BLOOD BANKING

ROTATION DESCRIPTION:
The CP-Blood Module covers the disciplines of Transfusion Medicine, and is oriented toward educating residents in the diagnosis and management of blood-related disorders. In the Transfusion Medicine component, the emphasis will be placed on understanding and proper utilization of immunohematological diagnostic and compatibility testing, as well as pathogenesis, diagnosis and transfusion support of disorders and conditions commonly encountered in the Transfusion Medicine practice. Residents also acquire practical knowledge related to donor selection, collection and manufacturing, as well as apheresis collection technique during off-site training at the American Red Cross Tennessee Valley Region. Pathology Residents will report to the Director of Transfusion Medicine/Transfusion Medicine Physician on service. Residents should perform all duties and assignments during their rotation and meet all goals and objectives. Training will be accomplished through daily discussions of interesting cases and abnormal laboratory results with attending physicians, and by work with medical technologists and supervisors within the laboratory. The residents will also manage from a procedural perspective patients undergoing peripheral stem cell collection and/or photopheresis. Daily notes and patient evaluations will be carried out. Therapeutic apheresis topics will be covered predominantly by case study methodology. Additionally, the resident will be offered a short elective rotation in the Apheresis unit (Department of Nephrology).

ROTATION FACULTY:

Pampee P. Young, M.D., Ph.D, Director; Garrett S. Booth M.D., M.S., Quentin Eichbaum, M.D., Ph.D.

RESIDENTS ARE EXPECTED TO GAIN THE FOLLOWING COMPETENCIES:

PATIENT CARE

- By the end of the Program, residents will develop clinical judgment skills in Transfusion Medicine practice, gain a working knowledge of Transfusion Medicine theory, and understand the technical and clinical aspects of Transfusion Medicine procedures and Blood Bank test result interpretation.
- Residents are expected to assess risk/benefit ratio, recognize inappropriate transfusion practices and recommend appropriate therapy (including evidence based practices). They should be able to resolve problems inherent in meeting demands for blood components in routine and emergency situations.
- Residents will attend an introductory session on the first weekday of the month to review policies and procedures related to patient safety during aphaeresis procedures. Residents will be able to distinguish major reactions requiring emergency assistance from minor reactions which may be managed by the resident.
- Residents will understand the indications, risks and benefits of peripheral stem cell collection and photopheresis procedures. They will manage minor reactions and ensure that procedure is being successfully performed.
- residents will understand the indications, risks and benefits of automated red cell exchange procedures and manage the ordering of this procedure and complications during the procedure.
- residents will serve as consultants to clinical colleagues and the technical staff. By the completion of the program, residents are expected to function as junior Blood Bank Attendings under the supervision of the Director of Transfusion Medicine or Transfusion Medicine Physician.

MEDICAL KNOWLEDGE

- The resident will become sufficiently familiar with current fundamental knowledge to serve as consultant to clinical physicians and blood bank staff. Toward this end, the resident must:
  - Understand basic immunology as applicable to Transfusion Medicine: antigens, antibodies, and complement; immune reactions, involving blood cells and blood constituents, both in vivo and in vitro.
  - Be conversant with blood group serology and genetics; including red cell, leukocyte, platelet, and plasma antigens; their respective antibodies; and the serologic techniques necessary for their demonstration.
  - Be familiar with the blood donation process, including the preparation, and storage of blood cells and components and apheresis procedures.
  - Be familiar with blood component therapy; including knowledge of the coagulation mechanism, evaluation and treatment of coagulation disorders, and advantages and disadvantages of specific blood components.
• Understand the principles and practices of therapeutic apheresis procedures, including the various indications, complications, and management issues

BLOOD BANKING CONTINUED

MEDICAL KNOWLEDGE CONTINUED

• Be conversant with principles of tissue transplantation and blood transfusion; including red cell compatibility testing; histocompatibility testing; rejection phenomena; and hazards of blood transfusion, including transfusion reactions and infectious disease transmission.
• Be familiar with the clinical indications, mobilizing regimen and complications of peripheral stem cell collection
• Be familiar with the complications and indications for photopheresis

• The resident will become sufficiently skilled in blood banking techniques (donor room, compatibility testing, and antibody identification) to recognize technical limitations and pitfalls, to interpret critically the data generated by these procedures, and to assist staff in the analysis and resolution of technical problems.
• The resident will develop sufficient clinical judgment in transfusion therapy to assess its risk/benefit balance, to recognize unreasonable or inappropriate demands for blood products, and when indicated, to recommend appropriate blood or component therapy. Judgment can be developed only by dealing directly with clinical problems. Residents also must be able to resolve logistic problems inherent in meeting demands for blood and components under routine and emergency conditions.

INTERPERSONAL AND COMMUNICATION SKILLS

Demonstrate ability to:
• Interact with laboratory personnel and others.
• Participate in formal and informal medical education of medical technologists, apheresis nurses, and peers.

PROFESSIONALISM

Demonstrate ability to:
• To interact in a professional, helpful, and respectful manner with clinicians, other house staff, and technical and administrative staff.
• To work effectively and efficiently with support and administrative staff in the clinical laboratory to maximize productivity and maintain the quality of the work environment.
• To notify clinicians of abnormal results in a timely and accurate manner.
• To interact with patients
• To prepare written reports, where applicable, in an accurate and timely fashion.

SYSTEMS-BASED PRACTICE

• To understand principles of QA (quality assurance) and QC (quality control) in the laboratory, including CAP (College of American Pathologists) proficiency testing.
• To learn safety issues and regulations relevant to the laboratory.
• To understand CAP and CLIA guidelines and requirements for the laboratory.
• To understand LIS (laboratory information systems) issues relevant to the laboratory.

PRACTICE-BASED LEARNING

• To use case-based learning as a tool for developing of Transfusion Medicine-related skills.
• To locate, appraise, and assimilate pertinent evidence from scientific studies.
• To demonstrate effective problem solving skills in the diagnosis and management of diseases and conditions most commonly encountered in Transfusion Medicine practice.