



Division of Hematology and Hematologic Malignancies

Adult Hematology Residency Training Program

Goals & Objectives **Pediatric Hematology**

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Adult Hematology Residency Training Program Pediatric Hematology Rotation

The specialist in adult hematology must have adequate exposure to lifelong hematological disorders including malignancy and its complications that initially present in infancy and childhood, and disorders that may present in the young adult. This is a mandatory four week block rotation, with three weeks in the benign clinics and one week of oncology clinics.

Resident Responsibilities

- The resident is expected to function in a junior consultant/trainee capacity with the pediatric hematology and oncology teams at the Alberta Children's Hospital in this consultative ambulatory rotation.
 - participate in primary assessment and evaluation of ambulatory and inpatient pediatric heme and oncology patients
- **Please ask to meet with your preceptor weekly to ensure you are covering all topics in the goals and objectives.**
- Participate in all educational and teaching sessions provided during the rotation.
- Residents are NOT expected to provide on call duties to the pediatric hematology oncology service after hours and are NOT expected to provide primary ward based care for patients on the pediatric oncology inpatient service.
- Residents will continue to provide after hours on call coverage to the adult hematology service at the Foothills Medical Centre during their pediatric hematology rotation
- If pediatric hematology is held in the R4 year, the longitudinal fellows clinic will be **cancelled** during this rotation. Please ensure Anne Merzetti is aware you are not present.

Preceptor responsibilities

- Direct supervision of resident based patient care. The preceptor should gauge the level of competence of the resident and allow graduated responsibility for care and graduated degree of direct supervision of clinical decision making on a day to day basis.

- Faculty are required to round regularly on inpatients with the resident, and provide support and be readily available for urgent matters
- Direct patient care coverage to allow the resident to attend to their educational and outpatient clinic responsibilities.
- Resident teaching and direct observation of resident performance in the form of bedside clinical rounds, consultation review and case discussion.
- Verbal and written feedback on resident performance.
- Opportunities for Clinic and Consultation attendance will be coordinated by the rotation coordinator and will include attendance in the following clinics: (see schedule at the end of this document):
 - Pediatric benign hematology clinics
 - General hematology clinics, full day of thrombosis clinics once monthly, pediatric hemophilia clinic q2 weeks, immunodeficiency clinics, hemoglobinopathy clinics
 - Pediatric oncology clinics
 - General oncology, leukemia treatment clinics, long term followup clinics including hematopoietic stem cell transplant patients incorporated into clinics
 - Consultation services to peds emergency, inpatient and neonatal units

Location

Alberta Children's Hospital

Coordinator

Dr. MacGregor Steele

Preceptors

Drs. MacGregor Steele, Nicola Wright, Michael Leaker, Ron Anderson, Doug Strother, Victor Lewis, Greg Guilcher, Tony Truong, Doan Le, Lucie Lafay-Cousins

Objectives

MEDICAL EXPERT

1. The resident will demonstrate clinical and laboratory knowledge (including familiarity with blood and marrow morphology and ancillary laboratory testing) and evidenced-based approaches to the investigation and management of children with the following problems:
 - a. Congenital and acquired marrow failure syndromes
 - b. Anemias – congenital and acquired in pediatric patients
 - c. Hemoglobinopathies and thalassemias
 - d. Thrombocytopenia, neutropenia, lymphopenia
 - e. Immunodeficiency and granulocyte dysfunction
 - f. Hemophilias and von Willebrands disease
 - g. Platelet dysfunction disorders
 - h. Venous and arterial thrombotic disorders (acquired and genetic)
 - i. Acute lymphoblastic and myeloid leukemia
 - j. Nonhodgkins and Hodgkins lymphomas
 - k. Myeloproliferative disorders of childhood including JMML
 - l. Be able to review the short and long-term side effects and risks of chemotherapeutic agents and radiation therapy in children
 - m. Transition of adolescents with chronic hematologic disease to adult care clinics

2. Be able to review the morphologic and laboratory normal developmental differences in fetal, neonatal and pediatric blood parameters as compared to adults. Important specific areas to be included are:
 - a. Developmental hematology in the fetus
 - b. Bilirubin metabolism
 - c. Consequences of maternal-fetal incompatibility
 - d. Pathophysiology of hemostasis in the newborn
 - e. Transfusion practice in the newborn
 - f. Neonatal thrombocytopenia

3. Demonstrate; the ability to assess and investigate and manage pediatric patients with hematologic disorders in a manner appropriate to the patients age.
 - a. Establish a professional relationship and interact with infants, children and adolescents and their care givers to obtain a relevant history and physical examination.
 - b. Be able to discuss bad news and informed consent with parents or alternate caregivers
 - c. Understand and respond appropriately to the biomedical ethics involved in the investigation and care of children with hematologic disorders, including appropriate decision making and management

issues of patients whose families hold beliefs that preclude the use of “standard medical treatments”

4. Be exposed to and conversant with the special issues around palliative care in pediatrics
5. Be able to discuss the risks and benefits of genetic screening in children and families for the following disorders:
 - a. Genetic thrombophilias
 - b. Hemochromatosis
 - c. Thalassemia
 - d. Sickle cell disease and other serious hemoglobinopathies

COMMUNICATOR:

The resident will demonstrate the ability to:

1. Establish effective and empathetic relationships with children, parents and alternate care givers in order to obtain relevant history and physical examination information
 - a. Demonstrate awareness and sensitivity in complex family situations and throughout stages of child development
2. Effectively communicate care plans and demonstrate shared decision making with patients and families
3. Incorporate members of the health care team as appropriate to facilitate care and effectively communicate with consultants and other team members.
4. Understand the psychosocial aspects of caring for children with life threatening and or chronic hematologic disorders, and effectively address challenging communication issues such as informed consent, delivering bad news and conflict management
5. Maintain clear accurate and appropriate patient records and effectively present verbal reports of clinical encounters and plans.

COLLABORATOR:

The resident will demonstrate the ability to:

1. Consult and collaborate with physicians and other members of the interdisciplinary pediatric healthcare team
 - a. Recognize limits of own expertise to improve patient care
2. Contribute clinically useful hematologic opinions on patients referred for consultation including ordering and arranging for specific testing, administering required therapy and conveying results to referring physicians.

MANAGER:

The resident will demonstrate the ability to:

1. Demonstrate knowledge of the definitions and role of audits, quality improvement, risk management and incident reporting in the acute care and ambulatory settings
2. Demonstrate an understanding of the cost/benefit ratios of diagnostic and therapeutic interventions and cost containment and efficacy as they relate to the qualities of justice, efficiency and effectiveness
3. Set priorities and manage time to balance patient care, practice requirements, outside activities and personal life.

HEALTH ADVOCATE:

The resident will demonstrate the ability to:

1. Identify determinants of health in pediatric patients with hematologic disorders including counseling of patients and families with genetic/inherited disorders
 - a. Identify barriers to disease prevention, health promotion and patient care.
2. Encourage the promotion of active family involvement in decision – making and continuing management of the child with hematologic disorders
3. Encourage increasing patient autonomy in care and decision making in the adolescent and gradual transition to adult hematologic chronic care paradigms
4. Mobilize resources as needed to promote disease prevention and individual patient care, as well as improve patient and family education around disease states and available supportive resources

SCHOLAR:

The resident will demonstrate the ability to:

1. Apply the principles of quality assurance to clinical care
2. Apply critical appraisal skills to the medical literature as it applies to the diagnosis, investigation and management of children with hematologic disorders
3. Integrate the best quality and most relevant evidence from medical literature into their clinical practice
4. Identify the learning needs of themselves and others (residents, students, patients and families) and demonstrate effective teaching strategies.

PROFESSIONAL:

The resident will demonstrate:

1. A commitment to their patients families, profession and society through ethical practice
2. A commitment to their patients, families , profession and society through participation in profession-led regulation
3. A commitment to physician health and sustainable practice
4. An understanding of his or her own professional and knowledge limitations and request help appropriately.
5. Understand and respond appropriately to the biomedical ethics involved in the investigation and care of children with hematologic disorders
 - a. includes appropriate decision making and management issues of patients whose families hold beliefs that preclude the use of standard medical treatments.

Rotation Overview:

Clinics

Note: Pre-Clinics start at 8:30 am; Hemoglobinopathy clinic starts at 10:30 am and Hemophilia/Bleeding Disorder clinic starts at 12:30 pm. For hematology consults, please contact the on call staff.

Rounds*

Tuesday:	4 pm Floor every 2 nd and 4 th Tuesday	Neuro Onc Tumour Board, Diagnostic Imaging, Main
Wed:	8:30 am 10:00 am	Pediatric Grand Rounds, Main Auditorium, 4 th floor. Hematology Team Conference, Conf room Heme/Onc Nursing office area, 1 st Floor (if doing hematology that day)
Thurs:	4 pm 12 noon	Tumour Board, Diagnostic Imaging Conference Room, 4 th floor. Adult Heme Rounds (FMC), 4 th floor Teleconference rm
Fri:	8 am	Research and Protocol Rounds, ACH 4 th floor conf rooms Heme/Onc Teaching Rounds, ACH 4 th floor, room B4-B011 (may change – ask).

* Please ask if any rounds are cancelled for the day/summer

Fellows/Resident:

- Attend all clinics and then contact on-service heme doc to round on inpts and see new consults
- Mon and Wed contact on-service doc to round/see consults

Presentation

- The resident/fellow is expected to do a short (20 to 30 min) on a topic of his/her choice.

- Usually presentation is scheduled for the last Wednesday of the rotation at our regular clinic meeting.
- We suggest to use a clinical case/question that you encountered during your rotation in order to make it a relevant learning point for yourself.

Sample Rotation Schedule

Week 1					
	Monday	Tuesday	Wednesday	Thursday	Friday
a.m.	Pediatric Thrombosis	Oncology Clinic	Oncology Ward Rounds	Pediatric Hematology	Oncology Clinic
p.m.	Pediatric Thrombosis	Oncology Clinic	Pediatric Bleeding Disorders	ADULT Heme Academic Half Day	Hematology Inpatient Consults

Week 2					
	Monday	Tuesday	Wednesday	Thursday	Friday
a.m.	Pediatric Hematology	Pediatric Hematology	Oncology Clinic & Procedures	Pediatric Hematology	Hematology Inpatient Consults
p.m.	Pediatric Hematology	Pediatric Hematology	Oncology Clinic	ADULT Heme Academic Half Day	Hematology Inpatient Consults

Week 3					
	Monday	Tuesday	Wednesday	Thursday	Friday
a.m.	Oncology Clinic	Pediatric Hematology	Oncology Clinic	Late Effects Clinic	Hematology Inpatient Consults
p.m.	Oncology Clinic	Pediatric Hematology	Pediatric Bleeding Disorders	ADULT Heme Academic Half Day	Hematology Inpatient Consults

Week 4					
	Monday	Tuesday	Wednesday	Thursday	Friday
a.m.	Pediatric Hematology	Pediatric Hematology	Oncology Clinic	Pediatric Hematology	Oncology Clinic
p.m.	Pediatric Hematology	Pediatric Hematology	Oncology Clinic	ADULT Heme Academic Half Day	Oncology Clinic

RESOURCES

Medical Student/Resident

History and Physical Examination

1. Physical Examination textbooks recommended by your medical school, Pediatric and Newborn sections.
2. Pediatric Clinical Skills, Richard B. Goldbloom. Easy to read, more in depth text on pediatric H and PE.

Journals

1. Journal of Pediatrics
2. Pediatrics
3. Pediatrics in Review review journal that is excellent for any level of student

General Texts

1. **Essential Haematology**, Victor Hoffbrand. This is the text used during the BLOOD section at U of C medical school.
2. **Hematology/Oncology** chapters in any general Pediatric Textbook such as Nelson's or Oski's. Many large texts also have mini/condensed texts: I particularly like Rudolph's Fundamentals of Pediatrics which has nice algorithms for common pediatric problems.

Hematology/Oncology Texts

1. **Pediatric Hematology** –ed. Arceci, Hann and Smith. 3rd edition. Helpful clinically oriented book, British and Canadian contributors.
2. **Nathan and Oski's Hematology of Infancy and Childhood**. Orkin, Fisher, Look, et al. 7th edition. Encyclopedic text by American authors from Boston Childrens Hospital.
3. **Principles and Practice of Pediatric Oncology**. Pizzo and Poplack. 5th edition. Great textbook for breadth of pediatric oncology.
4. **Wintrobe's Clinical Hematology**. Encyclopedic general hematology text.
5. **Hematology: Basic Principles and Practice**. Hoffman. Encyclopedic general hematology text.

Websites

1. **U of C Health Science Library E-books section**: A large variety of pediatric texts.
 1. <http://library.ucalgary.ca/hsl/>
2. **Calgary Health Region Library and Pharmacy einks**: Access to journals and some texts.
 1. Pharmacy. <http://insite.albertahealthservices.ca/1276.asp>
 2. Knowledge resource service. <http://krs.libguides.com/home>

Other Websites of Interest

1. National Cancer Institute: <http://www.cancer.gov/cancertopics/pdq>

2. St Jude Oncopedia: <https://www.cure4kids.org/ums/home/portal/>
3. Practical Haemostasis: <http://www.practical-haemostasis.com/index.html>