

MLBBS Standards VII and VIII Proposed

Unique Standards Medical Laboratory Blood Bank Scientist (MLBBS)

PREAMBLE

Objectives

The purpose of these standards and the Description of the Profession is to establish, maintain, and promote standards of quality for educational programs in the clinical laboratory sciences and to provide recognition for educational programs which meet or exceed the minimum standards outlined in this document.

The standards are to be used for the development and evaluation of medical laboratory blood banking programs. Self-study reviewers and site visit teams assist in the evaluation of the program's compliance with the standards. Lists of accredited programs are published for the information of students, employers, and the public.

Description of the Medical Laboratory Blood Bank Scientist Profession

The medical laboratory blood bank scientist is qualified by academic and applied science education to provide service and research in clinical laboratory science and related areas in rapidly changing and dynamic healthcare delivery systems. Medical laboratory blood bank scientists perform, develop, evaluate, correlate and ensure accuracy and validity of laboratory information, direct and supervise clinical laboratory resources and operations, and collaborate in the diagnosis and treatment of patients, specifically in the areas of transfusion medicine and donor operations. This practitioner has diverse and multi-level functions in the principles, methodologies and performance of assays, problem-solving, troubleshooting techniques, interpretation and evaluation of clinical procedures and results, statistical approaches to data evaluation, principles and practices of quality assurance/quality improvement, and continuous assessment of laboratory services for all major areas practiced in the clinical, donor, and reference laboratories. Medical laboratory blood bank scientists possess the skills necessary for operations of the transfusion and donor laboratories.

Medical laboratory blood bank scientists practice independently and collaboratively, being responsible for their own actions, as defined by the profession. They have the requisite knowledge and skills to educate laboratory professionals, and other health care professionals, as well as the public, in laboratory operations.

The ability to relate to people, a capacity for calm and reasoned judgment and a demonstration of commitment to the patient are essential qualities. Communications skills extend to consultative interactions with members of the healthcare team, external relations, customer service and patient education.

Medical laboratory blood bank scientists demonstrate ethical and moral attitudes and principles that are necessary for gaining and maintaining the confidence of patients, professional associates, and the community.

Description of Entry-Level Competencies of the Medical Laboratory Blood Bank Scientist

At entry-level, the medical laboratory blood bank scientist will possess the entry-level competencies to perform the full range of clinical laboratory tests in clinical transfusion medicine, molecular diagnostics, operations, and other emerging diagnostics. The medical laboratory blood bank scientist will play a role in the development and evaluation of test systems and interpretive algorithms.

The medical laboratory blood bank scientist will have diverse responsibilities in areas of analysis and clinical decision-making, and regulatory compliance with applicable regulations.

Entry level practitioners will also be responsible for quality assurance and performance improvement wherever laboratory testing is researched, developed, or performed.

At career entry-level, the medical laboratory blood bank scientist will have the following professional competencies.

They will have the ability to:

A. Professional Behaviors and Communication

Demonstrate professional and ethical behavior along with effective interpersonal communication skills when engaging with various stakeholders.

Establish effective interprofessional working relationships with other health care professionals, demonstrating comprehension of and respect for their roles and patient welfare.

Recognize and appreciate the importance of engaging with an inclusive workforce through collaboration.

Value and advocate for a workplace environment that fosters inclusivity, diversity, equity, and accessibility.

B. Safety and Compliance

Comply with government regulations and accreditation standards relevant to the respective discipline.

Adhere to prescribed protocols for overall laboratory safety, biohazard containment, and waste disposal.

Implement quality assurance principles to ensure the validity and accuracy of laboratory-generated data.

C. Education and Research

Acknowledge and respond to individual requirements for continuing education and development to foster growth and maintain professional competence.

Provide instruction to users of laboratory services regarding appropriate procedures, test utilization and interpretation.

Evaluate clinical research studies and data sets to assess applicability and validity.

D. Laboratory Operations

Employ a logical and systematic problem-solving approach when identifying errors and/or technical issues with laboratory procedures and instrumentation.

Apply principles of data security to safeguard laboratory and hospital information systems.

Apply principles of quality assurance to ensure validity and accuracy of laboratory data.

E. Pre-Analytical Competencies

Evaluate specimen collection, processing, and storage procedures in accordance with standard operating procedures.

Ensure specimen integrity is maintained throughout the sample procurement process.

F. Analytical Competencies

Adhere to written policies, processes, and procedures for analytical testing, analysis, and instrumentation maintenance.

Evaluate and provide rationale for troubleshooting protocols in analytical testing when appropriate.

Perform routine procedures in accordance with standard operating procedures.

Apply quality control principles to analytical testing procedures, including instrument calibration, statistical analyses of control results, Westgard rules, and verification of reference ranges.

Perform basic calculations, dilutions, and statistical analyses for procedures and analytical testing in the respective discipline.

Apply theoretical principles of instrumentation to current methods of analysis.

G. Post-Analytical Competencies

Perform all post-analytical procedures in accordance with quality assurance protocols and regulatory standards.

Evaluate results for accuracy relative to quality control, patient history, specimen integrity, and overall clinical correlation.

Report test results, including abnormal, STAT, and critical values, in accordance with the laboratory's standard operating procedures.

VII. MLBBS Program Administration

A. Program Director

The program must have a NAACLS approved medical laboratory professional serving as program director who meets the following qualifications and executes all required responsibilities.

1. Qualifications

The program director must have:

- a. An earned master's or doctoral degree.
- b. ASCP BOC or ASCPⁱ BOC certification as a medical laboratory scientist, specialist in Blood Banking (SBB), or technologist in Blood Banking.
 - i. If the program director does not hold any of these certifications, an education coordinator is required.
- c. Three years of teaching experience in a medical blood bank or related area.
- d. Knowledge of education methods and administration as well as current NAACLS Accreditation procedures and certification procedures.
- e. (for international programs only) If the program director does not hold ASCP BOC or ASCPⁱ BOC certification as a medical laboratory scientist, specialist in Blood Banking (SBB), or technologist in Blood Banking, a qualified professional who does hold ASCP BOC or ASCPⁱ BOC certification as a medical laboratory scientist, specialist in Blood Banking (SBB), or technologist in Blood Banking must hold appointment as an accreditation liaison.

2. Responsibilities

The program director must:

- a. Be responsible for the organization, administration, instruction, evaluation, continuous quality improvement, curriculum planning and development, directing other program faculty/staff, and general effectiveness of the program.
- b. Provide evidence that s/he participates in the budget preparation process.
- c. Engage in a minimum of 36 hours of documented continuing professional development every three years.
- d. Be responsible for maintaining NAACLS accreditation of the program
- e. Have regular and consistent contact with students, faculty, and program personnel.

3. Appointments

The program director must have a faculty or clinical appointment at the sponsoring institution.

B. Site Program Administrator (required for programs with sponsors and partners; assigned to each participating site)

1. Qualifications

The site program administrator must:

- a. Have a bachelor's degree.
- b. Hold the same level certification required of a program director.

- c. Have at least one year of experience in medical laboratory science education to include knowledge of:
 - i. education methods
 - ii. program assessment and administration
 - iii. certification/licensure procedures
- 2. Responsibilities

The site program administrator, when required, is responsible for:

 - a. Coordinating teaching and clinical/applied learning education.
 - b. Evaluating program effectiveness.
 - c. Maintaining appropriate communications with the program director.

C. Faculty/Instructors

- 1. Didactic Instructor Appointments

The program must have qualified faculty/instructors who hold appointments within the educational program. The program must ensure and document ongoing professional development of the program faculty/instructors.

 - a. Qualifications

Faculty/instructors designated by the program must:

 - i. Demonstrate adequate knowledge and proficiency in their content areas.
 - ii. Demonstrate the ability to teach effectively at the appropriate level.
 - b. Responsibilities

The responsibilities of the faculty/instructors must include:

 - i. Participation in teaching courses.
 - ii. Evaluation of student achievement.
 - iii. Development of curriculum, policy and procedures.
 - iv. Assessment of program outcomes.
- 2. Clinical/Applied Learning Liaison

At least one clinical/applied learning liaison, who is employed by the clinical/applied learning site, must be designated at each clinical/applied learning site affiliated with the program to coordinate clinical/applied learning for students.

 - a. Qualifications

The clinical/applied learning liaison must:

 - i. Be a health care professional staff member of the facility who demonstrates the ability to effectively coordinate clinical experiences of the students.
 - ii. Demonstrate knowledge of the program discipline.
 - iii. Have at least one year of experience as a health care professional.
 - b. Responsibilities

The clinical liaison must be responsible for:

 - i. Coordinating clinical instruction at the site.
 - ii. Maintaining effective communication with the program director or designee.

D. Advisory Committee

- 1. There must be an advisory committee composed of individuals from the community of interest who have knowledge of clinical laboratory science education.

2. The advisory committee of the program shall have input into the program and curriculum to maintain current relevancy and effectiveness.

E. Accreditation Liaison (when required, for international programs only)

1. Qualifications

The accreditation liaison, when required, must be a medical laboratory professional who:

- a. Has knowledge of NAACLS accreditation.
- b. Has at least a master's degree and three years of experience in the program discipline.
- c. Holds ASCP BOC or ASCPⁱ BOC certification as a medical laboratory scientist, specialist in Blood Banking (SBB), or technologist in Blood Banking.

2. Responsibilities

The accreditation liaison, when required, must:

- a. Provide guidance and assistance in NAACLS Accreditation requirements, policies and procedures.
- b. Provide input into the curriculum and continuous program assessment and improvement.
- c. Have regular contact with the program director, faculty and program personnel.

F. Education Coordinator (when required)

1. Qualifications

The education coordinator, when required, must be a medical laboratory professional who:

- a. Has at least a bachelor's degree and three years of experience in the program discipline.
- b. Holds ASCP BOC or ASCPⁱ BOC certification as a medical laboratory scientist, specialist in Blood Banking (SBB), or technologist in Blood Banking.
- c. Has knowledge of NAACLS accreditation and current certification procedures.

2. Responsibilities

The education coordinator, when required, must provide supervision and coordination of the instructional faculty in the academic and clinical phases of the education program.

VIII. MLBBS Curriculum Requirements

A. Instructional Areas

1. The program must identify prerequisite courses in biological sciences, chemistry and mathematics that provide the foundation for course work required in the medical laboratory blood bank scientist program.
2. The program must deliver instruction utilizing cognitive, psychomotor, and affective learning domains that enable the student to meet entry –level competencies of the program discipline.
3. The curriculum must address pre-analytical, analytical and post-analytical components of blood bank laboratory services. This includes principles and methodologies, performance of assays, problem-solving, troubleshooting techniques, interpretation and evaluation of clinical procedures and results, statistical approaches to data evaluation,

principles and practices of quality assurance/quality improvement, and continuous assessment of laboratory services for all major areas practiced in transfusion services.

4. The program curriculum must include the following scientific content:
 - a. immunology
 - b. genetics
 - c. donor selection and phlebotomy
 - d. serologic and molecular testing
 - e. blood products
 - f. blood group systems
 - g. transfusion practices
 - h. donor services, transfusion service and reference laboratory operations and management
5. The program curriculum must also include:
 - a. The application of safety and governmental regulations and standards as applied to transfusion services.
 - b. Principles and practices of professional conduct, working with diverse stakeholders, and the significance of continuing professional development.
 - c. Communicating effectively with a range of audiences, sufficient to serve the needs of patients, the public and members of the health care team.
 - d. Principles and practices of administration and supervision as applied to transfusion services.
 - e. Educational methodologies and terminology sufficient to train/educate users and providers of donor, transfusion and reference laboratory services.
 - f. Principles and practices of clinical study design, implementation and dissemination of results.
 - g. Interprofessional education and collaborative practice.

B. Learning Experiences

1. Learning experiences must be properly sequenced and include content and activities that enable students to achieve entry-level competencies in each major discipline as listed in Standard VIII Instructional Areas.
2. After demonstrating competency, students, under qualified supervision, may be permitted to perform procedures as defined in Standard V.E.

C. Evaluations

1. Evaluation systems must relate to course content and align with program and course competencies.
2. Evaluation systems must be employed frequently enough to provide students and faculty with timely indications of the students' academic standing and progress.
3. The evaluation systems must serve as a reliable indicator of the effectiveness of instruction and course design.

Rationale:

After approval of the Blood Bank pathway at the September 2024 Board of Director Meeting, the FEP Task Force along with a few RCAP members who specialize in BB drafted the proposed standards.