

Special Report The Importance of Medical Laboratory Scientists and the Number of Doctoral Scientists that Began Their Career by Working on the Front Lines of Laboratory Medicine

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Abbreviations: MLS, medical laboratory scientists; ASM, American Society of Microbiology; AACC, American Association of Clinical Chemists; ASCP, American Society for Clinical Pathology; CLIA, Clinical Laboratory Improvement Amendments; HCLD, High Complexity Clinical Laboratory Director, ABB, American Board of Bioanalysis

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ABSTRACT

Background: Due to dwindling numbers of medical laboratory scientists (MLS), we are faced with staffing issues due to lack of visibility, recognition, low wages, and perceived lack of opportunities for upward career mobility. A brief survey of doctoral-level clinical microbiologists showed a significant number were certified, worked “the bench,” and used this experience as a steppingstone to become a laboratory director or consultant.

Objectives: To help dispel the notion working as an MLS is a dead-end job, the authors developed an expanded national survey.

Methods: The survey was sent to 815 board-certified microbiologists and chemists to determine their career path. Results indicated that of 243 respondents, 41.3% were MLS certified, 47.1% had worked “the bench,” and 51.9% and 63.5% became laboratory or technical directors, respectively.

Conclusion: Survey results provide evidence to dispel the notion that MLS and bench working jobs lack upward career mobility and may inspire students for a career in laboratory medicine.

In 2021, the American Society of Microbiology (ASM) Personnel Standards and Workforce Subcommittee of the Clinical and Public Health

Microbiology Committee released a comprehensive supplement based on the results from a workforce survey distributed on ClinMicroNet and DivCNet ASM email distribution programs. The document provides data that highlights laboratory demographics and vacancy rates in the workforce with the hope that the information would be helpful in revealing just how critical staffing shortages have become and supporting efforts to change the staffing trajectory.¹ In 2022, a commentary was released² that in many respects is complementary to the authors’ publication³ that emphasized the root causes for the shortages, that is, noncompetitive compensation, lack of visibility, recognition, benefits, staffing flexibility, career ladders and opportunities, and potential solutions. Since students may not be attracted to the medical laboratory scientists (MLS) field because they are unaware of career opportunities that may be available to an MLS, we took an approach that focused on addressing one of the root causes for staffing shortages by emphasizing opportunities that are available to laboratory professionals. After an initial brief survey for doctoral-level clinical microbiologists that showed a significant number were certified, worked “the bench,” and used their experience as a steppingstone to become a laboratory director or consultant, an expanded national survey was developed that focused on one of the solutions outlined in the 2022 commentary,² “Expand innovative and alternative career routes.” Our goal was to confirm our initial survey observations using an expanded survey that was sent by email and to participants on the ASM and American Association of Clinical Chemists (AACC) email distribution programs to determine the percent of doctoral-level microbiologists and chemists that were MLS and used their laboratory experience for advanced opportunities.

Materials and Methods

The authors performed an expanded national survey of board-certified physicians, microbiologists, and chemists to confirm an earlier observation reported in the article entitled “A day in the life of a consultant microbiologist,”⁴ that a notable number of doctoral level microbiologists were American Society for Clinical Pathology (ASCP)-certified or the equivalent and had worked on the bench early in their career before or during graduate school as a stepping stone to becoming a board-certified, Clinical Laboratory Improvement Amendments (CLIA) laboratory or technical director, and/

TABLE 1. Results from a national survey of 243 microbiologists and chemists along with their career pathways.

Participants	Board Certified	ASCP Certified or Equivalent	Worked as Bench MLS	Boarded/ASCP/MLS/CLIA Laboratory Director	CLIA Laboratory Director	CLIA Technical Supervisor, Director, or Consultant
Doctoral (206) MD/DO (32) PharmD (1) Other (4)	Doctoral (171) MD/DO (22)	Doctoral (86) MD/DO (3) Other (1)	Doctoral (98) MD/DO (6) +ASCP (67)	Doctoral (51) MD/DO (3)	Doctoral (108) MD/DO (11)	Doctoral (132) MD/DO (16)
PhD (201)	(167)	(81)	(92)	(48)	(105)	(128)
DrPH (5)	(2)	(4)	(5)	(2)	(3)	(3)
ScD (2)	(2)	(1)	(1)	(1)	(0)	(1)
PharmD (1)	(0)	(0)	(0)	(0)	(0)	(0)
MD (28)	(21)	(2)	(4)	(2)	(10)	(15)
DO (2)	(1)	(1)	(2)	(1)	(1)	(1)
Nondoctoral or Not Indicated (4)	(0)	(1)	(0)	(0)	(0)	(0)
Total (243)	(193)	(90)	(104)	(54)	(119)	(148)

or consultant.⁵ Confirmatory results could help lay the foundation for students to consider a career as an MLS and the potential opportunities for career growth.

Results

TABLE 1 provides the results from our national survey of medical and doctoral level microbiologists and chemists and their career pathway. Of the 243 responders, 208 were doctoral-level microbiologists or chemists. If the PharmD, MD, DO, and nondoctoral/not indicated responders are excluded, 41.3% of participants were ASCP-certified or the equivalent, 47.1% had worked at some point in their career on the bench, 51.9% were a CLIA laboratory director during their career, and/or 63.5% were a technical supervisor, director, or consultant. In contrast, data from ASCP showed only about 1% of MLSs went on to obtain work as a doctoral-level MLS (PhD, DCLS), (personal communication with E. Garcia, ASCP).

Of the 243 total responders, 143 (81.3%) were doctoral level microbiologists; 110 (76.9%) were board-certified D(ABMM) or HCLD(ABB); 69 (48.3%) were ASCP-certified or the equivalent; 68 (47.6%) had worked as an (MLS) during their career; 63 (44.1%) were CLIA laboratory directors during their career; 82 (57.3%) were a CLIA technical supervisor, director, or consultant; and 39 (27.3%) were board-certified, ASCP-certified, had worked on the bench, and were CLIA laboratory directors. Of 65 (26.7%) chemist responders out of 243 total responders, 62 of the 65 (95.4%) responders were board-certified D(ABCC); 17 (26.2%) were ASCP certified; 26 (40.0%) had worked on the bench; 45 (69.2%) were CLIA laboratory directors during their career; and 50 (76.9%) were a CLIA technical supervisor, director, or consultant.

A notable number of survey participants were certified and/or worked the bench as an MLS before or after they obtained their PhD or MD/DO (as the authors had done). In addition, several participants stated that working on the bench really helped to promote their careers, and one participant had enrolled in an MLS training program after they received their doctorate to gain knowledge of all areas of the laboratory, which led to an advancement as a director of the laboratory system.

Discussion

Recent publications have outlined reasons why we are experiencing staffing shortages and solutions to address these shortages.^{2,3} Strategies to encourage students can best be developed using a collaboration of stakeholders, for example, health science educators, K-12, magnet and precollege educational program administrators, mentors and role models, certification board members, legislators, and county school supervisors responsible for business partnerships that help increase recruitment of individuals into the field of MLS. The information gleaned from our national survey may be incorporated into educational programs to stimulate the interest of students in a career in laboratory medicine by emphasizing the opportunities that would be available for those taking the path to becoming an MLS.

Conclusion

Staffing shortages can best be addressed by a collaboration of stakeholders working together to develop strategies that highlight the role of MLS, what it takes to become a laboratory professional, and the potential opportunities afforded them. Results from our study show a sizable number of individuals were certified medical laboratory scientists early in their career. They gained laboratory experience and then took the opportunity to move up the ladder in their career to positions of more responsibility and remuneration. These results highlight opportunities students can aspire to once they become an MLS.

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