ASCP BOC
ASCP
BOARD OF
CERTIFICATION

BB AND SBB PRACTICE ANALYSIS REPORT

For Development of

BB(ASCP) & BB(ASCP^{i})

and

SBB(ASCP) & SBB(ASCP^{i})

Content Guideline and Examinations

for Exam Publication July 1, 2020

ASCP BOC ASCP BOARD OF CERTIFICATION

TABLE OF CONTENTS

INTRODUCTION

The purpose of conducting a practice analysis (a.k.a. job analysis or job task analysis) is to provide the foundation of a certification examination by defining practice in a profession. The practice analysis provides evidence of content validation. It is required by psychometric standards and is considered best practices for high-stakes examination development. It also ensures the certification examination is fair, valid, job-related, and most importantly, legally defensible (Chinn and Hertz 2010)[1]. The ASCP Board of Certification (BOC) conducts a practice analysis approximately every five years in accordance with ASCP BOC Policy and requirements of the accrediting body, ANSI (American National Standards Institute), under ANSI/ISO/IEC 17024:2012.

A practice analysis is a formal process for determining or verifying the responsibilities of individuals in the job/profession, the knowledge individuals must possess, and the skills necessary to perform the job at a minimally competent level. The practice analysis process provides a complete and modern understanding of the duties and functions of practicing laboratory professionals. The results of the practice analysis inform the specifications and content of the ASCP BOC certification examinations. The practice analysis process ensures that the examinations are reflective of current practices. It also helps guarantee that individuals who become certified are current and up-to-date on the state of medical laboratory science practice and are competent to perform as certified laboratory professionals.

PRACTICE ANALYSIS PROCESS

ASCP BOC conducted a practice analysis survey to inform the following certification examination categories:

- Medical Laboratory Technician (MLT)
- Medical Laboratory Scientist (MLS)
- Technologist in Blood Banking (BB)
- Specialist in Blood Banking (SBB)
- Technologist in Chemistry (C)
- Specialist in Chemistry (SC)
- Technologist in Hematology (H)
- Specialist in Hematology (SH)
- Technologist in Microbiology (M)
- Specialist in Microbiology (SM)

The process for conducting a practice analysis consists of the following steps:

1. Survey Development
2. Demographics
3. Task Inventory – Knowledge and Skill Questions
4. Rating Criteria
5. Survey Construction
6. Pilot Testing and Revision
7. Survey Distribution
8. Survey Analysis
9. Committee Review and Discussion
10. Examination Content Guideline, Standard Setting, and Exam Publication

[1] Chinn, R.N., and N.R. Hertz. 2010. *Job Analysis: A Guide for Credentialing Organizations.* Lexington: Council on Licensure, Enforcement and Regulation (CLEAR).

SURVEY DEVELOPMENT

During the 2015 ASCP BOC examination committee meetings, the five categorical examination committees (Blood Banking [BB], Chemistry [C], Hematology [H], Microbiology [M] and Molecular Biology [MB]) provided the input and discussion to develop the practice analysis survey for ten certification categories including the generalist categories of MLT and MLS as well as the technologist categories (BB, C, H and M) and specialist categories (SBB, SC, SH and SM). Each committee created the sections of the survey corresponding to their respective disciplines. The Joint Generalist Committee (MLT & MLS), whose membership includes representatives (mainly educators) from each categorical examination committee, reviewed and approved a final version of the survey. The committee members (subject matter experts) collectively discussed all pertinent aspects of their profession to design a concise survey to extract useful feedback from field professionals while maximizing response rate. The survey had two main components: demographics and task inventory with appropriate rating scales for each.

DEMOGRAPHICS

The demographic questions asked about experience, education, gender, age, titles, work shift, type of facility, areas of lab work, work hours, etc. The purpose of these questions was to aid the committee in deciding whether the sample of respondents obtained was representative of the profession in general. The demographic data provided analytic categories that allowed refinement of the survey population to utilize only those responses from individuals at the targeted professional level.

TASK INVENTORY – KNOWLEDGE AND SKILL QUESTIONS

The survey was broken into two core areas: knowledge and skills. The categorical examination committees and the Joint Generalist Committee developed a series of knowledge areas and job-related task questions that formed the body of the survey.

This survey had eleven major sections:

- Laboratory Operations
- Blood Banking
- Chemistry
- Microbiology
- Hematology/Coagulation
- Molecular Biology
- Immunology/Serology
- Urinalysis
- Body Fluids
- Point-of-Care Testing
- Management/Supervision

Respondents only rated the tasks within the major sections in which they work. All respondents rated the tasks within the Laboratory Operations section. For example, if a respondent indicated they currently work in Blood Banking and Chemistry, they rated tasks within those two sections and Laboratory Operations and did not see any other sections of the survey.

RATING CRITERIA

Different rating scales were used to assess the knowledge and skills on the survey. One rating scale was used for the knowledge-only tasks and asked respondents to assess the significance of having that knowledge to perform their job. The rating scale used for the skill-related tasks assessed whether respondents performed the specific task or not in their jobs.

SURVEY CONSTRUCTION

The practice analysis survey was created and delivered through Key Survey, an electronic survey vendor from Highroad Solution. Using an electronic tool allowed survey review and testing via the internet, email tracking of respondents using email addresses, and the ability to send email reminders for completion of the survey.

PILOT TESTING AND REVISION

The Joint Generalist Committee tested a pilot version of the survey. They reviewed and revised different aspects of the survey (e.g., information correctness, grammar/spelling errors, electronic glitches, correct survey branching, etc.). The pilot testing comments and edits informed the final version of the survey.

SURVEY DISTRIBUTION

The categorical and Joint Generalist Committees determined that the survey should be sent to all current generalist certificants (MLT and MT/MLS), categorical certificants (BB, C, H and M) and specialist certificants (SBB, SC, SH and SM) in the ASCP BOC Personify database. The survey was open for a five-week period between November 9, 2015 – December 14, 2015. ASCP BOC staff also directly emailed the survey to the categorical committees and encouraged the committee membership to disseminate the survey to their colleagues. Additionally, the survey link was posted on ASCP social media sites (e.g., Facebook and Twitter).

In an effort to garner more responses from individuals working in blood centers, ASCP BOC staff also reached out to the Qualification in Apheresis Work Group and the AABB. These contacts distributed the DPT survey link to several blood centers and placed the link in an AABB newsletter.

SURVEY ANALYSIS

The tasks were divided amongst eleven major sections (Laboratory Operations, Blood Banking, Chemistry, Microbiology, Hematology/Coagulation, Molecular Biology, Immunology/Serology, Urinalysis, Body Fluids, Point-of-Care Testing, and Management/Supervision). All respondents saw the Laboratory Operations category. Because respondents only rated the tasks within the other major categories in which they practice, the number of respondents vary for each of the other sections depending on the number of respondents who indicated that they currently work in that area.

To determine which of the eleven major survey sections were appropriate for the BB and SBB exams, the percentage of respondents currently working exclusively in Blood Banking and each of the other sections was calculated. The data for any sections in which at least 20% of respondents were working in both Blood Banking and that area, were included in the analysis. The other survey sections that scored above 20% and therefore were included in the BB/SBB analysis were Laboratory Operations and Management/Supervision (for SBB only).

Responses from individuals performing higher-level supervisory tasks were not appropriate for the entry-level Technologist in Blood Banking certification category and were therefore excluded from the analysis. The responses from these individuals were included in the analysis for the Specialist in Blood Banking exam category. Any individuals not currently practicing (e.g., retired, unemployed, or simply not working as a laboratory professional) were removed from the practice analysis survey.

COMMITTEE REVIEW AND DISCUSSION

During the 2016 examination committee meeting, the Blood Banking Committee reviewed the practice analysis results. They agreed that the demographic results accurately reflected the BB and SBB populations **(Appendices A & C)**.

In general, tasks performed by at least 40% of the respondents were retained on the task list and considered valid to be on the examination. The committees reviewed all tasks performed by less than 40% of the respondents. If the committee determined that these tasks were critical to patient care and/or were up-and-coming in practice, then the task was retained on the task list and considered valid for the examination. If the task was considered outdated or too esoteric, then it was removed from the task list and the exam. Because only a small percentage of the BB population reported performing management/supervisory tasks, the Management/Supervisory section did not provide useful data for this exam category. The committee's decisions were used to create the Final Task Lists for BB and SBB **(Appendices B & D)** which informed the exam content guideline and the content for the certification exams.

EXAM CONTENT GUIDELINE, STANDARD SETTING, AND EXAM PUBLICATION

The committee revised the BB and SBB exam content guideline to reflect the practice analysis results. They reviewed the exam content area percentages and decided where to set them based on the results of the practice analysis. The committee reviewed the exam databases according to the new content guideline and deleted or revised questions accordingly. They wrote new questions to fulfill the new content guideline, and reclassified questions according to the new guideline. After this work was completed, the committee set a new standard for each exam, and the new exam databases were published.

ASCP BOC ASCP BOARD OF CERTIFICATION

Appendix A

TECHNOLOGIST IN BLOOD BANKING (BB)

DEMOGRAPHIC ANALYSIS

Total respondents: 7,122
Total usable: 874

Usable individual respondents met the following criteria:

- Currently employed as a medical laboratory professional in a clinical laboratory
- Currently working in blood bank
- Currently working as a non-supervisory technologist/MT/MLS

Summary:

- Certifications:
  - 91% are MLS certified
  - 3% are BB certified
- Education:
  - 87% have a baccalaureate degree or post-baccalaureate program certificate
  - 9% have a master's degree or higher
  - 4% have an associate degree or lower
- Experience:
  - 49% have less than 10 years
  - 16% have 10 – 20 years
  - 35% have 20 or more years
- Geographic Distribution: there were respondents from across the U.S., including Washington D.C. and Puerto Rico, and states with the highest response rate include:
  - 6% each from Texas, Michigan, Wisconsin, and California
  - 5% from Illinois
  - 4% each from New York, Pennsylvania, and Florida
- Facility:
  - 93% work in hospitals
  - 3% work in blood centers
  - 4% work in other types of facilities
- Age:
  - 28% are younger than 30 years of age
  - 59% are 30 – 59 years of age
  - 13% are over 60 years of age
- Gender:
  - 82% are female
  - 17% are male
  - 1% chose not to answer this question

ASCP BOARD OF CERTIFICATION

Appendix B

TECHNOLGIST IN BLOOD BANKING (BB)

FINAL TASK LIST (TOPICS KEPT ON EXAM BASED ON PRACTICE ANALYSIS RESULTS)

LABORATORY OPERATIONS
SPECIMEN COLLECTION, PREPARATION, AND PROCESSING
1. Proper collection/procurement and labeling of specimens
2. Guidance/assistance to healthcare providers regarding test orders and procedures
3. Specimen processing (e.g., centrifuge, separate)
4. Specimen storage (e.g., time, temperature, light)
5. Specimen distribution (e.g., packaging to meet USPS, DOT and/or IATA regulations/requirements)
6. Specimen evaluation for acceptability
7. Corrective action for unsatisfactory specimens
REPORTING AND INTERPRETING RESULTS
8. Autoverification of patient results
9. Result reporting during LIS/computer downtime
10. Manual result entry (e.g., add interpretive comments, reference, or resource information to the report)
11. Correlation of test results with other data (e.g., clinical history, other lab results) and take corrective action as necessary
12. Critical result reporting according to protocol
13. Communication with healthcare providers regarding test results (e.g., report interpretation, amended results)
INSTRUMENTATION
14. Balances
15. Centrifuges (e.g., microhematocrit, cytocentrifuge)
16. Microscopes
LABORATORY OPERATIONS
17. Reagent preparation, labeling, and storage
18. Reagent log maintenance
19. Temperature log maintenance
20. Calculations and unit conversions (e.g., dilutions, reagent preparation, graphs, statistics)
21. Instrument troubleshooting and repair
22. Instrument maintenance and calibration
23. Equipment (e.g., pipettes) maintenance and calibration
24. Evaluation/verification/validation of new instrumentation, methodologies, or assays
25. Safety activities (e.g., PPE, fume hoods, fire, safety data sheets, biosafety cabinet)
26. Hazard disposal, decontamination, and storage
27. Regulatory compliance (e.g., HIPAA, OSHA, EPA, homeland security, state, and local)

28. Quality control performance and review (e.g., IQCP)
29. Routine corrective action follow-up of 'Out of Control' results
30. Proficiency testing participation
31. Competency Testing Program participation
32. Quality Assurance Program participation
33. Training of new staff
34. Training of students, residents, and/or fellows
35. Appropriate notification of reportable diseases
36. Maintenance of patient records and laboratory database
37. Departmental policy/procedure writing, review, and revision
38. LIS implementation and maintenance
39. Billing and coding

BLOOD BANKING

KNOWLEDGE QUESTIONS
Blood Group Systems
40. Molecular basis of blood group system (e.g., red cell genotyping, platelet genotyping)
41. Antigens and antibodies (e.g., red cell, HLA, platelet, granulocyte)
42. Recognition of the role of blood groups in transfusion (e.g., immunogenicity, antigen frequency)
Physiology and Pathophysiology
43. Physiology of blood (e.g., circulation and blood volume, composition and function of blood, abnormal physiology, cell survival, cell metabolism)
44. Hemostasis and coagulation (e.g., coagulation factors and disorders, platelet functions and disorders)
45. Hemolytic disease of the fetus and newborn (e.g., pathophysiology, detection, treatment, prevention)
46. Anemias (e.g., pathophysiology, detection, treatment)
47. Immune-hemolytic anemias: warm, cold, drug-induced (e.g., pathophysiology, detection, treatment)
48. Adverse effects of transfusion
49. Transplantation (e.g., testing and transfusion support of solid organ and stem cell recipients)
Blood Products
50. Recognition of anticoagulants and preservatives
General Immunology
51. Immune response (i.e., cellular and humoral / primary and secondary)
52. Principles of antigen-antibody interaction (e.g., immunoglobulin class and antigen structure)
53. Complement (e.g., mechanisms, biologic properties)
54. Immunomodulatory medications (e.g., IVIg, monoclonal antibodies, steroids)

BLOOD PRODUCTS
Collecting Donor Blood
55. Determination of donor acceptability (e.g., health history questions and physical findings, hemoglobin screen, allogeneic and autologous donors)
56. Collection of donor blood/components by phlebotomy
57. Collection of donor blood/components by apheresis
58. Recognition and management of adverse donor reactions
Processing Donor Blood
59. Adherence to FDA/AABB requirements for testing donor blood (e.g., viral markers, NAT, ABO/Rh, antibody screen/ID)
60. Lookback and recall of donor products (e.g., positive test results, post-donation information)
61. Labeling of donor blood and blood products
Component Preparation
62. Preparation of blood components from whole blood (e.g., red cell, plasma, platelets, cryoprecipitate)
63. Special processing of blood components (e.g., washing, irradiating, freezing/deglycerolizing)
Quality Control of Blood Products
64. Maintenance of records from donor to final disposition
65. Blood product quality control
Storage and Transportation of Blood Products
66. Blood/component storage
67. Blood/component transportation
TRANSFUSION PRACTICE
68. Preparation of components for transfusion (e.g., storage, aliquoting, washing, thawing)
69. Monitoring component therapy (e.g., transfusion guidelines)
70. Selection and preparation of components for pediatric/neonatal/perinatal transfusion
71. Emergency/massive transfusion protocol
72. Platelet support for refractory patients
73. Therapeutic apheresis
74. Investigation of adverse effects of transfusion
75. Blood administration auditing
76. Blood product inventory management
77. Blood component issue and return
78. Plasma derivatives and factor concentrates issue (e.g, IVIG, factor VIII)

SEROLOGIC AND MOLECULAR TESTING
Serologic and Molecular Testing
79. Manual serologic testing for ABO, Rh, and antibody detection (i.e., screening)
80. Automated serologic testing for ABO, Rh, and antibody detection (i.e., screening)
81. Antibody identification
82. Crossmatch/compatibility testing
83. Direct antiglobulin testing (DAT)
84. Phenotyping (e.g., K, S)
85. Antibody titration
86. Elutions
87. Adsorptions
88. Special techniques (e.g., enzyme testing, DTT)
89. Transfusion reaction work-up
90. Cell separations
91. Molecular RBC genotyping
92. Neutralization/inhibition
93. Leukocyte and platelet testing
94. Donath-Landsteiner testing
95. Thermal amplitude
Histocompatibility testing (e.g., HLA typing, HLA antibody screening)
96. Serologic
97. Molecular
Hemolytic Disease of the Fetus and Newborn (HDFN) Work-up
98. Determination of candidacy for RhIG administration
99. Rosette test
100. Flow cytometry
101. Kleihauer-Betke test

ASCP BOC ASCP BOARD OF CERTIFICATION

Appendix C

SPECIALIST IN BLOOD BANKING (SBB)

DEMOGRAPHIC ANALYSIS

Total respondents: 7,122
Total usable: 715

Usable individual respondents met the following criteria:

- Currently employed as a medical laboratory professional in a clinical laboratory
- Currently working in blood banking
- Includes respondents who fit any of the following criteria:
    - Technologist/MT/MLS (supervisory, including senior/lead tech)
    - Technical specialist (non-supervisory)
    - Laboratory manager/director
    - Clinical educator
    - Quality/Compliance coordinator

Summary:

- Certifications: individuals may have multiple credentials
    - 88% are MLS certified
    - 16% are SBB certified
- Education:
    - 78% have a baccalaureate degree or post-baccalaureate program certificate
    - 20% have a master's degree or higher
    - 2% have an associate degree or lower
- Experience:
    - 17% have less than 10 years
    - 21% have 10 – 20 years
    - 62% have 20 or more years
- Geographic Distribution: there are respondents from across the U.S., including Washington D.C., Guam, and Puerto Rico, and states with the highest response rate include:
    - 8% from Texas
    - 5% each from New York and California
    - 4% each from Wisconsin, Florida, Minnesota, and Pennsylvania
- Facility:
    - 89% work in hospitals
    - 6% work in blood centers
    - 5% work in other types of facilities
- Age:
    - 5% are younger than 30 years of age
    - 79% are 30 – 59 years of age
    - 16% are over 60 years of age
- Gender:
    - 86% are female
    - 13% are male
    - 1% chose not to answer this question

ASCP BOARD OF CERTIFICATION

Appendix D

SPECIALIST IN BLOOD BANKING (SBB)

FINAL TASK LIST (TOPICS KEPT ON EXAM BASED ON PRACTICE ANALYSIS RESULTS)

LABORATORY OPERATIONS
SPECIMEN COLLECTION, PREPARATION, AND PROCESSING
1. Proper collection/procurement and labeling of specimens
2. Guidance/assistance to healthcare providers regarding test orders and procedures
3. Specimen processing (e.g., centrifuge, separate)
4. Specimen storage (e.g., time, temperature, light)
5. Specimen distribution (e.g., packaging to meet USPS, DOT and/or IATA regulations/requirements)
6. Specimen evaluation for acceptability
7. Corrective action for unsatisfactory specimens
REPORTING AND INTERPRETING RESULTS
8. Autoverification of patient results
9. Result reporting during LIS/computer downtime
10. Manual result entry (e.g., add interpretive comments, reference, or resource information to the report)
11. Correlation of test results with other data (e.g., clinical history, other lab results) and take corrective action as necessary
12. Critical result reporting according to protocol
13. Communication with healthcare providers regarding test results (e.g., report interpretation, amended results)
INSTRUMENTATION
14. Balances
15. Centrifuges (e.g., microhematocrit, cytocentrifuge)
16. Microscopes
LABORATORY OPERATIONS
17. Reagent preparation, labeling, and storage
18. Reagent log maintenance
19. Temperature log maintenance
20. Calculations and unit conversions (e.g., dilutions, reagent preparation, graphs, statistics)
21. Instrument troubleshooting and repair
22. Instrument maintenance and calibration
23. Equipment (e.g., pipettes) maintenance and calibration
24. Evaluation/verification/validation of new instrumentation, methodologies, or assays
25. Safety activities (e.g., PPE, fume hoods, fire, safety data sheets, biosafety cabinet)
26. Hazard disposal, decontamination, and storage
27. Regulatory compliance (e.g., HIPAA, OSHA, EPA, homeland security, state, and local)

28. Quality control performance and review (e.g., IQCP)
29. Routine corrective action follow-up of 'Out of Control' results
30. Proficiency testing participation
31. Competency Testing Program participation
32. Quality Assurance Program participation
33. Training of new staff
34. Training of students, residents, and/or fellows
35. Appropriate notification of reportable diseases
36. Maintenance of patient records and laboratory database
37. Departmental policy/procedure writing, review, and revision
38. LIS implementation and maintenance
39. Billing and coding

BLOOD BANKING

KNOWLEDGE QUESTIONS
Blood Group Systems
40. Molecular basis of blood group system (e.g., red cell genotyping, platelet genotyping)
41. Antigens and antibodies (e.g., red cell, HLA, platelet, granulocyte)
42. Recognition of the role of blood groups in transfusion (e.g., immunogenicity, antigen frequency)
Physiology and Pathophysiology
43. Physiology of blood (e.g., circulation and blood volume, composition and function of blood, abnormal physiology, cell survival, cell metabolism)
44. Hemostasis and coagulation (e.g., coagulation factors and disorders, platelet functions and disorders)
45. Hemolytic disease of the fetus and newborn (e.g., pathophysiology, detection, treatment, prevention)
46. Anemias (e.g., pathophysiology, detection, treatment)
47. Immune-hemolytic anemias: warm, cold, drug-induced (e.g., pathophysiology, detection, treatment)
48. Adverse effects of transfusion
49. Transplantation (e.g., testing and transfusion support of solid organ and stem cell recipients)
Blood Products
50. Hematopoietic Progenitor Cells (HPCs) (e.g., collection, processing, storage, infusion)
51. Recognition of anticoagulants and preservatives
General Immunology
52. Immune response (i.e., cellular and humoral / primary and secondary)
53. Principles of antigen-antibody interaction (e.g., immunoglobulin class and antigen structure)
54. Complement (e.g., mechanisms, biologic properties)
55. Immunomodulatory medications (e.g., IVIg, monoclonal antibodies, steroids)
56. Lymphocyte subsets (e.g., CD4+ T helper cells)

BLOOD PRODUCTS
Collecting Donor Blood
57. Determination of donor acceptability (e.g., health history questions and physical findings, hemoglobin screen, allogeneic and autologous donors)
58. Collection of donor blood/components by phlebotomy
59. Collection of donor blood/components by apheresis
60. Recognition and management of adverse donor reactions
Processing Donor Blood
61. Adherence to FDA/AABB requirements for testing donor blood (e.g., viral markers, NAT, ABO/Rh, antibody screen/ID)
62. Lookback and recall of donor products (e.g., positive test results, post-donation information)
63. Labeling of donor blood and blood products
Component Preparation
64. Preparation of blood components from whole blood (e.g., red cell, plasma, platelets, cryoprecipitate)
65. Special processing of blood components (e.g., washing, irradiating, freezing/deglycerolizing)
Quality Control of Blood Products
66. Maintainance of records from donor to final disposition
67. Blood product quality control
Storage and Transportation of Blood Products
68. Blood/component storage
69. Blood/component transportation
TRANSFUSION PRACTICE
70. Preparation of components for transfusion (e.g., storage, aliquoting, washing, thawing)
71. Monitoring component therapy (e.g., transfusion guidelines)
72. Selection and preparation of components for pediatric/neonatal/perinatal transfusion
73. Emergency/massive transfusion protocol
74. Platelet support for refractory patients
75. Therapeutic apheresis
76. Investigation of adverse effects of transfusion
77. Blood administration auditing
78. Blood product inventory management
79. Blood component issue and return
80. Plasma derivatives and factor concentrates issue (e.g, IVIG, factor VIII)

SEROLOGIC AND MOLECULAR TESTING Serologic and Molecular Testing
81. Manual serologic testing for ABO, Rh, and antibody detection (i.e., screening)
82. Automated serologic testing for ABO, Rh, and antibody detection (i.e., screening)
83. Antibody identification
84. Crossmatch/compatibility testing
85. Direct antiglobulin testing (DAT)
86. Phenotyping (e.g., K, S)
87. Antibody titration
88. Elutions
89. Adsorptions
90. Special techniques (e.g., enzyme testing, DTT)
91. Transfusion reaction work-up
92. Cell separations
93. Molecular RBC genotyping
94. Platelet molecular techniques
95. Neutralization/inhibition
96. Leukocyte and platelet testing
97. Donath-Landsteiner testing
98. Thermal amplitude
99. Monocyte monolayer assay
Histocompatibility testing (e.g., HLA typing, HLA antibody screening)
100. Serologic
101. Molecular
Hemolytic Disease of the Fetus and Newborn (HDFN) Work-up
102. Determination of candidacy for RhIG administration
103. Rosette test
104. Flow cytometry
105. Kleihauer-Betke test

MANAGEMENT/SUPERVISORY ACTIVITIES
106. Supervision/direction of department staff in daily operations
107. Personnel management activities (e.g., hiring, discipline, job descriptions, evaluations, scheduling)
108. Infection control activities (e.g., hospital policies)
109. Reportable diseases activities (e.g., public health)
110. Epidemiologic information distribution and reporting (e.g., antibiogram, multi-drug resistance trending)
111. Inventory maintenance and ordering
112. Budgeting and purchasing decisions

113. Direct Laboratory Information System (LIS) development, implementation, and maintenance
114. Quality Assurance Program oversight (e.g., peer group QC evaluation, cross-functional teams, outcome measures, IQCP)
115. Evaluation of quality assessment/improvement activities (e.g., pre-analytical, analytical, and post-analytical)
116. Regulatory compliance and lab accreditation maintenance
117. Development and implementation of disaster or emergency procedures/preparedness
118. Development and implementation of training and educational programs (e.g., in-laboratory trainer, program faculty)
119. Development, implementation, and evaluation of a Competency Testing Program
120. Instrumentation/methodology evaluation, correlation, and application
121. Supervise/direct safety or training activities
122. Proficiency testing documentation and follow-up