

# Levels of Practice in Clinical Laboratory Science Model

This model assumes that:

- Practitioners obtain national certification at each level.
- Practitioners at each level are responsible for performing duties assigned and providing supportive knowledge to staff at lower levels.
- Practitioners at each level may assist with training at their level or at lower levels.
- Skills needed at all levels include, but are not limited to: Communication, Troubleshooting, Quality Control, Patient Safety, Basic Laboratory Safety (OSHA/EPA), Ethics, Interpersonal Skills, Cultural Awareness, IT/Computer Skills, Terminology, Quality/Process Improvement, Basic Laboratory Operations.
- Competency is verified at all levels of practice.
- Systems for documenting orientation, training, competence, and recertification (if applicable) are required.
- An individual could enter the career ladder at any level based on certification, educational degree, and documented experience.
- Once graduates of educational programs enter the workforce, additional education would be available and required for those who wish to advance their knowledge, skills, and level of practice.
- States with licensure requirements for medical laboratory professionals may define levels of practice and titles based on their statutes.

## Definitions

- Training: structured educational program leading to competence in a practice skill prior to independent practice. This could be offered by an employer, as a continuing education program, formal educational institution, or professional society.
- Additional education: formal coursework or programs leading to additional certification or an advanced degree.
- Certificate: Certificate indicating completion of a structured or defined educational program.
- Certification: The process by which an individual's qualifications are recognized by a non-governmental organization or agency typically by meeting specific academic requirements and obtaining a satisfactory score on an examination.
- Relevant experience: Supervised experience in the practice skill.
- Entry Level: Skills expected at career entry. After competency is documented, practitioners can perform the skills without additional experience.

Level	Practice Skills:	Education	Relevant Experience	Certification
I	Phlebotomy	HS/GED + Training or Associate or Certificate program	Entry Level	PBT
	Specimen Processing			
	Order Entry – Accessioning			
II	Waived Testing	HS/GED + Training or Associate or Certificate program	Yes	MLA
	Assisting Duties: <ul style="list-style-type: none"> <li>• Loading Analyzers</li> <li>• Culture set-up</li> </ul>			

Level	Practice Skills:	Education	Relevant Experience	Certification
III	Automated Chemistry, Immuno-Chemistry, Coagulation, Hematology, Urinalysis	Associate	Entry Level	MLT
	Less complex Microbiology <ul style="list-style-type: none"> <li>• Procedure/media selection</li> <li>• Culture inoculation</li> <li>• Specimen preparation</li> <li>• Inoculation/loading of automated ID/Sensitivity instrumentation</li> <li>• Direct microscopic procedures, i.e. gram stain</li> <li>• Recognition of potential organisms, likely sources and significance of culture findings</li> <li>• Confirmatory testing and sub-culturing</li> <li>• Non-waived antigen kit tests</li> <li>• Macroscopic screening for parasites</li> <li>• Urine cultures or other single organism cultures</li> </ul>			
	Less complex Blood Banking <ul style="list-style-type: none"> <li>• ABO</li> <li>• Rh</li> <li>• Antibody screen</li> <li>• Crossmatch</li> <li>• Direct antiglobulin testing</li> <li>• Antibody ID (single alloantibody)</li> <li>• Blood and component release</li> </ul>			
	Manual Differentials with higher level review of abnormal results			
	Urine Microscopy			
IV	Less complex Body Fluid procedures <ul style="list-style-type: none"> <li>• cell count</li> <li>• automated chemistries</li> <li>• gram stain</li> </ul>	Associate (plus training)	Yes	MLT
	Micro ID including aerobes, anaerobes, or mixed cultures			
	Blood Bank antibody identification			
	Manual differential with the potential for higher level review			
V	Body Fluid differential with higher level review of abnormal results	Baccalaureate	Entry Level	MLS
	Simple molecular testing that follows established protocols including DNA Probes			
	Advanced Techniques in Blood Bank			
	Body Fluid Differential without Higher Level Review			
	Immunology			
	Advanced Techniques Microbiology			
	Advanced molecular testing that follows established protocols including DNA Probes			
	Advanced Techniques in Hematology / Bone Marrows			
	Advanced Techniques in Coagulation			
Advanced Techniques in Chemistry (Electrophoresis, etc.)				
Advanced Techniques in Immunochemistry and Drug Testing (HPLC, etc.)				

Level	Practice Skills:	Education	Relevant Experience	Certification
VI	Advanced Techniques in Body Fluids <ul style="list-style-type: none"> <li>• <i>Micro Array</i></li> <li>• <i>Flow Cytometry</i></li> <li>• <i>PCR</i></li> </ul>	Baccalaureate + Additional education	Yes	MLS
	Infection Control/Epidemiology			
	Method Evaluation/Test Development			
	Patient Education			
	POC Oversight			
	Technical Supervision <ul style="list-style-type: none"> <li>• <i>Discipline Specific</i></li> <li>• <i>Employee Supervision</i></li> <li>• <i>Daily Operations, QC Review, etc.</i></li> </ul>			
	Research Protocols			
	Safety Officer			
	Oversight of Student/Staff Education and Training			
	Technical Consultation			
	Informatics			
Cellular Therapy - Stem Cell Transplantation				
Educators: <ul style="list-style-type: none"> <li>• <i>Develop and teach didactic and laboratory sessions to reflect current practice</i></li> <li>• <i>Assess student performance</i></li> <li>• <i>Available to students for counseling</i></li> <li>• <i>Engage in service and scholarly activities.</i></li> </ul>				
Cytogenetics	Baccalaureate + Additional education	Yes	Specialty Certification	
Advanced Molecular / PCR <ul style="list-style-type: none"> <li>• <i>Modify existing tests</i></li> <li>• <i>Troubleshooting</i></li> <li>• <i>Method evaluation</i></li> <li>• <i>Research and development</i></li> </ul>				
Advanced Flow Cytometry (anything beyond a routine hematology analyzer)				
Histocompatibility				
Specialist in (BB, Chem, Heme, Coag, etc)				
VII	Compliance/Coding/Regulatory Management	Master's degree in relevant area	Yes	MLS plus other relevant certification
	Quality Management Oversight			
	Risk/Patient Safety Management			
	Operations/Business Management <ul style="list-style-type: none"> <li>• <i>Overall management of the laboratory</i></li> <li>• <i>Regulatory Affairs / Compliance</i></li> <li>• <i>Quality Assurance</i></li> <li>• <i>Process Improvement</i></li> <li>• <i>Information Management</i></li> <li>• <i>Personnel Management</i></li> <li>• <i>Productivity and Performance Monitoring</i></li> <li>• <i>Inter and Intra disciplinary management</i></li> <li>• <i>Financial Management (capital, operating, and personnel)</i></li> </ul>			

	<ul style="list-style-type: none"> <li>• <i>Projecting and Monitoring</i></li> <li>• <i>Contractual Agreements/Business Planning</i></li> </ul>			
	<p>Technical Management</p> <ul style="list-style-type: none"> <li>• <i>Coordinates</i></li> <li>• <i>Plans</i></li> <li>• <i>Manages and monitors testing activities and R &amp; D</i></li> <li>• <i>Data Management and Problem Solving</i></li> <li>• <i>Instrument Selection</i></li> <li>• <i>Test Development and Method Evaluation</i></li> </ul>			
	<p>Educational Program Director</p> <ul style="list-style-type: none"> <li>• <i>Manage human and financial resources</i></li> <li>• <i>Recruit and mentor faculty and students</i></li> <li>• <i>Assure program meets accreditation standards (responsible for organization, administration, periodic review, planning, development, evaluation, and general effectiveness of the program)</i></li> <li>• <i>Engage in service and scholarly activities</i></li> <li>• <i>Engage in strategic planning and set priorities for the program</i></li> </ul>			
<b>Level</b>	<b>Practice Skills:</b>	<b>Education</b>	<b>Relevant Experience</b>	<b>Certification</b>
<b>VIII</b>	Clinical Assessment	DCLS or PhD	Advanced Practice	MLS plus other relevant certification
	Evidence based practice/research			
	Grand Rounds			
	Laboratory Services Clinical Consultation			
	Patient Counseling			
	Grant-funded Research Principal Investigator			
	Test Utilization/Assessment/Protocol Development			