



*Department of Pathology and Laboratory Medicine
Division of Hematology and Transfusion Medicine*

Transfusion Medicine Residency Training Program

ADVANCED TRANSFUSION MEDICINE

Goals & Objectives

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GOALS AND OBJECTIVES

The goal of the Transfusion Medicine rotation is to provide fellows residents with the knowledge and skill, within a comprehensive training experience, to understand the performance and interpretation of serologic testing as well as product manipulation and provision. The rotation focus is on the effective allocation of resources to provide optimal patient care through safe, appropriate transfusion therapy.

The rotation is divided into core training and enhanced training. The core session is suitable as a two week elective, morning only for residents from a wide range of medical fields. The enhanced session, of an additional two weeks, is designed for Hematology Fellows or other Fellows requiring extensive knowledge of Transfusion Medicine. An advanced session of one week is available specifically for Hematology Fellows. The enhanced and advanced sessions are scheduled for the entire day; however the participant's availability may be limited by clinical demands.

Core Training/ Initial knowledge assessment quiz

- Blood Products/ knowledge assessment quiz
- Basic Serology/ General Transfusion Practices / knowledge assessment quiz

Enhanced Training

- Advanced Serology/ Detailed Transfusion Practices/ knowledge assessment quiz
- Administrative Topics/ Cellular Therapy Lab/ knowledge assessment quiz

Advanced Training

- Adverse reactions to blood products
- Transmissible diseases
- Blood component recall/ withdrawal
- Management of blood product inventory
- Specific massive transfusion situations: Exchange transfusion/ intrauterine transfusion
- Management of a transfusion service
- Current issues in Transfusion Medicine

Learning Objectives during the core session:

- Familiarity with the Calgary Laboratory Services model of service and the services offered
- Understanding of blood components and clinical indications
- Understanding of plasma protein products and clinical indications
- Understanding of coagulation factor concentrates and clinical indications
- Knowledge of collection, testing and storage of blood donations by Canadian Blood Service
- Understanding of 'vein to vein' philosophy in transfusion medicine
- Understanding the Regional transfusion medicine policies and procedures
- Knowledge of the principles of serologic testing and interpretation
- Knowledge of the principles of fetal maternal investigation and haemolytic disease of the newborn
- Understanding the alternatives to homologous blood
- Understanding the mechanisms of adverse reactions and clinical interventions
- Knowledge of ethical and legal issues
- Knowledge of the quality systems in the transfusion medicine setting
- Knowledge of the activities of the transfusion safety office

Learning Objectives during the enhanced session:

- Knowledge and application of the policies of Calgary Laboratory Services, Transfusion Medicine
- Understanding the policies and practices for transfusion support of patients with special transfusion requirements
- Knowledge of the blood groups systems
- Knowledge of red cell antigen/ antibody reactions
- Understanding advanced serologic testing and interpretation
- Knowledge of other testing performed in transfusion medicine
- Knowledge of automated testing
- Introduction to the basics of apheresis/ tissue typing and molecular Hematology as applied to Hematopoietic progenitor cell transplantation
- Introduction to the Hematopoietic progenitor cell processing laboratory
- A daily 'clinical' consultation will be required – provided as a case study if clinical situation not available

Learning Objectives during the advanced session:

- Advanced knowledge of transfusion reactions: identification, management and laboratory investigation
- Advanced knowledge of adverse reactions following transfusion of both components and plasma protein products
- Understand the blood component recall/ withdrawal process
- Knowledge of the management of the transfusion medicine department
- Knowledge of the current issues in the field of transfusion medicine
- Knowledge of clinical studies in which a transfusion service participates
- Understanding of the management of the blood product inventory during inventory shortages
- Advanced knowledge transfusion support for the management of hemolytic disease of the newborn.
- A daily 'clinical' consultation will be required – provided as a case study if clinical situation not available

Teaching sessions, including tour of Canadian Blood Services, Calgary Centre, are informal presentations within the laboratory and are conducted by senior technologists or designate. Appropriate footwear (closed heel and toe) and clothing must be worn. Other personal protective equipment (gowns, gloves) must be worn as required.

Formal clinical discussions with laboratory physicians or clinicians, as well as other non-technical topics, are arranged in the office setting. Travel between lab facilities is required and rotation schedules will be adjusted to accommodate the operation of the department.

Please contact the person indicated under "Assigned to ", if unable to attend a scheduled session during the rotation. Punctuality is expected.

Evaluations will be conducted in short quiz format. Base knowledge will be assessed and learning will be periodically evaluated during the rotation.

Final evaluation will include a compilation of comments from staff involved in the rotation. An evaluation of the rotation will be completed by each resident/ fellow and returned to the Transfusion Medicine Department Head.

Anaesthesia residents will present a short informal session the Transfusion Medicine staff regarding some aspect of that field of medicine.

Clinical Hematology Fellows/ Pediatric Oncologists will be required to propose a research question relevant to Transfusion Medicine. This proposal will be presented in a short informal session to the Transfusion Medicine at the end of the rotation.

At the completion of training, the participant will have acquired the following competencies and will function effectively in the following CanMEDS roles:

Medical expert/ Clinical decision-maker

- Demonstrate knowledge of the indications for blood component/ product therapy, alternatives to blood products and adverse reactions associated with transfusion
- Demonstrate understanding of antibody investigations, interpretation of test results and selection of blood components
- Demonstrate awareness of the regulations and standards that govern the field of transfusion medicine in Canada and other countries

Communicator

- Communicate effectively with medical colleagues, nursing personnel and patients regarding all aspects of transfusion medicine
- Assist in the continuing education of physicians and other members of the health care team with regards to the safety of the blood system and appropriate utilization of blood products.
- Establish effective working relationships with consulting physicians
- Be able to effectively discuss the appropriate transfusion support for optimal patient care

Collaborator

- Effectively participate as a member of the multi-disciplinary team to provide optimal patient care requiring transfusion therapy
- Act as a liaison between the transfusion service, the clinical departments and the blood collection agency

Manager

- Demonstrate understanding of the principles of laboratory management and administration as applied to a hospital transfusion service
- Demonstrate knowledge of policies for the effective and safe operation of the transfusion service
- Demonstrate knowledge of the application of quality systems with the laboratory
- Understand the importance of utilization reviews and audits

Health Advocate

- Educate the public and colleagues regarding the need for blood donors
- Advocate for appropriate utilization of blood products and alternatives
- Demonstrate knowledge of the alternatives to transfusion in order to make recommendations to clinical colleagues and patients
- Recognize the importance of informed consent and patient notification and advocate for compliance with clinical colleagues

Scholar

- Act as a educational resource to other health care professionals and patients
- Facilitate the learning of residents, students and allied health care professionals

Professional

- Consider all requests for blood products in an ethical and consistent manner
- Exhibit exemplary professional behaviour during interactions with patients, medical colleagues and allied health care professionals
- Follow up occurrences/ adverse reactions in a manner that is consistent and non-accusatory with a purpose of fact-finding and process improvement

Reference material available from Transfusion Medicine:

- bloody easy 2 (on-line learning module available)
- CBS Clinical Guide to Transfusion
- CBS Circular of Information
- CBS Buffy coat Production Method – Circular of Information
- Copy of Guide to Transfusion as found in CLS Guide to Services
- CHR Regional Nursing Policy and Procedure Manual
- CLS Transfusion Medicine Operational Policy Binder
- Current Journals:
 - Transfusion (aabb)
 - Vox Sanguinis, The International Journal of Transfusion Medicine
- In-house Presentations:
 - Review of Blood Products (2008)
 - Canadian Blood Services – Plasma Protein Products (2008)
 - Inventory Management (2007)
 - IUT and Exchange transfusion (2001)
 - Neonatal transfusion and Guidelines (2008)
- DVD (or individual VHS tape)