

## Blood Banking/Transfusion Medicine Goals and Objectives

The goal of the Blood Bank/Transfusion Medicine fellowship is to provide the physician-in-training with practical knowledge of laboratory methods, clinical applications, and therapeutic options as they relate to Transfusion Medicine. This training is designed to give the fellow a foundation in the skills necessary to direct a hospital transfusion service, collection center, apheresis service, and cellular therapy laboratory.

The Accreditation Council for Graduate Medical Education has defined six areas of competency in which all fellows are to be trained and evaluated, and this competency model has been adopted at all levels of medical education, from undergraduate through licensing and credentialing.

### Professionalism

Fellows will demonstrate a commitment to professionalism and an adherence to ethical principles.

### Patient Care and Procedural Skills

Fellows will be able to provide patient care that is patient- and family-centered, compassionate, equitable, appropriate, and effective for the treatment of health problems and the promotion of health.

Fellows will demonstrate competence in and the ability to provide appropriate and effective consultation in the context of blood banking/transfusion medicine services, including:

- blood ordering, blood product indications, and transfusion practices;
- cellular therapy;
- consultation with patients and/or families on specific donation or transfusion issues (e.g., when directed donation may not be appropriate and why);
- coordinating quality and safety for donors and patients;
- donor notification, lookback, and component retrieval;
- accreditation, regulatory issues, and requirements;
- donor and therapeutic apheresis;
- educating and assuring the community and potential blood recipients of the safety of the blood supply;
- immunohematology, histocompatibility, and infectious disease testing in donor management, blood component preparation, and blood inventory management;
- perinatal, pediatric, transplantation, massive transfusion, and trauma patient care;
- management and direction of a transfusion service and blood collection facility, including quality management;
- management of patients with special transfusion requirements, such as alloimmunization, hemoglobinopathies, and single or multiple coagulation factor deficiencies;
- peri-operative blood management; and,
- Deferral criteria for potential blood and cellular therapy donors.

Fellows will be able to perform all medical, diagnostic, and surgical procedures considered essential for the area of practice.

Fellows will demonstrate competence in the management and supervision of essential procedures, including:

- blood management;
- collecting blood components, including donor apheresis;
- histocompatibility testing;
- managing adverse effects of blood donation;
- managing adverse effects of blood transfusion;
- preparing blood components;

- selecting and using specific apheresis technologies to ensure appropriate care, clinical management, and safety of patients and donors undergoing apheresis medicine therapies or blood product collection procedures;
- testing blood components;
- therapeutic phlebotomy; and,
- transfusing blood components.

Fellows should participate in performing the patient and laboratory procedures for which they will be expected to supervise ancillary staff members.

### Medical Knowledge

Fellows will demonstrate expertise in their knowledge of:

- advanced diagnostic and therapeutic techniques as they become available;
- adverse effects of blood donation;
- adverse effects of blood transfusion, including transfusion-transmitted diseases and non-infectious hazards of transfusion;
- alternatives to blood transfusion;
- coagulation (hemostasis/thrombosis);
- ethical issues;
- red blood cell, platelet, and neutrophil immunology;
- scientific basis of transfusion;
- selection and recruitment of blood donors; and,
- transplantation, including hematopoietic, and solid organ.
- New and evolving techniques such as red cell molecular testing.

### Practice-based Learning and Improvement

Fellows will demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

### Interpersonal and Communication Skills

Fellows will demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.

### Systems-based Practice

Fellows will demonstrate an awareness of and responsiveness to the larger context and system of health care, including the structural and social determinants of health, as well as the ability to call effectively on other resources to provide optimal health care.

*The goals and objectives for each of the fellow rotations are based on these competency areas. While each rotation has some specific goals and objectives, there are a large number of competencies that are COMMON TO ALL rotations. These are listed below.*

Upon completion, the Blood Bank/Transfusion Medicine fellow will be able to:

- Discuss the theory and relate the clinical application of all tests and procedures performed in the Blood Bank Laboratory, Apheresis Service, and Cellular therapy Laboratory.
- Provide expert consultative service to clinicians including but not limited to: interpretation of test results, selection of blood components, and transfusion therapy for both adult and pediatric patient populations
- Evaluate and classify adverse reactions to blood transfusions and cellular therapy product infusions
- Review and determine appropriate use of un-cross matched blood and massive transfusion protocols.
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- Relate the theory and applications of therapeutic apheresis.
- Compare and contrast allogeneic and autologous blood donation processes.
- Increase clinical experience through interactions with patients and clinical staff.
- Gain administrative experience by interacting with the Medical Directors of the clinical laboratories, blood services, and apheresis departments.
- Understand activities related to process and quality improvement, including root cause analysis, analysis of data entered in occurrence management systems, and development of corrective and preventive actions.
- Understand examples of quality metrics and benchmarks related to transfusion medicine patient populations and provision of transfusion support to these patients.
- Understand the role of the fellow in ensuring the safety and welfare of patients entrusted to their care.

### Curriculum Organization and Fellow Experiences

The curriculum will be structured to optimize fellow educational experiences, the length of the experiences, and the supervisory continuity. These educational experiences include an appropriate blend of supervised patient care responsibilities, clinical teaching, and didactic educational events.

Fellow experiences will be designed to allow appropriate faculty member supervision such that fellows progress to the performance of assigned clinical responsibilities under oversight in order to demonstrate their ability to enter the autonomous practice of blood banking/transfusion medicine prior to completion of the program.

Fellow experiences will include:

- supervision of trainees and/or laboratory personnel, and with graduated responsibility, including independent diagnoses and decision-making; and,
- educational activities specific to blood banking/transfusion medicine, review of the medical literature in the subspecialty area, and use of study sets of unusual cases.

Fellows will participate in ongoing clinical consultations regarding all aspects of blood transfusion.

Fellows will participate in the interpretation of laboratory data as part of patient care decision making and patient care consultation.

Fellows will have direct responsibility, with appropriate supervision, to make decisions in the laboratory.

The didactic curriculum will include teaching conferences in blood banking/transfusion medicine, journal clubs, and joint conferences within the Pathology Department, as well as with clinical services involved in diagnosis and management of patient care utilizing transfusion medicine.

Fellows will participate in conferences, on average, at least twice per month, and will give a minimum of five informal and formal presentations per year.

Didactic education will illustrate common and unusual cases.

Fellows should participate in laboratory quality assurance activities and inspections.

### Fellow Scholarly Activity

Each fellow will participate in scholarly activity, including at least one of the following: evidence-based presentations at journal clubs or meetings (local, regional or national); preparation and submission of articles for peer-reviewed publications; or, research.

### Rotation-Specific Goals and Objectives

Additional goals and objectives specific to particular rotations are provided to the fellow during orientation to the fellowship, and again at the beginning of each rotation. Examples of these objectives can be provided upon request during the interview process.