

Rotation Contacts and Scheduling Details

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Introduction

Welcome to PEDIATRIC HEMATOLOGY! The pediatric hematology rotation is a 2-week elective rotation. Hematology is an integral rotation to pediatric training as the blood count is the most commonly ordered laboratory test and very important in the care of children. In addition, many hematologic disorders are diagnosed through the newborn screening program, and the American Academy of Pediatrics recommends screening for anemia in early childhood and even later in at risk children. In addition, many devastating hematologic disorders present in childhood. This rotation is also designed to equip the general pediatrician with the tools to recognize some of the possible presentations for these disorders and to make appropriate referrals. The resident will become familiar and develop a general approach to the work-up of patients with anemia, thrombocytopenia, neutropenia, thrombophilia and coagulopathies in children. The residents will develop these approaches through several activities: outpatient hematology clinics, inpatient consultations, didactic sessions, inpatient and outpatient clinical sign-outs, performing literature searches for patient care, interacting with the medical team and providing patient follow-up, and through self-reading. In addition, to ensure the ability to self-education and interpreting peer-reviewed and non-peer reviewed literature, and the ability to teach (in preparation for the teaching senior rotation), the resident will make a brief presentation to the Pediatric Hematology Service at the end of their rotation. It is encouraged that the topic will be pertinent to whatever the long term goals or area/subspecialty of the resident.

Rotation Specifics

Orientation

Residents will receive an orientation from Dr. Lo on the first day of the rotation. If your rotation starts on a Monday, meet at 9am at Pediatric Hematology/Oncology Division Offices at 1000 Welch Road, Suite 300, 3rd Floor.

Rounds or Clinic Overview

- Patients scheduled for the upcoming clinics will be identified in the Chart Review pre-clinic meeting; residents will participate in the patient assignment and should come prepared to see their pre-assigned patient. If the patient has an identified diagnosis, the resident should have studied the relevant clinical material. While we expect residents to be prepared for clinic, we also expect a flexible attitude. We will make every effort to have residents see their pre-assigned patients and have all new patients be seen by residents but residents must be flexible and mindful of the overall clinic work flow and patient wait times and be willing to see whatever patient is waiting
- Consultations will be assigned as deemed appropriate by the Attending on service. Assignment will vary based on several of factors. If there is no Fellow on service, the resident should be prepared to see all consultations.

Pagers

The resident is expected to carry his or her pager during business hours.

Weekend/Call Schedule

There are no weekend or overnight call responsibilities associated with this rotation.

Resident Roles and Responsibilities

An identified hematology attending, and often pediatric hematology/oncology fellow, will be assigned with the resident to the hematology service. Often, a medical student may be on the service/team as well. The resident will be responsible for attending the hematology clinics which do not conflict with their continuity clinic, seeing patients in the clinic under direct supervision of the hematology attending, will perform inpatient consultations, attend didactic sessions (Tuesday mornings at 8am), to prepare and deliver a short presentation to the team regarding a clinical issue on a topic decided by the resident. The resident is responsible for sending clinical notes to general pediatricians and inpatient consultations regarding patients which they have seen. The residents are responsible for direct communication with the parents of patients and follow-up of laboratory results and interpretation (under supervision). At the end of the rotation, the resident is responsible for providing an e-mail sign-out on any outstanding clinical issues to the hematology team (see schedule).

Additional specific expectations:

- Be punctual in keeping appointments with supervisors, colleagues, patients and other team members.
- Transfer information and responsibility of care effectively at the time of sign out and change of service.
- Perform duties such as chart completion, dictations, and returning calls.
- Take responsibility for personal error.
- Organize work and manage time productively.
- Demonstrate a positive attitude in dealing with work-related problems.
- Demonstrate commitment to honesty, confidentiality, and respect for patients and families.
- Attend Pediatric Noon Conference

Evaluation and Feedback

Residents will receive direct feedback via a Medhub evaluation that Dr. Lo will complete in which the comments of all Attendings and Nurse Practitioners will be summarized. In addition, a verbal feedback session will occur at the end of the rotation. Residents are asked to complete an evaluation for the Rotation and for each Faculty member with whom he/she had regular interaction.

Competency-based Goals and Objectives

Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Goal 1. Understand normal versus abnormal hematology, recognizing presenting signs and symptoms that may indicate a hematologic or oncologic disease process.			
Explain the findings on clinical history and examination that suggest a hematologic or disease that requires further evaluation and treatment.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Describe the changes that occur over time in the hematologic indices of the normal infant and child (e.g. hemoglobin, hematocrit, MCV)	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Interpret clinical and laboratory tests to identify hematologic disease (CBC, including indices and blood smear review, reticulocyte count, ESR, PT, PTT, hemoglobin electrophoresis, iron, iron binding capacity, ferritin, transferrin, lead, uric acid, LDH, electrolytes, renal function, urinalysis).	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Explain the interpretation of a bone marrow aspirate and biopsy.	Direct patient care	Direct observation Case discussion	MK

	Clinical case studies	Medhub Evaluation	
<p>Develop a strategy to determine if the following presenting signs and symptoms are caused by a disease process and determine if the patient needs treatment or referral:</p> <ol style="list-style-type: none"> 1. Fatigue/malaise 2. Fever 3. Bruising/bleeding 4. Lymphadenopathy 5. Hepatomegaly and/or splenomegaly 6. Swollen extremity 	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK PC
Goal 2. Understand the role of the pediatrician in preventing hematologic conditions, and in counseling and screening individuals at risk for these diseases.			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
<p>Provide routine preventive counseling about hematology to all patients and families, addressing:</p> <ol style="list-style-type: none"> 1. Adequate diet and iron intake to prevent iron deficiency 2. Signs and symptoms of malignant disease 	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK, ICS, PC
<p>Provide preventive counseling to parents and patients with specific hematology/oncology conditions, addressing:</p> <ol style="list-style-type: none"> 1. In a child with a sickle hemoglobinopathy, the importance of antibiotic prophylaxis, pneumococcal and routine immunizations, folic acid supplementation, and urgent need for evaluation for fever 2. Risk of infections related to transfusion of blood or blood products, and alternatives to routine transfusion (i.e., direct donation, irradiation, freezing, filtration) 	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK, ICS, PC
<p>Provide regular hematology/oncology screening for patients:</p> <ol style="list-style-type: none"> 1. Screen for hemoglobinopathies in the newborn period. 2. Screen for iron deficiency anemia during the first two years of life, with particular emphasis on premature infants. 3. Screen adolescent females for signs of iron deficiency and 	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK, ICS, PC

<p>anemia yearly after menses has begun.</p> <p>4. Screen infants and toddlers for lead poisoning.</p>			
Goal 3. General evaluation and approach to anemia			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Recognize microcytic anemia and generate a differential diagnosis and laboratory evaluation.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Recognize normocytic anemia and generate a differential diagnosis and laboratory evaluation.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Recognize macrocytic anemia and generate a differential diagnosis and laboratory evaluation.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Describe the role of the reticulocyte count	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
<p>Iron disorders.</p> <ul style="list-style-type: none"> Describe the normal requirements, absorption and metabolism of iron from birth through adolescence. Identify common causes and features of iron deficiency and compare/contrast with anemia caused by chronic inflammation. Describe the diagnosis and treatment of iron deficiency. Develop a treatment and education plan for managing iron deficiency including diet, replacement therapy, parent education. 	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK ICS
Differentiate conditions that should be referred to a specialist. Identify and manage conditions appropriate for general pediatrician management (Iron Deficiency, Hemoglobin traits including alpha and beta thalassemia, sickle cell, Hemoglobin E, transient erythropenia of childhood)	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK, ICS, PC
Goal 4. Understand the general pediatrician's role in the diagnosis and management of patients with sickle cell disease.			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Explain the findings on clinical history, examination, and laboratory tests (including newborn screening) that suggest a diagnosis of sickle cell disease.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK

Compare and contrast the different sickle cell syndromes, including presentation, treatment and complications. These syndromes include sickle cell anemia, hemoglobin SC, and hemoglobin S beta thalassemia.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Discuss the common complications seen in a child with sickle cell disease. These include: hemolysis, hand-foot syndrome, anemia, aplastic crises, bone infarction, stroke, skin ulcers, pain episodes, priapism, sepsis and infections, cholelithiasis, chest syndrome, retinopathy, renal failure, and sequestration crises.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Outline the management of a patient who presents with a sickle crisis. These should include discussion and proper use of IV fluids, analgesics, antibiotics, oxygen, blood transfusions, and indications for hydroxyurea and stem cell transplant.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Develop a preventive care plan for a patient with a sickle disease. These should include use of folate, prophylactic antibiotics, immunizations, prompt evaluation of febrile episodes and stroke screening.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Identify the indicators for a hematology referral in a child with sickle cell disease.			
Goal 5. General evaluation and approach to thrombocytopenia.			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Generate a differential diagnosis and initial work-up for thrombocytopenia in newborn	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Generate a differential diagnosis and initial work-up for thrombocytopenia in a child less than 10 years of age.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Generate a differential diagnosis and initial work-up for thrombocytopenia in an adolescent.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Generate a differential diagnosis for patients with petechiae in the setting of normal platelets.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Diagnose and manage patients with ITP; state indications for subspecialist consultation for ITP as well as other cases of thrombocytopenia.			
Goal 6. General evaluation and approach to neutropenia			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Obtain pertinent history in individual presenting with neutropenia.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK, ICS, PC

Generate differential diagnosis and initial work-up for congenital neutropenia.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Generate differential diagnosis and initial work-up for acquired neutropenia.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Outline medical issues surrounding fever and neutropenia.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Goal 7. General evaluation and approach to thrombophilia			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Obtain pertinent history in individual presenting with thrombosis.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC, ICS
Describe the physical findings that differentiate arterial versus venous thrombosis.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
Explain the work-up for inherited thrombophilias.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Describe treatment approach for venous thrombosis.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Goal 8. General evaluation and approach to coagulopathy.			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Obtain pertinent history in individual presenting with coagulopathy.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK, PC
Recognize physical exam findings associated with primary versus secondary hemostasis (define wet bleeding).	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Describe laboratory work-up for patient presenting with coagulopathy.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Generate a differential diagnosis for acquired coagulopathies.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Generate a differential diagnosis for inherited coagulopathies.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Identify, explain, initially manage and seek consultation for major complications of inherited bleeding disorders.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK, PC
Goal 9. Understand indications for and complications related to use of blood products.			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Explain the appropriate indications for and potential risks of various blood products (e.g., red blood cell products, platelet concentrates, coagulation factors).	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK

Describe alternatives to blood transfusions. These should include: erythropoietin, GCSF, and other cytokines.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Describe the indications for leukofiltration, irradiation of blood products, and use of CMV negative blood products.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK
Summarize the signs and symptoms of a transfusion reaction. Develop an effective treatment plan to manage a transfusion reaction.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	MK,PC
Goal 10. Consultant's role. Function as a consultant to other physicians.			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Discuss these key issues for pediatric consultants: legal responsibilities, ethics, billing and cost of care, record keeping, and communication.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	SBP
Clarify the role expected of you as inpatient or outpatient consultant (advice, coordination of services, co-management, or transfer of responsibility/service) with both the referring physician and the patient/family.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	SBP
In interactions as a consultant, demonstrate sensitivity and respect for the knowledge and skill differences among pediatricians and other professionals involved in health and related services for children.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC SBP
Demonstrate respect for and commitment to the pre-existing relationship between a referring physician and the patient/family, providing expertise without undermining the role of the primary care provider who offers the medical home for that patient.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
Communicate clearly with a referring provider in written, electronic or oral form, clearly answering the questions to be answered and, when possible, the rationale for your response.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
During consultations, educate other health professionals on issues important to the care of the pediatric patients.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	SBP
Educate the patient or family regarding issues of patient evaluation, diagnosis and management.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC

Demonstrate judicious use of further referrals, evaluation and testing.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
As a consultant, demonstrate awareness of issues related to cost, billing, and referral authorization.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	SBP
Describe the legal and ethical responsibilities of the primary care or referring physician in the context of consultation.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	SBP
Describe the pitfalls of the "curbside" or informal consultation.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	SBP
Goal 11. Provide exemplary patient care while under the direction of a Hematologist.			
Resident Objectives:	Instructional Strategies	Assessment	ACGME Competency Goals
Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).	Direct patient care Clinical case studies	Direct observation Case discussion Medhub Evaluation	PC
In cases of serious or life-threatening disease, counsel the patient's families with sensitivity to their desire to need to know about: <ul style="list-style-type: none"> 1. Prognosis and possible impact of disease 2. Likely steps in immediate and future treatment 3. Decisions about treatment options which they may face 	Direct patient care	Direct observation Case discussion Medhub Evaluation	MK, ICS, PC

4. Support services that they may seek in the hospital and community.			
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PBLI = practice based learning and improvement

ICS = interpersonal and communication skills

P= professionalism

MK= medical knowledge

PC= patient care

SBP = systems based practice

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