ASCP BOARD OF CERTIFICATION

H AND SH PRACTICE ANALYSIS REPORT

For Development of

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

and

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

Content Guideline and Examinations

for Exam Publication January 1, 2020

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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 Hematology (C)
- Specialist in Hematology (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).

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SURVEY DEVELOPMENT

During the 2015 ASCP BOC examination committee meetings, the five categorical examination committees (Blood Banking [BB], Hematology [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
- Microbiology
- Chemistry
- 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 Chemistry and Hematology, 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).

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 H and SH exams, the percentage of respondents currently working exclusively in Hematology and each of the other sections was calculated. The data for any sections in which at least 20% of respondents were working in both Hematology and that area, were included in the analysis. The other survey sections that scored above 20% and therefore were included in the H/SH analysis were Laboratory Operations, Body Fluids, Point-of-Care Testing, and Management/Supervision (for SH only). In addition, the committee reviewed the Urinalysis section and decided not to add urinalysis to the H/SH exams.

Responses from individuals performing higher-level supervisory tasks were not appropriate for the entry-level Technologist in Hematology certification category and were therefore excluded from the analysis. The responses from these individuals were included in the analysis for the Specialist in Hematology 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 Hematology Committee reviewed the practice analysis results. They agreed that the demographic results accurately reflected the H and SH 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 H 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 H and SH **(Appendices B & D)** which informed the exam content guideline and the content for the certification exams.

EXAMINATION CONTENT GUIDELINE, STANDARD SETTING, AND EXAM PUBLICATION

The committee revised the H and SH 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.

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Appendix A

TECHNOLOGIST IN HEMATOLOGY (H)

DEMOGRAPHIC ANALYSIS

Total respondents: 7,122
Total usable: 992

Usable individual respondents met the following criteria:

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

Summary:

- Certifications:
  - 91% are MLS certified
  - 2% are H certified
- Education:
  - 5% have an associate degree or lower
  - 85% have a baccalaureate degree or post-baccalaureate program certificate
  - 10% have a master's degree or higher
- Experience:
  - 41% have 10 years or less
  - 17% have 10 – 20 years
  - 42% 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% from Wisconsin
  - 5% each from Texas, California and Pennsylvania
  - 4% each from Michigan, Florida, Illinois, and Colorado
- Facility:
  - 82% work in hospitals
  - 6% work in independent labs
  - 6% work in physician offices/clinics
  - 6% work in other types of facilities
- Age:
  - 21% are younger than 30 years of age
  - 62% are 30 – 59 years of age
  - 17% are over 60 years of age
- Gender:
  - 82% are female
  - 17% are male
  - 1% chose not to answer this question

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Appendix B

TECHNOLOGIST IN HEMATOLOGY (H)

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. Electronic verification of patient identification and bedside label generation
3. Guidance/assistance to healthcare providers regarding test orders and procedures
4. Chain of custody procedures
5. Specimen processing (e.g., centrifuge, separate)
6. Specimen storage (e.g., time, temperature, light)
7. Specimen distribution (e.g., packaging to meet USPS, DOT and/or IATA regulations/requirements)
8. Specimen evaluation for acceptability
9. Corrective action for unsatisfactory specimens
REPORTING AND INTERPRETING RESULTS
10. Autoverification of patient results
11. Result reporting during LIS/computer downtime
12. Manual result entry (e.g., add interpretive comments, reference, or resource information to the report)
13. Correlation of test results with other data (e.g., clinical history, other lab results) and take corrective action as necessary
14. Critical result reporting according to protocol
15. Communication with healthcare providers regarding test results (e.g., report interpretation, amended results)
INSTRUMENTATION
16. Balances
17. Centrifuges (e.g., microhematocrit, cytocentrifuge)
18. Microscopes
19. Digital imagers (e.g., IRIS, CellaVision)
LABORATORY OPERATIONS
20. Reagent preparation, labeling, and storage
21. Reagent log maintenance
22. Temperature log maintenance
23. Calculations and unit conversions (e.g., dilutions, reagent preparation, graphs, statistics)
24. Instrument troubleshooting and repair
25. Instrument maintenance and calibration
26. Equipment (e.g., pipettes) maintenance and calibration
27. Evaluation/verification/validation of new instrumentation, methodologies, or assays

28. Safety activities (e.g., PPE, fume hoods, fire, safety data sheets, biosafety cabinet)
29. Hazard disposal, decontamination, and storage
30. Regulatory compliance (e.g., HIPAA, OSHA, EPA, homeland security, state, and local)
31. Quality control performance and review (e.g., IQCP)
32. Routine corrective action follow-up of 'Out of Control' results
33. Proficiency testing participation
34. Competency Testing Program participation
35. Quality Assurance Program participation
36. Training of new staff
37. Training of students, residents, and/or fellows
38. Appropriate notification of reportable diseases
39. Maintenance of patient records and laboratory database
40. Departmental policy/procedure writing, review, and revision
POINT OF CARE (WAIVED AND NON-WAIVED)
41. Coagulation POCT (e.g., ACT, PT/INR)
42. Hemoglobin
43. Spun hematocrit
HEMATOLOGY
KNOWLEDGE QUESTIONS
44. Normal and abnormal physiology of erythrocytes, leukocytes, and platelets (e.g., production, destruction, function)
45. Physiology of hemostasis and thrombosis (e.g., pathways – extrinsic, intrinsic, common & fibrinolytic, vascular system)
46. Correlation of patient results with disease states of erythrocytes, leukocytes, and hemostasis
PERIPHERAL BLOOD EVALUATION
47. Automated cell counts and differentials
48. Peripheral blood smears for differentials (preparation and staining)
49. Manual differentials and peripheral smear evaluation (e.g., WBC, RBC, and platelet)
50. Manual cell counts (WBCs and platelets)
51. Estimation of leukocyte and platelet counts from a stained blood smear
52. Recognition of immature, reactive, malignant, or abnormal nucleated cells and leukocyte inclusions
53. Recognition of abnormalities that will interfere with automated results (e.g., platelet clumps, lipemia)
54. Correction of counts for the presence of nucleated red cells
55. Description and grading of red cells according to size, color, shape and inclusions

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HEMATOLOGY TESTING
56. ESR (erythrocyte sedimentation rate)
57. Manual hematocrit
58. Fetal hemoglobin (Kleihauer Betke)
59. Hemoglobin F (quantitative)
60. Heinz body screen
61. Automated reticulocyte count
62. Reticulocyte count using microscopy
63. Sickle cell screen
64. Calculate/evaluate RBC indices including MCV, MCH, MCHC, RDW
65. Hemoglobin electrophoresis
66. RBC enzymes (e.g., G-6-PD, pyruvate kinase)
67. Blood parasite screens (e.g., malaria, *Babesia*)
68. Flow cytometric phenotyping
69. Molecular genetic testing (e.g., FISH, PCR)
BONE MARROW EXAMINATION
70. Bone marrow procedure assistance
71. Bone marrows and/or biopsy material processing and staining
72. Bone marrow differentials (e.g., evaluate cellularity, classify various cell families, recognize abnormal and atypical cells and metastatic tumor cells)
73. Flow cytometry analysis (e.g., immunophenotyping)
74. Special stains: esterases, myeloperoxidase
75. Iron stain (e.g., Prussian blue)
76. Molecular studies (e.g., PCR, FISH, microarray)
77. WHO classification
78. FAB classification
HEMOSTASIS (COAGULATION) TESTING
79. Semi-automated coagulation analyzer
80. Automated coagulation analyzer
81. PT/INR
82. APTT
83. Thrombin time
84. Fibrinogen
85. D-dimer
86. Mixing studies
87. Factor assays
88. vWF assays
89. Heparin neutralization/adsorption (e.g., Hepzyme)
90. Lupus anticoagulant (e.g., dRVVT, phospholipid neutralization)
91. Factor VIII inhibitors/Bethesda titer
92. Heparin assay (anti-Xa assay)

93. Target-specific anticoagulant assays (e.g., dabigatran, rivaroxaban)
94. Hypercoagulability tests (e.g., protein C, protein S, antithrombin)
95. Hypercoagulable molecular testing (e.g., Factor V Leiden, prothrombin gene mutation)
96. Activated protein C resistance
97. Platelet function screening tests (e.g., PFA-100TM)
98. Platelet function/diagnostic tests (e.g., platelet aggregation)
99. Heparin induced thrombocytopenia (e.g., HIT studies)
100. Thromboelastography (TEG)
BODY FLUID TESTING
101. CSF analysis
102. Synovial fluid analysis (e.g., crystal analysis)
103. Serous body fluid (e.g., pericardial, peritoneal, pleural) analysis
104. Bronchoalveolar lavage (BAL) analysis
105. Amniotic fluid cell count
106. Automated cell counts
107. Manual cell counts
108. Cytospin prep

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Appendix C

SPECIALIST IN HEMATOLOGY (SH)

DEMOGRAPHIC ANALYSIS

Total Respondents: 7,122
Total usable: 811

Usable individual respondents met the following criteria:

- Currently employed as a medical laboratory professional in a clinical laboratory
- Currently working in hematology
- 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:
    - 90% are MLS certified
    - 7% are SH certified
- Education:
    - 4% have an associate degree or lower
    - 79% have a baccalaureate degree or post-baccalaureate program certificate
    - 17% have a master's degree or higher
- Experience:
    - 17% have less than 10 years
    - 18% have 10 – 20 years
    - 65% have 20 or more years
- Geographic Distribution: there are respondents from across the U.S., including Guam, Washington D.C., and Puerto Rico, and states with the highest response rate include:
    - 7% from Texas
    - 6% from California
    - 4% each from Minnesota, New York, Ohio, Wisconsin, and Pennsylvania
- Facility:
    - 75% work in hospitals
    - 11% work in physician offices/clinics
    - 6% work in independent labs
    - 8% work in other types of facilities
- Age:
    - 5% are younger than 30 years of age
    - 76% are 30 – 59 years of age
    - 19% are over 60 years of age
- Gender:
    - 84% are female
    - 15% are male
    - 1% chose not to answer this question

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Appendix D

SPECIALIST IN HEMATOLOGY (SH)

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. Electronic verification of patient identification and bedside label generation
3. Guidance/assistance to healthcare providers regarding test orders and procedures
4. Chain of custody procedures
5. Specimen processing (e.g., centrifuge, separate)
6. Specimen storage (e.g., time, temperature, light)
7. Specimen distribution (e.g., packaging to meet USPS, DOT and/or IATA regulations/requirements)
8. Specimen evaluation for acceptability
9. Corrective action for unsatisfactory specimens
10. Registration and billing communication (e.g., ABN, consent forms, insurance)
REPORTING AND INTERPRETING RESULTS
11. Autoverification of patient results
12. Result reporting during LIS/computer downtime
13. Manual result entry (e.g., add interpretive comments, reference, or resource information to the report)
14. Correlation of test results with other data (e.g., clinical history, other lab results) and take corrective action as necessary
15. Critical result reporting according to protocol
16. Communication with healthcare providers regarding test results (e.g., report interpretation, amended results)
INSTRUMENTATION
17. Balances
18. Centrifuges (e.g., microhematocrit, cytocentrifuge)
19. Microscopes
20. Digital imagers (e.g., IRIS, CellaVision)
LABORATORY OPERATIONS
21. Reagent preparation, labeling, and storage
22. Reagent log maintenance
23. Temperature log maintenance
24. Calculations and unit conversions (e.g., dilutions, reagent preparation, graphs, statistics)
25. Instrument troubleshooting and repair
26. Instrument maintenance and calibration
27. Equipment (e.g., pipettes) maintenance and calibration

28. Evaluation/verification/validation of new instrumentation, methodologies, or assays
29. Safety activities (e.g., PPE, fume hoods, fire, safety data sheets, biosafety cabinet)
30. Hazard disposal, decontamination, and storage
31. Regulatory compliance (e.g., HIPAA, OSHA, EPA, homeland security, state, and local)
32. Quality control performance and review (e.g., IQCP)
33. Routine corrective action follow-up of 'Out of Control' results
34. Proficiency testing participation
35. Competency Testing Program participation
36. Quality Assurance Program participation
37. Training of new staff
38. Training of students, residents, and/or fellows
39. Appropriate notification of reportable diseases
40. Maintenance of patient records and laboratory database
41. Departmental policy/procedure writing, review, and revision
42. LIS implementation and maintenance
43. Billing and coding
POINT OF CARE (WAIVED AND NON-WAIVED)
44. Coagulation POCT (e.g., ACT, PT/INR)
45. Hemoglobin
46. Spun hematocrit
HEMATOLOGY
KNOWLEDGE QUESTIONS
47. Normal and abnormal physiology of erythrocytes, leukocytes, and platelets (e.g., production, destruction, function)
48. Physiology of hemostasis and thrombosis (e.g., pathways – extrinsic, intrinsic, common & fibrinolytic, vascular system)
49. Correlation of patient results with disease states of erythrocytes, leukocytes, and hemostasis
PERIPHERAL BLOOD EVALUATION
50. Automated cell counts and differentials
51. Peripheral blood smears for differentials (preparation and staining)
52. Manual differentials and peripheral smear evaluation (e.g., WBC, RBC, and platelet)
53. Manual cell counts (WBCs and platelets)
54. Estimation of leukocyte and platelet counts from a stained blood smear
55. Recognition of immature, reactive, malignant, or abnormal nucleated cells and leukocyte inclusions
56. Recognition of abnormalities that will interfere with automated results (e.g., platelet clumps, lipemia)
57. Correction of counts for the presence of nucleated red cells
58. Description and grading of red cells according to size, color, shape and inclusions

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HEMATOLOGY TESTING
59. ESR (erythrocyte sedimentation rate)
60. Manual hematocrit
61. Fetal hemoglobin (Kleihauer Betke)
62. Hemoglobin F (quantitative)
63. Heinz body screen
64. Automated reticulocyte count
65. Reticulocyte count using microscopy
66. Sickle cell screen
67. Calculate/evaluate RBC indices including MCV, MCH, MCHC, RDW
68. Hemoglobin electrophoresis
69. RBC enzymes (e.g., G-6-PD, pyruvate kinase)
70. Blood parasite screens (e.g., malaria, *Babesia*)
71. Flow cytometric phenotyping
72. Molecular genetic testing (e.g., FISH, PCR)
BONE MARROW EXAMINATION
73. Bone marrow procedure assistance
74. Bone marrows and/or biopsy material processing and staining
75. Bone marrow differentials (e.g., evaluate cellularity, classify various cell families, recognize abnormal and atypical cells and metastatic tumor cells)
76. Flow cytometry analysis (e.g., immunophenotyping)
77. Special stains: esterases, myeloperoxidase
78. Iron stain (e.g., Prussian blue)
79. Molecular studies (e.g., PCR, FISH, microarray)
80. WHO classification
81. FAB classification
HEMOSTASIS (COAGULATION) TESTING
82. Semi-automated coagulation analyzer
83. Automated coagulation analyzer
84. PT/INR
85. APTT
86. Thrombin time
87. Fibrinogen
88. D-dimer
89. Mixing studies
90. Factor assays
91. vWF assays
92. Reptilase time
93. Heparin neutralization/adsorption (e.g., Hepzyme)
94. Lupus anticoagulant (e.g., dRVVT, phospholipid neutralization)
95. Factor VIII inhibitors/Bethesda titer

96. Heparin assay (anti-Xa assay)
97. Target-specific anticoagulant assays (e.g., dabigatran, rivaroxaban)
98. Ecarin clotting time
99. Hypercoagulability tests (e.g., protein C, protein S, antithrombin)
100. Hypercoagulable molecular testing (e.g., Factor V Leiden, prothrombin gene mutation)
101. Activated protein C resistance
102. Platelet function screening tests (e.g., PFA-100TM)
103. Platelet function/diagnostic tests (e.g., platelet aggregation)
104. Heparin induced thrombocytopenia (e.g., HIT studies)
105. Thromboelastography (TEG)
BODY FLUID TESTING
106. CSF analysis
107. Synovial fluid analysis (e.g., crystal analysis)
108. Serous body fluid (e.g., pericardial, peritoneal, pleural) analysis
109. Bronchoalveolar lavage (BAL) analysis
110. Amniotic fluid cell count
111. Automated cell counts
112. Manual cell counts
113. Cytospin prep
MANAGEMENT/SUPERVISORY ACTIVITIES
114. Supervision/direction of department staff in daily operations
115. Personnel management activities (e.g., hiring, discipline, job descriptions, evaluations, scheduling)
116. Infection control activities (e.g., hospital policies)
117. Inventory maintenance and ordering
118. Budgeting and purchasing decisions
119. Direct Laboratory Information System (LIS) development, implementation, and maintenance
120. Quality Assurance Program oversight (e.g., peer group QC evaluation, cross-functional teams, outcome measures, IQCP)
121. Evaluation of quality assessment/improvement activities (e.g., pre-analytical, analytical, and post-analytical)
122. Regulatory compliance and lab accreditation maintenance
123. Development and implementation of disaster or emergency procedures/preparedness
124. Development and implementation of training and educational programs (e.g., in-laboratory trainer, program faculty)
125. Development, implementation, and evaluation of a Competency Testing Program
126. Instrumentation/methodology evaluation, correlation, and application
127. Supervise/direct safety or training activities
128. Point-of-care testing oversight
129. Proficiency testing documentation and follow-up