

# inSIGHTS

## IN THIS ISSUE:

Letter From the Chair

Dreams of a Future Laboratory Professional

Why Did I Became a Laboratory Professional

Why I Stayed a Laboratory Professional

Factors Affecting the Future of Clinical Laboratory Science

# LETTER FROM THE CHAIR

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Medical Laboratory Professionals Week provides a unique opportunity to raise public understanding of and appreciation for clinical laboratory personnel. However, just as the laboratory is often a 24/7 operation, COLA believes that advocacy for the profession should extend far beyond Lab Week into the other 51 weeks of the year. This edition of inSights highlights the many ways that laboratory science has drawn newcomers to the field, by sharing the personal stories of how some of COLA's own professionals chose to become involved in the laboratory.

The theme of this year's laboratory week was **Giving the Gift of Health**, and laboratorians' work truly is a gift to the healthcare team and to the patients whose diagnosis and treatment depend on quality test results. The laboratory profession is undergoing many changes, but laboratorians' gifts to healthcare remain invaluable even as innovations and advances in healthcare affect the future of the clinical laboratory.

The ASCLS Code of Ethics highlights how Medical Laboratory Professionals contribute to the advancement of the profession by knowledge sharing, upholding high standards of practice and education, and seeking fair socioeconomic working conditions for members of the profession. This code of ethics reflects the integrity of those working in the profession and extends beyond the laboratory bench to the many other paths available to laboratorians as they grow in their careers. We owe our gratitude to all laboratory professionals for their consistent commitment to patient care and quality.



William E. Kobler, MD  
Chair, COLA Board of Directors

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# DREAMS OF A FUTURE LABORATORY PROFESSIONAL

By Jami Shumaker

Jami has more than 10 years of experience in Clinical Laboratories as a generalist and lead hematologist, including managerial responsibilities. She has a B.S. Medical Laboratory Scientist (ASCP)cm and MBA in Healthcare Management.



## WHEN I WAS YOUNG, I DREAMED THAT SOMEDAY I WOULD HAVE A CAREER IN WHICH I WOULD HAVE THE OPPORTUNITY TO TEACH AND HELP PEOPLE.

I have always been interested in science, and as a teen I was fascinated with crime series and novels about forensic pathologists. I loved how much science was involved in forensics: anatomy, careful investigation and complex laboratory testing behind the scenes. I started looking into my options to enter that field because I was hooked.

I had an eye on career paths like crime scene investigator or forensic pathologist, but my high school counselor had a suggestion for me that I hadn't considered. She had just returned from a career fair and told me about a career that she thought would be a perfect fit for me. She asked if I had looked into clinical laboratory science, and a career as a Medical Technologist.

It wasn't a profession I had heard of before, but after learning more about it I could see that she was right and it could be a great fit for me. The profession offered me as much scientific investigation and problem-solving as forensics, but instead of helping to explain the details of someone's death, I would be helping explain the details of someone's health. I could solve and investigate different kinds of problems that would help the rest of the health care team give better treatment to patients. On a more practical level, this was a career path with much better career prospects at the end of a degree.

My counselor knew that while forensics was exciting, the demand for new people in the field was low. The field of medical laboratory technology offered greater job prospects with the demand created by retirements within the field and the expansion of healthcare.

“ I fell in love with the idea and I started to apply to colleges and to research clinical laboratory programs immediately.

While attending college I worked full-time as a phlebotomist at a local hospital. That hands-on patient interaction let me really get to know the patients who needed the laboratory. I learned the importance of every test performed because every tube of blood I drew came from a real person who I was getting to know better. Once I got into my clinical laboratory rotations, I realized how much hands-on knowledge is needed in order to perform laboratory testing. We need to understand the scientific rationale behind each test, know our instruments and their quirks, and recognize when something isn't right with the results we're getting. We really are scientists, investigating and solving problems! I loved working on the bench, especially in microbiology and immunohematology, where the work felt more like a puzzle to put together. I also enjoyed quality assurance, constantly evaluating our laboratory's processes and looking for ways to do improve.

When I took the laboratory surveyor job with COLA, everything fell into place for me. Every day, I get to apply my skills, expertise, knowledge and passion for the laboratory. I love having the opportunity to educate laboratory staff on best practices for their work, and show them how they can follow regulatory requirements. I wanted a bigger impact, and now I am visiting several labs a week, with a chance to make a real difference in each one.

Choosing the clinical laboratory profession was one of the best decisions of my life. The laboratory is ever-changing, expanding with new technology, instrumentation, methodologies and scientific advances. Laboratory testing plays a very significant role in the early detection, diagnosis and treatment of diseases in patients, and I am proud to say that I am a part of that.

“ Every day, I am a scientist, a teacher and a mentor.

Being a laboratory professional has allowed me to become exactly what I dreamed of when I was younger. The only real difference between my teenage dreams and the life I am living now is that the people I am helping are alive – and my work is critical to help keep them that way.

# WHY DID I BECOME A LABORATORY PROFESSIONAL

By Kobina Shaffa

Kobina has extensive experience in clinical laboratories, including in molecular, immunology and the core lab. He has BS in Medical Laboratory Science and a Masters in Immunology and Molecular Diagnostics. Kobina joined COLA as a Surveyor in 2021.



## A CAREER AS A LABORATORY PROFESSIONAL IS FULFILLING, CHALLENGING AND PROVIDES SEVERAL CAREER OPPORTUNITIES.

Like many undergraduates, I was undecided in my program of choice during my first academic year. However, my curiosity in biomedical research and challenges in the biological sciences led me to investigate what it meant to be a laboratory professional.

As a laboratory professional, you are trained to use technology, and understand the biomedical sciences to provide services that aid physicians in the diagnosis and treatment of various human pathologies. Very early on, I became fascinated by the many technological advances and complex equipment that laboratory professionals use and maintain in their day-to-day tasks. The intersection of technology, science, healthcare, self-motivation, and a detail-oriented profession was vital to my decision to become a laboratory professional as it spoke directly to my interest in problem-solving.

During my clinical rotation, I started to see firsthand how critical the role of a laboratory professional is because a timely and accurate result is paramount to patient care. That experience was like an apprenticeship that assessed my ability to think on my feet, and exposed me to other aspects of the laboratory including management and mentorship. Being a laboratory professional allowed me to fulfill my innate sense of curiosity in biomedical science and tested my problem-solving skills daily in a high complexity hospital laboratory.

For new laboratory professionals and those considering this profession, these are exciting times. Over the last decade, the clinical laboratory has seen major technological advances that have changed the workflow at all phases of testing. Clinical laboratories are increasingly using molecular testing, including next-generation sequencing and real-time PCR. As the science advances, new targets emerge for testing while technology improves the specificity and sensitivity of testing for existing targets to diagnose various pathologies.



In addition, many clinical laboratories have implemented the Lean laboratory process to create a more efficient and simplified workflow with the idea of reducing waste, eliminating sources of error and improving turnaround time.

A laboratory professional career can also be challenging, as one would imagine. First, working in the laboratory you are faced with constant changes in technology. While it can be challenging to learn different diagnostic platforms and maintain competency using every diagnostic tool in the laboratory, it is also rewarding. Even though laboratory professionals usually have no direct patient contact, the reward is in knowing that by using cutting-edge technologies to support clinical staff, clinicians can provide the best services to their patients with the help of an accurate diagnosis.

Second, laboratory professionals are faced with high turnover in the workforce, due to retirement and laboratory professionals leaving the field. While this is a challenge, it can also be a great opportunity for individuals looking for professional growth, as leadership positions and upper management opportunities may become available. Additionally, this could provide opportunities for an individual to sharpen their mentoring skills through the training of new hires. Furthermore, experienced laboratory professionals are often needed in the laboratory start-up process, with their insight into laboratory regulations and instrument setup.

All prospective laboratory professionals should be enthusiastic about the projected growth rate as this means greater chances of employment upon graduation. The growth of the profession overall is also good for individual professional growth. Career mentoring opportunities can help develop the invaluable leadership skills necessary for laboratory management and regulatory compliance.



This is particularly important because laboratory professionals are not just limited to working in hospital laboratories.

Many laboratory professionals who started on the bench have transitioned to the fields of regulatory compliance, pharmaceutical research, public health, veterinary practices, forensics, and clinical research.



# GiveBack 365

SPONSORED BY COLA

As one of the largest private accreditors of clinical laboratories in the U. S., COLA is committed to advancing the field of laboratory science and lifting up the laboratories it serves. One of the ways we do that is through our nonprofit initiative, Give Back 365 (GB365).

GB365 introduces students as young as elementary school to the possibilities and benefits of a career in clinical laboratory science through professional mentorships, educational presentations, and student enrichment resources.

In addition, GB365 proudly supports those who have already committed to the field by offering scholarships to students enrolled in an accredited laboratory science program.

*The GB365 scholarship was a great financial support for me at the crucial time of my degree. Hopefully in the future more students like me will get this offer.*

*Binika Chunara, GB365 scholarship recipient.*

## WHY THIS MATTERS



Medicine needs

# 29,000

NEW LAB PROFESSIONALS  
ANNUALLY



Lab science programs

PRODUCE ONLY

# 6,000

per year



# Scholarships

& student enrichment

CAN MAKE A DIFFERENCE

## 2 Ways to Get Involved

- 1. DONATE** to the GB365 Scholarship Fund and support future medical laboratory scientists.
- 2. APPLY** for a GB365 Scholarship and start on your path to a successful laboratory career.

Get started now at: [www.cola.org/giveback-365](http://www.cola.org/giveback-365)



# WHY I STAYED A LABORATORY PROFESSIONAL

By Sandra Osborn, MFA, MLS (ASCP)<sup>CM</sup>

Sandra is an ASCP certified Medical Laboratory Scientist with over 15 years of experience in Emergency and Transfusion laboratories, spanning Trauma Centers and Pediatric Specialty hospitals. Her experience included professional technical writer and laboratory process coordinator. Sandra has her BS in Medical Laboratory Science and an MFA from the University of Utah. She joined COLA as a Surveyor in 2021.



## YOUNG PEOPLE TODAY WILL HAVE HEARD MORE ABOUT LABORATORY MEDICINE THAN ANY OTHER GENERATION.

The COVID-19 pandemic has brought the laboratory to the forefront of the public's mind. While much has been written about the adverse effects of the current labor shortages, such visibility also extends an invitation to highlight the educational and professional opportunities that laboratory medicine can offer. Here, a personal experience might help map a trajectory and some of the many rewards the field can offer.

### EARLY RECRUITMENT & FUNDING

As a first-generation university student from an immigrant family, I was idealistic, to say the least. A career in medicine was the obvious choice—I wanted to pursue a career with high impact. But I was also aware of the rising cost of education and my family's inability to afford it. An undergraduate advisor introduced me to Medical Laboratory Science (MLS), stating that its viability as a career path differentiated it from other more general majors like Biology or Physics. A career in laboratory medicine promised intellectual engagement, social impact, and immediate employment upon graduation.

At the time, ARUP, a leading national reference laboratory, had partnered with the University of Utah to generously fund a new teaching MLS laboratory that would allow the program to increase its cohort size.

In addition to sponsoring the facilities, ARUP offered full-tuition benefits to several of my classmates who were working as specimen processors or assistants. Others also had their education partially sponsored by working as phlebotomists for local hospitals. In my case, I received scholarships from ASCP, Dade Behring (now Siemens), and Catholic Healthcare West (now Dignity Health). The tuition support for many of us meant we could graduate with little or no student debt and a degree with strong professional prospects.

### INTERNSHIP & EXPOSURE

The internship process was a critical component in developing us as laboratory professionals. Through the internship, we gained exposure to the array of work available, which piqued our diverse interests. Some of us wanted to be in the traditional healthcare setting, while others wanted to go deep into the science of a reference lab. I spent half of my internship rotating through some of ARUP's 70+ esoteric laboratories and the other half focused on clinical laboratories at two local hospitals.



The internship also helped establish connections with potential employers.

Historically, the MLS program at the University of Utah averages an ASCP Board Certification Exam pass rate of 97% and a 100% job placement rate.

Everyone in my cohort had solid job offers upon graduation. Graduates took positions in molecular microbiology, clinical chemistry, virology, and flow cytometry, among others, while I took an opening in the transfusion laboratory at a Level One Trauma Center.

### IMPACT

Over our careers, we laboratorians touch on innumerable patient lives. Over the last 15 years, I have been involved in emergency medicine, where I have experienced the tangible impact that the laboratory has on patient care. I still recall the difficulty of my early days in Transfusion: shifts spent puzzling over multiple antibody reactivity and troubleshooting complex instrumentation on top of managing a high workload and dealing with the ever-present actuality of a massive transfusion protocol. The work was not for the faint of heart. But we benefited from clear procedures and strong organization so that, in the tempest, we knew what to do.

Eventually the puzzles got solved, the instrumentation fixed, patient results posted, blood products transfused, and lives were saved.



From those early days, I felt laboratory had a direct impact on the quality of care.

CONTINUED ON PAGE 7 >>>

## GROWTH

Looking back at my reasons for staying in the field, I also feel laboratory medicine has continually presented opportunities for me to grow. Laboratory work constantly asks us to expand our skillset. Yearly competencies assess and ensure technical mastery. Developments in testing and continuing education keep us abreast of innovation. From the challenges we master problem-solving and develop the plasticity to exercise flexible thinking within a constrained environment. For me, these aptitudes have extended beyond the walls of the laboratory and have offered organizing principles for other areas in my life.

## OPPORTUNITY

According to the U.S. Bureau of Labor Statistics report from 2020, the job outlook for Clinical Laboratory Technologists and Technicians is projected to grow at 11% over the next decade, a faster-than-average growth rate almost double the average for other U.S. jobs. While the outlook is for laboratorians on the bench, the outlook is also significant for the professions that support laboratory testing pre- and post-analytically: from phlebotomists and laboratory assistants to Technical Consultants, General Supervisors, Laboratory Directors, QA personnel, even Laboratory Accreditation and Regulatory teams. The field is teeming with opportunities at every phase.



I have spent the latter part of my career away from the bench in positions that strive to ensure that laboratories have structures in place for producing results that are accurate and reliable.

Since laboratory work is both highly autonomous and highly regulated, it is important to have clarity and support to facilitate doing the right thing. As a scientist and writer, I have been able to use the breadth of my expertise to clarify procedures and workflows, thereby feeling like I can contribute in personal ways to the greater good.



## CONCLUSION

If you'd asked me what I wanted to be when I grew up, five-year-old me would have said a bird. I may not have become the bird of my childhood imagination, but the laboratory has given me wings to engage in a career with palpable purpose. As a surveyor, I fly across the United States to ensure quality in laboratory practices. I get to promote the health and safety of patients and work with a team of professionals who believe the work that we do truly matters.

## REFERENCE

<sup>1</sup><https://medicine.utah.edu/pathology/medical-laboratory-science/programs/undergraduate/bs/>

<sup>2</sup>Clinical Laboratory Technologists and Technicians : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics (bls.gov)

# REGISTRATION NOW OPEN

## MAY 3-4, 2023

Fort Worth, Texas

Worthington Renaissance Fort Worth Hotel

[cola.org/forum2023](https://cola.org/forum2023)





# FACTORS AFFECTING THE FUTURE OF CLINICAL LABORATORY SCIENCE

By : Jennifer MacCormack, MLS (ASCP)<sup>CM</sup>

Jennifer is an experienced science and medical writer with a background in clinical laboratory testing, medical & health science, and regulatory oversight. She received her Bachelor of Science in Physiology from McGill University.



Many laboratorians are used to working in hospital basements, or small windowless rooms in medical offices. Laboratory testing is performed behind the scenes, often far from the eyes of patients. We are, for the most part, a hidden profession. But that may be changing; the COVID-19 pandemic made laboratory testing a subject of dinner table discussion and brought our profession out of obscurity. Many of us are hopeful that this new publicity will inspire young people to choose clinical laboratory careers and join us in this rewarding work. But what can new recruits to the profession expect in the laboratory, as science, technology and population demographics change over the next decades?

## AN AGING POPULATION

The US Census Bureau projects that by 2034, Americans aged 65 or older will outnumber children under 18 for the first time. With this demographic shift, there will be an increased need for laboratory testing involved in the diagnosis and monitoring of chronic conditions such as diabetes, heart disease, chronic respiratory disease and cancer. Beyond the regular testing required for long-term management of these conditions, molecular genetic testing is also likely to increase as a way to preemptively identify risk and personalize treatment.

## MORE MOLECULAR TESTING

Molecular genetic testing is a powerful tool for identifying individuals at increased risk for certain cancers because of their family history. Genetic testing is already being used to help physicians select the safest and most effective medications for patients, based on inherited drug metabolism genes. It can also guide physicians in selecting precise chemotherapy agents or other treatments based on the patient's – or a tumor's – particular genes. Genomic profiling of tumors has led to the development of targeted treatments for certain types of lung cancer and breast cancer, among others. We can expect to see more tumor “molecular fingerprint” testing in the future, further personalizing cancer treatment.

Physician office laboratories are also adding molecular-based platforms to their repertoire. Much of this testing is in the area of microbiology, as molecular methods can identify organisms and detect antimicrobial resistance genes much more quickly than traditional culture methods. This improves patient care, reduces unnecessary or inappropriate antimicrobial use, and combats antimicrobial resistance.

## MORE WAIVED TESTING – INCLUDING AT HOME

At the other end of the complexity continuum, waived testing will also likely expand in the next decade. Expect to see more waived CBC technology in physician offices, especially in remote areas where staffing is a significant challenge, and near-patient care potentially saves time and money.

Meanwhile, the demand for at-home testing during the COVID-19 public health emergency may lead to future regulatory approval of other simple tests for at-home use, such as influenza or rapid strep testing.

For other tests, we may see the adoption of at-home self-collection kits that are mailed to a laboratory for testing.



Self-collection, along with the adoption of telehealth systems by medical providers, may make it less necessary for patients to physically visit the doctor's office.



CONTINUED ON PAGE 10 >>>

## BRINGING TESTING TO THE PATIENT

While at-home tests may become widespread, most laboratory testing must still be performed in a controlled environment by experienced professionals; this is unlikely to change. What may change, however, is how specimens are collected and where, exactly, the testing happens. Door-to-door phlebotomists can meet the laboratory testing needs of an aging population by coming to patients at their homes or in long-term care facilities.

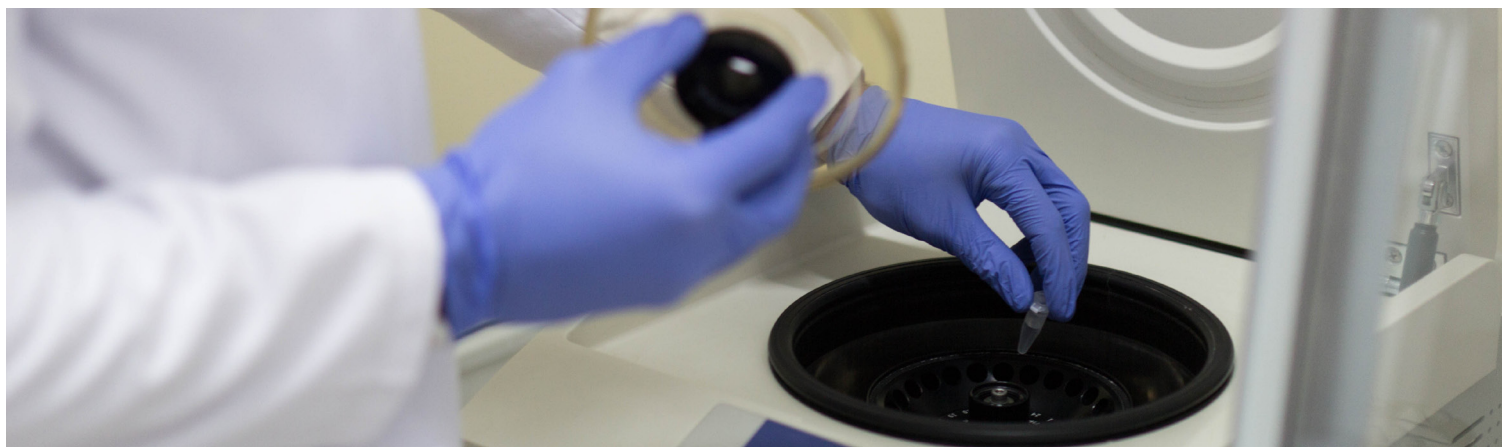
These specimens may go to traditional laboratories for testing, but they may also be brought to one of an increasing number of well-equipped mobile laboratories waiting outside.



For patients living far from major metropolitan areas, healthcare can sometimes be difficult to access. A report from the U.S. Government Accountability Office indicated that over 100 rural hospitals closed between 2013 and 2020, causing patients to have to travel an average of 20 additional miles to access necessary healthcare.

Partially in response to this problem, ambulance crews are improving their ability to triage patients before bringing them to the hospital, performing more testing at the patient's home or during transport. More vehicles are being equipped with moderately complex test systems for basic chemistry and blood gas analysis; having this information ready even before the patient reaches the emergency room can save precious minutes.

Even in urban areas, many lack consistent access to healthcare. Cost, undocumented immigration status and fear of the medical establishment keep many from obtaining health screenings and laboratory tests. Mobile laboratories are already working to reduce this disparity by setting up health fairs in communities that have historically been underserved. As health systems consolidate to save costs and smaller clinics close, these mobile laboratories will likely become even more important.



## WHAT DOES THIS MEAN FOR CLINICAL LABORATORY SCIENTISTS?

Laboratory testing performed at home and in ambulances doesn't mean that clinical laboratory scientists will be obsolete. Moderate and high complexity testing still requires expertise and experience, and competent and qualified technical consultants are essential to the success and quality of any point-of-care or mobile laboratory setup.

It's unlikely that any of the possible shifts in how testing is performed will lead to a reduced need for a skilled laboratory workforce. Reducing the hands-on time required for simpler tasks can free up technical experts for the tricky problems: the problems that need human insight, instinct and ingenuity to solve. Clinical laboratory scientists are needed to develop and validate laboratory processes, tests and procedures, and train and supervise personnel and evaluate their competency. We are uniquely qualified to work in laboratory quality assessment roles or laboratory project management and to maintain laboratory regulatory compliance. We are the fixers, the improvers, the troubleshooters, the problem-solvers. Laboratorians are key players on the healthcare team, and that will remain true whatever changes the future may bring to our profession.

## REFERENCE

<sup>i</sup> U.S. Census Bureau. (2020). Demographic Turning Points for the United States: Population Projections for 2020 to 2060. <https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1144.pdf>

<sup>ii</sup> U.S. Government Accountability Office. (2020). Rural Hospital Closures: Affected Residents Had Reduced Access to Health Care Services. <https://www.gao.gov/assets/gao-21-93.pdf>



## OUR COMMITMENT TO YOU

**We are a physician-directed organization whose purpose is to promote health and safety through accreditation and educational programs.**

## ABOUT COLA:

For more than 30 years, COLA's accreditation program has provided an extra pair of eyes for laboratories striving to produce quality test results. COLA's laboratory accreditation program consists of quality-engineered processes that are certified to ISO 9001. This means our customers benefit from unique services that are standardized and represent a commitment to customer satisfaction. Just as importantly, COLA provides materials to guide successful completion of inspections and adherence to regulations; and has a dedicated staff of subject matter experts steered by a coaching approach.