Instructional Framework

Laboratory Assisting

51.0802.00

This Instructional Framework identifies, explains, and expands the content of the standards/measurement criteria, and, as well, guides the development of multiple-choice items for the Technical Skills Assessment. This document corresponds with the Technical Standards endorsed on July 16, 2023.

Domain 1: Specimen Collection and Processing Procedures **Instructional Time: 45 - 50%**	
STANDARD 4.0 DEMONSTRATE THE PHLEBOTOMY PROCEDURE	
4.1 Explain the scope of practice and regulations regarding phlebotomy according to CLIA and CAP	• Scope of practice for clinical lab in general • Varies by lab/hospital • Clarification on components

4.2 Recognize terms, abbreviations, and codes commonly used in laboratory testing	• Terms, abbreviations, and codes commonly used in laboratory testing
	  ○ Definitions
	  ○ Uses
	  ○ Prefixes
	  ○ Word roots
	  ○ Suffixes
	  ○ Abbreviations

4.3 Describe basic functions of the cardiovascular system	• Functions of the cardiovascular system
	  ○ Roles
	  ○ Components
	  ○ Functions
	  ▪ Heart
	  ▪ Vessels
	  ▪ Formed elements

4.4 Distinguish characteristics of arterial, venous, and capillary blood	• Characteristics of arterial, venous, and capillary blood
	  ○ Vessel walls
	  ▪ Differences
	  ▪ Similarities

	○ Direction of blood flow ○ Oxygenation of the blood within
4.5 Demonstrate an understanding of the anatomy and physiology of the hand and arm	● Anatomy and physiology of the hand and arm ○ Bones ○ Arteries ○ Veins ○ Nerves ○ Muscles
4.6 Apply laboratory requisitions/orders specified to the necessary specimen requirements (e.g., chemistries, blood bank, serology, hematology, microbiology, urinalysis, coagulation, tube type, and volume)	● Laboratory requisitions/orders specified to the necessary specimen requirements ○ Chemistries ○ Blood bank ○ Serology ○ Hematology ○ Microbiology ○ Urinalysis ○ Coagulation ○ Tube type ○ Volume
4.7 Follow standard operating procedure	● Standard operating procedure ○ Purpose ○ Importance
4.8 Use the proper method (two proofs of identity) to ensure patient identification [e.g., name, DOB (date of birth), and MRN (medical record number)]	● Proper method (two proofs of identity minimum) to ensure patient identification ○ Name ○ DOB (date of birth) ○ MRN (medical record number) ○ Inpatient vs. outpatient ○ ID band if inpatient (must be on person)
4.9 Provide a comfortable, safe environment (i.e., patient position, draw setup, order of draw, butterfly instead of needle, etc.) explaining procedures to the patient, using a medical interpreter, if needed	● Comfortable, safe patient environment ○ Patient position ○ Draw setup ○ Order of draw

	○ Butterfly instead of needle, etc.
4.10 Use phlebotomy equipment according to manufacturer guidelines	● Explanation of all venipuncture (VP) equipment needed ● Role of all venipuncture equipment ● Technique
4.11 Perform the phlebotomist collection procedures (e.g., venous blood, capillary blood, and blood cultures)	● Phlebotomist collection procedures ○ Venous blood ○ Capillary blood ○ Blood cultures
STANDARD 5.0 DEMONSTRATE SPECIMEN COLLECTION AND PROCESSING PROCEDURES	
5.1 Demonstrate the proper method of patient identification (two proofs of identity) to ensure patient identification (e.g., name, DOB, and MRN)	● Patient identification (two proofs of identity minimum) to ensure patient identification ○ Name ○ DOB (date of birth) ○ MRN (medical record number) ○ Inpatient vs. outpatient ○ ID band if inpatient (must be on person)
5.2 Instruct the patient in the proper collection of specimens (e.g., semen, urine, feces, and other body fluids)	● Proper collection of specimens ○ Semen ○ Urine ○ Feces ○ Other body fluids
5.3 Describe basic testing for urine, blood, stool, and other body fluids (i.e., kidney profile, liver profile, complete cell count, CBC, etc.)	● Basic testing for urine, blood, stool, and other body fluids ○ Kidney profile ○ Liver profile ○ Complete cell count (CBC), etc.
5.4 Recognize terms, abbreviations, and codes commonly used in the laboratory regarding specimen collection and processing (e.g., blood: capillary vs. venous vs. arterial; urine: clean catch, suprapubic vs. catheter; respiratory: spit vs. sputum, bronchial wash; and SWB)	● Terms, abbreviations, and codes commonly used in the laboratory regarding specimen collection and processing ○ Blood: capillary vs. venous vs. arterial ○ Urine: clean catch, suprapubic vs. catheter ○ Respiratory: spit vs. sputum, bronchial wash ○ SWB (Subject Well Being)

5.5 Match laboratory requisitions/orders to the necessary specimen requirements (e.g., chemistries, blood bank, serology, hematology, microbiology, urinalysis, coagulation, tube type, and volume)	● Match laboratory requisitions/orders to the necessary specimen requirements ○ Chemistries ○ Blood bank ○ Serology ○ Hematology ○ Microbiology ○ Urinalysis ○ Coagulation ○ Tube type ○ Volume
5.6 Follow facility collection and processing procedures	● Manuals ● Collection and/or processing differ by ○ Location ○ Lab on site or off
5.7 Choose appropriate equipment and supplies for specimen collection	● Considerations ○ Size of vessel ○ Depth of vessel ○ Direction of vessel ○ Condition of vessel ● Availability ○ Regular ○ Butterfly ○ Syringe ○ Availability
5.8 Label, transport, and store specimens according to standard operating procedure (e.g., chemistry, hematology, coagulation, and microbiology)	● Special considerations (heated, slurry of ice, protected from light, etc.) ● Label, transport, and store specimens according to standard operating procedure ○ Chemistry ○ Hematology ○ Coagulation ○ Microbiology

5.9 Describe handling of blood bank specimens according to standard operating procedure (e.g., apply blood bank bands when required, labeling, and transporting)	● Handling of blood bank specimens according to standard operating procedure ○ Apply blood bank bands when required ○ Labeling ○ Transporting
5.10 Determine specimen acceptability (e.g., preparation; type of specimen; collection, handling, and storage of specimen; and presence of interfering substances)	● Specimen acceptability ○ Preparation ○ Type of specimen ○ Collection, handling, and storage of specimen ○ Presence of interfering substances
5.11 Perform pre-analytic preparation of specimens (i.e., aliquot, label, centrifuge, etc.) and deliver to testing departments	● Pre-analytic preparation of specimens ○ Aliquot ○ Label ○ Centrifuge, etc.
5.12 Perform waived testing and analytical functions (i.e., load analyzer, malfunction identification and troubleshooting, etc.), and report those results	● Waived testing and analytical functions ○ Load analyzer ○ Malfunction identification and troubleshooting, etc.
5.13 Handle sterile and non-sterile items according to standards and procedures	● Sterile and non-sterile items ○ Handling ○ Standards and procedures ○ Maintain sterility
5.14 Store specimens (e.g., time, temperature, light, packaging, and transport offsite)	● Store specimens ○ Time ○ Temperature ○ Light ○ Packaging ○ Transport offsite
5.15 Explain the chain-of-custody procedure (i.e., drug screen testing, blood alcohol testing, etc.)	● Chain-of-custody procedure ○ Drug screen testing ○ Blood alcohol testing, etc.

5.16 Report results according to established protocol within the scope of practice for testing using appropriate documentation	● Manuals ● Collection and/or processing differ by ○ Location ○ Lab on site or off
5.17 Identify STAT (urgent testing/immediately) and timed orders for priority collection and processing per standard operating procedure	● STAT (urgent testing/immediately) ● Manuals ● Triaging
5.18 Distinguish among pre-analytic, analytic, and post-analytic procedures	● Breakdown of task with patient appointments/specimen analysis ○ Pre-analytic ○ Analytics ○ Post-analytic
STANDARD 7.0 PERFORM URINALYSIS, BODY FLUIDS, AND STOOLS TESTING	
7.1 Discuss the basic physiology of urinary/gastrointestinal systems	● Physiology of urinary/gastrointestinal systems ○ Roles of system ○ Kidney ○ Ureter ○ Bladder ○ Urethra
7.2 Prepare for testing (e.g., perform instrument setup, calibration, and maintenance; evaluate reagent/dipstick acceptability; collect, handle, and store specimen; and perform quality control procedures)	● Prepare for testing ○ Perform instrument setup, calibration, and maintenance ○ Evaluate reagent/dipstick acceptability ○ Collect, handle, and store specimen ○ Perform quality control procedures
7.3 Discuss basic macroscopic examination of urine (i.e., physical and chemical tests, identify normal/abnormal values, recognize interfering substances, define method limitations, etc.]	● Basic macroscopic examination of urine ○ Physical and chemical tests ○ Identify normal/abnormal values ○ Recognize interfering substances ○ Define method limitations, etc.
7.4 Discuss basic waived and moderate complexity tests (i.e., UA dipstick, automated UA, qualitative UA HCG, fecal occult blood, etc.)	● Basic waived and moderate complexity tests ○ UA dipstick

	○ Automated UA ○ Qualitative UA HCG ○ Fecal occult blood, etc.

Domain 2: Industry, Clinical Lab, and Employee Regulations **Instructional Time: 25 - 30%**	
STANDARD 1.0 APPLY STANDARD PRECAUTIONS AND SAFETY MEASURES	
1.1 Define communicable disease (i.e., airborne, contact/touch, droplet, etc.)	● Communicable disease ● Characteristics of each ● Prevention ○ Airborne ○ Contact/touch ○ Droplet ○ Vehicle ○ Vector
1.2 Explain bloodborne pathogen transmission and the requirement for PPE (Personal Protective Equipment) [i.e., human specimens such as tissue, sputum, feces, body fluids (blood, urine, and cavitary specimens), environmental samples, etc.]	● Bloodborne pathogen transmission ○ AIDS ○ HBV ● PPE (Personal Protective Equipment) requirement ○ Human specimens such as tissue, sputum, feces, body fluids (blood, urine, and cavitary specimens) ○ Environmental samples, etc.
1.3 Explain Universal Precautions according to OSHA (Occupational Safety and Health Administration) and explain Transmission-based Precautions according to CDC (Center for Disease Control)	● Isolation ○ Airborne, droplet, contact ○ PPE ○ Room placement ○ Transport
1.4 Demonstrate proper hand hygiene protocol (e.g., not touching face and phone and before donning, and after doffing gloves)	● Proper hand hygiene protocol ○ Not touching face and phone and before donning, and after doffing gloves

1.5 Demonstrate proper donning, doffing, and discarding PPE (i.e., coats, masks, eye protection, gloves, booties, etc.)	● Proper donning, doffing, and discarding PPE ○ Coats ○ Masks ○ Eye protection ○ Gloves ○ Booties, etc.
1.6 Characterize requirements for isolation and the isolation protocol (i.e., hospital, outpatient clinic, research lab, veterinary clinic, etc.)	● Isolation ● Isolation protocol ○ Hospital ○ Outpatient clinic ○ Research lab ○ Veterinary clinic, etc.
1.7 Identify hazardous labeling requirements according to OSHA and IATA (International Air Transport Association) (i.e., safety signs, symbols, dating, special instructions, etc.)	● Hazardous labeling requirements ○ Safety signs ○ Symbols ○ Dating ○ Special instructions, etc. ● OSHA (Occupational Safety and Health Administration) ● IATA (International Air Transport Association)
1.8 Document unsafe conditions for self and others (i.e., frayed cords, spillages, puddles on floor, bed rails down, etc.)	● Hazards overview ○ Physical ○ Ergonomic/musculoskeletal ○ Biological ○ Chemical ○ Psychosocial ○ Radiation ○ Mechanical ● Document unsafe conditions for self and others ○ Frayed cords ○ Spillages ○ Puddles on floor ○ Bed rails down, etc.
1.9 Describe procedures for cleaning laboratory spills according to the type of spill	● SDS (Safety Data Sheets) ○ What is it

	○ How to use it
1.10 Summarize OSHA guidelines pertaining to handling and disposal of contaminated and hazardous items (i.e., Sharps, etc.)	● OSHA guidelines pertaining to handling and disposal of contaminated and hazardous items ○ Sharps ○ Biohazard Bags ○ General waste
1.11 Explain fire and chemical safety protocols [e.g., SDSs (Safety Data Sheets), PASS (Pull, Aim, Squeeze, and Sweep), and types of fire extinguishers]	● Fire and chemical safety protocols ○ Fire Tetrahedron ○ SDSs (Safety Data Sheets) ○ PASS (Pull, Aim, Squeeze, and Sweep) ○ Types of fire extinguishers
1.12 Discuss facility specific evacuation plans and alerts (i.e., meeting places, reporting, red-, blue-, green- codes, etc.)	● Facility specific evacuation plans and alerts ○ Meeting places ○ Reporting ○ Red-, blue-, green- codes, etc.
1.13 Categorize cleaning agents [i.e., bleach, ammonia, alcohol, quats (quaternary ammonium compounds), etc.) and distinguish the interaction with each other (e.g., bleach and ammonia)]	● Cleaning agents ○ Bleach ○ Ammonia ○ Alcohol ○ Quats (quaternary ammonium compounds), etc. ● Distinguish the interaction with each other ○ Bleach and ammonia
1.14 Demonstrate the maintenance of a sanitary and organized work area (i.e., disinfecting work surfaces, spills, sinks, equipment, etc.)	● Maintenance of a sanitary and organized work area ○ Disinfecting work surfaces ○ Spills ○ Sinks ○ Equipment, etc.
1.15 Create and demonstrate a safe work environment in the lab, including proper containment of food as well as proper storage and use of equipment, materials, and chemicals according to manufacturer guidelines	● FIFO (First in First Out)/LILO (Last in Last Out) ● Expiration dates

1.16 Practice specific professional laboratory attire as recommended by CDC/OSHA (i.e., personal items, including phone; hair tied back, acceptable nail length, closed-toed shoes, minimal jewelry, etc.)	● Professional laboratory attire as recommended by CDC/OSHA ○ Personal items, including phone ○ Hair tied back ○ Acceptable nail length ○ Closed-toed shoes ○ Minimal jewelry ○ Minimal make-up ○ ID badge (visible), etc.
1.17 Demonstrate proper body mechanics and lifting techniques	● Ergonomics ○ Sitting ○ Lifting ○ Procedures [during VP (venipuncture) and other techniques]
STANDARD 2.0 MAINTAIN THE LABORATORY ACCORDING TO INDUSTRY REGULATIONS AND STANDARDS	
2.1 Discuss laws, regulations, and guidelines for the laboratory [e.g., CMS (Centers for Medicare and Medicaid Services), EPA, CDC, OSHA, CAP (The College of American Pathologists) and CLIA (Clinical Laboratory Improvement Act), CLSI (Clinical and Laboratory Standards Institute), ISO (International Organization for Standardization), IATA, and AZDHS (Arizona Department of Health Services)]	● Laws, regulations, and guidelines for the laboratory ○ CMS (Centers for Medicare and Medicaid Services) ○ EPA (Environmental Protection Agency) ○ CDC (Centers for Disease Control) ○ OSHA (Occupational Safety and Health Administration) ○ CAP (The College of American Pathologists) ○ CLIA (Clinical Laboratory Improvement Act) ○ CLSI (Clinical and Laboratory Standards Institute) ○ ISO (International Organization for Standardization) ○ IATA (International Air Transport Association) ○ AZDHS (Arizona Department of Health Services)
2.2 Explain CLIA regulations and their impact on laboratory functions and procedures	● Waived Testing
2.3 Compare and contrast voluntary accrediting and inspection agency requirements [e.g., CAP, COLA (Commission on Office Laboratory Accreditation), The Joint Commission, and AABB (American Association of Blood Banks)]	● Voluntary accrediting and inspection agency requirements ○ CAP (The College of American Pathologists) ○ COLA (Commission on Office Laboratory Accreditation) ○ The Joint Commission ○ AABB (American Association of Blood Banks)

2.4 Discuss and summarize HIPAA (Health Insurance Portability and Accountability Act) and its guidelines, restrictions, and requirements [e.g., patient and recipient verification, accurately communicating test results (limitations and clarification), and discarding PHI (Personal Health Information)]	● HIPAA (Health Insurance Portability and Accountability Act) ● Guidelines, restrictions, and requirements ○ Patient and recipient verification ○ Accurately communicating test results ▪ Limitations and clarification ○ Discarding PHI (Personal Health Information)
2.5 Investigate active involvement in local, state, and national associations and organizations (people and resources) to keep up to date regarding the industry [i.e., American Society of Clinical Scientists, NLSW (National Laboratory Science Week), etc.]	● CEU (Continuing Education Units)/CEC (Continuing Education Credits) ● Active involvement in local, state, and national associations and organizations ○ American Society of Clinical Scientists ○ NLSW (National Laboratory Science Week), etc.
STANDARD 3.0 DEMONSTRATE LEGAL AND ETHICAL PRACTICES	
3.1 Discuss liability associated with the practice of laboratory assisting [i.e., following manufacturer's instructions on the use of equipment, complying with SOP (Standard Operation Procedure), etc.]	● Liability associated with the practice of laboratory assisting ○ Following manufacturer's instructions on the use of equipment ○ Complying with SOP (Standard Operation Procedure), etc.
3.2 Explain the importance of patient confidentiality according to HIPAA guidelines [i.e., disposal of PHI (patient health information), accessing patient information on a need-to-know basis only, etc.]	● Patient confidentiality according to HIPAA guidelines ○ Appropriate utilization of PHI ○ Disposal of PHI (patient health information) ○ Accessing patient information on a need-to-know basis only, etc.
3.3 Explain the Patients' Bill of Rights according to AMA (American Medical Association) and AHA (American Hospital Association)	● Patients' Bill of Rights ○ Clarification on components ○ Availability to patients
3.4 Define a laboratory assistant's scope of practice (duties and responsibilities)	● Scope of practice ○ Clarification on components ▪ Clinical ▪ Technical ▪ Clerical ▪ Professional skills

3.5 Explain the education and training requirements for laboratory assisting per CLIA-88	● Education and training requirements for laboratory assisting per CLIA-88 ○ Clarification on components
3.6 Explain laboratory management's oversight of POCT (Point of Care Testing)	● POCT (Point of Care Testing) ○ Define/Explain ○ Purpose
STANDARD 6.0 DESCRIBE QUALITY CONTROL, QUALITY ASSURANCE, AND DOCUMENTATION OF LABORATORY MAINTENANCE	
6.1 Explain the significance of quality control and quality assurance with respect to accurate patient testing results	● QA (Quality Assurance) vs. QC (Quality Control) ○ Tracking/logging ○ Responding to data
6.2 Describe the importance of calibration and monitoring instruments	● Calibration and monitoring instruments ○ Manufacturer guidelines ○ Logging ○ Importance
6.3 Perform maintenance on instruments and equipment to prevent malfunction and notify appropriate authority (i.e., microscopes, centrifuges, water baths, hoods, thawers, etc.)	● Maintenance on instruments and equipment to prevent malfunction and notify appropriate authority ○ Microscopes ○ Centrifuges ○ Water baths ○ Hoods ○ Thawers, etc.
6.4 Explain the quality control check on general laboratory equipment (e.g., refrigerators, centrifuge, rotators, incubators, freezers, coolers, timers, and thermometers)	● Quality control check on general laboratory equipment ○ Refrigerators ○ Centrifuge ○ Rotators ○ Incubators ○ Freezers ○ Coolers ○ Timers ○ Thermometers

6.5 Discuss key performance indicators for quality improvement activities (i.e., specimen acceptability, blood culture contamination, etc.)	● Key performance indicators for quality improvement activities ○ Specimen acceptability ○ Blood culture contamination, etc.
6.6 Recognize standard operating procedures and technical issues to take corrective action	● Standard operating procedures and technical issues to take corrective action ○ What to look for ○ Responding per facility guidelines
6.7 Define quality control terms (e.g., trends and shifts, means and modes, and documentation and corrective action)	● Quality control terms ○ Trends and shifts ○ Means and modes ○ Documentation and corrective action
6.8 Discuss maintaining laboratory supplies and equipment inventory (i.e., protocol for ordering, receiving, cataloging, storing supplies/equipment, etc.)	● Maintaining laboratory supplies and equipment inventory ○ Protocol for ordering, receiving, cataloging, storing supplies/equipment, etc.
6.9 Prepare, label, and store working reagents per SDS	● Working with reagents per SDS ○ Preparing, labeling, storing ○ Possibilities ○ Location of SDS ○ How to use SDS

Domain 3: Principles of Specimen Analysis **Instructional Time: 15 - 20%**	
STANDARD 8.0 APPLY PRINCIPLES OF IMMUNOLOGY, SEROLOGY, AND BLOOD BANKING	
8.1 Distinguish between immunology and immunohematology	● Compare and contrast ○ Immunohematology is a division of hematology related to antigen-antibody reactions ● Testing for each
8.2 Describe purpose for immunological assays	● Immunological assays ○ Antigen-antibody reactions

	○ Importance of antigen-antibody and potential reactions
8.3 Determine specimen acceptability per test ordered [i.e., infectious mononucleosis, rheumatoid factor, ANA (antinuclear antibody), patient preparation, type of specimen, collection, handling and storage, presence of interfering substances, etc.)]	● Specimen acceptability per test ordered ○ Infectious mononucleosis ○ Rheumatoid factor ○ ANA (antinuclear antibody) ○ Patient preparation ○ Type of specimen ○ Collection, handling and storage ○ Presence of interfering substances, etc.
8.4 Prepare for reference lab (i.e., centrifuge, aliquot, etc.) per standard operating procedure	● Prepare for reference lab ○ Centrifuge ○ Aliquot, etc.
8.5 Explain “running blood bank specimens to the lab” during MTP (Massive Transfusion Protocol) and dispensing blood units	● “Running blood bank specimens to the lab” during MTP (Massive Transfusion Protocol) ● Dispensing blood units
STANDARD 9.0 APPLY PRINCIPLES OF HEMATOLOGY	
9.1 Review specimen acceptability for testing (e.g., collect, process, and store specimen according to test requirements; evaluate type and age of specimen and additive; and label properly)	● Specimen acceptability for testing ○ Collect, process, and store specimen according to test requirements ○ Evaluate type and age of specimen and additive ○ Label properly
9.2 Prepare specimen for analysis (i.e., load sample to analyzer, maintain specimen integrity relative to time and temperature, perform standards or controls where applicable, etc.)	● Prepare specimen for analysis ○ Load sample to analyzer ○ Maintain specimen integrity relative to time and temperature ○ Perform standards or controls where applicable, etc.
9.3 Prepare acceptable blood films [e.g., peripheral (size/width thickness, feather edge, straight, and free of streaks), homogeneity, and labeling]	● Prepare acceptable blood films ○ Peripheral (size/width thickness, feather edge, straight, and free of streaks) ○ Homogeneity ○ Labeling

9.4 Stain blood films according to test requirements (e.g., Wright's stain, iron and controls, and retic)	● Stain blood films according to test requirements ○ Wright's stain ○ Iron and controls ○ Retic
9.5 Perform ESR (Erythrocyte Sedimentation Rates (i.e., Wintrobe, Westergren, manual and instrument applications, etc.)	● Perform ESR (Erythrocyte Sedimentation Rates) ○ Wintrobe ○ Westergren ○ Manual and instrument applications, etc.
STANDARD 10.0 APPLY PRINCIPLES OF HEMOSTASIS/COAGULATION	
10.1 Determine specimen acceptability (e.g., collection techniques; transport conditions; time, temperature, processing, and storage; additive present—blood-to-anticoagulant ratio; and check hemolysis)	● Specimen acceptability ○ Collection techniques ○ Transport conditions ○ Time, temperature, processing, and storage ○ Additive present—blood-to-anticoagulant ratio ○ Check hemolysis
10.2 Prepare specimen for analysis (e.g., centrifuge, loading sample to analyzer, maintain specimen integrity relative to time and temperature, and perform standards or controls where applicable)	● Prepare specimen for analysis ○ Centrifuge ○ Loading sample to analyzer ○ Maintain specimen integrity relative to time and temperature ○ Perform standards or controls where applicable
STANDARD 11.0 APPLY PRINCIPLES OF MICROBIOLOGY	
11.1 Review for specimen acceptability and integrity based on specimen requirements (e.g., type of specimen, collection container, and handling and storage of specimen)	● Specimen acceptability and integrity based on specimen requirements ○ Type of specimen ○ Collection container ○ Handling and storage of specimen
11.2 Describe the handling of all microbiological specimens under a biological safety hood (BSL)	● Handling of all microbiological specimens under a biological safety hood (BSL) ○ Partially enclosed workspace that has built in protection

	○ Protective measures needed in a laboratory setting to protect workers, the environment, and the public
11.3 Perform visual checks of media (i.e., broken containers, contamination, etc.)	● Visual checks of media ○ Broken containers ○ Contamination, etc.
11.4 Inoculate and properly label culture media according to SOP (e.g., nutrient, differential, selective, solid, semi-solid, and liquid)	● Inoculate and properly label culture media according to SOP ○ Nutrient ○ Differential ○ Selective ○ Solid, semi-solid, and liquid
11.5 Prepare smears and load to automated stainer, if available	● Prepare smears and load to automated stainer ○ Technique ○ Outcome/Goal ○ Stain ▪ Procedure ▪ Purpose ▪ Results
11.6 Handle plated cultures according to SOP (e.g., correct incubator based on temperature and environment)	● Handle plated cultures according to SOP ○ Correct incubator based on temperature and environment
11.7 Explain the atmospheric environment needed for certain types of cultures (e.g., Aerobic, Anaerobic, and CO2)	● Atmospheric environment needed for certain types of cultures ○ Aerobic ○ Anaerobic ○ CO2
11.8 Describe the acceptance of blood cultures, processing of positive blood cultures from the instrument, and finalizing negative blood cultures	● Blood cultures ○ Check for bacteria or other germs in a blood sample ○ Procedures ▪ Technique ▪ Processing ▪ Positive vs. negative results ▪ Therapeutic assessment ▪ Monitoring

11.9 Describe acceptable specimens for waived and moderate and complexity microbiology tests (e.g., rapid strep A, rapid COVID/RSV/Flu A-B, vaginitis panel, trichomonas, qualitative Giardia, and Crypto Immunoassay)	● Acceptable specimens for waived and moderate and complexity microbiology tests ○ Rapid strep A ○ Rapid COVID/RSV/Flu A-B ○ Vaginitis panel ○ Trichomonas ○ Qualitative Giardia ○ Crypto Immunoassay
STANDARD 12.0 APPLY PRINCIPLES OF CHEMISTRY	
12.1 Review specimen acceptability for testing (e.g., collect, process, and store specimen according to test requirements; evaluate type and age of specimen and additive; and label properly)	● Specimen acceptability for testing ○ Collect, process, and store specimen according to test requirements ○ Evaluate type and age of specimen and additive ○ Label properly
12.2 Prepare specimen for analysis (i.e., Centrifuging and loading sample to analyzer, maintain specimen integrity relative to time and temperature, perform standards or controls where applicable, etc.)	● Prepare specimen for analysis ○ Centrifuging and loading sample to analyzer ○ Maintain specimen integrity relative to time and temperature ○ Perform standards or controls where applicable, etc.
12.3 Discuss quality and maintenance specific to chemistry instrumentation	● Quality and maintenance specific to chemistry instrumentation ○ Manufacturer recommendations ○ Impact of QA (Quality Assurance) and QC (Quality Control)
12.4 Discuss measurable ranges for test results [i.e., AMR (Analytical Measurable Range), etc.]	● Measurable ranges for test results ○ AMR (Analytical Measurable Range), etc.
12.5 Explain out-of-range AMR reflexes to dilution	● Out-of-range AMR reflexes to dilution ○ Reportable range ○ Span of test result values over which the accuracy can be verified or test system response can be established
12.6 Explain that dilutions are based on calculations	● Dilutions are based on calculations ○ Ex. 1:10 solution = 1 part + 9 parts solvent

Domain 4: Laboratory Results **Instructional Time: 5 - 10%**	
STANDARD 13.0 REPORT TEST RESULTS	
13.1 Use information management systems to record and retrieve laboratory data from work produced onsite and reference laboratories [i.e., LIS (Laboratory Information Systems), etc.]	● Information management systems to record and retrieve laboratory data from work produced onsite and reference laboratories ○ LIS (Laboratory Information Systems), etc.
13.2 Discuss the regulations that apply to waived and moderate complexity testing	● Regulations that apply to waived and moderate complexity testing ○ CLIA waived testing ▪ Define ▪ Ex. Hemoglobin, Glucose testing, Pregnancy testing, etc.
13.3 Discuss the significance of reference values to interpreting patient results	● Reference ranges ○ Some vary (age, gender, etc.) ○ Some consistent ● Highs, lows, criticals ● Protocols for each
13.4 Interpret controls and patient results for reporting (e.g., reference values, respond to critical values, and qualitative results)	● Interpret controls and patient results for reporting ○ Reference values ○ Respond to critical values ○ Qualitative results
13.5 Review patient identification with laboratory results prior to final report	● Patient identification with laboratory results prior to final report ○ HIPAA ○ Safety ▪ No misID (misidentification) ● Verifying information correct ○ PHI ○ Reference ranges - accurate

13.6 Identify abnormal and questionable/contradictory results and refer them to the appropriate authority	● Abnormal and questionable/contradictory results ○ Potential protocols ○ Lab dependent
13.7 Demonstrate competency in using various patient report formats (i.e., manual, electronic, etc.)	● Competency in using various patient report formats ○ Manual ○ Electronic, etc.
13.8 Discuss procedural difficulties with specified laboratory personnel (i.e., equivocal results, failed controls, etc.)	● Procedural difficulties with specified laboratory personnel ○ Equivocal results ○ Failed controls, etc.
13.9 Follow established procedure for correcting and/or amending manual or electronic reports	● Established procedure for correcting and/or amending manual or electronic reports ○ Lab dependent