Standards and Guidelines
for the Accreditation of Educational Programs in
Specialist in Blood Bank Technology/Transfusion Medicine

Essentials/Standards initially adopted in 1971; revised in 1977, 1983, 1991, 2000, 2004, 2007, 2021, xxxx; and effective xx/xx/xxxx.

Developed by
Committee on Accreditation of Specialist in Blood Bank Technology/Transfusion Medicine

Endorsed by
Association for Advancement of Blood and Biotherapies
American Society for Clinical Pathology

and

Approved by the
Commission on Accreditation of Allied Health Education Programs

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) accredits programs upon the recommendation of the Committee on Accreditation of Specialist in Blood Bank Technology/Transfusion Medicine (CoA-SBBT/TM).

These accreditation **Standards** are the minimum standards of quality used in accrediting programs that prepare individuals to enter the Specialist in Blood Bank Technology/Transfusion Medicine (SBBT/TM) profession. Standards are the minimum requirements to which an accredited program is held accountable. Guidelines are descriptions, examples, or recommendations that elaborate on the Standards. Guidelines are not required but can assist with interpretation of the Standards.

Standards are printed in regular typeface in outline form. *Guidelines are printed in italic typeface*.

Preamble

The Commission on Accreditation of Allied Health Education Programs (CAAHEP), the Committee on Accreditation of Specialist in Blood Bank Technology/Transfusion Medicine (CoA-SBBT/TM), Association for Advancement of Blood and Biotherapies (AABB), and American Society for Clinical Pathology (ASCP) cooperate to establish, maintain, and promote appropriate standards of quality for educational programs in specialist in blood bank technology/transfusion medicine and to provide recognition for educational programs that meet or exceed the minimum standards outlined in these accreditation **Standards and Guidelines for the Accreditation of Educational Programs**. CAAHEP encourages innovation and quality education programs throughout the CAAHEP accreditation process, consistent with the CAAHEP policy on institutional autonomy. These **Standards and Guidelines** are designed to ensure the integrity of the CAAHEP accreditation process. Directories of accredited programs are published for the information of students, employers, educational institutions and organizations, credentialing bodies, and the public.

These **Standards and Guidelines** are to be used for the development, evaluation, and self-analysis of SBBT/TM programs. Site visit teams assist in the evaluation of a program's compliance with the accreditation standards.

Description of the Profession

Specialists in blood bank technology/transfusion medicine are knowledgeable in all aspects of blood bank technology/transfusion medicine; hematopoietic, cellular and gene therapies; and tissue transplantation. These individuals are subject matter experts on a variety of subjects including regulatory and quality systems, genetics, immunology, blood groups, collection and storage of blood and components, donor processing, immune mechanisms, component therapy, transfusion of the newborn, complications of transfusion, general administration, personnel administration, education, and automated data processing.

Specialists in blood bank technology/transfusion medicine serve in many roles within the transfusion medicine field such as regulatory experts, technical/procedural advisors, laboratory administrators, quality assessors and managers, and educators within their field for technical and scientific training in blood transfusion medicine, and researchers in transfusion medicine.

I. Sponsorship

A. Program Sponsor

A program sponsor must be at least one of the following

1. A post-secondary academic institution accredited by an institutional accrediting agency that is recognized by the U.S. Department of Education and must be authorized under applicable law or other acceptable authority to provide a post-secondary program, which awards a minimum of a certificate at the completion of the program.

2. A hospital, medical center, or blood center accredited by a healthcare accrediting agency that is recognized by the U.S. Department of Health and Human Services, and authorized under applicable law to provide healthcare, and authorized under applicable law to provide the post-secondary program, which awards a minimum of a certificate at the completion of the program.

3. A branch of the United States Armed Forces, or a federal or state governmental agency, which awards a minimum of a certificate at the completion of the program.

4. A consortium, which is a group made up of two or more education providers, that operate an educational program through a written agreement that outlines the expectations and responsibilities of each of the partners. At least one of the consortium partners must meet the requirements of a program sponsor set forth in I.A.1.- I.A.3.

Consortium does not refer to clinical affiliation agreements with the program sponsor.

B. Responsibilities of Program Sponsor

The program sponsor must

1. Ensure that the program meets the Standards;

2. Award academic credit for the program or have an articulation agreement with an accredited post-secondary institution; and

3. Have a preparedness plan in place that assures continuity of education services in the event of an unanticipated interruption.

Examples of unanticipated interruptions may include unexpected departure of key personnel, natural disaster, public health crisis, fire, flood, power failure, failure of information technology services, or other events that may lead to inaccessibility of educational services.

II. Program Goals

A. Program Goals and Minimum Expectations

The program must have the following minimum expectations statement: "To prepare specialists in blood bank technology/transfusion medicine who are competent in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains to enter the profession."

Programs that adopt educational goals beyond the minimum expectations statement must provide evidence that all students have achieved those goals prior to entry into the field.

Program goals must be compatible with the mission of the sponsoring institution(s), the expectations of the communities of interest, and accepted standards of roles and functions of a specialist in blood bank technology/transfusion medicine. Goals are based upon the substantiated needs of health care providers and employers, and the educational needs of the students served by the educational program. Program goals must be written referencing one or more of the learning domains.

The program must assess its goals at least annually and respond to changes in the needs and expectations of its communities of interest.

B. Program Advisory Committee

The program advisory committee must include at least one representative of each community of interest and must meet annually. Communities of interest served by the program include, but are not limited to, students, graduates, faculty members, sponsor administrators, employers, physicians, and the public.

The program advisory committee advises the program regarding revisions to curriculum and program goals based on the changing needs and expectations of the program's communities of interest, and an assessment of program effectiveness, including the outcomes specified in these Standards.

Program advisory committee meetings may be conducted using synchronous electronic means.

III. Resources

A. Type and Amount

Program resources must be sufficient to ensure the achievement of the program's goals and outcomes. Resources must include, but are not limited to

1. Faculty;

2. Administrative and support staff;
3. Curriculum;
4. Finances;
5. Faculty and staff workspace;
6. Space for confidential interactions;
7. Classroom and laboratory (physical or virtual);
8. Ancillary student facilities;
9. Clinical affiliates;
10. Equipment;
11. Supplies;
12. Information technology;
13. Instructional materials; and
14. Support for faculty professional development.

B. Personnel

The sponsor must appoint sufficient faculty and staff with the necessary qualifications to perform the functions identified in documented job descriptions and to achieve the program's stated goals and outcomes.

At a minimum, the following positions are required.

1. Program Director

a. Responsibilities

The program director must be responsible for all aspects of the program, including but not limited to

1) Administration, organization, and supervision of the program;
2) Continuous quality review and improvement of the program; and
3) Academic oversight, including curriculum planning and development.

b. Qualifications

The program director must

1) Possess an active specialist in blood banking certification, or be a physician currently licensed and board certified in transfusion medicine, hematology, or clinical pathology; and
2) Have documented education or experience in instructional methodology; and
3) Have documented ongoing continuing education in immunohematology.

2. Medical Director

a. Responsibilities

The medical director must

1) Provide the input necessary to ensure that the medical components of the curriculum, both didactic and supervised practice, meet current standards of practice;
2) Engage in cooperative involvement with the program director.

b. Qualifications

The medical director must

1) Be a physician currently licensed and board certified in transfusion medicine, hematopathology, or clinical pathology;
2) Have the requisite knowledge and skills to advise the program leadership about the clinical/academic aspects of the program;

3) Be knowledgeable in teaching the subjects assigned, when applicable; and
4) Meets facility-defined requirements for relevant continuing education activities.

3. Education Coordinator

a. Responsibilities

The educational coordinator must

1) Coordinate didactic, laboratory, and clinical education;
2) Ensure documentation of the evaluation and progression of performance; and
3) Ensure orientation to the program's requirements of the personnel who supervise or instruct students.

b. Qualifications

The education coordinator must

1) Have documented experience in blood bank or transfusion service;
2) Possess knowledge of the curriculum; and
3) Possess knowledge about the program's evaluation of student learning and performance.

4. Faculty/Instructional Staff

a. Responsibilities

For all didactic, laboratory, and clinical instruction to which a student is assigned, there must be a qualified individual(s) clearly designated by the program to provide instruction, supervision, and timely assessments of the student's progress in meeting program requirements.

b. Qualifications

Faculty/instructional staff must be effective in teaching and knowledgeable in subject matter as documented by appropriate professional credential(s)/certification(s), education, and experience in the designated content area.

Program personnel may serve in more than one position provided the responsibilities and qualifications of each position are met.

C. Curriculum

The curriculum content must ensure that the program goals are achieved. Instruction must be based on clearly written course syllabi that include course description, course objectives, methods of evaluation, topic outline, and competencies required for graduation. Instruction must be delivered in an appropriate sequence of classroom, laboratory, and clinical activities.

The program must demonstrate that the curriculum offered meets or exceeds the competencies listed in Appendix B of these **Standards**.

CAAHEP supports and encourages innovation in the development and delivery of the curriculum.

D. Resource Assessment

The program must, at least annually, assess the appropriateness and effectiveness of the resources described in these **Standards**. The results of the resource assessment must be the basis for ongoing planning and change. An action plan must be developed when needed improvements are identified in the program resources. Implementation of the action plan must be documented, and results measured by ongoing resource assessment.

IV. Student and Graduate Evaluation/Assessment

A. Student Evaluation

1. Frequency and purpose

Evaluation of students must be conducted on a recurrent basis and with sufficient frequency to provide both the students and program faculty with valid and timely indications of the students' progress toward and achievement of the curriculum competencies in the required learning domains.

Validity means that the evaluation methods chosen are consistent with the learning and performance objectives being tested.

2. Documentation

Student evaluations must be maintained in sufficient detail to document learning progress and achievements.

B. Outcomes

The program must meet the established outcomes thresholds.

1. Assessment

The program must periodically assess its effectiveness in achieving established outcomes. The results of this assessment must be reflected in the review and timely revision of the program.

Outcomes assessments must include but are not limited to: national credentialing examination(s) performance, programmatic retention, graduate satisfaction, employer satisfaction, and placement in full or part-time employment in the profession or in a related profession.

A related profession is one in which the individual is using cognitive, psychomotor, and affective competencies acquired in the educational program.

Graduates pursuing academic education related to progressing in health professions or serving in the military are counted as placed.

A national certification examination program should be accredited by the National Commission for Certifying Agencies (NCCA), American National Standards Institute (ANSI), or under International Organization for Standardization (ISO).

2. Reporting

At least annually, the program must submit to the CoA-SBBT/TM the program goal(s), outcomes assessment results, and an analysis of results.

If established outcomes thresholds are not met, the program must participate in a dialogue with and submit an action plan to the CoA-SBBT/TM that responds to the identified deficiency(ies). The action plan must include an analysis of any deficiencies, corrective steps, and timeline for implementation. The program must assess the effectiveness of the corrective steps.

V. Fair Practices

A. Publications and Disclosure

1. Announcements, catalogs, publications, advertising, and websites must accurately reflect the program offered.

2. At least the following must be made known to all applicants and students

- **a.** Sponsor's institutional and programmatic accreditation status;
- **b.** Name and website address of CAAHEP;
- **c.** Admissions policies and practices;
- **d.** Technical standards;
- **e.** Occupational risks;
- **f.** Policies on advanced placement, transfer of credits and credits for experiential learning;
- **g.** Number of credits required for completion of the program;
- **h.** Availability of articulation agreements for transfer of credits;
- **i.** Tuition/fees and other costs required to complete the program;
- **j.** Policies and processes for withdrawal and for refunds of tuition/fees; and
- **k.** Policies and processes for assignment of clinical experiences.

3. At least the following must be made known to all students

- **a.** Academic calendar;
- **b.** Student grievance procedure;
- **c.** Appeals process;
- **d.** Criteria for successful completion of each segment of the curriculum and for graduation; and
- **e.** Policies by which students may perform clinical work while enrolled in the program.

4. The sponsor must maintain and make accessible to the public on its website a current and consistent summary of student/graduate achievement that includes one or more of these program outcomes: national credentialing examination(s), programmatic retention, and placement in full or part-time employment in the profession or a related profession as established by the CoA-SBBT/TM.

B. Lawful and Non-discriminatory Practices

All activities associated with the program, including student and faculty recruitment, student admission, and faculty employment practices, must be non-discriminatory and in accord with federal and state statutes, rules, and regulations. There must be a faculty grievance procedure made known to all paid faculty.

C. Safeguards

The health and safety of patients/clients, students, faculty, and other participants associated with the educational activities of the students must be adequately safeguarded. Specialist in blood bank technology/transfusion medicine students must be readily identifiable as students.

All activities required in the program must be educational and students must not be substituted for staff.

D. Student Records

Grades and credits for courses must be recorded on the student transcript and permanently maintained by the program sponsor in an accessible and secure location. Students and graduates must be given

directions on how to access their records. Records must be maintained for student admission, advisement, and counseling while the student is enrolled in the program.

E. Substantive Change

The sponsor must report substantive change(s) as described in Appendix A to CoA-SBBT/TM in a timely manner.

F. Agreements

There must be a formal affiliation agreement or memorandum of understanding between the program sponsor and all other entities that participate in the education of the students describing the relationship, roles, and responsibilities of the program sponsor and that entity.

APPENDIX B

Curriculum for Educational Programs in Specialist in Blood Bank Technology/Transfusion Medicine

The SBBT/TM curriculum must ensure graduates achieve the following minimum cognitive, psychomotor and affective competencies.

1. Cognitive Learning Competencies

a. Blood Products

1) Determine blood donor eligibility, outline appropriate collection methods (including special donations such as autologous), and mitigate potential adverse donor reactions.
2) Outline blood product testing, manufacturing, and labeling requirements to demonstrate comprehensive knowledge of regulatory guidelines.
3) Demonstrate comprehensive understanding of blood product storage with consideration of anticoagulants/additives, temperature, transportation, storage lesion, and expiration.
4) Summarize the manufacturing, quality control requirements, and any required calculations for each of the following components:
    a) Red blood cells
    b) Cryoprecipitated AHF
    c) Platelets
    d) Plasma
    e) Granulocytes
    f) Leukocyte-reduced components
    g) Frozen/deglycerolized red blood cells
    h) Apheresis products
    i) Fractionation products
    j) Whole blood
    k) Washed red blood cells
    l) Rejuvenated red blood cells
    m) Irradiated components
    n) Hematopoietic progenitors

b. Blood Group Systems

1) Explain the fundamental concepts of genetics, focusing on the molecular basis of blood groups and the principles and significance of inheritance.
2) Describe the biochemical functions of various types of blood cell antigens (HEA, HLA, HPA, HNA) and describe their molecular structures.
3) Demonstrate comprehensive understanding of immunogenicity of blood groups and the impact of antigen prevalence in transfusion.

c. Immunology and Physiology

1) Describe the mechanisms and genetic basis of primary and secondary immune responses, including the roles of B cells, T cells, and macrophages.
2) Contrast classes, subclasses, structure, and physiological properties of immunoglobulins.
3) Discuss the principles of antigen-antibody interactions; incorporate associated testing principles and methods.
4) Identify the mechanisms and biological properties of the classical and alternative complement pathways.
5) Explain the physiology of blood including circulation and blood volume, composition and function, cell survival, and cell metabolism.

6) Outline the coagulation factors, platelet functions, and disorders associated with hemostasis.
7) Describe the pathophysiology, detection, treatment, and prevention of hemolytic disease of the fetus and newborn.
8) Summarize various cytopenias such as anemia, thrombocytopenia, and neutropenia.
9) Explain the pathophysiology of solid organ and hematopoietic progenitor cell transplantations.

d. Serological and Molecular Testing

1) Describe and interpret the principles and methodologies of blood grouping, antibody detection and identification, compatibility, and direct antiglobulin tests.
2) Discuss the properties and applications of reagent antisera and red blood cells.
3) Explain the use of enzymes, enhancement media, lectins, adsorptions, elutions, titrations, cell separations, ELISA, molecular techniques, neutralization/inhibition, thiol reagents, immunofluorescence, solid-phase methods, column agglutination tests, chloroquine diphosphate, and EDTA-glycine acid.
4) Evaluate components of a comprehensive quality assurance plan that includes assessment of blood samples, reagents, and test procedures to ensure accuracy, reliability, and compliance.

e. Transfusion Practice

1) Identify and explain clinical indications for transfusion.
2) Describe the appropriate use of blood components in transfusion therapy.
3) Differentiate adverse effects of transfusion to include immunologic reactions, nonimmunologic reactions, and transfusion-transmitted diseases.
4) Explain the principles and clinical applications of apheresis and extracorporeal circulation.
5) Summarize aspects of blood administration and strategies for patient blood management.

f. Laboratory Operations

1) Explain quality assurance and troubleshooting measures across the pre-analytical, analytical, and post-analytical test phases, ensuring quality control and compliance with regulatory standards.
2) Describe safety programs to address risks associated with bloodborne pathogens, effective infection prevention strategies, and emergency procedures for laboratory environments.
3) Identify and apply calculations pertinent to laboratory results and operations.
4) Summarize the function, operational principles, application, maintenance, and qualification requirements of key blood bank equipment.
5) Outline laboratory administration processes.

2. Psychomotor Learning Objectives

a. Blood Products

1) Exhibit proficiency through performance, observation, or simulation in performing blood donor qualification, collection procedures, reaction management, and special collection protocols while maintaining donor safety and product integrity.
2) Demonstrate aptitude in blood component processing, testing procedures, and labeling operations while maintaining regulatory compliance and product integrity.
3) Exhibit competence through performance, observation, or simulation in storage and transport of blood products.
4) Demonstrate technical skills in manufacturing, quality testing, and any required calculations for each of the following components:
    a) Red blood cells
    b) Cryoprecipitated AHF
    c) Platelets
    d) Plasma
    e) Granulocytes
    f) Leukocyte-reduced components

g) Frozen/deglycerolized red blood cells
h) Apheresis products
i) Fractionation products
j) Whole blood
k) Washed red blood cells
l) Rejuvenated red blood cells
m) Irradiated components
n) Hematopoietic progenitors

b. Blood Group Systems

1) Analyze the inheritance patterns of blood groups using Punnett squares and pedigree charts while contrasting genotype and phenotype expression.
2) Integrate knowledge of antigen biochemistry for patient management.
3) Calculate antigen prevalence considering donor and patient populations and determine the implications to transfusion practice, including the risks of alloimmunization and hemolytic reactions.

c. Immunology and Physiology

1) Apply clinical information and laboratory techniques to assess immune responses, immunoglobulin classes, antigen-antibody interactions, and complement pathways.
2) Analyze lab results to distinguish between normal and abnormal physiological states and hemostatic disorders to support diagnosis and clinical management.

d. Serological and Molecular Testing

1) Perform blood grouping, antibody detection and identification, compatibility, and direct antiglobulin tests.
2) Utilize reagent antisera and red blood cells as indicated.
3) Perform or observe the use of enzymes, enhancement media, lectins, adsorptions, elutions, titrations, cell separations, ELISA, molecular techniques, neutralization/inhibition, thiol reagents, immunofluorescence, solid-phase methods, column agglutination tests, chloroquine diphosphate, and EDTA-glycine acid.
4) Conduct quality assurance tasks to verify the integrity of blood samples, reagents, and test procedures.

e. Transfusion Practice

1) Assess laboratory values and clinical scenarios to identify the appropriate indications for transfusion.
2) Select blood components for various transfusion therapy scenarios.
3) Identify adverse effects of transfusion using clinical and laboratory data.
4) Evaluate the application of apheresis and extracorporeal circulation in transfusion practice.
5) Audit blood administration and blood utilization activities.

f. Laboratory Operations

1) Perform quality assessment tasks to ensure compliance with regulatory standards and formulate corrective actions.
2) Demonstrate safe laboratory practices and implement emergency procedures when necessary.
3) Accurately solve mathematical calculations required for laboratory operations.
4) Perform routine maintenance and operation of blood bank instruments, ensuring functionality and reliability.
5) Demonstrate practical skills in laboratory administration, ensuring effective management and operational excellence.

3. Affective Learning Objectives

a. Quality and Patient Safety: Recognize the critical role of regulatory compliance to ensure accurate and precise lab results and patient safety.

b. HIPPA: Demonstrate ethical responsibility by maintaining confidentiality and integrity in laboratory practices.
c. Teamwork: Collaborate effectively with team members to address challenges and implement problem-solving strategies.
d. Time Management: Prioritize deadlines and communicate delays promptly.
e. Environmental Safety: Foster a culture of safety by adhering to protocols, encouraging safe behaviors, and knowing how to respond to emergencies.
f. Equipment: Develop respect for the proper use and maintenance of laboratory instrumentation to ensure longevity and reliability.
g. Longevity: Value scholarly contribution to the field of blood banking and transfusion medicine.
h. Recognize the value of attention to detail to reduce the risk of clerical and technical errors.