HEMAPHERESIS PRACTITIONER, HP(ASCP)

EXAMINATION CONTENT GUIDELINE

This document should serve as a useful guide for examination preparation. The Board of Registry criterion-referenced examinations are constructed to measure the knowledge and competencies pertinent to certification.

SKILLS RELATED TO HEMAPHERESIS PRACTICE

Knowledge
The Hemapheresis Practitioner has knowledge of the scientific principles, technical, and procedural skills and laboratory tests which relate to the field of hemapheresis. The Hemapheresis Practitioner has knowledge of management and education principles as well as the roles of other members of the health care team.

Technical Skills
The Hemapheresis Practitioner is able to perform hemapheresis operations and appropriate equipment maintenance. The Hemapheresis Practitioner has the knowledge, ability and technical skills to participate in research, develop, implement, and evaluate new and existing methodologies.

Judgment and Analytical Decision-making
The Hemapheresis Practitioner is capable of exercising independent judgment in problem solving. The Hemapheresis Practitioner is able to anticipate and respond to unique clinical situations regarding patients and/or donors. The Hemapheresis Practitioner can participate in policy decisions affecting performance or personnel.

Communication
The Hemapheresis Practitioner is able to effectively communicate in depth with other health care personnel, patients and donors concerning the policies and operation of the hemapheresis service.

Supervision and Management
The Hemapheresis Practitioner is capable of performing and directing administrative functions in the overall operation of the Hemapheresis Service. Implicit is having the management skills to supervise other hemapheresis personnel.

Teaching and Training Responsibilities
The Hemapheresis Practitioner has the ability to plan, implement, and evaluate effective educational and training programs.

THE EXAMINATION MODEL

The Board of Registry criterion-referenced examination model consists of three interrelated components:

COMPETENCY STATEMENTS describe the requisite skills and tasks performed and measured on the examination.

CONTENT OUTLINE delineates general categories or subtest areas of the examination.

TAXONOMY levels describe the cognitive skills required to answer the question.

Level 1 - Recall:	Ability to recall or recognize previously learned (memorized) knowledge ranging from specific facts to complete theories.
Level 2 - Interpretive Skills:	Ability to utilize recalled knowledge to interpret or apply verbal, numeric or visual data.
Level 3 - Problem Solving:	Ability to utilize recalled knowledge and interpretation/application of distinct criteria to resolve a problem or situation and/or make an appropriate decision.

EXAMINATION REPORTING MECHANISMS

After the examination has been administered and scored, a report is sent to the examinee. The Examinee Performance Report provides the scaled score on the total examination and pass/fail status for all candidates.

In addition, failing candidates receive scaled scores for each subtest (see content outline for subtests). This information may help the examinee identify areas of strengths and weaknesses in order to develop a study plan for future examinations. A total scaled score of 400 is required to pass the examination.

COMPETENCY STATEMENTS
HEMAPHERESIS PRACTITIONER

In regards to Hemapheresis Operations involving all aspects of donor and therapeutic procedures, the Hemapheresis Practitioner:

APPLIES KNOWLEDGE OF
- fundamental biology and physiology as they pertain to hemapheresis procedures
- laboratory testing
- management of patients and donors
- regulatory requirements
- potential complications
- theory and practice related to hemapheresis operations (management/safety/education/R&D)
- hemapheresis in order to perform procedures
- standard operating procedures

SELECTS APPROPRIATE
- course of action
- methods/solutions/donors
- instruments for established or new hemapheresis procedures
- special or additional laboratory tests
- parameters for procedures
- vascular access

PREPARES
- instruments for hemapheresis
- patient and/or donors for procedures

CALCULATES
- drug dosage
- intake and output
- appropriate physiological data
- procedural target(s)
- procedural efficiencies
- product yields
- ratios

CORRELATES DATA
- with other clinical data to assess method efficiency
- with laboratory data to assess method efficiency
- and quality control data to assess methods/procedures

EVALUATES
- laboratory and clinical data to recognize health and disease states
- clinical data to predict procedural outcomes
- result of patient or donor medical history
- patient or donor response to the procedure
- sources of error
- laboratory and clinical data to assess efficacy of procedures
- data to determine alternate methods
- laboratory and clinical data to determine the need for additional tests/procedures
- results of clinical assessment
- methods to establish new procedures
- operational policies and procedures
- new technology and scientific advancements for potential implementation
- quality assurance data to verify clinical results
- data to refine procedures
- vascular access

CONTENT OUTLINE

HEMAPHERESIS PRACTITIONER

Refer to the Hemapheresis Competency Statements for the competencies tested in each subtest. All percentages are approximate ranges to be included on the examination.

I. Basic Science (5-10%)
- A. Hematology/Coagulation
- B. Immunohematology/Genetics
  1. Blood component therapy
  2. HLA
  3. ABO
- C. Immunology
  1. Antibodies
  2. Immune complexes
- D. Laboratory Testing

II. Clinical Applications (10-20%)
- A. Hemapheresis Components
  1. Platelets
  2. White blood cells (including granulocytes, lymphocytes, etc.)
  3. Hematopoietic progenitor cells
  4. Plasma
  5. Red blood cells (including neocytes)
- B. Therapeutic Hemapheresis
  1. Cell depletion
  2. Plasma exchange
  3. Red cell exchange
  4. On-line selective depletion (e.g., LDL, IgG, etc.)
  5. Photopheresis
- C. Pathophysiology of Diseases Treated with Hemapheresis
- D. Other Applications (e.g., perioperative cell salvage)

III. Donor/Patient Care (30-40%)
- A. Adverse Reactions
- B. Confidentiality/Counseling
- C. Fluid Replacement/Fluid Balance
- D. Assessment/Monitoring
- E. Pharmacology
- F. Selection
- G. Vascular Access
- H. Pediatrics

IV. Instrumentation (10-20%)
- A. Theories and Techniques of Separation
  1. Centrifugation (e.g., intermittent and continuous flow)
  2. Membrane
  3. Manual
- B. General Principles of Automated Instruments*
  1. Instrument Types
     a. GAMBRO BCT (COBE) (e.g., Spectra, Spectra LRS, Trima, Trima Accel)
     b. Baxter (e.g., Autopheresis C, CS3000, CS3000 Plus, Amicus, Alyx)
     c. Fresenius (e.g., AS104/Prosorba)
     d. Haemonetics (e.g., PCS2, MCS models)
     e. Therakos UVAR XTS
     f. Kaneka Liposorber LA-15 System
     g. Braun H.E.L.P. System
  2. Anticoagulation
- C. Advantages and Disadvantages
  1. Device comparison
  2. Extracorporeal blood volume
  3. Efficiencies of separation
  4. Clinical application (see II.A.-C.)
- D. Machine Efficiency

*The majority of instrument questions will address general processes and procedures applicable to most instruments (e.g. alarm codes for specific instruments will NOT be tested). The troubleshooting questions will address day to day problems encountered on any instrument, they will not be instrument specific.

V. Laboratory Operations (10-20%)
- A. Quality Assurance (e.g., cGMP, validation)
- B. Quality Control
  1. Product yield
  2. Instrument efficiencies
  3. Ancillary equipment (e.g., blood warmers, thermometers, etc.)
  4. Statistical process control
- C. Safety (e.g., OSHA, CDC)
- D. Infection Control
- E. Management
  1. Financial management
     a. Budgets
     b. Capital equipment acquisition
     c. Cost analysis
     d. Purchasing
  2. Personnel management

VI. Technical Guidelines/Regulation (AABB, FDA, FACT, JCAHO, HIPAA etc.) (10-20%)
- A. Donor Selection
- B. Other Applications
- C. Products
- D. Facility Licensure and Accreditation

All Board of Registry examinations use conventional units for results and reference ranges.

END OF CONTENT GUIDELINE