

## BLOOD BANKING/TRANSFUSION MEDICINE CONTENT SPECIFICATIONS 2010

### New Validated Practical Knowledge

#### *Pre-Transfusion*

1. Donor Recruitment, Selection, Complications
  - a. automated multiple component donation, including risks, benefits, and regulations (double RBCs, double-triple platelets, combinations of multiple components)
2. Testing of Donor Units
  - a. use of multiplex PCR for NAT (West Nile Virus, Hep B, Hep C)
  - b. Chagas disease testing
  - c. bacterial contamination of platelets
  - d. donor selection and anti-leukocyte antibody testing for TRALI
  - e. parvovirus B19 (plasma derivatives)
3. Preparation, Storage, and Release of Blood Components and Derivatives  
pathogen inactivation (including general methods, strengths and weaknesses)
4. Compatibility Testing of Red Cells and Components  
molecular immunohematology, including general methods, strengths, and weaknesses

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### ***Transfusion Practices***

1. Indications for Use of Components and Derivatives
  - a. platelet transfusion trigger - physiology and goals of treatment
  - b. considerations for neutrophil/granulocyte transfusions from G-CSF and/or corticosteroid stimulated donors
  - c. use/indications for FP24 and thawed plasma
2. Special Transfusion Situations
  - a. sickle cell disease simple RBD transfusions vs exchange transfusion or erythrocytapheresis
    - alloimmunization
    - hyperhemolysis
  - b. transfusion of known incompatible blood
  - c. transfusing patients with autoimmune hemolytic anemia
  - d. massive transfusion
    - roles/timing of plasma, platelets, RBCs and non-blood fluids
  - e. guidelines for red blood cell transfusion to critically-ill patients
  - f. advances in prenatal evaluation and management of hemolytic disease of the fetus/newborn
  - g. neonatal/pediatric transfusions
3. Blood conservation by combined methodologies
  - a. pharmacologic
  - b. transfusion guidelines
  - c. coagulopathy diagnosis
  - d. autologous reinfusion
  - e. anesthesia techniques

4. Special Transfusion Considerations in Transplant Patients
  - a. effect of graft lymphocyte content on outcomes in autologous transplantation
  - b. use of C4 and fixation, Luminex-based HLA antibody testing for predicting solid organ graft rejection
  - c. use of ABO incompatible donors for renal transplantation test systems
  - d. antibody reduction methods
  - e. immune monitoring post-transplant
  - f. appropriate ABO, Rh, and HLA matching requirements for transplants
    - bone marrow
    - cord blood
    - kidney
    - liver
    - pancreas
    - heart/lung
  - g. cGMP manufacturing of cellular therapies
5. Therapeutic Apheresis and Phlebotomy
  - a. critical analysis of therapeutic hemapheresis practices - awareness of technologies and when they might be used
  - b. indications for plasma exchange & considerations for IVIG as an alternative/adjunctive therapy.

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### ***Complications of Transfusion***

1. Diagnosis and Management of Non-Infectious Complications
2. Transfusion Associated Acute Lung Injury (TRALI)
  - diagnosis
  - evaluation
  - approaches to therapy
  - risk reduction
3. Transfusion Associated Circulatory Overload (TACO)
4. Inflammatory responses to transfusion resulting in poor outcome
5. Transfusion-Transmitted Infectious Disease
  - Rates and methods of reduction for emerging infections

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### ***Tissue Banking***

1. cGTPs and implications for the tissue portion of blood banks

### ***Management***

1. Updates to AABB Standards and FDA Regulations

### **Fundamental Knowledge**

Product content and storage

Blood group antigens and their significance in transfusion medicine

Pathogen transmission by and detection in blood and plasma

Appropriate component therapy - including indications for and adverse reactions to IVIG

Perioperative blood management and transfusions for critically ill patients – techniques and clinical applications

Adverse sequelae to transfusion

Application of quality system essentials to running a blood bank/transfusion service