Pediatric Residents in PHO Rotation

# Competency Based Learning Goals and Objectives Pediatric Hematology-Oncology (PHO) Fellowship LSUHSC/Children's Hospital

#### **General Overview:**

The overall goals and objectives for pediatric hematology-oncology fellows are to gain extensive experience in the diagnosis and ongoing care of children with cancer and hematologic disorders, and to become researchers and teachers of pediatric hematology-oncology. First year fellows spend the majority of their time on inpatient and outpatient rotations. Second and 3<sup>rd</sup> year fellows cover the inpatient services on nights (on-call from home) and weekends and participate in their continuity clinics on a weekly basis, while they spend the majority of their time in research activities.

#### First Year PHO Fellows:

The goals listed below have been established for the first year pediatric hematology-oncology fellows. These are primarily aimed at gaining experience in the daily management and continuity care of children with known as well as presumptive hematologic or oncologic disorders. In general the expectations of a first year fellow involve demonstration of medical knowledge, comprehension of pathophysiology, development of differential diagnoses, formulation of management plans, dissemination of plans by presentations at tumor boards and other clinical conferences, and management of hematology and oncology patients in inpatient and outpatient settings.

## Second & 3rd Year PHO Fellows:

In addition to the goals for the 1<sup>st</sup> year fellows, 2<sup>nd</sup> and 3<sup>rd</sup> years are expected to develop a research project, get appropriate IRB approval and animal research approval as necessary, apply for grant funding as necessary, carry out necessary experiments or clinical studies, and prepare the results for presentation and publication. The fellows are also expected to engage in regular teaching activities for the pediatric residents and medical students. Second and 3<sup>rd</sup> year fellows are expected to develop increased independence in the formulation of management plans for patients.

## GOALS AND OBJECTIVES BY COMPETENCY: PATIENT CARE

- 1. Patient Care--that is compassionate, appropriate, and effective for the treatment of health programs and the promotion of health.
  - 1.1. Demonstrate <u>through presentations</u> of patients seen on new patient consults, during inpatient service, in outpatient clinics and through presentations at clinical conferences and <u>by documentation</u> in the medical record the ability to report a detailed and appropriate history and physical examination along with pertinent diagnostic studies on hematology and oncology patients.
  - 1.2. Develop and provide rationale for the management plans of children with hematology-oncology disease.
  - 1.3. Discriminate changes in clinical status of patients or severity of clinical status of patients which need to be reported to the attending immediately from those which can be presented in rounds.
  - 1.4. Develop and provide rationale for the management plans of children with acute life threatening or major organ threatening disease or complications to the hematology-oncology unit:
    - 1.4.1. Sepsis
    - 1.4.2. Acute Chest Syndrome
    - 1.4.3. Acute Tumor Lysis Syndrome
    - 1.4.4. Acute Neurological Compromise
  - 1.5. Recognize the indications for and the risks of the following therapies and develop appropriate management plans for the common complications of:
    - 1.5.1. Central Venous Lines
    - 1.5.2. Chemotherapy
    - 1.5.3. Transfusion therapy
    - 1.5.4. Apheresis
    - 1.5.5. Radiation therapy
    - 1.5.6. Surgical therapy
    - 1.5.7. Anti-coagulation therapy
    - 1.5.8. Chelation therapy
    - 1.5.9. Nutritional support
    - 1.5.10. Pain management
  - 1.6. When requesting consultation services, demonstrate the ability to formulate an appropriate question and rationale justified by pertinent points of the history, physical examination and laboratory data.

## GOALS AND OBJECTIVES BY COMPETENCY: PATIENT CARE

- 1.7. Discriminate between patients who may be appropriately treated on the inpatient unit, and those who require escalation of care.
- 1.8. Recognize the indications for, the common complications of and perform the following procedures
  - 1.8.1. Bone marrow aspiration and biopsy
  - 1.8.2. Lumbar puncture without (diagnostic) and with instillation of chemotherapy
  - 1.8.3. Microscopic examination of peripheral blood films, bone marrow aspirates and biopsies.
  - 1.8.4. Hematological Stem Cell Harvest—bone marrow harvest, peripheral stem cells, and umbilical cord blood.
- 2. <u>Medical Knowledge</u>--Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavior knowledge needed by a pediatric hematologist-oncologist; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.
  - 2.1. Develop a prioritized differential diagnosis for children with cancer or hematologic diseases hospitalized for acute illnesses, seen in new consultation or seen in continuity clinics.
  - 2.2. Demonstrate knowledge of hematological and oncologic conditions including but not restricted to the following:
    - 2.2.1. Hematological disorders of the newborn
    - 2.2.2. Hemoglobinopathies, including the thalassemia syndromes
    - 2.2.3. Inherited and acquired disorders of the red blood cell membrane and of red blood cell metabolism
    - 2.2.4. Autoimmune disorders including hemolytic anemia
    - 2.2.5. Nutritional anemia
    - 2.2.6. Inherited and acquired disorders of white blood cells
    - 2.2.7. Hemophilia, von Willebrand's disease, and other inherited and acquired coagulopathies
    - 2.2.8. Platelet disorders, including idiopathic thrombocytopenic purpura (ITP) and acquired and inherited platelet function defects
    - 2.2.9. Congenital and acquired thrombotic disorders
    - 2.2.10. Congenital and acquired immunodeficiencies
    - 2.2.11. Leukemia, including acute lymphoblastic leukemia and acute and chronic myeloid leukemia and myelodysplastic syndromes
    - 2.2.12. Hodgkin's disease and Non-Hodgkin's lymphomas

## GOALS AND OBJECTIVES BY COMPETENCY: MEDICAL KNOWLEDGE

- 2.2.13. Solid tumors of organs, soft tissue, bone, and central nervous system
- 2.2.14. Bone marrow failure syndromes
- 2.2.15. Transfusion medicine and use of blood products
- 2.2.16. Management of the patient undergoing long-term transfusion therapy
- 2.2.17. Bone marrow reconstitution including use of allogeneic peripheral blood stem cells and umbilical cord blood
- 2.2.18. Graft-versus-host disease
- Interpersonal and Communication Skills--Demonstrate interpersonal and communications 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 professional and therapeutic relationship across a broad range of socioeconomic and cultural backgrounds
  - 3.2. Lead the discussion with the family of a child with a newly diagnosed malignancy or hematological disorder.
  - 3.3. Obtain informed consent for fellow-performed procedures (supervised by the faculty attending physician) and both research-protocol based and non-research based therapies for both malignant and non-malignant disorders.
  - 3.4. Effectively communicate changes in patient status to attending physicians.
  - 3.5. Maintain comprehensive, timely and legible medical records on primary continuity patients.
    - 3.5.1. Document a brief patient history on the patient's chart, ensure all signatures are on the consent form and roadmaps, and maintain the roadmaps with frequent updates as necessary.
    - 3.5.2. Communicate with referral physicians within 72 hours of the admission of a new hematology-oncology patient, again upon 1<sup>st</sup> discharge, and if seen in continuity clinic, at a minimum of every 3 months.
    - 3.5.3. The fellows are expected to keep a log with the diagnosis and number of patients followed in their continuity clinic.

## GOALS AND OBJECTIVES BY COMPETENCY: PRACTICE BASED LEARNING AND IMPROVEMENT

- 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. Present new cases at tumor boards and clinical conferences with a detailed literature review in defense of the treatment strategy being recommended for the patient. At least 2 tumor boards to be presented during the 1<sup>st</sup> fellowship year.
  - 4.2. Critique one's practice experience to recognize strengths, deficiencies, and limits in knowledge and expertise; then identify and utilize the appropriate resources for remedying those identified deficiencies. This can be easily done twice yearly in the written report <u>REQUIRED</u> for 2<sup>nd</sup> and 3<sup>rd</sup> year fellows for each Scholarship Oversight Committee (SOC) meeting. The fellows will develop a quality improvement project where objectively analyze areas to be improved.
  - 4.3. Meet individually with an attending physician bimonthly to review performance during clinical rotations, meet at minimum twice yearly during the second and third years with the SOC and meet the program director every 6 months to review performance, and incorporate this feedback into a plan for professional development (ILP).
  - 4.4. Actively seek out and listen to constructive feedback from other members on the care team as well as patients and families and incorporate this feedback, when appropriate, into a plan for professional development (ILP).
  - 4.5. Actively participate in the education of patients, families, students, residents, and other health professionals
    - 4.5.1. Provide at least daily updates to patients and their families regarding the plan of care.
    - 4.5.2. Participate in the education of medical students and residents on inpatient service and in clinics.

## GOALS AND OBJECTIVES BY COMPETENCY: PROFESSIONALISM

- 5. <u>Professionalism</u>--Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity
  - 5.1. Consistently maintain respect, compassion, integrity, honesty and responsiveness to the needs of patients and the health care team in a way that supersedes self-interest.
  - 5.2. Continually demonstrate accountability to all patients (even if other physicians are primarily responsible for their care) and the health care team.
  - 5.3. Demonstrate a commitment to excellence and ongoing professional development by being prepared, on-time, in appropriate attire and contributing in rounds, teaching conferences and didactic lectures.
  - 5.4. Exercise sensitivity to the needs of the patient and the parent/guardian by applying cultural awareness, negotiation, compromise and mutual respect in the daily care of inpatients.
  - 5.5. Recognize and demonstrate an understanding of ethical, cultural, religious or spiritual values of import to patients and families during communications and care decisions.
  - 5.6. Demonstrate a commitment to confidentiality, privacy, and respect for patients and families.
  - 5.7. Demonstrate empathy towards the child and family in negotiating and designing goals of treatment, including relevant medical, legal and psychological issues.
  - 5.8. Demonstrate advocacy for patients and their families.
  - 5.9. Honestly assess one's contribution to errors that are made, accept responsibility for personal mistakes and implement plans to prevent one's self and others from making the mistake again.

## GOALS AND OBJECTIVES BY COMPETENCY: SYSTEM BASED PRACTICE

- 6. Systems Based Practice -- Understand how to practice high quality health care and advocate for patients within the context of the health care system
  - 6.1. Prioritize the various modes of diagnostic testing and select the most appropriate testing modality, with a goal toward preventing unnecessary laboratory or imaging tests.
  - 6.2. Demonstrate the ability to work effectively with other members of the health care team, including, but not limited to, other physicians, nurses, pharmacists, nutritionists, child life specialists and chaplains.

6.2.1. Work effectively with social worker and child life specialist during new patient diagnosis discussions and major treatment planning discussions.

6.2.2. Work effectively with the discharge planner (nurse coordinator) to arrange home-care and follow-up for discharged patients.

6.2.3. Work with pain management team to provide adequate and appropriate pain control to hospitalized patients

6.2.4. Work with dietitian to provide nutritional support (including TPN) to hospitalized patients

- 6.3. Acknowledge medical errors in a forthright manner, and report observed medical errors (real or potential) to the appropriate member of the care team, then work with the team to develop a plan for preventing future errors. Specifically for chemotherapy this would require a report to the chemotherapy task force.
- 6.4. Comply with institutional systems that have been developed to prevent errors in the administration of "high risk" medications, such as chemotherapy and immunosuppressive medications.
- 6.5. Avoid use of ambiguous or unacceptable abbreviations in the medical record, prescriptions and medical orders.

#### **GENERAL COMPETENCIES**

Subspecialty Resident Training in Pediatric Hematology/Oncology Louisiana State University Health Sciences Center/Children's Hospital New Orleans, LA

In accordance with specialty program requirements, the curriculum is designed to teach the following six general competencies and how they are measured:

### **Patient Care Skills**

Patient care skills are a primary focus of the first year of subspecialty residency training. The entire year is devoted to clinical training under the direct supervision of faculty members at all times. Numerous forums exist for development of patient care skills including didactic training sessions and "bedside" teaching. These skills are further refined during continuity experience in the second and third years of training, again with direct faculty support and supervision. The specific activities included in the development of these skills, for which the fellow is then evaluated, are:

- Daily rounds (direct observation) in the inpatient unit with the attending physician, fellow, residents, medical students and members of the supporting staff--chart review by the staff for accuracy, adequateness of documentation and plan of care
- 2. Clinic (outpatient) performance--chart review by the staff for accuracy, adequateness of documentation and plan of care.
- 3. Procedure performance--monitored by technical staff from pathology, anesthesia and Pediatric Hematology/Oncology staff. Pathology reports on the adequacy and quality of the sample and any deficiency is reviewed with the fellow. The fellow keeps a procedure log for documentation of the number of procedures performed.
- 4. Management of complicated patients--monitored by staff from daily rounds, chart review and outcome analysis.
- 5. Management of newly-diagnosed patients as above
- 6. Day-to-day clinical/patient's medical progress
- 7. Core lectures and conferences

## Medical Knowledge

In addition to patient specific medical knowledge taught in rounds, at the bedside and in informal discussions with the trainees, numerous didactic forums are available (see Conference schedule and Core Curriculum) to provide structured teaching. Other tools are also used to stimulate their thinking process including:

- 1. Subspecialty Content Specific Objectives
- 2. SITE (Subspecialty in-training examination) once a year
- 3. In-house in-training exam (Prep tests) at the beginning of the academic year to evaluate their academic/medical fund of knowledge

- 4. Daily rounds in the inpatient unit/pop quiz
- 5. Clinic (outpatient setting)/pop quiz
- 6. Case conferences and discussions
- 7. Core lectures/Curriculum—see schedule
- 8. Tumor Board (Cancer conferences)--questions regarding management, presentation of cases and participation in discussions.
- 9. Lectures and teaching sessions to residents and medical students given by the fellows.
- 10. Strategies for self-direct learning

#### **Interpersonal and Communication Skills**

There is heightened sensitivity to issues related to interpersonal and communications skills within the arena of oncology because of the high frequency of adverse outcome and death in this population of patients. Trainees begin by observing seasoned practitioners (attending physicians) communicate information regarding diagnosis, prognosis, and "bad news" to patients and their families. In addition, there are a variety of psychosocial forums where these issues are addressed in both formal and informal ways. Some of these forums are:

- 1. Psychosocial meeting—interactive sessions are presented by the Child Psychiatry staff about sensitive topics and how to address them.
- 2. Family conferences
- 3. Obtaining informed consent
- 4. Discussing treatment options
- 5. In the setting of oncology--giving "bad news"
- 6. Lectures (core) and journal articles are discussed on how to address these topics.
- 7. Observation of above in addition to daily performance in the clinical setting
- 8. Role of the fellow as teacher (evaluated by residents and students)
- 9. Role of the fellow as team leader (evaluated by nursing staff, other health care personnel, residents)
- 10. Role of the fellow as communicator (evaluated by nurses, patients in the outpatient clinic)

#### Professionalism

It is the view of the fellowship leadership that subspecialty training must provide an environment in which high standards of professionalism and a commitment to continued improvement are evident. The values of professionalism must be fostered in the subspecialty residents throughout their training. These values include placing the needs of one's patients ahead of one's self-interest, being responsive to the needs of society, continuing a commitment to scholarship and high standards of related research, and enhancing the ability of all colleagues in the medical profession to discharge their responsibilities optimally. Other tools used are:

- Evaluations from team members, nurses, pathology and anesthesia staff, consultants, residents and colleagues. Once these evaluations are analyzed, the fellow receives feedback and counseling as needed.
- 2. Module from ABP
- 3. Core lecture

### **Practice- based Learning**

Components of practice-based learning are taught in a variety of forums. Examples of these include:

- 1. Daily rounds in the inpatient unit--issues raised during rounds are reviewed for current thoughts, EBM by the fellow and residents and presented the next day
- Clinic (outpatient) performance--use of consultants, follow up of laboratory and radiology results, importance of timely and appropriate records documentation, communication with the PCP
- 3. Journal Club
- 4. Case conferences
- 5. Core lectures
- 6. Tumor Board (Cancer conferences)
- 7. Protocol review
- 8. COG administrative meeting

## **System-based Practice**

Components of systems-based practice are also taught in a variety of forums. Examples include:

- 1. Daily inpatient/clinic (outpatient) rounds
- 2. Appropriate use of consultants
- 3. Ability to use hospital and community resources for care of patient
- 4. Administrative meeting
- 5. As senior fellow, involvement in ACGME activities
- 6. Review of billing/compliance/insurance issues.
- 7. Cancer Committee meeting
- 8. Institutional ACGME meeting
- 9. Member of the SOC for junior fellows.

## Pathology Rotation Goals and Objectives for 1<sup>st</sup> Year Pediatric Hematology Oncology Fellow at Children's Hospital

Length:

4 weeks

Location:

Department of Pathology at Children's Hospital

#### Goals:

- 1. Discuss different methods used in the laboratory to support the hematology/oncology service. (Medical Knowledge, Practice-based, and System-based Competencies)
- Discuss the advantages and limitations to techniques used in the laboratory. (Medical Knowledge, Practice-based, and System-based Competencies)
- Recognize normal hematopoietic cells, abnormal hematopoietic cells, tumor cells, and common childhood tumor histologies [Cell Morphology]. (Medical Knowledge, Practicebased, and System-based Competencies).
- 4. Learn the correct technique to prepare bone marrow and peripheral smears. (Medical Knowledge, Practice-based, and System-based Competencies).

#### **Objectives:**

- Review slides daily with pathologist of bone marrow (BM) aspirates, clot sections, and aspirates. (Patient Care, Medical Knowledge, Practice-based, and System-based Competencies).
- 2. Correlate histology with clinical and laboratory findings [i.e. flow cytometry, cytogenetics]. (Patient Care, Medical Knowledge, Practice-based, and System-based Competencies).
- Review all flow cytometry workups, results, and participate in the interpretation of those results. (Patient Care, Medical Knowledge, Practice-based, and System-based Competencies).
- Observe techniques in the laboratory, including automated CBC s, coagulation procedures, hemoglobin variant analysis and correlate clinically. (*Patient Care, Medical Knowledge, Practice-based, and System-based Competencies*).
- Perform peripheral blood and bone marrow differentials and determine differential diagnosis. (Patient Care, Medical Knowledge, Practice-based, and System-based Competencies).
- Present a 1 hour conference to the pathologists regarding a hematology/oncology/ pathology topic. (Medical Knowledge, Practice-based, and System-based Competencies).
- 7. Observe the preparation of frozen sections and the relevance in the preliminary diagnosis of potential malignant solid tumors. (*Medical Knowledge, Practice-based, and System-based Competencies*).
- Record all activities performed and observed during the rotation (BMA smears differential performed, laboratory procedures observed, BMA & Bx reviewed with pathologists). (Medical Knowledge, Practice-based, and System-based Competencies).
- Assist the hematology technologists on BM procedures preparing bone marrow aspiration slides and assessing the adequacy of BM biopsies. (Medical Knowledge, Practicebased, and System-based Competencies).

Randall Craver, MD Director, Department of Pathology LSUHSC/Children's Hospital Last revision: February 2010

## Goals and Objectives for Radiation Oncology Rotation 2<sup>nd</sup> Year Pediatric Hematology-Oncology

Length: 2 weeks

Location: Touro Infirmary

#### Goals:

- 1) The fellow will get familiar with modern radiation oncology practice and procedures: (Medical Knowledge, Patient Care, Practice-based, and System-based Competencies)
  - a. Consultation
  - b. Simulation
  - c. Treatment planning
  - d. Treatment management
  - e. Post-treatment follow-up of diverse patient population, including adult and pediatric patients.
- Understanding of evidence based indications for radiation treatment in adult and pediatric oncology patients. (Patient Care, Medical Knowledge Competencies)
- 3) Understand external beam and implant radiation techniques. (Medical Knowledge, Patient Care, Practice-based, and System-based Competencies)
- Understand expected toxicities and side effects of radiation treatment and their appropriate management. (Medical Knowledge, Patient Care, Practice-based, and System-based Competencies)

#### Objectives:

- Understand interaction of multimodality therapies including surgery, chemotherapy, and radiation therapy with emphasis on multidisciplinary communication and coordination to improve patient care. (Medical Knowledge, Patient Care, Practice-based, and System-based, Interpersonal and Communication Skills Competencies)
- 2) Understand the benefits of sophisticated planning techniques (i.e. IMRT) with particular emphasis on the unique clinical considerations of pediatric radiation oncology patients. The fellow also has the opportunity to observe intracranial radiosurgery procedures with Gamma (γ) Knife and extracranial radiosurgery procedures with Cyber Knife. (Medical Knowledge, Patient Care, Practice-based, and System-based Competencies)
- Evaluate and participate in the care of patients in clinic under direct supervision of attending staff. (Medical Knowledge, Patient Care, Practicebased, and System-based, Interpersonal and Communication Skills Competencies)

Ellen Zackris, MD Radiation Oncology Last revision: July 2008

## CHILDREN'S HOSPITAL TRANSFUSION SERVICE NEW ORLEANS, LA 70118

## PEDIATRIC HEMATOLOGY-ONCOLOGY 2<sup>nd</sup> YEAR FELLOW TRANSFUSION MEDICINE ROTATION

This 2 week rotation is designed to give the Hematology Oncology Fellow an overview of Transfusion Medicine from donor qualification, through processing and compatibility testing/ immunohematology. In order to provide a complete overview this rotation is carried out in The Blood Center and Children's Hospital. The Blood Center is a free standing donor center which collects whole blood donors, plateletpheresis donors, produces components and has an AABB accredited Immunohematology Reference Laboratory. Children's Hospital Transfusion Service performs compatibility testing, component modification, and irradiation of blood products.

By the end of this rotation the Hematology Oncology Fellow will:

- Outline the process for allogeneic whole blood donor qualification and collection and processing (testing)
- 2. Describe platelet apheresis including donor requirements and testing
- Outline the process for production of components from Whole Blood (Red Cells, Fresh Frozen Plasma, Platelets and Cryoprecipitated AHF)
- 4. Discuss Quality Program and Regulation of The Blood Center
- 5. Discuss the following serologic problems/ processes
  - a. Routine antibody screening and compatibility testing
  - b. ABO Discrepancies
  - c. Anti body identification
  - d. Indications for elution
  - e. Absorptions- warm, cold
  - f. Direct Antiglobulin Testing
  - g. Neonatal immunohematologic testing
- 6. Therapeutic apheresis in pediatrics.

The attached schedule is designed to provide the rotation in Transfusion Medicine and permit the Fellows to participate in their continuity clinics and other required activities. The schedule may be modified on an individual basis

DAY	DURATION	LOCATION	SUBJECT
Day 1	Full day	TBC	Donor qualification and collection, platelet apheresis, component production
Day 2	Full day	TBC- Hammond	Donor testing, labeling
Day 3	Half day	TBC	Quality Program/ Regulation
Day 4	Half day	TBC	Medical Affairs
Day 5	Full day	TBC	Immunohematology
Day 6	Full day	TBC	Immunohematology
Day 7	Half day	Children's	Therapeutic apheresis
Day 8	Half day	Children's	Immunohematology (Neonatal)

## Louisiana Coagulation Laboratory where Testing and Diagnosis Meet

DIAGNOSIS OF CLOTTING AND BLEEDING DISORDERS Gloria B. Coker, M.D. Pathologist MEDICAL DIRECTOR AND CONSULTANT

71250 HENDRY AVENUE COVINGTON, LOUISIANA 70433 (866) 2LA-COAG (toll free) (985) 893-6999 Fax: (985)-893-0590

# TRAINING OBJECTIVES FOR LSUHSC/Children's Hospital PEDIATRIC 2<sup>ND</sup> YEAR HEMATOLOGY FELLOWS: ROTATION AT LOUISIANA COAGULATION LABORATORY

Objectives for the 2<sup>nd</sup> year Pediatric Hematology Fellow as part of their rotation in the coagulation laboratory:

- 1. Each physician will review the procedure manuals to get familiar with the various aspects of performing a procedure related to hemostasis.
- 2. The physician will discuss the importance of specimen collection and processing and how this has an effect on the result of any given test.
- 3. There will be interaction with a technologist at the various work stations in the coagulation lab. These workstations will include mechanical and optical clot detection, chromogenic assays, enzyme-immuno assays, platelet aggregation and genetic studies. The principles of each of these test methods will be discussed. The problems associated with test results as related to clinical situations will be highlighted.
- The physician will be given some insight into the sources of differences in reagents used by coagulation laboratories and how these variations may impact the patient result.
- Charts representing a variety of abnormal coagulation cases will be given to the physician to review. These cases will then be discussed based on what procedures are used to derive the clinical diagnosis.
- 6. The physician will meet with the lab's Clinical Director to discuss important points used in clinical consultation related to the evaluation of hemostatic problems.

## Hematopoietic Stem Cell Transplantation ELECTIVE for 2<sup>ND</sup> Year Pediatric Hematology-Oncology Fellow

This rotation will provide the clinical fellow with a comprehensive overview of the application of hematopoietic stem cell transplant (HSCT) as treatment for both malignant and non malignant conditions, understand the pathophysiology of disease processes such as GVHD, GVL, VOD, and Engraftment syndrome and learn the histocompatibility testing with matching strategies between donor and recipient .

The rotation is built around HSCT inpatient rounds, HSCT clinics, didactic sessions with the transplant physician, interactions with the HSCT team, and observations in the HSCT laboratory.

#### Specific Objectives for this Elective are:

- Learn the pathophysiology & treatment of different diseases & complications peculiar to HSCT:
  - a. Graft versus Host Disease (GVHD)
  - b. Veno-Occlusive Disease of the Liver (VOD)
  - c. Infections
  - d. Engraftment/graft failure
- 2. Understand the process of matching between donor & recipient
  - a. HLA matching by molecular typing
  - b. Clinical factors: gender, age, CMV status
  - c. What constitute "best donor"
- 3. Identify the required process to provide stem cell donor clearance
- 4. Know different sources of stem cell available for transplantation:
  - a. Bone Marrow (BM) vs. Peripheral Blood Stem Cells (PBSC) vs. Cord Blood (CB)
  - b. Composition, cell yield, outcome
  - c. Requirements for successful engraftment
- 5. Learn the different forms of conditioning given to patients
  - a. Ablative vs. non-ablative
  - b. Reduced intensity conditioning (RIC)

## Junior Attending Rotation for Third Year Pediatric Hematology-Oncology Fellow

#### Goal:

The third year fellow will function independently (as a junior attending) in the management of the common and daily activities in the Pediatric Hematology-Oncology unit under the supervision of the faculty attending.

### Objectives:

- The fellow will conduct daily rounds with the residents and medical students discussing the acute care and management of the in-patients. The fellow will write the daily notes under the supervision of the attending physician.
- 2) The fellow will teach the pertinent topics related to Pediatric Hematology-Oncology to the residents and medical students during rounds and in lecture format. The goals and objectives for the resident's rotation are distributed to the fellow to facility these teaching activities.
- 3) The fellow will make the diagnostic and management decisions of newly-diagnosed patients. The fellow will be in charge of family conference, convey bad news to the family when indicated, and lead the team in the appropriate tests and procedures to enroll patients in protocol.

## **Duties and responsibilities:**

- 1) Daily rounds with the residents and medical students. (Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-based Learning, System-based Learning)
- 2) Write the notes describing physical exam, assessment, decision making and plan and discuss these with the team (Medical records and documentation appropriately kept). (Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-based Learning, System-based Learning).
- Answer consults. (Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-based Learning, System-based Learning).
- 4) Teaching and lecturing the residents and medical students in the topics related to the rotation. (Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-based Learning, System-based Learning).
- Lead the team in the diagnosis and management of new hematologyoncology patients. (Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-based Learning, System-based Learning).
- 6) Perform family conferences with the patients and the families as needed. (Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-based Learning, System-based Learning).

#### **ROTATION: HEMATOLOGY and ONCOLOGY**

FACULTY:

Renee Gardner, M.D.
Jaime Morales, M.D.
Cori A. Morrison, M.D. (Effective September 1, 2010)
Maria C. Velez, M.D.
Lolie Yu, M.D.

#### **PATIENT CARE**

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

- Understand how to recognize, evaluate and manage hematological disorders which generally do NOT need referral, including
  - o Iron deficiency anemia (IDA)
  - o Thalassemia trait (alpha and beta)
  - o Transient erythroblastopenia of infancy or childhood (TEC)
  - o Minor, common reactions to blood transfusions
  - o Sickle cell trait
  - o Uncomplicated Henoch-Schönlein-Purpura (HSP)
- Recognize the differential diagnosis, provide initial evaluation and management, and provide appropriate referral of the child presenting with these conditions.
  - o Anemia (exclusive of common iron deficiency vs transient erythroblastopenia)
  - Abnormal bruising or bleeding (inherited and acquired)
  - o Major complications of inherited bleeding disorders
  - Hemoglobinopathies (sickle cell and other sickling disorders), including severe pain crisis, fever, stroke, splenic sequestration, and aplastic crises
  - Urgent conditions in children under treatment for cancer, including fever while on chemotherapy, chicken pox exposure or illness, bleeding
  - o Neutropenia
  - o Thrombocytopenia
  - o Abdominal mass
  - o Mediastinal mass
  - Conditions that might predispose to malignancy (e.g., neurofibromatosis, Bloom's syndrome, retinoblastoma, and familial cancer)
- Understand the presentation, pathophysiology, and prognosis of important malignancies in children and adolescents.
- Describe <u>common</u> late complications of childhood cancer treatment that may present in childhood or adolescents (e.g., learning disabilities, endocrine suppression, and secondary cancers.)
- Understand the pediatrician's role in the prevention of hematologic/oncologic disorders.
- Understand the appropriate methods of screening, diagnosis, and management, including appropriate utilization of laboratory tests, of a child with iron-related disorders.
- Manage iron deficiency anemia appropriately (e.g., dietary management, replacement therapy, parent education, and follow-up.)
- List the appropriate indications and potential risks of various blood products (red blood cell products, platelet concentrates, coagulation factors.)
- Understand indications and complications related to the use of blood products.

- Be aware of alternatives to blood transfusions, e.g., erythropoietin and other cytokines.
- Discuss the reasons for leukofiltration and/or irradiation of blood products.
- Acquire the following skills:
  - o Technical skills:
    - Start an intravenous/central line
    - Lumbar puncture
    - Bone marrow aspiration and biopsy
  - Laboratory skills:
    - Blood smear: Distinguish abnormalities of red blood cells, white blood cell morphology and assess platelet number. The following abnormalities should be identified: hypochromasia, polychromasia, spherocytes, schistocytes, sickle cells, atypical lymphocytes and blast cells
    - Describe the clinical importance of Coomb's testing (DAT), osmotic fragility, serum ferritin, free erythroprotophyrin (FEP), serum iron and TIBC, fibrin degradation products, fibrinogen, hemoglobin electrophoresis, hemoglobin A and F levels, PT, PTT, bleeding time, platelet function assays (PFA)individual factor assays and mixed PT, PTT studies.

#### MEDICAL KNOWLEDGE

Residents must demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care. Residents are expected to:

- Understand how to determine the difference between normal and pathologic states related to the hematologic and lymphatic systems.
- Identify the changes that occur over time in the hematologic indices in the normal child (e.g., hemoglobin, hematocrit, MCV, etc.)
- For these common pediatric signs and symptoms, describe clinical findings that would warrant screening for malignancy:
  - o Adenopathy
  - o Headache
  - Limb pain
  - Hepatomegaly and/or splenomegaly
  - Persistent fever and malaise
  - o Seizures
  - Weight loss
- Identify the presenting complaints, principles of current therapy, prognosis, and long term complications due to the disease or therapy for these conditions:
  - Leukemia (ALL< AML)</li>
  - o Brain tumor
  - o Hodgkin's Disease and Non-Hodgkin's lymphoma
  - o Neuroblastoma
  - o Wilms' Tumor
  - o Soft tissue sarcomas
  - Bone tumors (Osteosarcoma and Ewing's sarcoma)
  - o Retinoblastoma
  - o Langerhans' cell histiocytosis

- Describe the normal requirements, absorption, and metabolism of iron from birth through adolescence.
- · Identify the features of iron deficiency, including anemia.
- Describe <u>common</u> acute side effects of commonly used chemotherapeutic drugs (e.g., cyclophosphamide, vincristine, doxorubicin, and methotrexate).

#### PRACTICE-BASED LEARNING AND IMPROVEMENT

Residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. Residents are expected to:

- Residents are required to attend formal lectures, discussions, case presentations, slide reviews and tumor board.
- Residents will be encouraged to work up a case report or get involved in a research project.

#### INTERPERSONAL AND COMMUNICATION SKILLS

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional associates. Residents are expected to:

- Counsel patients who have a sickle cell hemoglobinopathy about the importance of antibiotic prophylaxis and urgency of evaluation for fever.
- · Provide dietary counseling to parents about the prevention of iron deficiency.

#### **PROFESSIONALISM**

Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Residents are expected to:

- Residents will see all new referrals in clinic and consults on the floor.
- Residents will be required to attend daily didactic sessions. Topics will be scheduled in advance to allow assigned reading and to be certain all objectives are met.
- Inpatient responsibilities will be limited to new and educationally interesting patients and consults.

#### SYSTEMS-BASED PRACTICE

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Residents are expected to:

 Understand how to diagnose and manage hematological disorders which generally do not need referral

- Understand how to diagnose and initiate management of hematological/oncological disorders which generally need referral.
- Develop an understanding of how a multidisciplinary team provides patient care to the patient and the family.

#### **Reading Materials:**

Recommended readings (available at LSUHSC, Children's Hospital, departmental libraries and oncology floor):

- · Hematology of Infancy and Childhood. Nathan and Oski.
- · Blood Diseases of Infancy and Childhood. Miller.
- Malignant Disease of Infancy, Childhood and Adolescence. Altman and Schwartz.
- · Hematologic Problems in the Newborn. Oski and Naiman.
- · Principles and Practice of Pediatric Oncology. Pizzo and Poplack.
- · Nelson's Textbook of Pediatrics. Saunders.
- · Relevant Pediatric Clinics of North America, Saunders,
- Division Resource Packet.

## Pediatric Hematology Oncology Goals and Objectives First Year Residents

### Faculty:

Lolie Yu, M.D., Division Chief Renee Gardner, M.D. Cori A. Morrison, M.D. (Effective September 1, 2010) Jaime Morales, M.D. Maria C. Velez, M.D.

### Goals:

- Understand how to determine the difference between normal and pathologic states related to the hematological and lymphatic/oncological systems.
- 2. Understand how to diagnose and manage hematological disorders which generally do not need referral.
- Understand how to diagnose and initiate management of hematological/oncological disorders which generally need referral.
- Understand the presentation, pathophysiology, and prognosis of important malignancies in children and adolescents.
- 5. Understand the appropriate methods of diagnosis and management of a child with disorders relating to iron.
- 6. Understand indications and complications related to the use of blood products.
- Understand the pediatrician's role in the prevention of hematological/oncological disorders.

## **Learning Objectives and Curriculum Content:**

- Identify the changes that occur over time in the red cell indices in the normal child (e.g., hemoglobin, hematocrit, MCV, etc.)
- 2. Recognize, evaluate, and manage without referral these conditions:
  - a. Iron deficiency
  - b. Thalassemia trait
  - c. Transient erythroblastopenia of infancy or childhood (TEC)
  - d. Minor, common reactions to blood transfusions
  - e. Sickle cell trait

### Page 2 Hem-Onco Goals and Objectives First Year Residents

- 3. Recognize the differential diagnosis, provide initial evaluation and management, and provide appropriate referral of the child presenting with these conditions:
  - a) Anemia (iron deficiency, transient erythroblastopenia, hemolysis)
  - b) Abnormal bruising or bleeding (inherited and acquired)
  - c) Major complications of inherited bleeding and thrombotic disorders
  - d) Hemoglobinopathies (sickle cell and other sickling disorders), including severe pain crisis (VOC), fever, stroke (CVA), splenic sequestration, and aplastic crises.
  - e) Urgent conditions in children undergoing treatment for cancer, including fever while on chemotherapy, Varicella (chicken pox) exposure or other illness, bleeding
  - f) Neutropenia
  - g) Thrombocytopenia
  - h) Abdominal mass
  - i) Mediastinal mass
  - j) Conditions that might predispose to malignancy (e.g., neurofibromatosis, Bloom's syndrome, retinoblastoma, and familial cancer)
- 4. Identify the presenting complaints, principles of current therapy, prognosis, and long term complications due to the disease or therapy for these conditions:
  - a. Leukemia (ALL, AML)
  - b. Brain/CNS tumor
  - c. Hodgkin's and Non-Hodgkin's lymphomas
  - d. Neuroblastoma
  - e. Wilms' Tumor
  - f. Soft tissue sarcomas including Rhabdomyosarcoma
  - g. Bone tumors (Osteosarcoma and Ewing's sarcoma)
  - h. Retinoblastoma
  - i. Langerhan's Cell Histiocytosis (LCH)
- 5. For these common pediatric signs and symptoms, describe clinical findings that would warrant screening for malignancy:
  - a. Adenopathy
  - b. Headache
  - c. Limb pain
  - d. Hepatomegaly and/or splenomegaly
  - e. Persistent fever and malaise
  - f. Seizures
  - g. Weight loss

# Page 3 Hem-Onco Goals and Objectives First Year Residents

- 6. Describe <u>common</u> acute side effects of commonly used chemotherapeutic drugs (e.g., cyclophosphamide, vincristine, doxorubicin, and methotrexate).
- Describe <u>common</u> late complications of childhood cancer treatment that may present in childhood or adolescents (e.g., learning disabilities, endocrine suppression, and second malignancies).
- 8. Describe the normal requirements, absorption, and metabolism of iron from birth through adolescence.
- 9. Identify the features of iron deficiency including anemia.
- 10. Describe and use appropriately laboratory tests to screen, treat, and follow the therapy of iron deficiency.
- 11. Manage iron deficiency appropriately (e.g., dietary management, replacement therapy, parent education, and follow-up).
- Provide dietary counseling to parents about the treatment and prevention of iron deficiency.
- 13. List the appropriate indications and potential risks of various blood products (packed red blood cell products, platelet concentrates, coagulation factors).
- 14. Be aware of alternatives to blood transfusions, e.g., recombinant erythropoietin and self-donation (auto-transfusion)
- 15. Discuss the reasons for leukofiltration and irradiation of blood products.
- 16. Counsel patients who have a sickle hemoglobinopathy about the importance of antibiotic prophylaxis and urgency of evaluation for fever.

## **Skills Acquisition:**

- 1. Technical skills (the resident is welcomed to actively participate in these procedures along with the fellow and attending physician):
  - a. Lumbar puncture
  - b. Bone marrow aspiration and biopsy

# Page 4 Hem-Onco Goals and Objectives First Year Residents

## 2. Laboratory skills:

- a. Blood smear:
  - Be able to distinguish morphological abnormalities of red blood cell, white blood cell, platelets, and also assess adequate number of these cells.
  - The following abnormalities should be identified:
     Hypochromasia, polychromasia, spherocytes, schistocytes, sickle cells, atypical lymphocytes and blast cells
- b. Describe the clinical importance of:
  - · Coomb's test,
  - Osmotic fragility,
  - Serum iron, TIBC and ferritin, free erythrocyte protoporphyrin (FEP)
  - Serum, fibrinogen and fibrin degradation products (FDP)
  - Hemoglobin electrophoresis including hemoglobin A and F levels
  - PT, PTT, bleeding time, platelet function assay (PFA), individual factor assays and mixed studies for prolonged PT and PTT.

### **Rotation Requirements:**

- Residents will see all new referrals/admissions on the floor or in clinic if outpatient clinic rotation.
- Inpatient responsibilities will be assigned by the upper level resident. The first year resident will help with the medical students teaching and clinical supervision.
- Teaching will take place in the inpatient/outpatient setting by the attending physician, Hematology-Oncology fellow and the upper level residents.
- Residents will be required to attend planned didactic sessions. Topics will be scheduled and assigned in advance to allow time for reading and to be certain all objectives are met.
- Residents are required to attend the scheduled Hem-Onco activities including lectures, case presentations, journal club, morphology reviews and tumor board (Cancer Conference).
- 6. Residents will be encouraged to work up a case report or get involved in a research project when rotating (but not exclusively) in the outpatient clinic.

#### Reading Materials:

Recommended readings (available at LSUHSC Library, Children's Hospital Library, departmental libraries, and Hematology-Oncology floor [4th West]):

- a. Hematology of Infancy and Childhood. Nathan and Oski.
- Blood Diseases of Infancy and Childhood. Miller.
- c. Malignant Disease of Infancy and Childhood and Adolescence. Altman and Schwartz.
- d. Hematologic Problems in the Newborn. Oski and Naiman.
- e. Principles and Practice of Pediatric Oncology. Pizzo and Poplack.
- f. Nelson's Textbook of Pediatrics. Saunders.
- g. Relevant Pediatric Clinics of North America. Saunders.

## Pediatric Hematology Oncology Goals and Objectives Upper Level Residents

### Faculty:

Lolie Yu, M.D., Division Chief Renee Gardner, M.D. Jaime Morales, M.D. Cori A. Morrison, M.D. Maria C. Velez, M.D.

#### Goals:

- 1. Understand how to determine the difference between normal and pathologic states related to the hematological and lymphatic/oncological systems.
- 2. Understand how to diagnose and manage hematological disorders which generally do not need referral.
- 3. Understand how to diagnose and initiate management of hematological/oncological disorders which generally need referral.
- 4. Understand the presentation, pathophysiology, and prognosis of important malignancies in children and adolescents.
- 5. Understand the appropriate methods of diagnosis and management of a child with disorders relating to iron.
- 6. Understand indications and complications related to the use of blood products.
- Understand the pediatrician's role in the prevention of hematological/oncological disorders.

## Learning Objectives and Curriculum Content:

- 1. Identify the changes that occur over time in the red cell indices in the normal child (e.g., hemoglobin, hematocrit, MCV, etc.)
- 2. Recognize, evaluate, and manage without referral these conditions:
  - a. Iron deficiency
  - b. Thalassemia trait
  - c. Transient erythroblastopenia of infancy or childhood (TEC)
  - d. Minor, common reactions to blood transfusions
  - e. Sickle cell trait

## Page 2 Hem-Onco Goals and Objectives Upper Level Residents

- 3. Recognize the differential diagnosis, provide initial evaluation and management, and provide appropriate referral of the child presenting with these conditions:
  - a) Anemia (iron deficiency, transient erythroblastopenia, hemolysis)
  - b) Abnormal bruising or bleeding (inherited and acquired)
  - c) Major complications of inherited bleeding and thrombotic disorders
  - d) Hemoglobinopathies (sickle cell and other sickling disorders), including severe pain crisis (VOC), fever, stroke (CVA), splenic sequestration, and aplastic crises
  - e) Urgent conditions in children undergoing treatment for cancer, including fever while on chemotherapy, Varicella (chicken pox) exposure or other illness, bleeding
  - f) Neutropenia
  - g) Thrombocytopenia
  - h) Abdominal mass
  - i) Mediastinal mass
  - j) Conditions that might predispose to malignancy (e.g., neurofibromatosis, Bloom's syndrome, retinoblastoma, and familial cancer)
- 4. Identify the presenting complaints, principles of current therapy, prognosis, and long term complications due to the disease or therapy for these conditions:
  - a. Leukemia (ALL, AML)
  - b. Brain/CNS tumor
  - c. Hodgkin's and Non-Hodgkin's lymphomas
  - d. Neuroblastoma
  - e. Wilms' Tumor
  - f. Soft tissue sarcomas including Rhabdomyosarcoma
  - g. Bone tumors (Osteosarcoma and Ewing's sarcoma)
  - h. Retinoblastoma
  - i. Langerhan's Cell Histiocytosis (LCH)
- 5. For these common pediatric signs and symptoms, describe clinical findings that would warrant screening for malignancy:
  - a. Adenopathy
  - b. Headache
  - c. Limb pain
  - d. Hepatomegaly and/or splenomegaly
  - e. Persistent fever and malaise
  - f. Seizures
  - g. Weight loss

## Page 3 Hem-Onco Goals and Objectives Upper Level Residents

- 6. Describe <u>common</u> acute side effects of commonly used chemotherapeutic drugs (e.g., cyclophosphamide, vincristine, doxorubicin, and methotrexate).
- Describe <u>common</u> late complications of childhood cancer treatment that may present in childhood or adolescents (e.g., learning disabilities, endocrine suppression, and second malignancies).
- 8. Describe the normal requirements, absorption, and metabolism of iron from birth through adolescence.
- 9. Identify the features of iron deficiency including anemia.
- 10. Describe and use appropriately laboratory tests to screen, treat, and follow the therapy of iron deficiency.
- 11. Manage iron deficiency appropriately (e.g., dietary management, replacement therapy, parent education, and follow-up).
- 12. Provide dietary counseling to parents about the prevention of iron deficiency.
- 13. List the appropriate indications and potential risks of various blood products (packed red blood cell products, plateletpheresis products, coagulation factor concentrates).
- 14. Be aware of alternatives to blood transfusions, e.g., recombinant erythropoietin and self-donation (auto-transfusion).
- 15. Discuss the reasons for leukofiltration and irradiation of blood products.
- Counsel patients who have a sickle hemoglobinopathy about the importance of antibiotic prophylaxis and urgency of evaluation for fever.

## **Skills Acquisition:**

- 1. Technical skills (the resident is welcomed to actively participate in these procedures along with the fellow and attending physician):
  - a. Lumbar puncture
  - b. Bone marrow aspiration and biopsy

## Page 4 Hem-Onco Goals and Objectives Upper Level Residents

## 2. Laboratory skills:

#### a. Blood smear:

- Be able to distinguish morphological abnormalities of red blood cell, white blood cell, platelets, and also assess adequate number of these cells.
- The following abnormalities should be identified:
   Hypochromasia, polychromasia, spherocytes, schistocytes, sickle cells, atypical lymphocytes and blast cells
- b. Describe the clinical importance of:
  - · Coomb's test,
  - Osmotic fragility,
  - Serum iron, TIBC and ferritin, free erythrocyte protoporphyrin (FEP)
  - Serum, fibrinogen and fibrin degradation products (FDP)
  - · Hemoglobin electrophoresis including hemoglobin A and F levels
  - PT, PTT, bleeding time, platelet function assay (PFA), individual factor assays and mixed studies for prolonged PT and PTT.

## **Rotation Requirements:**

- Residents will see all new referrals/admissions on the floor or in clinic if outpatient clinic rotation. The upper level resident will supervise the interns and medical students. The Hematology-Oncology fellow will be available to help and supervise the day to day activities on the floor and generate treatment plans with the team.
- Teaching will take place in the inpatient/outpatient setting by the attending physician, Hematology-Oncology fellow and the upper level residents.
- Residents are required to attend planned didactic sessions. Topics will be scheduled and assigned in advance to allow time for reading and to be certain all objectives are met.
- Residents are required to attend the scheduled Hem-Onco activities including lectures, case presentations, journal club, morphology reviews and tumor board (Cancer Conference).
- Residents will be encouraged to work up a case report or get involved in a research project when rotating (but not exclusively) in the outpatient clinic.

#### Reading Materials:

Recommended readings (available at LSUHSC and Children's Hospital library, and Hem-Onco floor [4th West]):

- a. Hematology of Infancy and Childhood. Nathan and Oski.
- b. Blood Diseases of Infancy and Childhood. Miller.
- c. Malignant Disease of Infancy and Childhood and Adolescence. Altman and Schwartz.
- d. Hematologic Problems in the Newborn. Oski and Naiman.
- e. Principles and Practice of Pediatric Oncology. Pizzo and Poplack.
- f. Nelson's Textbook of Pediatrics. Saunders.
- g. Relevant Pediatric Clinics of North America. Saunders.