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of medical laboratory science

In Laboratory Medicine, It's Not Easy Being Green

**Finding Fulfillment in
Changing Laboratory Work**

**Why Networking
is Not a Luxury**

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Steering the Change

The lab was front and centre in the news again with the *E. coli* outbreak in Alberta; the work of medical laboratory professionals' (MLPs) received prominent news coverage. Events like this strengthen my dedication to advocate for you on multiple levels. Why? So that when patients need precise, timely, and accurate results, Canadians know that trained, certified and well-equipped lab professionals are ready to help and provide answers. Advocacy work takes years of time and effort, and countless discussions and collaborations with many different stakeholders, and we're seeing momentum.

Government advocacy is key to ensuring the profession gets the legislative support and funding it needs to meet *your* needs. Yes, *YOUR* needs. We need more qualified staff. We need more focus on the workplace demands. Increased seats in MLP training programs, sustainable bridging programs for internationally educated Medical Laboratory Technologists (IEMLTs), modern equipment, unrealistic demands for testing... many of the elements that affect your work are influenced by government policies. We focus on including ourselves in government discussions to make sure your voice is heard loud and clear.

Take regulation as an example. Supporting provincial standards and defined scopes of practice benefits every MLP and patient. MLT regulation is on the horizon in British Columbia, and we're still seeing steps towards MLA regulation in many provinces. We keep working to help move regulation forward, but it's a very positive sign that issues in our profession are on decision-makers' desks. We are confident that we have the answers to their questions and have effectively demonstrated the significance of safeguarding your work.

Another element of our advocacy targets a different audience, and that's public awareness. Not only should your work be seen and appreciated, but the more aware Canadians are of your key role, the more support the profession has. We innovate each year to share the message of how important your work is in different ways. Whether it's an art exhibit travelling across the country, an indigo lab coat that's now a symbol for the profession, or an emotional video showing your round-the-clock dedication, each of these campaigns helps more people truly see and get the importance of your work.

Advocacy takes on a special element in our profession: each stakeholder we meet is, has, or will be a patient in your care. That's why your work matters to every Canadian, and we are proud to bring your profession into focus for all to see and respect.



Christine Nielsen
CHIEF EXECUTIVE
OFFICER

The Moments That Make Us

What is the most memorable moment of your journey as a medical laboratory professional? Was it a moment that changed the entire trajectory of your career? Did this moment lead to an unexpected opportunity, or maybe a new relationship that helped you grow in your personal or professional life? Whether it be a high or a low, these moments shape our professional lives.

Often, we do not experience these moments alone. Certain people guide us as we are pushed or pulled along our career paths. Whether through their words of wisdom or sharing their mistakes to help us prevent our own, mentorship is a valuable part of what builds our strength. Our professional goals are as varied and individual as we are, and there is strength in the variety within our profession.

Each of you has knowledge, skills, and experiences that can support someone else's growth. Mentorship does not need to be a formal work agreement. There is value in informal mentorship in and out of the workplace. Don't be afraid to reach out to a colleague you admire and start a conversation, and don't be afraid to say yes to someone who reaches out to you. Across disciplines and geographic spaces, our community thrives when we enable and empower each other.

For me, serving as the CSMLS President is an experience I know I will never forget. I would not be here had it not been for my mentors. I think of those early career individuals who energize me as they enthusiastically discover new things about the field, those late career individuals who help refine my competencies, and all the unforgettable professionals who have supported me through tears and celebrations. I would never have considered putting my name forward to sit on the Board had it not been for these individuals.

The CSMLS has expanded my lab family, and I am eternally grateful. I encourage every one of you to follow your passion. The CSMLS has advocacy, education, and networking opportunities to help you succeed. Don't be afraid to lean on others for support and to reciprocate by supporting those around you. Together, we can create moments that shape our personal and professional futures for the better.



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IMPROVING SUSTAINABILITY PRACTICES IN THE LAB

The laboratory is an active and complex work environment in which the flow of people, equipment, materials and other resources is in constant flux. Knowing that the demands on you and your colleagues as medical laboratory professionals is only growing, it is worth considering what practices you can employ to improve sustainability measures in the lab. This may be an opportunity to engage in something personally satisfying while contributing to safety, efficiency, and sustainability initiatives within your organization.

Promote sustainable disposal and appropriate diversion of materials

With lab workloads increasing, it may seem difficult to manage laboratory operations in a sustainable manner. Many wastes from the lab are regulated at the municipal, provincial, territorial, and/or federal levels. Hazardous wastes (e.g., chemical, biological, and radiological wastes) must be safely managed as part of the Occupational Health and Safety Management System (OHSMS)¹. However, you can make change, where it is possible, to promote sustainable disposal and appropriate diversion of materials in the lab.

Sustainable lab operations involve employing practices at various stages to control purchasing, inventory, handling, storage, transport, and disposal. You and your colleagues are best placed to consider the balance of safety, efficiency, and sustainability for consumption, use, and disposal of lab materials. As part of a larger, planned campaign, consider the following for implementation in your organization:



- 1) Replace potentially hazardous materials with non-hazardous items (e.g., replace mercury thermometers with alcohol or digital versions).² This incurs a nominal cost when compared to emergency spill response and harmful environmental contamination.
- 2) Avoid purchasing large quantities of laboratory reagents. The costs of disposal for surplus reagents may override any savings realized at the time of purchase.
- 3) Identify all hazardous materials meticulously. Once the identity of a waste is lost, it becomes an expensive and potentially hazardous task to dispose of it.
- 4) Consult with a vendor to determine whether some lab wastes (e.g., unused agars, salts, buffers) may be disposed as non-hazardous waste to municipal waste streams.
- 5) Consult with a vendor to examine their disposal options (e.g., some options include re-use of certain chemical wastes like flammables as a fuel source in industrial kilns).
- 6) Consolidate wastes in chemically compatible groupings to benefit from efficient bulk disposals.
- 7) Segregate biomedical waste into sterilization versus incineration streams.
- 8) Consider natural decay versus immediate disposal within acceptable limits for radiological waste.

Handling of consumables and equipment

In addition to hazardous materials and wastes, it is worth examining whether you can more sustainably manage the use of consumables, equipment, or other materials in your lab. It will likely require additional collaboration with special interest groups, municipal resources, or specialized vendors.

Prior to disposal, steps for effective decontamination or disinfection must be stringently applied to protect the health and safety of your colleagues or others (e.g., custodial personnel):

- 1) Triple-rinse and deface labels of empty hazardous material containers.
- 2) Segregate plasticware or specimen transport bags into recyclable and disposal streams.
- 3) Explore recycling of polystyrene.

In addition to lab-generated materials, it's worth considering other options available in your organization. Consider diversion of paper and electronic waste such as computers, monitors, printers, and cell phones; participate in a battery recycling program; or explore a beverage container recycling program.

Each of these initiatives can enhance the safety, efficiency, and sustainability of your organization. Added benefits may be realized by pursuing goals outside of your traditional role in the lab with an emphasis on leading campaigns associated to a worthwhile cause. If sustainability is a passion of yours, consider putting yourself forward to make a meaningful, novel contribution in your organization. **■**



EOIN O'GRADY, PhD, CRSP
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STRESSED OUT?

Try These TIPPS!

The term stress and its variations are constantly used within day-to-day conversations. Whether individuals talk about work (“It’s so stressful!”), family (“They cause me stress!”), or some other life aspects (“I feel overwhelmed”), it seems everyone can relate to feeling stressed.

However, there are two types of stress which are categorized as distress and eustress. Distress is defined as great pain, anxiety, or sorrow, as acute physical or mental suffering. Distress occurs when tasks, responsibilities, and life’s demands

outweigh an individual’s resources to address them. Resources may encompass concepts like stress management, relaxation, or boundaries. Consequently, if an individual experiences high levels of stress, they may have difficulty incorporating strategies to address their stress or to relax. They may also experience challenges when setting personal boundaries or within the workplace.¹

In contrast, eustress is caused by something positive or is psychologically or physically beneficial. Eustress may occur

if you adopt a furry friend, prepare to accomplish a goal at the gym, or win the lottery. It excites you and allows you to focus. If a friend or family member tells you “I am so stressed out today!”, you probably do not think, “Wow, they must be feeling great!” Generally, in society, stress means distress, and we’ll use that meaning within this article.

You may be wondering, “If stress is so prevalent, can I manage it? How?” Well, you’ve come to the right article as the answer to the first question is yes, and the answer to the second question follows within.



TEST YOUR KNOWLEDGE

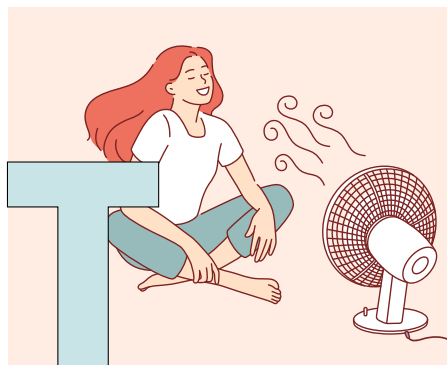
Complete a quiz on this article at learn.csmls.org to earn Professional Enhancement Program (PEP) hours towards your professional development plan.

Let's try an exercise. Take a moment and think about your signs of stress. It may be muscle tension, increased sweating, racing thoughts, or feeling anxious or upset. You may notice difficulty in adapting to situations. What is your initial reaction to your symptoms of stress? I often hear people say they "work through it" or "just ignore it." However, if you are in the lab and have trouble seeing a slide through a microscope, would you continue using that microscope? Or would you pause, take a look at the lens and slide, and determine your next steps? You could not ignore a concern in the lab, so why not take the same approach with stress?

Now that you have acknowledged your stress, let's look at two strategies: TIPP and the water glass. These strategies are based on dialectical behavioural therapy (DBT) concepts and cognitive behavioural therapy (CBT) concepts. TIPP includes strategies for overwhelming and stressful situations and symptoms. Much of what is presented below is adapted from Linehan's work.

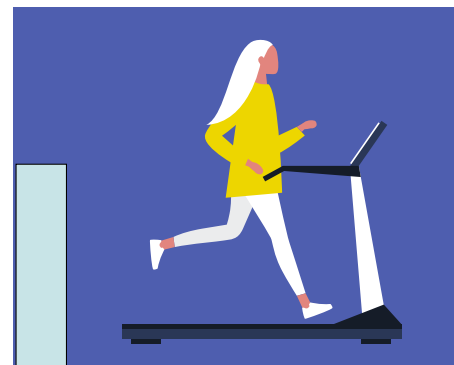
TIPP represents temperature, intense exercise, paced breathing, and paired muscle relaxation.^{2,3} Are you feeling upset? Consider changing the **Temperature**. You could stand near a fan or the air conditioner, hold an ice cube in your palm, or clean your face with cold water. Even briefly, a temperature change can help you regain your perspective and clear your mind.

The second letter stands for **Intense Exercise**. (Please note you should consult with your physician before engaging in this idea.) You may not be a professional athlete, but did you know that exercise can help reduce your stress levels, increase oxygen, and help with anxiety? Intense exercise may look like engaging in as many jumping jacks as you



can within one minute or sprinting to the end of the street. It's much more challenging to stay in a "stressful state" while exercising.

The following letter represents **Paced Breathing**. A great example is to visualize a rectangle. Breathe in for 5-6 seconds thinking of the shorter sides, and then breathe out for 7-8 seconds while visualizing the longer sides of the shape. Paced breathing is also taking slow, deep, and gentle breaths



to help regulate yourself.

The last letter is P for **Paired Muscle Relaxation**. Explaining paired muscle relaxation can be challenging in written form. You would tense your muscles as you breathe in and release as you breathe out.^{2,3} A guided video may be helpful. I encourage you to look at Paired Muscle Relaxation from the UCI Counselling Center or TIP Skill: Paired Muscle Relaxation with DBT-RU: DBT Skills

MIN



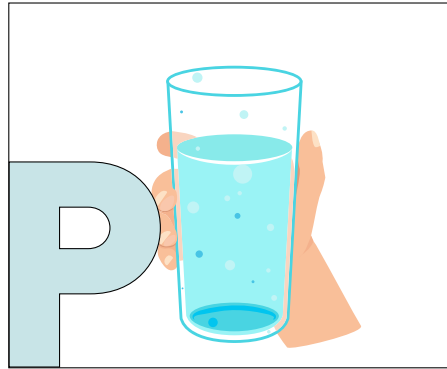


ADDITIONAL RESOURCES

Watch these recommended YouTube videos to learn more about paired muscle relaxation.

DBT-RU: DBT Skills from Experts (April 2020). Paired muscle relaxation. https://www.youtube.com/watch?v=Dn__n03Clog

UCI Counselling Center. (November 2021). Paired muscle relaxation. <https://www.youtube.com/watch?v=xiP6HZY0tmQ>



from Experts on YouTube. The latter YouTube video also shows the above strategies in video form.

The second concept is the water glass. This visual exercise can be used as a metaphor when you have overwhelming or stressful thoughts. Picture a regular glass of water (8 oz, or roughly 230 ml). Or, if it's easier, pour a glass of water while you read this exercise. Now picking up the glass of water would

seem like an everyday task with little effort.⁴ However, consider what would happen if you held it in front of you for 15 minutes. Now an hour. Now a day. Your arm would become sore and achy, and you would be very focused on the glass. This can happen with stressful thoughts, too. If you are focused on your stressful thoughts "all day you'll feel paralyzed, incapable of doing anything."⁴

So consider your thoughts as a glass of

water. What if you were to put them down? How would that feel? Sometimes, if people cannot visualize a glass of water, they might write down their most stressful thought as a way to separate them from themselves. Or they might type them into the Notes app on their phone and then erase it. It is a way of acknowledging your stressful thoughts and gaining space from them.

I encourage you to try one of these strategies when experiencing stress. Remember, small steps yield changes over time. If you feel overwhelmed or unsure of the strategies, I strongly recommend you connect with a mental health professional or resource for further assistance and support. Your mental health matters, and managing your stress is a great first step! 📌



Rosina Mete. PhD, MSc, RP
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Yorkville University and
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WHY NETWORKING IS NOT A LUXURY

Talk of networking is everywhere. We hear about its benefits, its role in work life, and the shift it has taken with recent social media platforms. But how do we actually *network*?

Recognizing networking opportunities can be challenging for laboratory professionals, and establishing relationships can be demanding in practice. The first thing to understand is that networking is not a luxury; it is a part of our everyday lives. A network is a web of personal, professional, social, and familial relationships that we cultivate, and it benefits us and the people we connect with equally.

All relationships you build are valuable. Networking is mutually beneficial because it offers ideas, advice, and help, but it also requires you to offer ideas, advice, and help. It is an endless pursuit; you're never done with networking. As life, problems, and difficulties evolve, you will require the advice of others, and they will eventually need your advice.

The starting point

Contrary to popular belief, networking does not end when you exchange cards or phone numbers; that is the starting point. You need to invest in those relationships, and you might be asking how. Getting to know the people you connect with and asking questions out of curiosity is a possible answer. Let this curiosity lead you. Most of the time, it will be mutually beneficial and help you along the way.

One of the best tips is to *offer help before asking for it*. That is my personal advice. By being open to learning more about others, and supporting them in any way we can, we realize how easy it can be to interact with them. Most of the time, people will identify this as an act of kindness and eventually return it. In the same way as investing, you must first deposit money into your bank account before withdrawing it.

Growing your network can be done in person and online, using all the perks technology has today. No matter the platform, first, you need to get to know them and offer some vulnerability. Being generous with your time and connections while being curious will strengthen the bond.

I suppose by now you're asking where to meet new people. Working in the laboratory can be isolating, but there's always an opportunity to meet new people:

- other members of the hospital/organization
- new hires
- friends of friends
- new vendors or suppliers
- visitors of the lab
- people at meetings and conferences

You'll find new possibilities for new connections wherever you go.



"One of the best tips is to offer help before asking for it."

Some might say networking remotely can be easier for introverts; if this works for you, definitely try it. Platforms like LinkedIn can offer you space to exchange contact information and learn more about the work of others. At the same time, actively participate in digital meetings and contribute to online conversations; people will recognize you in the long run. Remember that despite the challenges, it is important to do it.

When it comes to the lab, you can improve connections among your co-workers in many ways. If you're in charge of the lab or can suggest new ideas, create opportunities for staff to work together. This can mean cross-training and ensuring everyone meets their peers. Try to create an atmosphere that encourages asking for help and sharing knowledge and expertise through storytelling. Experience from senior staff is beneficial, so leverage it at huddles or meetings. Lastly, make connectedness criteria for advancing further into upper positions in the lab.

Ask away

Putting yourself out there is a crucial aspect of networking. While some might believe asking is a sign of weakness, it is in fact a sign of strength. Those who ask get better ideas and are more successful because they understand they need other people to help them, and they also understand that offering help is no less important than asking.

See it like this: networking is more like farming than hunting. It is about nourishing old and new connections. Cultivating your network involves meeting new people and starting new relationships with them. If you're socially anxious or introverted, you might need help from the people you already know in order to meet new people, but this is a sign of strength in your connections.

If you like to plan things in advance, finish this reading by planning your next move. Reach out to stale connections and try to make new relationships. Ask yourself: What is one thing I can do to improve my network?

In the end, if you look at it from the perspective where you gain knowledge and get to know people, networking is not a luxury but a necessity and, frequently, a joy. Remember: opportunity comes through people. ■

Make it a priority

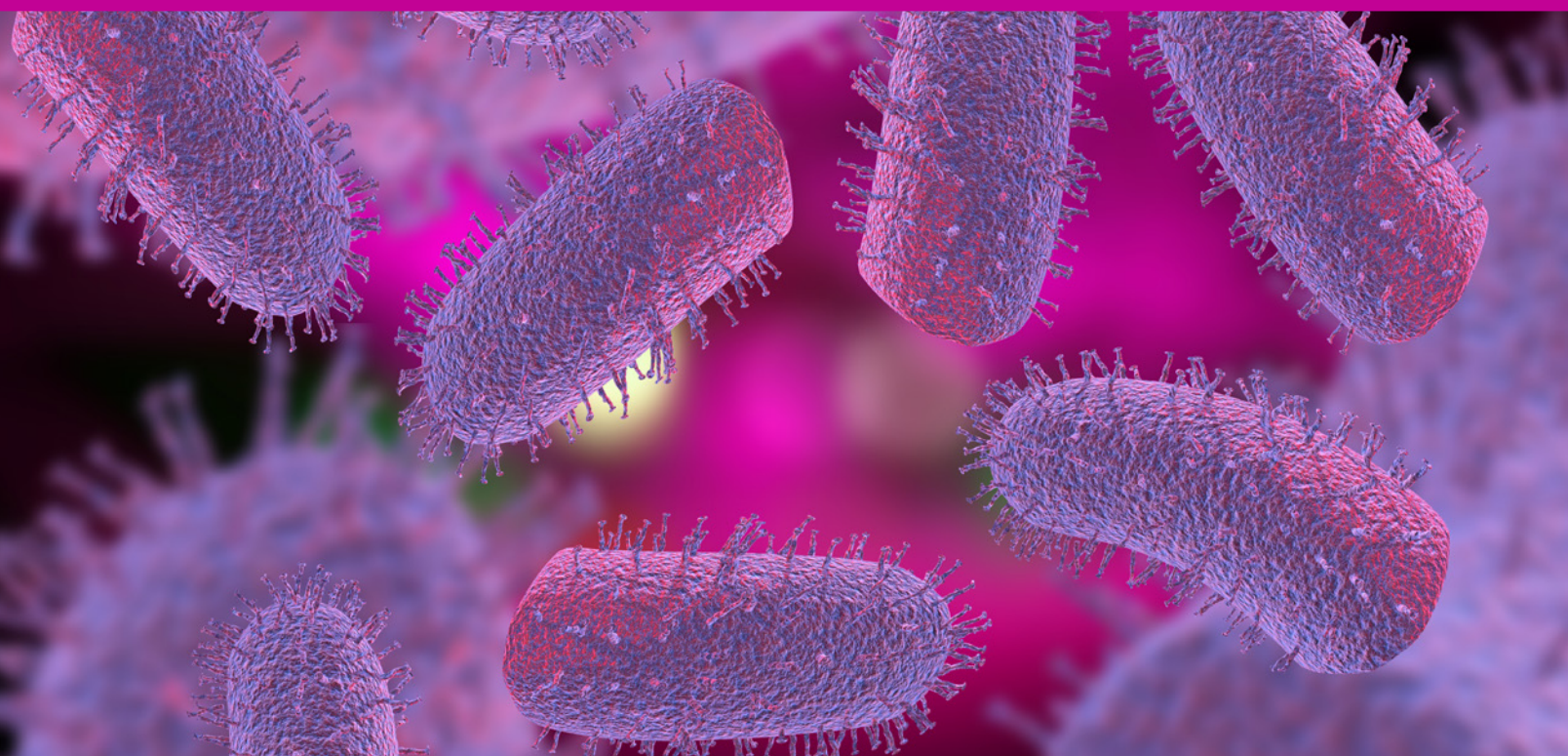
Many people get stuck in the first phases of networking because it is frequently a low priority. The key here is to understand its benefits, not only for you but for others. Devote time, effort, and thought to it; treat it like a new habit and eventually it will be something you'll do naturally.

When it comes to effective networking, its benefits are endless. You'll find new ideas that fuel creativity, innovation, and learning in your work and everyday life. You'll have more capacity to offer help and ask for help. You'll also be getting to potential solutions you never thought of before and live experiences that will give you things to teach other people and provide new knowledge. Besides, it will give you visibility among your peers or new connections, enhancing your self-confidence and, in time, creating new opportunities.

It is easier said than done, I understand. If you're an introvert or someone who doesn't usually interact with many people, my advice is to start giving warm greetings; this will make people feel welcome. Making eye contact and asking questions from a place of curiosity is vital, but most importantly, listen. Listening will provide you with everything you need to start conversations of interest. If you don't feel comfortable enough to start a conversation from scratch, join a conversation that has already begun with a group of people and try to be vulnerable by sharing something about yourself.



SCOTT D. HANTON, PHD
Editorial Director at *Lab Manager*





MONSTERS AND MICROBES

The Werewolf Virus

In late 16th-century Germany, there was a heightened fear of wolf attacks.¹ According to contemporary sources, a farmer in Bedburg, near Cologne, encountered a wolf and severed one of the beast's forepaws with his sword. It was soon discovered that a local man, Petter Stump, had also recently lost his hand.^{2,3}

Accused of being a werewolf, Stump was placed on a rack,³ a gruesome torture device that stretched limbs, dislocated joints, and often left victims incapacitated.⁴ After Stump was threatened with even more physical abuse, he admitted to sexual attacks, cannibalism, the slaughter of livestock, and the killing of 16 people, including his son.^{2,3} He also confessed the devil had given him a belt that allowed him to turn into a wolf.^{2,3} On October 31, 1589, Stump suffered a brutal execution while his daughter and another female, both implicated in his confession, were burned at the stake.²

Stump's case was well-known throughout Europe.^{2,3} Yet, it was not unique. In France, several *loups-garous*, accused of transforming into wolves and committing heinous crimes, were tried and executed.⁵ In fact, werewolf trials were not only held in Germany and France but also in the Netherlands, Belgium, Latvia, and Estonia,⁶ usually near forested areas inhabited by wolves.³

This belief in marauding werewolves seems to have developed in response to the effects of a climate crisis that took place at that time.¹ Between the 14th and 19th centuries, several regions of the world experienced the Little Ice Age, an era of lower

average temperatures.⁷ The period's colder, wetter summers, shorter growing seasons, and frequent storms led to crop failures, inflation, hunger, and disease.^{7,8} The peasant class believed witches were using weather magic to summon the extreme "unnatural" weather.^{8,9} Accused witches became scapegoats for the effects of this climate disaster,⁸ especially in regions of Germany, Scotland, Switzerland, and France.¹⁰ The peak period of witch trials happens to have been especially cold.⁸

Amid Europe's witch panic, there were also human outbreaks of a deadly zoonotic disease.¹ Until the Middle Ages, rabies had been rare in the region.^{9,11} In Germany, the first recorded instance of a wolf exhibiting rabid behaviour occurred in 1557.¹² The virus eventually became responsible for most wolf attacks on humans.¹² Researchers have suggested the unusually cold winters during the Little Ice Age caused the surfaces of Europe's rivers to freeze, providing wolves greater access to human settlements,¹³ a situation that may have boosted the number of rabies cases in humans.

In an era of witch hunts, the virus mysteriously transformed rational people into snarling, barking, hypersexual, salivating, and savage animals, contributing to the belief that some people could use witchcraft to shape-shift into werewolves.¹⁴ Although some accused witches, usually women, were thought to use magic to cause storms and crop failures, a much smaller group of witches were believed to use a magic belt or potion that transformed them into wolves.^{2,3,15} Similarly, Stump was described as "a most wicked

Sorcerer.”¹⁶ In Germany, according to one source, 30,000 to 45,000 accused witches, mostly women, were put to death. Still, there are only 300 recorded werewolf trials in that same period.³ Suspected werewolves were more likely to be men, and were associated with sexual deviancy and particularly gruesome crimes involving the slaughter of livestock and people.^{2,3}

Stump may have been an early modern serial killer or simply an innocent man who gave a false confession extracted through torture.³ Regardless, it was believed that a person aided by the devil could conjure weather that destroyed crops or transform themselves into a werewolf.

Despite the werewolf mythology the virus may have inspired, we now understand rabies is a viral zoonotic disease that produces a fatal encephalomyelitis.¹⁷ Rabies virus (RABV) — responsible for the great majority of rabies in humans — along with several other lethal neurotropic rabies-like RNA viruses, are members of the genus *Lyssavirus*.¹⁸ *Lyssa* is Greek for “madness” and the Latin *rabies* comes from the Sanskrit *rabhas* which means “to do violence.”¹⁹ Clearly, these descriptions provide a sense of the profound neurological and behavioural impact the virus has on its victims, including the loss of rational thought.

In most cases, the rabies virus, which may be carried by any mammal,²⁰ enters the human body through the saliva of infected animals, but also through scratches or mucosal contact.²¹ In rare instances, the virus has been acquired through organ transplants and aerosols.²¹ According to the World Health Organization, the incubation period for rabies can be anywhere from a week to a year.²¹ It is one of the most lethal viruses, essentially killing 100% of those infected.^{21,22}

Following incubation, non-specific flu-like symptoms and discomfort at the site of the original bite wound usually mark a prodromal stage.^{17,19,21} Rather than travelling in the bloodstream, the virus lurks behind the blood-brain barrier,^{19,22} sneaking along the nervous system at a rate between 12 to 100 mm a day.²³ Sheltered from the body’s immune defenses, it eventually infects the brain,²¹ spreads through the body, and is shed by the salivary glands.²⁴ Once symptoms appear, death is almost certain, usually within two weeks.¹⁷

After reaching the brain, the disease enters its acute phase, usually manifested in one of two forms: paralytic rabies or furious rabies.¹⁷ The paralytic form is seen in about 20% of human cases.¹⁷ Weakness, fever, loss of speech, and ascending paralysis, starting at the bitten limb, spreads to the rest of the body.^{17,25} In its paralytic form, the infection is often misdiagnosed.²¹

Furious rabies, seen in about 80% of cases, is associated with alternating periods of hyperexcitability and lucidity.¹⁷ The patient may suffer from hyperactivity, anxiety, confusion, hallucinations, aerophobia (fear of drafts or fresh air), fever, sweating, seizures, dysphagia and hypersalivation.^{17,26} Pharyngeal spasms may produce a barking sound.²⁷ The manifestation of hydrophobia (fear of water), present in more than half of furious rabies cases, is not seen in any other disease.¹⁷ Male patients may also have



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priapism (painful and persistent penile erections) and spontaneous ejaculations.^{19,27}

Given rabies’ shocking, agonizing, and horrifying symptoms, it is not difficult to see how human victims experiencing furious rabies — behaving like wild, barking, salivating, hypersexual animals — inspired tales of people taking on beastly characteristics.²⁸

Although RABV subjects its human victim to a gruesome metamorphosis, we are simply “accidental hosts.”²⁹ Only rarely do rabies-infected people bite, and in any case human teeth are not very effective at tearing open intact flesh and spreading the virus like dogs and wolves can.²⁹ Though human-to-human rabies infections may be possible,²¹ we are of little use in helping distribute the virus.

When unvaccinated people are bitten by animals that may carry RABV, timely treatment is essential.^{25,30} In addition to the cleaning and flushing of the wound, rabies post-exposure prophylaxis (RPEP) may involve administration of rabies vaccine and the use of rabies immunoglobulin at the site of the wound, depending on the patient’s vaccination and immune status as well as other factors surrounding the bite incident.^{17,30} If properly performed while the virus is still exposed to the immune system, RPEP is highly effective in protecting against rabies infections.¹⁷ Globally, at least 29 million people are given RPEP every year, helping to avoid hundreds of thousands of additional deaths.²¹

Vaccinating dogs against rabies has been central in preventing human infections.³¹ Meanwhile, bait containing oral rabies vaccine has effectively reduced rabies among wildlife,³¹ a source of viral spillover that infects pets and farm animals.³² Efforts to control rabies have almost eliminated canine rabies carriers in Canada and the U.S.^{17,20} Bat bites, however, are the source of most human rabies deaths in the U.S.^{20,33} Similarly, in Canada, between 1970 and 2019 there were nine deaths from rabies, the majority associated with bats.³⁴

While human cases are rare in North America, the horrifying virus is still a significant threat in many parts of the world. In particular, Africa and Asia account for 95% of human rabies cases,²¹ and it is estimated the virus claims more than 50,000 lives on those continents every year.³⁵ Most rabies cases occur among the marginalized and poor who lack access to adequate health care facilities.²¹ Wounds inflicted by domestic dogs are responsible for 99% of the infections; disproportionately, the victims are children.²¹ For about half of the world’s population who live in countries where canine rabies is endemic,³¹ the horror caused by the virus is still very real. ■



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HOW TO IMPLEMENT A NEW MLT PROGRAM Anderson College's SOP





The COVID-19 pandemic brought to light the importance of medical laboratory professionals across the country. This global pandemic continued beyond most of our expectations, the ever-threatening prediction of lab professional shortages finally materialized, and in the centre of it were medical laboratory professionals working tirelessly to process and test patient specimens not only for COVID-19, but for those ruling out different illnesses.

The growing demand for timely and high-volume testing and the risk associated with working on the front lines created a stressful environment, prompting departures and early retirements from the profession. For those who remained, working harder and longer hours became the new normal, as did stress leaves and continued pressure to work short-staffed. But most of us know this story already as we lived it, and survived it.

This profession is experiencing a critical shortage, and we feel it daily in our labs. Canada's labour market information survey predicts that only 23,800 out of the 25,600 laboratory jobs will be filled between 2022-2031.¹ This deficit will greatly impact the rural and remote hospital locations where attracting and retaining staff is already a challenge. To address the critical shortage, more medical laboratory technologists (MLTs) need to be educated, trained, and registered.

There are three options available: (1) tap into the under-utilized internationally trained medical laboratory technologists (IEMLTs); (2) increase student intakes in existing programs; and (3) offer new MLT programs, either by creating them from scratch or collaborating with an established program.

Anderson College elected to collaborate with an established institution and offer a new MLT program. This is one answer to the shortage, using the final option of collaboration.²

Anderson College has been serving its communities for more than 130 years. Over 11 campuses, the college offers ministry-registered and regulated programs for high-demand programs in the field of health care, business, IT, film, and law. The college trains and supports more than 4,000 students annually.³ The college sought to address the MLT shortage by creating a new program in Ontario. To achieve their goal on a shortened timeline, they collaborated with Calgary's Southern Alberta Institute of Technology (SAIT), which already had an established and successful MLT program.

Starting a new MLT program is not an easy task. Many preliminary steps had to occur prior to the first cohort coming to campus. Let us put these steps into a format that laboratory professionals are already familiar with: a standard operating procedure (SOP).

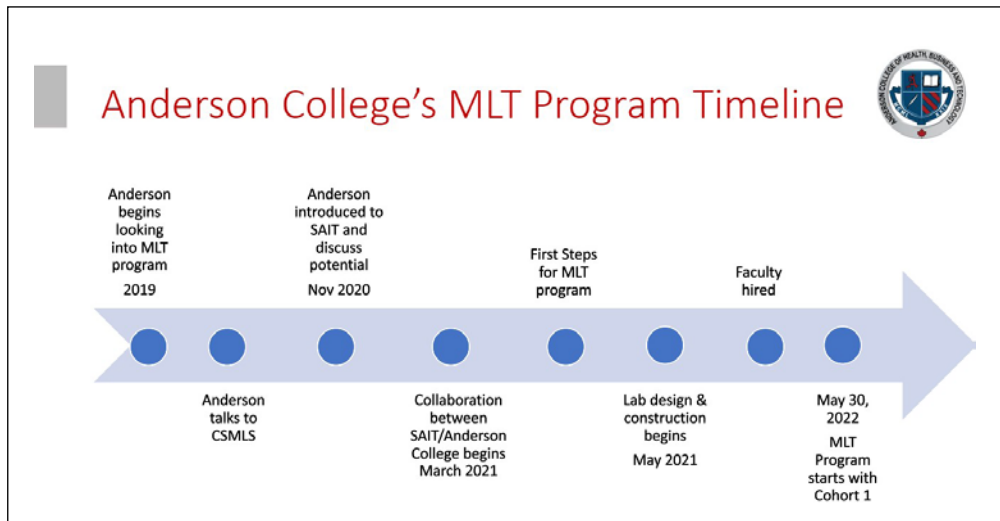


Figure 1. Anderson College's MLT Program Timeline

Standard Operating Procedure	
Anderson College	
Implementing a New MLT Program	
Lab SOP No. 101	Version 1

Purpose: To demonstrate how Anderson College implemented an MLT program.

Materials and Methods:

1. Research employment outlook
 - a. Understand what the long-term feasibility is for the program
2. Find institution with established MLT program willing to collaborate
 - a. For Anderson College, this was SAIT
 - b. Have conversations with other stakeholders (CMLTO, CSMLS, MLPAO)
3. Hire project coordinator/subject matter expert to implement program from one school to another
 - a. Best if the coordinator knows the existing program well to help guide the process
4. Create a budget and timeline for the project to include staff, laboratory design and construction, analyzers, and initial consumables
 - a. Now double the budget and timeline
 - b. Investigate how to create a more inclusive lab space for student needs
 - c. Perform an environmental scan of labs to see what equipment is currently in use to ensure authentic hands-on student experience
5. Find willing and able practicum partners
 - a. Cold-call all accredited labs to introduce a new MLT program and request initial interest and availability to host (more) students
 - b. This is one of the hardest steps as educational institutions recognize labs are currently struggling with staff shortages
6. Prepare and submit Readiness Report to Accreditation Canada
7. Submit for license for Biosafety Level 2 laboratory to the Public Health Agency of Canada (PHAC)
 - a. Prepare for a biosafety program at the College level to meet requirements from PHAC
8. Adjust curriculum to meet student needs at new school
 - a. Rebrand with appropriate copyright
9. Hire faculty group
 - a. Find the right people to guide and lead the MLT program; instructors and educational technologists ensuring enough time to learn and prepare teaching material and labs
 - b. Link them to their counterparts at SAIT for mentoring purposes
10. Move into lab space following construction completion
 - a. Unpack numerous boxes of supplies, find permanent homes for them, label cupboards and drawers to create a functional level 2 lab. (*Graphic 1*)
 - b. Install analyzers and equipment (*Graphic 2*)
 - c. Ensure faculty is adequately trained to use equipment and analyzer
 - d. Ensure proper signage is placed for safety purposes
 - e. Account for all purchase orders, packing slips, and invoices
11. Market the program to the public



Graphic 1. Anderson College's Core Lab before



Graphic 2. Anderson College's Core Lab after

12. Source out prospective students who want to join the profession
 - a. Identify equitable student selection process
13. Prepare for full accreditation with EQual Canada
 - a. Narrative and documentation of off-site review
 - b. Response to first report and additional submissions
 - c. On-site virtual visit and final report
 - d. Frame and hang certificate on the wall for everyone to see
14. Reflect on the lessons learned

Although there are many smaller items that may not have been discussed in the SOP above, they are no less important. This is just a brief overview to help the reader get a sense of the scope of a project of this size, with a brief timeline presented in *Figure 1*. Additionally, being a private school, Anderson College does not receive any government subsidies or funding for the development of this program, and the entire cost was the responsibility of the college.

Results

The success of Anderson's MLT program has been exemplified in various ways since its start.

1. **Accreditation.** The program achieved accreditation status with conditions, the best a brand-new program could achieve at the time.
2. **Cohorts:** The first cohort of incredibly resilient and hard-working students are finishing up their practicum, with some students already conditionally hired. The second cohort is moving into their last semester on campus with us, and our third cohort has already started their studies this fall.
3. **Faculty:** As a tight-knit faculty group, we are finding our stride, adding our expertise to each course we teach, and incorporating unique learning activities such as simulation and digital learning tools.

Lessons Learned

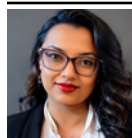
Have compassion. Starting something new is a brave thing to do, and seldom easy. It's necessary to have compassion for your team, students, and yourself.

Teamwork makes the dream work. Working with a strong team makes it easy to come to work, particularly when you have a difficult day ahead. Being able to rely on each other is key to success.

Where there is a will there is a way. Our students have taught us that when you really want something, you will go after it and you will get it. Our students consistently show up to learn, and work through the heavy workload and challenging assessments despite personal barriers or health issues. They have inspired us to keep being better educators and improving our program.

Failure is an opportunity to improve. Mistakes and errors are inevitable. But instead of focusing on the failures and viewing them as something negative, we have learned to use them as opportunities to improve. We often use our mistakes as a lesson for students so that they know it's OK to make mistakes as long as we learn from them.

The MLTH team at Anderson has blossomed into a strong group of MLTs whose sole focus is to train quality students. We are finding ways to enhance the delivery of our program to establish our own solid MLT program that will be around for years and continue to help fill the human resource shortage of MLTs. ■



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FINDING FULFILLMENT IN CHANGING LABORATORY WORK

In recent years, many efforts have been made to improve the well-being and mental health of medical laboratory professionals — and with good reason. The challenges faced by lab professionals have only increased due to the recent pandemic and chronic staff shortages. Various mental health initiatives have popped up in workplaces and professional communities across Canada, but despite these efforts many lab professionals continue to speak openly about feeling underappreciated and unfulfilled at work.

Personal fulfillment is a challenging metric to measure and study because it is just that: personal. A fulfilling career looks different to everyone. However, not only does a sense of fulfillment improve morale and mental well-being, but it has also been shown to increase a lab professional's intent to stay with their current employer.¹ Therefore, finding ways to improve the fulfilling nature of work should be of great interest to managers, employers, and lab personnel alike.

One under-investigated factor in mental well-being and fulfillment at work is the increasing levels of automation in labs. Automation can be a double-edged sword; the benefits are well-known to us — increased capacity, increased uniformity of methods, decreased turnaround times, and more — but the drawbacks of automated lab practices can be insidious. Greater automation and constantly changing technologies can lead to techno-stress and burnout while also leaving staff feeling depleted by their work. Staff can feel that their role becomes repetitive and wearisome, with more time spent on tasks unrelated to their training and skills.

Automation certainly isn't going away, and its benefits have changed the scope of what is possible in many labs. So how can we mitigate its potential negative effects on morale and mental health? How can staff achieve a sense of fulfillment at work in the face of such challenges?

Much of the available research on preventing burnout and boosting professional well-being has focused on physicians, but key insights can be applied to the medical lab field. For example, feeling connected with and valued by others has been found to be a major contributor to professional well-being and satisfaction of health care workers.²

One important finding is that taking a holistic view of your life is essential for effectively preventing workplace burnout and dissatisfaction.³ The steps outlined below are adapted from a framework created by MacKinnon, Rosema, and Cyca in 2022.³ These steps provide a small-scale example of how medical lab professionals can take an active role in improving their sense of fulfillment in both work and life.

1) Self-Reflect

Reflect on what you want out of your career and life.

What excites you, and where is there room for growth?

Our vision of a successful career can change over time, so perhaps what you want from your career now is no longer aligned with your past goals.

2) Set Goals

Having reflected on your career vision, set two or three goals for the coming year. These goals can be personal or professional; challenge yourself to step outside of your comfort zone. This could mean taking advantage of educational opportunities, getting more involved in the medical lab community, researching a topic of interest, or finding a way to help others through volunteer work or mentorship.

Perhaps the goals that would best benefit your well-being are entirely unrelated to professional development. Committing to spending more time doing the things that bring you peace and joy can have a major impact on overall well-being, which spills over into your work life.

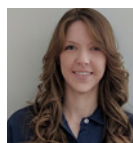


3) Formulate an Action Plan

Get specific about the steps you need to take to achieve your goals. Write each step down and set realistic deadlines to help you stay organized. Talking to loved ones or friends about your plans is a great way to stay accountable and ensure that you keep working towards goals over time.

4) Reassess

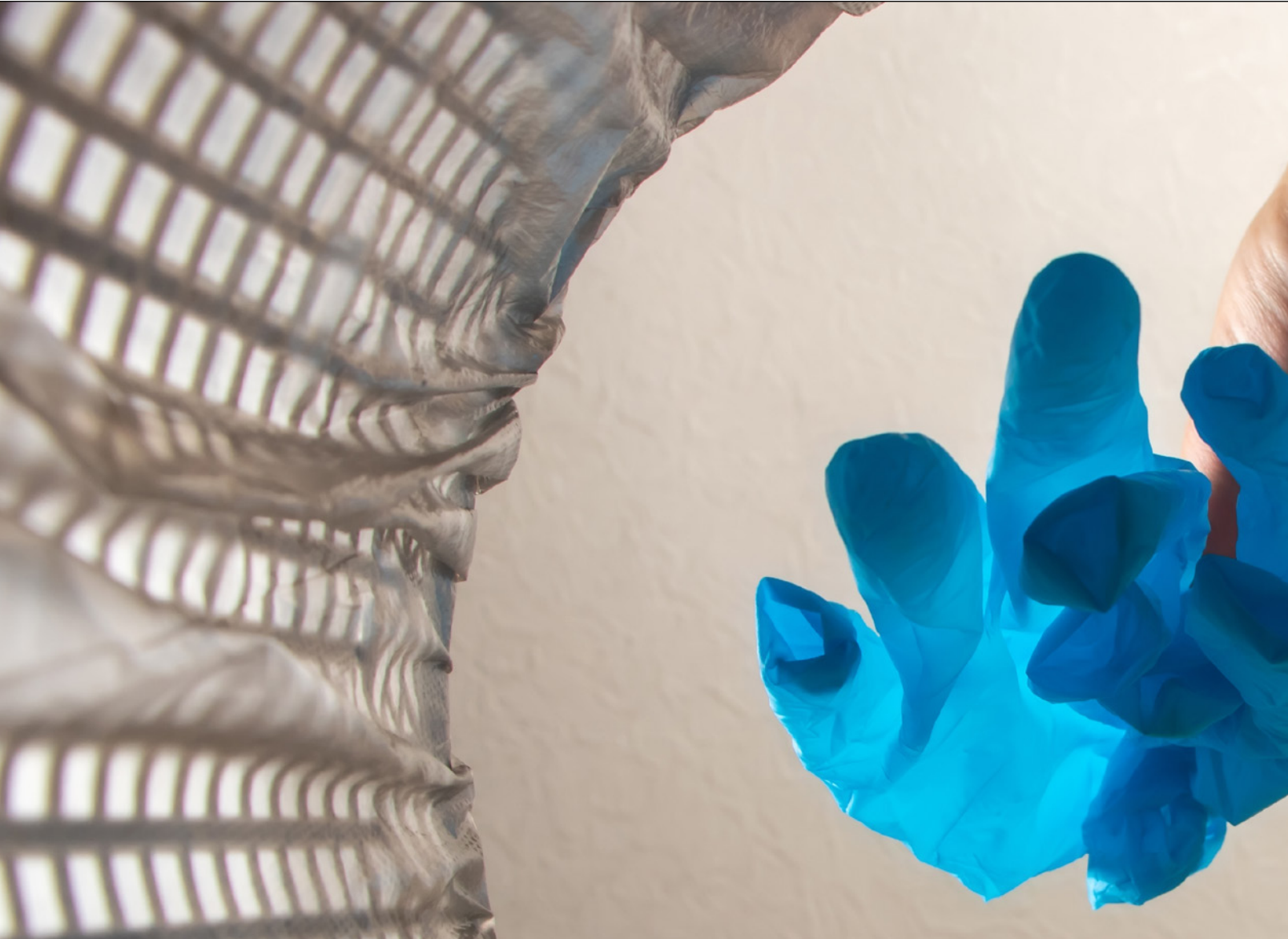
Set a date to assess your progress and re-evaluate your goals. Your values, passions, and interests can change with life experience, so it's natural that over time your goals may need to be adapted to better fit your changing career vision. Above all, be kind to yourself! Remember that work is only one small aspect of life and that more opportunities for growth are always around the corner. ■



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IN LABORATORY MEDICINE, It's Not Easy Being Green



By now, there is no debate that medical laboratories in Canada generate waste, and that this waste contributes to carbon emissions. Health care is thought to be responsible for 5% of net global carbon emissions, more than air travel at an estimated 3.5% of net global carbon emissions.¹

According to LabWisely.ca, nearly \$6 billion is spent annually in Canada on lab testing.² A team of Boston researchers that conducted a systematic review of 42 studies estimated the mean rate of inappropriate laboratory testing for low-volume tests was 32.2%.³ A 2022 report from the Canadian Institute for Health Information found that one in five patients who had low-risk surgery had a preoperative test.⁴ Overall, an estimated 20%–50% of all testing is inappropriately ordered, meaning that it is either an incorrect test, a redundant test, or a correct test ordered at the wrong time.⁵

One thing is certain: by reducing unnecessary testing, carbon emissions from patient travel to and from laboratory facilities would not be produced, and waste generated by the use of single-use tubes, syringes, and pipettes would be minimized.



Adina Weinerman MD, FRCPC,
General Internist at Sunnybrook
Health Sciences Centre.

Calls for environmentally sustainable practices in medical laboratories are becoming increasingly louder, according to Adina Weinerman, MD, FRCPC, a general internist at Sunnybrook Health Sciences Centre in Toronto. She's also co-lead of Using Labs Wisely, a one-year-old national consortium that involves more than 100 hospitals aiming to decrease low-value lab testing such as routine repetitive testing for hospitalized patients, coagulation testing, and biochemistry tests that are either outdated or redundant.



“I would really say that in the last couple of years, it has really evolved to be a very concrete part of thought to the point where, at the national [Choosing Wisely Canada] conference this past spring, the closing keynote was very much on environmental sustainability and the impact of health care in general,” said Dr. Weinerman. “It has always been that reducing medically unnecessary tests is better for patients and is better for the health care system overall, both from an efficiency standpoint and, depending on how you look at it, from a financial standpoint as well. But now we are adding in the layer that it is actually also good for the environment.”

In early 2022, a global blood tube shortage underscored the reliance that laboratories in Canada had on plastic blood tubes for everyday use, noted Dr. Weinerman: “That [shortage] was a very concrete way of highlighting how much disposable supplies

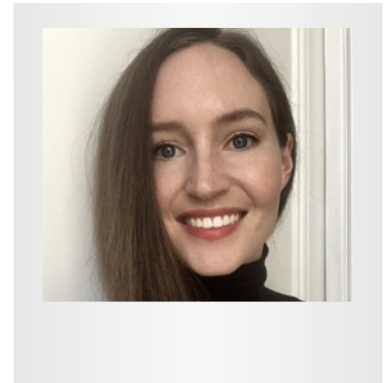
and single-use plastics are used in collecting, every single time you’re drawing blood from a patient.”

The shortage served as an opportunity for laboratory staff to encourage more appropriate ordering of blood work and for staff to interact with clinicians who order blood tests, metabolic panels, etc., according to Dr. Weinerman.

“The material shortage was very helpful from an environmental lens,” said Dr. Weinerman. “Clinicians got much better at calling the lab [before ordering tests] to see if they [already] have the blood, and the lab got much better at promoting the idea of asking if another test is really needed.”

While Dr. Weinerman noted she does not have evidence to know if physicians have continued this trend, her sense is that physician ordering has not reverted to pre-materials shortage levels. “Anecdotally,

I feel that there is more of a general awareness than there was previously,” said Dr. Weinerman.



Kate Andrews, Green Labs and Energy Program Coordinator, University of British Columbia

RESEARCH LABS MAKING STRIDES IN SUSTAINABILITY

While awareness on environmental stewardship grows, some clinical and research labs are already enacting change.

Take the work that Kate Andrews is doing at the University of British Columbia in Vancouver, for example. As Green Labs Program Lead, Sustainability & Engineering, at UBC, Andrews acts as a resource for UBC’s research and teaching labs to adopt strategies to implement sustainable practices in the lab.

Efforts at research labs dedicated to being green involve putting the three Rs — reduce, reuse, recycle — into action, noted Andrews.

“There are different ways we can reduce or reuse,” explained Andrews. “Lab managers can sell or donate unused equipment or supplies to other labs through UBC’s online reuse platform, and labs regularly share chemicals amongst each other — rather than purchase new — with the use of department-wide chemical inventories. Repurposing lab waste is another option: a student-run club on campus called Roots on the Roof, for example, takes empty pipette tip boxes and repurposes them for seed starting.”

The three Rs apply to research, too. “For researchers, depending on the type of research, it can be things like organizing your experiments in a way so that you’re minimizing the number of different tubes and tips and plates that you need, reducing the number of times you have to change out your gloves, and using glass where it makes sense,” said Andrews.



Kathleen Brady, Executive Director
International Institute for Sustainable
Laboratories.

Energy use is another area where laboratories can make a change, noted Kathleen Brady, Executive Director of the International Institute for Sustainable Laboratories (I2SL) in Arlington, VA. The energy efficiency of freezers can be improved by shifting ultra-low temperature freezer set points to -70°C , cleaning out freezers to free up freezer space, and defrosting freezers, explained Brady, whose organization, along with My Green Lab, is involved with the International Laboratory Freezer Challenge, an international competition aimed at promoting cold storage best practices.

Still, another asset in laboratories that is often not managed properly is the fume hood, noted Brady. “One of the very simple things that can be done is to keep the sash shut if you have a fume hood,” said Brady, suggesting the behavioral change of shutting the sash can be learned.

“
One thing is certain: by reducing unnecessary testing, carbon emissions from patient travel to and from laboratory facilities would not be produced, and waste generated by the use of single-use tubes, syringes, and pipettes would be minimized.
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TEST YOUR KNOWLEDGE

Complete a quiz on this article at learn.csmls.org to earn Professional Enhancement Program (PEP) hours towards your professional development plan.

As the fume hood exhausts the air, keeping the sash closed will decrease the amount of air to exhaust, which saves energy, explained Brady. Keeping the sash closed is also a safety issue, as it minimizes the risk of chemical spills in the lab. As a best practice, the sash of the fume hood should only be open when necessary, such as when experiments are being performed.

ALBERTA PRECISION LABORATORIES: A CASE STUDY OF SUSTAINABLE LABORATORY MEDICINE

The winds of change began to blow a few years ago at Alberta Precision Laboratories (APL) in Edmonton, the largest diagnostic lab in the province and a wholly owned subsidiary of Alberta Health Services. Since 2018, there have been efforts to implement greener practices at the laboratory, according to Dylan Baustad-Thomas, BSc (MLS), Health and Safety Advisor at APL.

“We actively try and meet our local and provincial guidelines for waste as much as possible,” said Baustad-Thomas. “Through these practices, waste reduction is inherent.”

“Over the last five years, we have been capturing a lot of our waste and sending it for treatment, rather than putting it into our wastewater systems,” said Baustad-Thomas. “All types of solvents, we would have put them down the drain with lots of other things [years ago], and we just do not do that anymore.” Approaching laboratory practices from a worker safety standpoint squares with approaching laboratory practices from an environmental safety and sustainability standpoint, explained Baustad-Thomas.

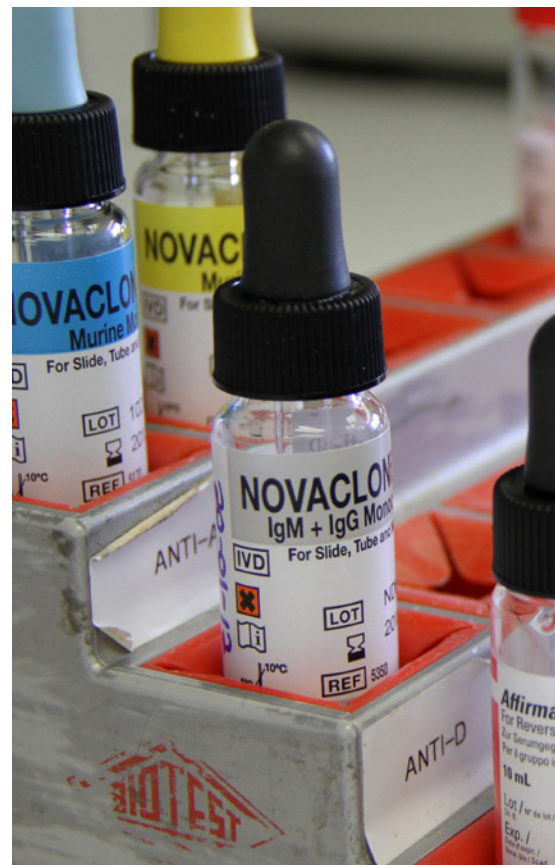


Dylan Baustad-Thomas, BSc (MLS), Health and Safety Advisor at Alberta Precision Laboratories.

He also noted that APL has modified its procurement process to ensure that equipment selected for purchase would minimize the amount of effluent waste that needs to be disposed of. “We are striving towards reducing and minimizing stuff going down the drain,” said Baustad-Thomas. “And since 2019, when we go through procurement processes, we try to look at those pieces [of environmental sustainability].”

Individually, medical laboratory professionals at APL are being more judicious in their daily activities, such as when using a pipette for various reasons, to decrease the need to dispose of chemicals, said Baustad-Thomas. “An example is needing to make a dilution of a reagent or needing to adjust the pH,” he explained. “We try to encourage that [staff] only take out what they need [to perform those tasks].”

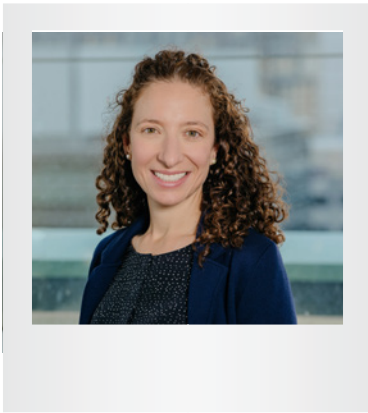
Many labs in Alberta employ dry-based chemistry, where dry chemistry analyzers do not require any other reagents to be stored or any solutions to be prepared. Dry-based chemistry, however, is not feasible in larger centres like Calgary or Edmonton because of the larger volume of testing required there, according to Baustad-Thomas. Liquid-based chemistry, which is less green as a laboratory practice, is limited to Calgary and Edmonton.





Over the last five years, we have been capturing a lot of our waste and sending it for treatment, rather than putting it into our wastewater systems

— Dylan Baustad-Thomas.



Karen Born PhD, Program Director, MHS Health Administration Institute of Health Policy, Management and Evaluation, University of Toronto.

THE NEXT GENERATION OF CHANGE

Education can help bring overall change to laboratory medicine so that it features greener practices, in the view of Karen Born, PhD, Assistant Professor (Teaching Stream) and Program Director for the MHS Health Administration at the Institute of Health

Policy, Management, and Evaluation at the University of Toronto.

Dr. Born recently co-authored an article in *BMJ Quality & Safety* entitled “Choosing Wisely and the Climate Crisis: A Role for Clinicians,”⁶ which argues that educators can play a role in raising awareness among trainees and colleagues by including climate-relevant or planetary health content in curricula, conference presentations, or continuing medical education activities.

Environmental sustainability is top of mind for members of Generation Z, the medical laboratory professionals of tomorrow. This generation, born between 1997 and 2012⁷,

is very conscious of its carbon footprint in the world, enthusiastic about learning more about this subject in their education, and ready to embrace change and green goals in health care and laboratory medicine for the greater good, stated Born.

“The next generation is very engaged in this topic, whether or not the colleges and universities have started teaching it or whether training programs have made it a focus thus far,” said Born. “They are definitely thinking about it. They are trying to reduce their waste in how they live. They really value sustainability, and they may be the catalyst for change.”



LOUISE GAGNON
Special to the CJMLS

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Community



Jelili Mustapha and health care team in Ipetu Ijesa, Osun, Nigeria.

TRANSFORMING RURAL HEALTH CARE:



A MEDICAL PROGRAM IN IPETU IJESA, NIGERIA

Ipetu Ijesa is a rural town in Nigeria's Osun State that is predominantly inhabited by peasant farmers and traders with limited access to health care services. Concerned by this situation, I applied to the CSMLS World Medical Laboratory Development Fund (WMLDF) and I received a grant that aimed to address the health care needs of the residents. Thanks in part to these funds, I was able to provide much needed medical attention, diagnostic tests, and medications to improve the health and well-being of the community.

On June 10, 2023, I arrived at Ipetu Ijesa and started a medical program with a dedicated team of 16 health care professionals. The team consisting of medical laboratory scientists, medical laboratory technicians, nurses, physicians, community health workers, and health care attendants were all driven by a common goal of delivering quality health care services to the underserved population.

We attended to approximately 200 residents during the program and conducted over 500 diagnostic tests. The tests included malaria tests, hepatitis B virus (HBV) tests, urinalysis, rapid *H. Pylori* tests, haemoglobin/PCV tests, blood pressure checks, and fasting blood sugar tests, all of them playing a crucial role in early detection and monitoring of health conditions prevalent in the community.

In addition to diagnostics, we provided essential medications based on residents' individual needs. We distributed anti-malarials, painkillers, and multivitamins for men, women, and children to ensure some immediate relief and to support their overall well-being.

In a town where residents often struggle to afford medical expenses, the effect of this program was profound as we attempted to address the pressing health care needs of the community. The residents were immensely grateful to us for this initiative; they recognized the significant improvement it brought to their lives. By offering accessible and quality health care services, the program played a vital role in preventing and managing diseases, improving health outcomes, and enhancing the overall quality of life in Ipetu Ijesa.

While the program made a positive impact, it also highlighted the ongoing challenges rural communities face in accessing adequate health care. My hope is that the success of this initiative will serve as a catalyst for the government to implement robust measures to strengthen our health system. Accordingly, a more inclusive and sustainable health care system can be established if we focus on the most vulnerable members of society and ensure equitable access to health care services.

After running the medical program, it is undeniable to me the power of health care interventions in underserved communities. By providing diagnostics, medications, and compassionate care, the program successfully addressed the health care needs of the residents. It is our collective hope that this program serves as a stepping stone toward creating a more robust health care system that reaches all



Health care team working with the community of Ipetu Ijesa.

individuals, regardless of their geographic location or socioeconomic status. Through continued efforts, we can make health care accessible and ensure the well-being of every community member.

I want to acknowledge the generous support and funding from the Canadian Society for Medical Laboratory Science via the World Medical Laboratory Development Fund (WMLDF), which, along with our dedicated team, made the medical program in Ipetu Ijesa possible. Their contribution played a pivotal role in making this initiative a reality and improving the lives of the residents of the community. 🙏



JELILI MUSTAPHA, MSc, BMLS (Hons), MLS (ASCP) CM, MLT
 DynaLIFE Medical Labs
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GAMAN J. MODI
AWARD OF EXCELLENCE
Sandy
Charbonneau:
The Glue that
Keeps the Lab
Together

In 2019, CSMLS established an award of excellence in honour of Gaman J. Modi, an exceptional CSMLS member who also served on the CSMLS board between 2002 and 2003. The award recognizes and celebrates medical laboratory professionals with remarkable passion for their work while displaying commitment, competence, and compassion — the three Cs.

This year, we had the pleasure of presenting the prestigious award to Sandy Charbonneau. She has delivered outstanding patient care as a medical laboratory assistant at the Lady Dunn Health Centre (LDHC) in Wawa, Ontario, for over 10 years. As a phlebotomist, Charbonneau learned from the guidance of an MLT and challenged the MLPAO MLA exam. Since then, she has exceeded all expectations by training new lab staff, upholding the laboratory protocols, and establishing herself as an expert in what is “right,” quality-wise. Some of her tasks include being responsible for the lab inventory and ordering all supplies. However, she has gone above and beyond by becoming a key operator in many places in the lab, being a leader for staff and patients overall.

Her colleagues have nothing but words of praise and recognition for her work, which helps the laboratory keep working successfully — like glue, in their own words. Charbonneau stands out as one of the LDHC employees who helped provide PCR SARS-COVID-2 testing during the pandemic after being trained by MLTs. Among many other recognitions, Charbonneau is part of different committees that assure the well-being of lab professionals and the proper care of patients, such as the Occupational Health and Safety Committee, the Transition and Medical Committee, the Point of Care Committee, and many more.



Sandy Charbonneau and CSMLS CEO Christine Nielsen at the Lady Dunn Health Centre in Wawa, Ontario.

lifts the spirits of everyone in the lab on challenging days in fun ways like coming up with new playlists. But more than that, she takes the joy of being a lab professional very seriously: she has made customized Lab Week T-shirts for the lab staff for the past two years and even involved the lab and other hospitals in Lab Week festivities.

We're proud to have a lab professional like Sandy Charbonneau in our CSMLS community, who puts all her hard work into helping other lab professionals fulfill their duties and cares about each patient from beginning to end. Her colleagues say it's a privilege to work alongside her, and now we have the privilege of knowing and recognizing her story and efforts. Thank you, Sandy! 🙏

Dr. Rafik Ragheb: An Example of Leadership

A.R. Shearer Pride of the Profession Award

The A.R. Shearer Pride of the Profession Award celebrates and honours medical laboratory professionals who commit to excellence, demonstrate pride through their leadership, and go above and beyond in all aspects of their professional careers. CSMLS established this recognition on its 60th anniversary in honour of Archie Shearer, CSMLS's Executive Director from 1961-1980, who was recognized with the Order of Canada for his contribution to Canadian health care during this period.

Nominated by his peers and colleagues, Dr. Rafik Ragheb is the recipient of this year's award. His professional journey started in Egypt with studies in biochemistry in 1986. On his arrival in Canada, Dr. Ragheb became a CSMLS-certified MLT in 1995 and has been a member ever since.

Over the past 26 years, Dr. Ragheb has become a renowned laboratory professional, achieving numerous awards and recognitions while completing his PhD in biochemistry at the University of Toronto. Along with his experience and participation in various national and international conferences, Dr. Ragheb



CSMLS CEO Christine Nielsen presents the A.R. Shearer Award to Dr. Rafik Ragheb at Anderson College.

stands out for his leadership skills, inspiring colleagues and students around him while proudly holding his position as program chair of the Medical Laboratory Technician program at Anderson College since 2015.

Dr. Ragheb has dedicated his academic and clinical work to diagnostic research that links inflammation with diabetes and other metabolic disorders. His academic achievements extend beyond medical laboratory science; Dr. Ragheb's colleagues and peers admire his passion for practising and teaching laboratory medicine, making him an admirable professional contributing to Canadian health care. He has excelled in his service to the medical laboratory community, always caring for the professional development of his students.

We're proud to recognize Dr. Ragheb's work and life story. His contributions to the MLP community and Canadian health care have earned him the honour of a well-deserved award. He ensures medical laboratory students dive into their profession with passion and eagerness to learn, something we're sure inspires other professionals to follow in his footsteps. Thank you, Dr. Ragheb! 🙏



Faculty members, CSMLS CEO Christine Nielsen, and students gathered to celebrate Dr. Ragheb. Photos courtesy of Anderson College.



Q&A WITH MEAGAN KRAMER

Improving the Lab One Step at a Time

BD Young Leaders Scholarship

In partnership with BD Canada, CSMLS is proud to award Meagan Kramer with the BD Young Leaders Scholarship. The grant aims to assist members early in their careers with costs related to continuing their professional development. Kramer's inspiring passion to motivate colleagues and implement valuable changes in the laboratory shows why she's earned the title of "young leader."

Kramer, a proud MLT and 7-year CSMLS member, pursued a Master of Health Administration (MHA) at the University of British Columbia while implementing everything she had learned at her workplace, the Nanaimo Regional General Hospital. We had the pleasure of talking with her, and she answered a few questions reflecting on the program and its impacts on the lab.

Congratulations on this achievement! We know the BD Young Leaders Scholarship will help fund the MHA you attained. What inspired you to complete this program?

First, I am sincerely humbled and grateful to receive the 2023 BD Young Leaders Scholarship awarded by the CSMLS Grants and Scholarships Committee. I am incredibly blessed to live, work, and play on the stunning traditional territory of the Snuneymuxw First Nation, also known as Nanaimo, British Columbia.

I began my career as an MLT in the core lab of Nanaimo Regional General Hospital in 2018. I knew that, to make a difference in my profession, I needed a broader lens from which to view the laboratory, its workload challenges, and its place in our health system. I chose to embark on an MHA to obtain the knowledge I need to address the challenges we face now and in the future. I am interested in system approaches, quality frameworks, priority settings, and any other potential solutions that help optimize processes to give our workforce some relief.

What do you think have been the consequences of these challenges in the laboratory?

I work with brilliant and dedicated individuals; however, like many laboratories across Canada, we are struggling to meet the growing demand for laboratory services while facing unprecedented staffing shortages. This crisis aligns differently with my professional vision of what the laboratory climate should be. I have struggled immensely with ideas on how to improve the situation we now find ourselves in. Contributing to the feeling of general unease, the lab can often feel removed from the rest of the health care team. Laboratories and their staff are usually tucked away in a dark corner of a hospital, seemingly uninvolved with direct patient care and made to feel like an afterthought instead of a vital component of the health care system.

How will you apply what you learned in the MHA program to your work?

My father is an accomplished economist, and while very proud of me, he will be disappointed to hear that my biggest learnings from the MHA did not come from lectures about methods of economic evaluation for health care programs or that, after many stats classes, I still cannot calculate a confidence interval.

The most impactful lessons of the MHA program instead came from inconspicuous statements that I carry with me into my everyday work:

"Policy inaction is still a policy decision."

"New technology is always costlier if used the same old way."

"True understanding comes from study, struggle, and focus. Understanding Indigenous-specific racism in health care is no different."

"Health care is an economic driver, not just an expensive investment."

"Our attention is the most scarce and valuable resource. Use it as currency."

The list can go on and on.

Can you tell us more about a project that has helped you in the lab?

Ironically, my capstone project was inspired by an article in the *CJMLS*. Vancouver General Hospital's (VGH) successes were featured in the Spring 2022 *CJMLS* article "Innovations in Laboratory Medicine" under the section titled "Ensuring Judicious Orders of Complete Blood Counts." Although Island Health Authority uses a different platform for haematology analyzers than VGH, I was eager to adopt the same principles to reduce the number of slide scans performed by technologists by manipulating our processes and technology rather than modifying physician ordering practices.

First, we conducted a chart review to determine the most frequently occurring differential flags. After that, we conducted a clinical utility study to determine the optimal sensitivity setting for the analyzers. Finally, we approached other B.C. health authorities to inquire about their processes in hopes of aligning our practices. We are currently awaiting a leadership review and approval before implementing and evaluating any changes suggested due to this project.

What is your biggest takeaway from this opportunity?

The MHA has given me the confidence to participate in large organizational projects, reach out to other health professionals, and be my own version of a leader. I have learned that in today's climate, I might not be able to give every patient, colleague, or project 100% of what they deserve, but I can commit to giving them 100% of what I have. ■



BE A #LABVOCATE

Do you want to share the fantastic work of medical laboratory professionals with your community? Visit [youtube.com/@csmls](https://www.youtube.com/@csmls) > **In the Lab** playlist and share the videos on social media to help raise awareness of your key role in patient care.

IN THE LAB IS BACK

CSMLS' "In the Lab" has seven new episodes! This web-video series is one of our most popular advocacy resources, and it puts you in the spotlight. Each "In the Lab" video takes viewers behind the scenes to learn about the important work you and your medical laboratory professional (MLP) colleagues do for patients to understand the crucial role MLPs play in our health care system.

This time, we look at the incredible work of medical laboratory professionals at University Health Network (UHN) laboratories in Toronto and at Canadian Blood Services' Plasma Donor Centre and Production and Distribution facility in Brampton, Ontario.



Medical lab professional Erica Dafoe explaining the fluorescence in situ hybridization (FISH).

The three videos made with UHN explore different tests commonly performed by medical laboratory technologists, with the MLPs themselves explaining the science behind it all. In the first episode, genetics medical lab professional Erica Dafoe demonstrates fluorescence in situ hybridization (FISH) testing at the MaRS District prognostic lab, a type of cytogenetic test that detects specific genes or parts of genes. MLT Chris Rizarri explains the science behind PCR testing and when it's used — a hot topic since the COVID-19 pandemic. Lastly, charge medical lab technologist Anselmo Fabros shows the most common way to test for autoimmune diseases with ANAs, or antinuclear antibodies screen.



Charge medical lab technologist Anselmo Fabros explaining the testing process for autoimmune diseases with ANAs.



15th-time donor Tracy Kamino donates plasma at the Canadian Blood Services' Plasma Donor Centre in Brampton, ON.

In the first video, viewers see how plasma is donated. Canadian Blood Services team member and MLA Amjeele Caluag explains the significance of donating plasma, and 15th-time donor Tracy Kamino reminds us about its life-saving powers. In the second video, MLTs Sheila Annett and Dereck Jagdgo explain the process of testing blood and plasma for transmissible diseases, a serious task that ensures patients are safe. The next video shows the process does not end there; Canadian Blood Services team member and MLP Zayda Grafilo works with hospitals simultaneously to ensure patients get the right plasma products and treatments in a timely manner. In the last video, we hear how vital plasma donation really is, as Cheryl Liuzza explains how plasma treatment has changed her daughter Jayden's quality of life.



MLTs Sheila Annett and Dereck Jagdgo describing the process of testing blood and plasma for transmissible diseases.

Thank you to the UHN and Canadian Blood Services team members, family members and donors for their incredible work and for helping us share their impact on patient care. 🙏



CSMLS member, and host of the exhibit, Trudy Seely at Canadian Blood Services in Lethbridge, AB.

THE UNSEEN EXHIBIT REACHING MORE PEOPLE ON THE ROAD

Oh, the beloved Indigo Lab Coat. A symbol of the hard work, passion, and dedication each medical laboratory professional in Canada exemplifies every day, this unique lab coat has seen many forms.

From carrying the 1.2 million tests you perform each day to an Olympic champion's grateful message microprinted in indigo onto the coat to being painted with abstract art inspired by the lab, each iteration of the Indigo Lab Coat has highlighted your profession in a different light. The latest campaign is helping more patients than ever get up close and personal with your work, and it might be travelling to a city near you!

The Unseen Exhibit helped capture the public's attention in a brand new way, bringing much-deserved awareness to your work with the art of Dahae Song, a Toronto-based artist. She took your work out from the lab with abstract art that depicts a blood smear, karyotyping, a Pap smear, and sample collection. Together, this art creates an exhibit that features the unseen work of medical laboratory professionals and your essential role in Canadian society.

Continuing the momentum of the exhibit, we're bringing it to you! We're sending the original art — including the full canvases and the painted Indigo Lab Coat — along with new ready-to-display information panels to members across Canada. With volunteer

hosts lined up for nearly a year, the travelling Unseen Exhibit is bound to reach more Canadians and help them see how your work affects every aspect of patient care.

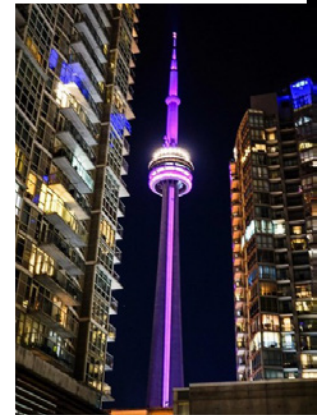
The Canadian Blood Services in Lethbridge, AB, was our first destination. Members, donors, and patients of all ages had the opportunity to experience The Pap, The Karyotype, The Smear, and the Indigo Lab Coat as timeless pieces of art, and as portals to your world in the lab.

CSMLS member Trudy Seely is the official host of the exhibit in Lethbridge. She expressed how many donors found the artwork “interesting,” even highlighting how “art [can] represent science rather than still life.” Thanks to Seely and the exhibit's future hosts, the public is discovering and interacting with artforms of your work, with each interaction bringing awareness to a profession that saves lives.

There's definitely more to come, with new hosts creating temporary art exhibits across the country. Stay tuned to eNews for updates on its location. 📺



Raquel, donor at the Canadian Blood Services in Lethbridge, AB enjoying the exhibit.



Photos clockwise from left: Hamilton City Hall, Genevieve O’Grady; Edmonton’s High Level Bridge, Joël Rivero; The CN Tower, Michelle Price

SAVE THE DATE LAB WEEK 2024: APRIL 14 – 20

It’s official; we have a date! The week of April 14-20, we’ll be celebrating National Laboratory Week 2024, and we’re excited and ready to celebrate the valuable work of medical laboratory professionals across the country. After a record-breaking week in 2023 uncovering the work you do behind every test, we’re counting down the days to advocate and raise awareness in brand new ways.

Adding to our annual lab festivities, we’ll celebrate Volunteer Week the same week, along with International Biomedical Laboratory Science Day on April 15. The third week of April will be a special celebration for those who help their communities, inspire change, and make every day a life-saving day, and by that we mean all of you.

Lab Week’s light display started a few years ago, and in 2022 we saw 19 locations lit up in indigo in your honour. Last year, you helped us break records with 26 locations lit up to recognize the relentless work of medical laboratory professionals. For this year, we’re excited for even more indigo lights in more places across Canada. If you have a “lightable” landmark in your community, you can help us break our last record, and we can help you organize!

To help you prepare your celebrations, we’ll have free swag items that members can order this spring. We cannot wait to see you using our posters, pens, stickers, and more awareness tools that we know you love. You placed a record number of orders in 2023, and we’re sure you’ll love what we have for you this year. Make sure to subscribe and check eNews for more updates on swag and Lab Week details.

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National Medical Laboratory Week

Lights for Lab Week







Photos courtesy of @blackwater from top left: @jillfranklin, @lisa@barnes, Jennifer O’Leary, Michelle Lykes

♥
🗨
📍
🔖

Les gusta a **bernsie_88** y otros

csmls_scslm Thank for your making Lab Week 2023 one of the most memorable ever! Take a look at some of the lights photos you took!



FOR MORE INFORMATION

visit the Volunteer Opportunities section of our website,
csmls.org, under **Membership > Volunteers**.

BECOME A MEMBER OF THE BOARD

The CSMLS is truly your society! CSMLS members elect the volunteers who serve on the CSMLS Board of Directors. Those elected provide their expertise to advance the profession, network with like-minded professionals nationwide, develop leadership and communication skills, and attend live meetings with fellow members.

Once their term has begun, Board members are in charge of making informed decisions and guiding the management of the Society, thus affecting all members in Canada. The Board of Directors represents the CSMLS at numerous events and oversees committees such as Grants, Scholarships, and Awards; Legislation; Finance; and more.

In order to manage the affairs of the Society, Board members are accountable for understanding and following the bylaws and legal requirements, and the organization's operations. Acting with integrity, accountability, respect, and commitment, they conduct the association processes with transparency and prudence, aiming

to make educated choices, thus reflecting the voice of medical laboratory professionals.

As per the revised bylaw, Article 4.2.1 Board of Directors, approved at the 2023 Annual General Meeting, Board terms will commence on July 1 of the election year, in this case, July 1, 2024. There are two open offices for the 2024 election:

Director, MLA
Director, Quebec

If you're interested in running for an office of the Board or know a possible candidate, please submit your nomination form by April 22, 2024. Visit our website for more details or contact **Sierra Paprocki** at **president@csmls.org**.

WE WANT TO HEAR YOUR STORY

As the Canadian Society for Medical Laboratory Science, we are aware of the cultural reflection that has taken place in our society regarding our role in recognizing and dismantling systemic racism and discrimination, thus ensuring the correct effort and support to marginalized communities across Canada.

As part of our Strategic Plan (available at csmls.org), we are taking all the steps we can to make CSMLS the association of choice for medical laboratory professionals of all backgrounds. Consequently, we aim to bring accessibility, equity, and inclusion to our profession in every corner.

For that reason, CSMLS is looking for the perspectives of members who are part of different racialized communities, ethnicities, religions, abilities, genders, and sexual orientations on their medical laboratory journey.

We want to hear and share your story with your colleagues, ensuring we are taking the proper steps to cultivate a more inclusive society, at least among the medical laboratory profession.

If you would like to share your story with fellow members, please submit your perspective to **editor@csmls.org**. Do not hesitate to share your questions, opinions, or concerns with us.

NATIONAL VOICE

As the National Voice of Canada's medical laboratory profession, CSMLS represents the needs and concerns of medical laboratory professionals when working with laboratory and health care-related organizations. The CSMLS Board of Directors, staff, and volunteers attend meetings, conferences, and events on behalf of CSMLS members and the entire medical laboratory profession.

Here are some of the places where your voice was recently heard.

JULY

Equal
[Accreditation Canada] Fee
Structure meeting
VIRTUAL

CAMLPR: CSMLS Forum with
the Canadian Alliance of Medical
Laboratory Professionals
Regulators
VIRTUAL

AUGUST

Flexible Pathways to Registration
for MLTs Orientation with
CAMLPR
VIRTUAL

Simulation and the Competency
Profiles for CSMLS —
Presentation to Alberta
Stakeholders
VIRTUAL

A.R. Shearer Pride of the
Profession Award Presentation
TORONTO, ON

Flexible Pathways to Registration
for MLTs — Review of
Competencies with CAMLPR
VIRTUAL

Government of Canada —
Interest in the Foreign Credential
Recognition Program
VIRTUAL

Gaman J. Modi Award of
Excellence Presentation
WAWA, ON

Northern Remote Indigenous
(NRI) Communities Laboratory
Engagement Working Group
Meetings with Public Health
Agency of Canada (PHAC)
VIRTUAL

SEPTEMBER

Canadian Institutes of
Health Research (CIHR) Minimum
Data Standard and MLTs Meeting
VIRTUAL

SimCanada Health Workforce
Strategy Committee Meeting
VIRTUAL

British Columbia Society of
Laboratory Science (BCSLs)
Pre/Post Analytical Symposium
(presented)
SURREY, BC

HEAL (Organizations
for Health Action)
Quarterly Meeting
VIRTUAL

Alberta Advocacy: Meeting with
MLA David Shepherd, NDP
Health Critic
Re: MLA Regulation
VIRTUAL

Ontario Advocacy: Meeting with
MPP France Gélinas, NDP Health
Critic
VIRTUAL

BC Lobby Days: British Columbia
Government Relations Events
VICTORIA, BC

Conference Board of Canada —
National Immigration Centre
(NIC): Summit 2024 Brainstorm
VIRTUAL

Equal Council Quarterly Meeting
VIRTUAL

University of Alberta Professional
Standards for Medical
Students Ceremony — Keynote
Presentation
EDMONTON, AB

Kenora Rainy River Regional Lab
Program — Presentation
VIRTUAL

SEPTEMBER

Team Primary Care
Interprofessional Collaborative
VIRTUAL

Virtual School Visit —
Presentation on CSMLS
Certification and Membership
VIRTUAL

NRI Communities Laboratory
Engagement Working Group
Meeting with PHAC
VIRTUAL

British Columbia Society of
Laboratory Science (BCSLs)
Congress
KELOWNA, BC

Anderson College
Annual Scientific Day
VIRTUAL

Alberta Ministry of Health —
Meeting on Regulation
EDMONTON, AB

OCTOBER

International Federation of
Biomedical Laboratory Science
(IFBLS) General Assembly of
Delegates (GAD) and Chief
Delegate (CD) Meetings
DUBLIN, IRELAND

 Michele Sykes
@madaboutlab

Presenting @csmls activities to the international delegates
@OfficialIFBLS meeting today. Members had great discussions about CE,
strengthening global diagnostic capacity, and professional recognition.
ID'ing similar issues across the world and sharing strategies. 🌍📊



OCTOBER

NRI Communities Laboratory
Engagement Working Group
with PHAC
VIRTUAL

CAMLPR — CSMLS Forum
VIRTUAL

NOVEMBER

NIC Meeting —
Virtual/Hybrid Service Delivery
VIRTUAL

CNAR Education P
lanning Committee Meeting
VIRTUAL

Alberta Precision Lab (APL)
Steering Committee Meeting:
Simulation Presentation
VIRTUAL

Canadian Standards Association
(CSA) TC Z252 — Medical
Laboratories and Quality
Systems Meeting
VIRTUAL

Interprofessional Collaborative
Meeting with Accreditors
VIRTUAL

CSA ISO TC 212 —
Mirror Committee Meeting
VIRTUAL

Your Exam Dates Are Here!

2024				
Exam Type	All	All	MLA Only	All
Exam Dates	Feb 26 -Mar 1	Jun 24-28	Aug 12-16	Oct 21 -25
Registration	Nov 1 - Dec 15 2023	Mar 21 -Apr 15	May 1 - Jun 15	Jul - Aug 15
Late Registration	Dec 16 -31 2023	April 16 - 30	Jun 16 - 30	Aug 16 - 31
Results Released by	April 19	Aug 9	Oct 11	Dec 13

For more important dates and fees



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Quality Manager



Factors of
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June 21st - 23rd