

PED 7160 Pediatric Hematology/Oncology

Syllabus

Contact Information

Name	Position	Phone/Pager	email
William Thomsen, MD	Course Director	801-662-4700	William.Thomsen@hsc.utah.edu
Sierra Arroyo & Rebeca Araya	Dept Contact	801-662-4779	Sierra.Arroyo@hsc.utah.edu & Rebeca.Araya@hsc.utah.edu
Tiffany Passow	Course Coordinator	801-662-5705	Ped.Education@hsc.utah.edu

Course Information

Brief Description of Course

Welcome to pediatric hematology and oncology! This rotation is an opportunity to see and learn about the wide variety of hematologic and oncologic problems. You'll split time between our outpatient hematology clinic and our outpatient oncology clinic.

In the hematology clinic, you'll see many common benign hematology problems including hemophilia, anemia, ITP/thrombocytopenia, hemoglobinopathies and neutropenia. Since most of these patients rarely get admitted to the hospital, this is a great opportunity to see many common problems that occur in general pediatrics. In the oncology clinic, you can expect to see children presenting for consult with concerns of malignancy, children for follow up after completing cancer therapy and children receiving outpatient chemotherapy since treatment for many common childhood malignancies such as acute lymphoblastic leukemia is almost entirely outpatient.

We also routinely do lumbar punctures for intrathecal chemotherapy and bone marrow aspirates and will try to arrange time for you to observe or perform these procedures.

Course Goals

As a result of successfully completing this course, students will be able to:

Required Objectives:

- Understand the role of the pediatrician in preventing some of the acquired hematological disorders, and in counseling and screening individuals at risk for hematological and oncologic diseases.
 - Provide routine preventive counseling about hematology to all patients and families.
 - Provide preventive counseling to parents and patients with specific hematology/oncology conditions.
 - Provide regular hematology/oncology screening for patients.
- Distinguish normal from pathologic states of the hematological and lymphatic systems.
 - Describe the developmental changes in the hematological indices of the normal infant and child at various ages and point out the difference from the values in adults.
 - Explain the findings on clinical history and examination that suggest a hematologic or oncologic disease that requires further evaluation and treatment.
 - Interpret clinical and laboratory tests to identify hematologic or oncologic disease.
 - Explain indications for central venous access and arterial access.
 - Explain the findings on peripheral blood film examination in various disease processes, involving any of the three cell elements in the blood (the RBC, WBC, and platelets).
 - Explain the interpretation of a bone marrow aspirate in health and common disease of childhood and the difference from adult's normal bone marrow.
- Evaluate, treat, and/or refer patients with presenting signs and symptoms that may indicate a hematologic or oncologic disease process.
 - Develop a strategy to determine if the presenting signs and symptoms are caused by a hematology/oncology disease process and determine if the patient needs treatment or referral

- Presenting signs may include: Fatigue/malaise, Fever, Bruising/bleeding, Headache, Limb pain/limp, weight loss, Seizure, Lymphadenopathy, Hepatomegaly and/or splenomegaly, Abdominal pain, Vomiting, Dizziness and gait disturbances, Nevi manifestation and others.
4. Diagnose and manage patients with hematological disorders that generally do not need referral.
 - Diagnose, explain, and manage appropriate hematologic or oncologic conditions:
 - Iron deficiency
 - Sickle cell/Hgbs, Hb, C, E, D, E or other rare abnormal hemoglobins.
 - Imbalance of globin chains such as alpha and beta thalassemia, traits, intermedia or major.
 - Transient erythrocytopenia of childhood (TIC)
 - Minor, common reactions to blood transfusions
 - Benign bone cyst
 - Un-complicated Idiopathic thrombocytopenic purpura (ITP)
 5. Diagnose and initiate management of patients with hematological or oncological disorders that generally need referrals.
 - Identify, explain, initially manage, and seek consultation or refer appropriate hematology/oncology conditions, such as:
 - Anemia (exclusive of common iron deficiency or transient erythropenia)
 - Abnormal bruising or bleeding (inherited and acquired)
 - Major complications of inherited bleeding disorders
 - Hemoglobinopathies (sickle cell and other sickling disorders), including severe pain crisis, fever, stroke, sequestration, and aplastic crises.
 - Urgent conditions in children under treatment for cancer, including fever and neutropenia, chicken pox exposure or illness, bleeding.
 - Neutropenia
 - Thrombocytopenia including ITP, TTP, HUS and others.
 - Hemolytic disease of the newborn caused by various etiologies; blood groups incompatibilities, inherited hemolytic anemia due to membrane defects or enzymopathy, sepsis, and others.
 - Neonatal hemolytic jaundice and other hematological disorders in the neonate
 - Abdominal masses
 - Mediastinal masses
 - Lytic bone lesions
 - Suspected or confirmed CNS tumor.
 - Conditions that might predispose to malignancy (e.g., neurofibromatosis, Bloom syndrome (retinoblastoma), Down's syndrome, McCune Albright, and familial cancer)
 - Coagulation disorders and suspected venous thrombotic events (VTE)
 - In cases of serious or life-threatening disease, counsel the patient's families with sensitivity to their desire and need to know.
 - Identify the role and general scope of practice of hematology/oncology; recognize situations where children benefit from the skills of specialists trained in the care of children.
 6. Summarize the common stages, presenting signs and symptoms, diagnostic procedures, principles of current therapy, prognosis, and long-term complications (due to disease or treatment) for common malignancies and conditions.
 - Compare and contrast the common acute side effects of frequently used chemotherapeutic drugs.
 - Be familiar with adjunctive medications that increase patients' tolerance of chemotherapy such as granulocytes colony, stimulating factor (G-CSF)
 - Discuss the common late complications of childhood cancer treatment that may present in childhood or adolescence and be familiar with the availability of late-effect clinic for follow-up of such patients.
 7. Discuss the appropriate methods of diagnosis and management of a patient with iron deficiency disorder.
 - Describe the normal requirements, absorption, and metabolism of iron from birth through adolescence.
 - Identify the common causes and features of iron deficiency (including anemia) in all age groups and compare and contrast with anemia caused by chronic inflammation.
 - Describe the diagnosis and treatment of iron deficiency and discuss the follow-up necessary to assure success in treatment.
 - Develop a treatment and education plan for managing iron deficiency. This should include dietary management, replacement therapy, parent education, and follow-up.

8. Understand indications for and complications related to the use of blood products.
 - Explain the appropriate indications for and potential risks of various blood products
 - Describe alternatives to blood transfusions
 - Describe the indications for leukofiltration, irradiation of blood products, and use of CMV negative blood products in immunocompromised patients.
 - Summarize the signs and symptoms of a transfusion reaction. Develop an effective treatment plan to manage a transfusion reaction.
 - Be familiar with the comprehensive type and crossmatch for patients who are expected to receive blood transfusions for a long period of time.

9. Understand the general pediatrician's role in the diagnosis and management of patients with sickle cell disease.
 - Explain the findings on clinical history, examination, and laboratory tests that suggest a diagnosis of sickle cell disease or one of its complications, starting with interpretation of results of cord blood screen.
 - Compare and contrast the different sickle cell syndromes.
 - Discuss the common complications seen in a child with sickle cell disease.
 - Outline the management of a patient who presents with a sickle crisis.
 - Develop a preventive care plan for a patient with a sickle disease.
 - Identify the indicators for a hematology referral in a child with sickle cell disease.

10. Technical diagnostic and therapeutic procedures.
 - Describe common tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.
 - Bone marrow: aspiration/biopsy
 - Central line: use/care
 - Lumbar puncture
 - Medication delivery: IV
 - Blood smear
 - to distinguish abnormalities of red blood cell, white blood cell morphology and platelet number and morphology.
 - to identify hypochromasia, polychromasia, spherocytes, schistocytes, fragmented RBCs, polychromatophilic cells, nucleated RBCs, sickle cells, atypical lymphocytes, and blast cells
 - Coombs test, direct and indirect.
 - Osmotic fragility, interpretation, and indications. EMA / Eosin-5 maleimide binding tests, a flow detecting band 3 mutations with very high specificity for the identifying of patients with hereditary spherocytosis (HS).
 - Iron studies including; TIBC, serum Fe, and saturation, serum ferritin, and soluble transferrin receptors (sTfR)
 - free erythrocyte protoporphyrin/FEP
 - fibrin degradation products
 - hemoglobin evaluation, including Hgb. A and F levels.
 - Coagulation studies: PT, PTT, PFA-100, fibrinogen, and mixing studies
 - VonWillebrand panel and multimers for patients with suggestive symptoms
 - individual factors assays including FVIII and FIX in the diagnosis of Hemophilia A&B
 - Interpretation of Thrombophilia work up including inherited risk factors for thrombosis such as factor V Leiden (FVL), prthrombin gene mutation(G20210A) and hyper-cysteinemia, or the various acquired causes of thrombosis.
 - Radiologic interpretations: abdominal ultrasound, abdominal X-ray, chest X-ray, CT of head, extremity X-ray, MRI of head, renal ultrasound, renogram and PET scans.

Course Format & Schedule

Timeline

Typical Schedule

Clinic typically starts between 8:00AM to 8:30AM. You'll receive a schedule of where and when to report prior to your first day. Our clinics are located on the 4th floor of the main hospital directly next to the north elevators. We typically see patients until 4:00-5:00PM.

Every day we have 5-6 different providers actively seeing patients. You will receive a schedule with different providers to work with every day in clinic. The goal of this is to identify one provider everyday who can route you to interesting patients and be a resource to help navigate our busy clinic.

Tips for Seeing Patients and Success in Clinic

- Most of our patients will have been in our clinic many times before but don't be intimidated. Most families are happy to share their child's story
- In preparing for an encounter, we recommend reviewing the chart and then discussing with your preceptor the best plan for seeing the patient. In some cases, you'll see patients independently and present to your preceptor. In others it might be best to see the patient with your preceptor.
- Update your Epic as soon as you get to clinic using the tips below to access the schedule for our providers
- Please offer to write a note on the patient particularly if you're seeing them independently
- We encourage you to take part in some of our multidisciplinary meetings during the week. Its great insight into how our team works together to take care of patients. We will try to provide you with updated links and a list of locations prior to your week but please ask if you don't get one.

Conference Schedules

	Monday	Tuesday	Wednesday	Thursday	Friday
7:30 AM		Sarcoma Rounds* Grandeur Peak CR Eccles			Tumor Board (1 st week) 3rd Floor Auditorium
					Heme Path (2 nd week) PCH Pathology Conference Room
					Journal Club (4 th week) Heme-Onc CR
8:00 AM		Neuro-Onc Planning Conference (Virtual)		Grand Rounds PCH Auditorium	Neuro-Onc tumor board (3 rd week) Maple Canyon CR
1:00 PM		Heme/Onc Weekly Conference (Heme- Onc CR)			
4:00 PM			Leukemia/Lymphoma Conference (3 rd floor auditorium)		

*All meetings are available virtually right now. Ask other team members to share links and information to join in.

Clinic Epic Tips

If you log into CPH HEMONCBMT CLINIC as your context you will have access to our full schedule and desired note tools. On the clinic schedule tab, select the department as CPH HEMONCBMT CLINIC as well.

Select the ONC Clinic note type for most of your notes and be sure to select from the problem list to address during your visit.

The screenshot shows a medical scheduling interface. At the top, there's a navigation bar with options like 'Open Slots', 'Chart', 'Show Orders', 'Sign Encounter', 'Appointments', 'Change Prov', 'No Show', 'Imm Clinic', 'Room', 'Location Management', and 'Privacy View'. Below this is a calendar for 'Sep 20, 2025' with a grid showing days from Sunday to Saturday. The date '20' is highlighted. To the right of the calendar is a header for 'CPH HEMONCBMT CLINIC (All Providers)' with a 'Filter by Status' dropdown and 'Showing: 0 of 0'. Below the header is a table with columns: 'C...', 'Ex...', 'Travel Advisory', 'Research Status', 'P...', 'Time', 'Pt Name', 'Age/Gender', and 'Ty'. On the left side, there's a sidebar with a search bar and a list of providers under the heading 'My Schedule'. The list includes 'CLINIC INFUSION', 'CPC', 'Hem-Onc Clinic Tracking Board', 'THOMSEN, WILLIAM C', and 'CPH HEMONCBMT CLINIC'. Under 'CPH HEMONCBMT CLINIC', there's a list of names: Thomsen, William Christopher; CPH BMF CLINIC; CPH BMT NO MD; CPH MEDONC/HEM/BMT RESOURCE; Chan, Priya; Cho, Soohye; Delimundo Roura, Candelaria; Dietz, Matthew S.; Dolan, J. Gregory; Dryden, Sara M.; Fair, Douglas B.; Ford, James B.; Ghosh, Taumoha; Goleti, Sasidhar; Heneghan, Mallorie B.; Johnson, Amanda K.; and Kluver, Jacob S.

The screenshot shows a 'Notes' section in a medical software interface. At the top, there's a yellow banner with the text: 'The patient has not yet arrived. If you need your normal tools, click Start the Visit.' and a 'Start the Visit' button. Below this are three sections for different types of notes: 'Progress Notes', 'H & P Notes', and 'Therapy Notes'. Each section has a 'Create Note' button and a list of note types: 'LLNOTE 1', 'ONC Clinic 2', 'BMT Clinic 3', 'IMM Clinic 4', 'ONC Sur Clinic 5', 'Fer OP Consult 6', 'Sur OP EOT Consult 7', 'ONC OP HP 8', and 'BMT OP HP 9'. Each section also has a 'Notes Activity' button. The text 'No notes filed on this encounter.' is displayed below each section.

Educational and Instructional Modalities

Role of the Student in this Course

Objectives and Aims: Student Performance

Student Activities

- Student will see all new hematology referrals while on rotation and will examine their blood smear when appropriate.
- Students will be involved in new oncology consults when appropriate or educationally beneficial
- Student will see inpatients that arise from new or educationally interesting admissions or consults.
- Student will attend individual lecture and discussion sections

Student Responsibilities

- Student is responsible for reading on assigned topics

Attending Responsibilities

- Attendings and fellows are expected to provide reading assignments to students that meet specific objectives
- Examine the blood films of the patients being seen in consultation with the student

Objectives and Aims: Learning of Core Competencies

Patient Care

- Use logical and appropriate approach to care
- Describe general indications for subspecialty procedures and interpret results for families

Medical Knowledge

- Acquire, interpret, and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.
- Critically evaluate medical information and scientific evidence related to this subspecialty area

Interpersonal Skills and Communication

- Provide effective patients education
- 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
- Maintain accurate medical records

Practice-based Learning and Improvement

- Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to individual patients.
- Identify personal learning needs related to this subspecialty

Professionalism

- Demonstrate personal accountability to the well-being of patients
- Demonstrate a commitment to carrying out professional responsibilities.
- Adhere to ethical and legal principles and be sensitive to the diversity

Systems-based Practice

- Identify key aspects of health care systems as they apply to specialty care.
- Demonstrate sensitivity to the costs of clinical care in this subspecialty setting.
- Recognize and advocate for families who need assistance to deal with system complexities.
- Recognize one's limits and those of the system; take steps to avoid medical errors.

Required Textbook(s)/Readings

None but the hematology-oncology Canvas page has a wide variety of review articles on common hematology and oncology topics. We encourage you to read about interesting patients in advance.

<https://utah.instructure.com/courses/8978>

Additional Resources

Pediatric Hematology-Oncology Syllabus of selected articles: Available in ICS inpatient work/conference room, heme-onc office conference room and outpatient clinic. Double headed microscopes which are available in the clinic area.

www.curesearch.org

Assessment & Grading

Preceptor Evaluations

Assessments –

Assessment/Assignment	Due Date	Weight towards Final Grade
Preceptor Evaluations		100%

Grading System

Students will receive a final letter grade of PASS (P), or FAIL (F) for this course.

PASS: A student who achieves the criteria will be assigned a grade of PASS for the course.

FAIL: A student who fails to achieve the criteria for PASS will be assigned a grade of FAIL for the course.

Student Feedback

Providing feedback is an important aspect of our professionalism expectations and helps with curriculum quality improvement. For each clinical course in Phases 3-4 you must complete an end-of-course survey and individual surveys of clinical faculty and residents by the due date to demonstrate reliability for the professionalism competency. Required surveys are administered online through Qualtrics and student responses are anonymous. Please refer to the resource section of the course canvas page for student feedback survey due dates.

MD PROGRAM POLICIES, PROCEDURES, AND RESOURCES

Updated policies and procedures related to attendance, assessment, promotion, advancement, and graduation, as well as resources available through the MD program can be viewed at: <https://utah.instructure.com/courses/1037043>

Alternate Name and/or Personal Pronoun

Class rosters are provided to the instructor with the student's legal name as well as 'Preferred' first name (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, we will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise us of any name or pronoun changes (and please update CIS) so we can help create a learning environment in which you, your name, and your pronoun will be respected.

Center for Disability & Access Services

The School of Medicine seeks to provide equal access to its programs, services and activities for all medical students. The Center for Disability and Access (CDA) provides accommodations and support for the educational development of medical students with disabilities. Medical students with a documented disability, and students seeking to establish the existence of a disability, that would like to request accommodations are required to meet with the CDA to establish accommodations. The CDA will work closely with eligible students and the Academic Success Program to make arrangements for approved accommodations. The School of Medicine and CDA maintain a collegial, cooperative, and collaborative relationship to ensure compliance with federal and state regulations for students with disabilities.

Steven Baumann EdD, School of Medicine Senior Director of Academic Success Program, serves as the liaison between the School Of Medicine and the CDA.

Contact Information:

Dr. Steven Baumann, Senior Director of Academic Success Program

Safety Statement

The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.