

# Healthcare: Severe Shortages of Qualified Medical Laboratory Professionals

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## ABSTRACT

**Abbreviations:** MLS: Medical Laboratory Science; MLT: Medical Laboratory Technician; BMS: Biomedical Science; BLM: Biomedical Laboratory; MBA: Masters of Business Administration; MHA: Masters Health Administration; MPH: Masters Public Health; DCLS: Doctorate of Clinical Laboratory Science; DMTs: Diagnostic Management Teams; STEM: Science Technology Engineering Math; STEP: Science Technology Education Partnership; CLFS: Clinical Laboratory Fee Schedule

## Opinion

Today’s healthcare is experiencing severe shortages in general of all medical professionals. – particularly frontline patient care bedside Nurses - but much more the unfortunately relatively kept secret of the critical shortage of the behind-the-scenes Medical Laboratory Professionals.

## Who?

Medical Laboratory Professionals perform and manage the regulatory compliance of quality standards of laboratory testing with both accuracy and precision/ reliability for patient care. Medical Laboratory Professionals ‘aid in the detection, diagnosis and treatment of disease through complex laboratory methodologies and sophisticated instrumentation often interfaced with computers.’ These professionals are the 2 years AS (Associates) Medical Laboratory Technicians and 4-year BS (Bachelor of Science) Medical Laboratory Scientists (previously known as Medical Technologists or Clinical Laboratory Scientists) Most graduate through NAACLS accredited Medical Laboratory Science (MLS) and Medical Laboratory Technician (MLT) educational college curriculum programs with clinical laboratory internships. Others graduate with Biomedical Science (BMS) degrees - and others after graduating with general science degrees further pursue alternative routes and career pathway options available to acquire the necessary education and

skills for Laboratory Medicine. Upon graduation or thereafter these professionals become nationally professionally recognized board certified by organizations such as ASCP BOC or AMT [1-10].

Although generalists initially – many specialize in such diversified fields as Molecular, Cytogenetics, Blood Banking, Immunology, Chemistry, Hematology, Microbiology. Many further careers with Master’s degrees in MLS (Medical Laboratory Science) or BLM (Biomedical Laboratory Management) or MBA (Masters of Business Administration) or MHA (Masters Health Administration) or MPH (Public Health) . In those states with Right to Practice Profession establishing entry level standards and body of knowledge and scope of practice – they are licensed similarly to other medical professionals such as nurses and pharmacists and PAs etc. And today the DCLS (Doctorate of Clinical Laboratory Science) functioning as part of DMTs (Diagnostic Management Teams) collaborate with nurses and pharmacists and scientists for frontline patient care testing for strategic ordering as well as appropriate interpretation of laboratory testing.

## What?

A recent publication by FORBES focused on this national crisis. According to Infectious Disease Specialist Judy Stone MD – the US is currently noting a shortage of up to 25,000 medical technologists. If the US Bureau of Labor Statistics (BLS) correctly approximates

329,200 technologists employed in the US in 2021 (difficult to accurately determine since not all states government license medical laboratory technologists or technicians) – this deficiency translates to a vacancy rate of 7% from 2021 to 2031 - depending on the region. Dr. Rodney Rohde E SV SM MB(ASCP) FASCC Assoc Dir of Translational Health Research Initiative, Texas State University offered a Oct 2021 survey conducted with clinical and public health laboratories with microbiology laboratory directors claiming 15% clinical microbiology positions remained vacant. He further clarified that understaffing places a considerable burden and strain on the remaining laboratory staff performing complex testing such as PCR requiring attention to detail for long extended hours with eventual departures only further exacerbating staffing,

Lighthouse Lab Services, a medical laboratory consulting and recruiting firm, recently performed a 2022 Survey on Wage & Morale Issues Among Medical Laboratory Professionals and reported 40% indicated their laboratories were moderately understaffed with another 33% recorded significantly understaffed. According to the CDC - pre-Pandemic - Medical laboratory professionals performed and managed over 13 billion laboratory tests (blood, urine, body fluids, tissue samples) annually. At least an additional 997 million diagnostic tests were added due to the pandemic. For example, an MLO survey conveyed one facility which experienced an average of 20 COVID samples then reached a peak of 6,000 per day. Considering studies report over 70 % of all diagnosis rely on medical decisions based on laboratory testing – this is a most disconcerting realization with an alarming alert to the lack of qualified personnel available for quality laboratory testing. Yet despite the vital critical role played in Healthcare by Medical Laboratory Professionals – these unsung behind the scenes heroes are mostly unfortunately unknown – underappreciated, underrespected and undercompensated [11-20].

## Why?

### Healthcare and Laboratory Medicine Today is Facing Significant Issues to Address

- Increase in aging population over 65 (expected to double) and over 85 (expected to triple) based on US Census projections.
- Increased volume with reliance on laboratory testing as recently acutely experienced during global pandemic.
- Expansion of molecular, biomedical, and esoteric clinical testing menu
- Medicare Prospective Payment Systems w/ DRGs altered hospital payments structures from revenue to cost containment – do more with less.
- Vacancy rates exceeding graduating qualified medical laboratory professionals.
- Lack of sufficient numbers of accredited curriculum programs for Medical Laboratory Science

- Lack of availability of clinical sites for clinical internships
- Great Resignation - dramatic # of baby boomers retiring.
- Lack of visibility: referred to as downstream and upstream gap : inappropriate media attention – absence of public awareness – lack of industry respect from medical colleagues and corporations – insufficient legislative support
- Increased stress and burnout due to workload and workflow

### Resolutions

Need to ATTRACT RECRUIT RETAIN qualified board certified and right to practice profession licensed medical laboratory professionals.

- Reject any proposals of short-term fixes to lower quality personnel standards.
- Instead – reach for long-term solutions:
- Support NAACLS accredited educational college curriculum programs.
- Engage in community outreach with middle and high school students.
- Engage in STEM (Science Technology Engineering Math) & STEP (Science Technology Education Partnership)
- Engage in Biomedical Science
- Engage in general science college programs for transfer opportunities. Medical Laboratory Science is a degree with a career and career opportunities beyond laboratory.
- Use mentorship and Career Ambassador programs along with health and career fairs.
- Acquire support of state government requirement of personnel licensure with body of knowledge and scope of practice in every state with board certification (Presently federal CLIA personnel standards continues to only recognize Testing Personnel).
- Acquire federal support of funding of laboratory educational programs.
- Acquire federal support of laboratories - recently expiration of PAMA (Protecting Access to Medicare Act) was delayed for one year for the substantial cuts up to 15% for approximately 800 tests under the clinical laboratory fee schedule (CLFS).
- Bring the Laboratory to the C Suite table.
- Promote Laboratory Advocacy where individuals join professional societies to become a stronger voice in media and public and industry and legislative lobbying
- Utilize Automation (instrumentation) and Autoverification (process of verification based on predetermined set of rules established by laboratory) where applicable under the direct

quality control oversight and troubleshooting expertise of medical laboratory professionals.

- Use of national Choosing Wisely Initiatives supported by professional societies such as ASCP and ASCLS – avoid unnecessary medical tests and treatments.
- Compensate with salaries and benefits commensurate with education and experience.
- Standardization of the name of the professionals to Medical Laboratory Scientists and Medical Laboratory Technicians – as per professional paper supported professional societies ASCP and ASCLS and AMT.
- Innovative measures to graduate more qualified medical laboratory professionals such as recent collaborations:
  1. NeoGenomics Meyers, FL Histology Training Program for AS Degree
  2. WEMOCO in Rochester NY preparation of high school students for laboratory careers
  3. Sacred Heart Medical Center hospital based options
  4. Weber State University w/ ASM certification program
  5. Saint Louis University w/ Quest Diagnostics Lab for an accelerated BS in MLS
  6. University of Utah w/ ARUP for advanced training in MLS.

Qualified Medical Laboratory Professionals are indeed indispensable – essential – vital for quality standards of patient care. Quality care with quality control and quality assurance of laboratory testing by qualified medical laboratory professionals. Patient care deserves no less [21-26].

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