Inside: Long-term Care | **Special Focus:** Canadian Society of Hospital Pharmacists

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June 2023 Edition

H FEATURED

‘MitigAID-ing’ the impact of supply disruptions

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PRIVATIZATION:

Hard to swallow.

Doug Ford says that privatizing health care will be good for Ontario. He's wrong. For-profit care will drain away public money for private profits...and we'll all pay the price.

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June 2023 Edition

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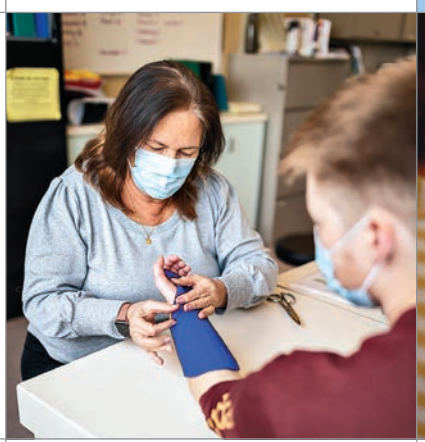

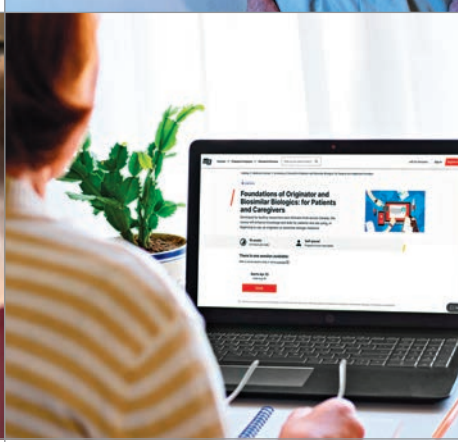

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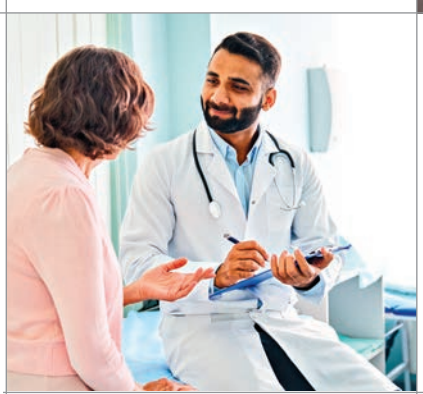

Don't forget the harms of not sharing health data

A different look at privacy and security

By Alies Maybee

Across Canada, we focus heavily on protecting health data but not sufficiently on protecting against the harms from not sharing data.

Privacy, defined as who sees what, and security, which assures protection from breaches of repositories where health data are kept, are certainly important. Unfortunately, our obsession with this side of the equation has blinded us from recognizing that health information must often be shared – between patients, providers, researchers and policymakers – so that critical and informed decisions can be made.

Addressing this imbalance cannot be left entirely to the provinces and territories.

As a patient with multiple experiences within provincial systems, a career in technology, and over a dozen years as a patient partner collaborating to change Canada's healthcare systems to be able to safely collect, use and share health data, I believe it's time we put the spotlight on what we lose when we don't share health data.

Health data and information are essential tools for clinicians to achieve the best care for people. Clinicians risk harming a patient when they don't have a complete set of patient data. Individually, my health data are scattered. Each provider, both public and private, has an incomplete instance of me. Sharing of reports, when it occurs, is usually manual, reliant on the clinician's schedule and capacity.

Incomplete health data have contributed to clinician stress and helped drive our health human resource crisis. Clinicians cannot offer the best care to their patients when hampered by insufficient and incomplete data. They must chase information, wasting time and energy. More often than anyone wants to admit, they must make decisions knowing important data may be missing.

Health data should also provide insights to service and system administrators to understand the outcomes being achieved at the population level, including diverse equity-deserving groups; to understand where to appropriately allocate funding and the effects of funding decisions over time; and to understand public health threats and effectively address them.

As more of us turn to the private sector for health services, we must be sure these data are shared across all providers, both public and private, and with public system administrators in a safe and secure manner.

Personal health data held by private vendors of electronic medical records and by privately funded, often virtual providers, must also be legally available. Lack of access to privately held health data and the profit-driven motive cause public concerns and add dimensions of risk that must be addressed – soon.

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Youth voices should inform new future for the use of AI in medicine

Three years ago, 16-year-old Rianna Zhu responded to a web posting asking for youth interested in participating in a one-hour interview about their opinions on artificial intelligence (AI). Now, three years later, her opinions and those of other young people have been shared in one of the first studies that considers youth perspectives on the ethical use of AI in health care.

"Before this study I thought AI would mean a lot of robots, but AI is really a supplementary tool that can help doctors," says Rianna. For Rianna, this study sparked her continuing involvement in research at The Hospital for Sick Children (SickKids).

"As a person from an underrepresented group, you feel like you should know things that you're not usually expected to know in order to speak up, and that's a barrier to entry for a lot of people," says Rianna. "The research team created a really welcoming community where I could learn and share my opinions."

Alongside her peers, Rianna's feedback is helping to shape the future of AI-informed care at SickKids, providing new insights for hospital leaders and opportunities for youth to learn about the health-care system.

BUILDING YOUTH VOICES INTO THE FUTURE OF HEALTH CARE

Published in *JAMA Network Open*, a research team led by Dr. Melissa McCradden, a Bioethicist with the Bioethics Department and Associate Scientist in the Genetics & Genome Biology program, interviewed 28 participants between the ages of 10 and 17 to better understand their perspectives on AI use in medicine.The study found several themes over the course of the interviews, ranging from the risks and benefits of participating in AI-informed health research to the importance of responsible and person-centred health care, with researchers hoping to use these perspectives to support the development of future guidelines around the ethics of AI.

> **"ADULT PERCEPTIONS OF AI AND HEALTH DATA USE HAVE BEEN WELL STUDIED, BUT UNDERSTANDING THE PERSPECTIVES OF YOUTH IN A CLINICAL CONTEXT IS ESSENTIAL TO BUILDING VALUE-ALIGNED POLICIES AND PRACTICES."**

"Adult perceptions of AI and health data use have been well studied, but understanding the perspectives of youth in a clinical context is essential to building value-aligned policies and practices," says McCradden. "Youth are not often considered real stakeholders in medical research, but we know that youth can and do influence health policy and research in meaningful ways, and so we're doing that with AI now."

In developing the focus group questions McCradden, who is the John and Melinda Thompson Director of Artificial Intelligence in Medicine for Kids (AIM), a program that seeks to support SickKids innovators in developing and integrating AI into care delivery, worked closely with Alexis Shinewald, a Child Life Specialist and co-author on the study, to help ensure the questions were accessible to a younger audience and encouraged open feedback.

"Given the lived experience of today's youth with information technology and the patient population at SickKids, young people may be ideally positioned to inform AI integration," says Shinewald.

"EVERYONE DESERVES TO HAVE A SAY"

Lukas Korkuti is a 14-year-old student and former SickKids patient who has been involved in the SickKids community his whole life, but over the last two years he has taken a particular interest in research and artificial intelligence.

"As you grow older, your opinions and values change, but just because we have different priorities doesn't mean we shouldn't be able to make a difference. Everyone deserves to have a say," says Lukas.

For Lukas, potential outcomes like the use of AI in emergency rooms make this an exciting time to get involved in health care research, noting that AI may be able to help reduce wait times by connecting people to the right team faster or facilitating a diagnosis. But like many research participants, he cautions that AI's role should be supportive and not be one making a definitive diagnosis or care plan.

"AI has to complement us and only be used as a guiding tool, never making the decision alone," says Lukas. "In health care, a person should always be the one making the final call."

Feedback from youth like Lukas is helping to reinforce current approaches and attitudes towards AI in health care. "A common theme we heard is that AI could be a tool to support care and system navigation," says McCradden. "Now the next step is to identify where those tools are needed most and work closely with clinicians to make those tools equitable."

NEW COUNCIL WILL HELP INFORM THE FUTURE OF AI AT SICKKIDS

Engaging youth in research and the creation of future policies that touch on artificial intelligence is a mutually beneficial process, offering new insights to hospital leaders and providing opportunities for youth to learn about complex hospital systems.

McCradden and her colleagues at SickKids are working on setting up an advisory network of children and youth who are interested in contributing to the emerging research and policy around AI technologies in health care. The network is particularly encouraging participation among equity-deserving and structurally marginalized youth. Anyone who is interested in learning more about the network can reach out to McCradden's lab at mccradden.research@sickkids.ca.

How to diagnose and manage depression in adolescents: A new review for clinicians

How do you diagnose and manage depression in adolescents? A new review published in CMAJ (*Canadian Medical Association Journal*) aims to help primary care clinicians address this increasingly common, yet under-detected condition, in teenagers.

"Although more than 40 per cent of people with depression experience onset before adulthood, depression remains undetected in many adolescents in Canada, and most are untreated," writes Dr. Daphne Korczak, a psychiatrist with the Hospital for Sick Children (SickKids) and the University of Toronto, Toronto, Ontario, with co-authors. "Clinicians consistently report a lack of confidence in their ability to care for adolescents with depression."

The prevalence of depression in adolescents increases with age and is linked to poorer physical and mental health in adulthood. Pre-pandemic estimates were that depression affected 13-15 per cent of teens, but a recent study found that about 1 in 4 youths had symptoms of depression during the pandemic.

The review is based on the latest evidence and clinical practice guidelines from Canada, the United States, the United Kingdom, Australia and New Zealand.

KEY TOPICS:

- Diagnosis – irritability and sad or depressed mood, fatigue, sleep disturbance, decreased enjoyment of activities and difficulty concentrating in adolescents may indicate depression.
- Screening – although more research about universal screening for adolescent depression in primary care is needed, it may be appropriate in some cases. Clinicians should use a validated screening tool and recognize that screening does not replace a diagnostic assessment.
- Management – a multifaceted approach is required and may include addressing health behaviours, psychotherapy and medication as well as addressing underlying stressors.

More than 60 per cent of adolescents with major depressive disorder (MDD) also have at least one other mental health condition, such as anxiety, attention-deficit/hyperactivity disorder and learning disorders. These can make it more challenging to diagnose and treat depression, as some symptoms overlap and physical health conditions can mimic symptoms of depression.

"Depression is an increasingly common but treatable condition among adolescents. Primary care physicians and pediatricians are well positioned to support the assessment and first-line management of depression in this group, helping patients to regain their health and function," write the authors.

They state that future research is needed to address unanswered questions, including the effects of the COVID-19 pandemic on depression, whether universal screening improves outcomes, and how to best personalize depression treatment to optimize effectiveness.

"Diagnosis and management of depression in adolescents" was published May 29, 2023.

Continued from page 4

Privacy and security

The federal government has a role to ensure that private sector health data are part of the healthcare ecosystem.

We must move to "one patient, one record," encompassing all our health data no matter who holds them. When our data does not flow across providers and across jurisdictions, it results in harms to people.

Many in Canada receive their health services in more than one jurisdiction. Think of Ottawa-Gatineau; Manitobans who go to Thunder Bay, Ontario; those in the North that come to Ottawa, Vancouver, Edmonton and Calgary. This is a safety issue. The resolution to this cannot be left entirely up to the provinces and territories working independently.

The federal government must ensure health data flow from provider to provider no matter where a person is receiving care.

Let's have a public conversation about how to balance privacy and security with the sharing of health data to help inform and adopt policies that work across the country. This requires that we all learn to speak the same health data language. Few people know that health data privacy is controlled by custodians who generally rule not to share data.

We fret about privacy breaches causing harm, but don't think enough about harms from lack of appropriate sharing of information.

We need a coordinated plan for digital health literacy to improve our understanding of the issues so we can explore solutions together.

Finally, Canadians want a universal healthcare system that offers the same services and achieves the same outcomes no matter where or who we are. Achieving this requires a secure, person-centred, interoperable health data ecosystem that supports appropriate sharing of health data across jurisdictions, across all providers no matter how they are funded, with assurances of privacy. For this to happen, all levels of government must collaborate, with digitally literate members of the public, to meaningfully support the necessary policy decisions across Canada.

The time is ripe to finally balance privacy, security and sharing of health data in Canada to benefit us all.

Alies Maybee is chair of the Patient Advisors Network (PAN) and a member of the Expert Advisory Group of the Pan-Canadian Health Data Strategy, whose final report was released in 2022.

Prescribed safer supply dispensing machine may help reduce overdose risk

Providing pharmaceutical-grade opioids through a biometric dispensing machine can be an effective, low-barrier model for delivery of prescribed safer supply, according to research published in the CMAJ (Canadian Medical Association Journal).

However, research authors caution that the program has limitations which should be considered before expanding.

The research evaluated participant experiences with MySafe, a program started in Vancouver using secure biometric dispensing machines to administer tablet hydromorphone daily to people at high risk of overdose. Researchers from the BC Centre on Substance Use (BCCSU), University of British Columbia, and University of Waterloo interviewed 46 participants at three MySafe sites in Vancouver who were enrolled in the program for at least one month.

Participants must undergo a full medical and social assessment, which includes current drug use patterns and their risk of overdose. They reported that the MySafe program allowed for greater accessibility and flexibility with dosing and dispensation, and that it had positive impacts.

"Participants reported reduced use of illicit drugs, decreased overdose risk, financial improvements and improvements to health and well-being," writes lead author Dr. Geoff Bardwell, a research scientist with the BCCSU and assistant professor at the University of Waterloo. "Taken together, these findings illustrate promising aspects of, and areas for improvement to, the MySafe model of safer supply."

"These findings suggest this service delivery model may be able to circumvent barriers that exist at other prescribed safer supply programs and may enable access to safer supply in settings where this may otherwise be limited," says Dr. Bardwell. "That might include rural and remote settings, where access to health care, including pharmacies, can be very limited."

However, participants also identified important barriers related to MySafe, such as technological issues with the dispensing machine, dosing challenges, and prescriptions linked to individual machines.

ED visits, hospitalizations for cannabis use in pregnancy almost doubled since legalization

Hospital visits related to cannabis use during pregnancy increased 82 per cent in Ontario since legalization, according to new research published in *CMAJ (Canadian Medical Association Journal)*.

Emergency department (ED) visits and hospitalizations almost doubled between June 2015 and July 2021, although the absolute increase in visits related to cannabis in pregnancy was small – from 11 to 20 per 100,000 pregnancies. Cannabis use in Canada was legalized on October 17, 2018.

In addition, babies born to people who visited the ED or were hospitalized for cannabis use during pregnancy showed relatively high rates of severe negative outcomes, such as low birth weight, preterm birth and admission to the neonatal intensive care unit (NICU).

"While these events – capturing very harmful patterns of cannabis use – are fortunately rare, we are concerned that they may reflect much larger increases in overall cannabis use in pregnant people following legalization," says lead author Dr. Daniel Myran, a family physician and fellow at the Bruyère Research Institute and The Ottawa Hospital, and postdoctoral trainee at ICES.

Conducted by researchers from ICES, Bruyère Research Institute, The Ottawa Hospital and Unity Health Toronto, the study included data on 980,398 pregnancies from 691,242 individuals between January 2015 and July 2021 in Ontario, Canada. In total, 540 pregnant people had an acute care visit (ED visit or hospitalization) for cannabis use, with most events (72%) being ED visits. The most common reasons included harmful cannabis use (58%), cannabis dependence or withdrawal (22%) and cannabis poisoning (13%).

The researchers also noted that severe morning sickness during pregnancy appears to be a risk factor for these visits.

"Severe morning sickness – or what is called 'hyperemesis gravidarum' – was frequently seen among individuals who had an acute care visit for cannabis use in pregnancy," says senior author Andrea Simpson, adjunct scientist at ICES and an obstetrician and minimally invasive gynecologic surgeon at St. Michael's Hospital, a site of Unity Health Toronto. "Although we can't say for sure whether they were presenting with vomiting as a result of cannabis use, or using cannabis to treat morning sickness, it does raise concern that more pregnant individuals perceive cannabis use in pregnancy to be less risky since legalization."

During the study period, no increase was seen in acute care visits for use of alcohol or opioids during pregnancy, and visits for depression and anxiety decreased. The authors suggest that, although cause and effect cannot be determined as their study was observational, their findings add to evidence of harms of cannabis use in pregnancy.

"Our findings highlight the importance of universal screening and suggest that pregnant people with a history of substance use, mental health conditions or severe morning sickness may benefit from repeated screening and counselling during pregnancy, without stigma."

"Acute care related to cannabis use during pregnancy after the legalization of nonmedical cannabis in Ontario" was published May 23, 2023.

Younger men at highest risk of cardiovascular hospitalizations after COVID-19

While severe outcomes from COVID-19 have decreased with each new wave, a new study suggests the risk of cardiovascular (CV) hospitalization has persisted or increased – particularly for younger men, aged 18 to 45. The study was conducted by the Peter Munk Cardiac Centre at the University Health Network, ICES, and Women's College Hospital.

Studies around the world have pointed to male sex, old age, and pre-existing health conditions as independent risk factors for increased severity of COVID-19 infection, disease and death.

"Initially, interactions between sex and certain health conditions were found to have a greater impact on women, who were more likely to experience severe outcomes like intubation or death," says Bahar Behrouzi, MD/PhD candidate at the University of Toronto, and study lead. "But there was no analysis yet of possible sex differences by age for severe outcomes, particularly in North America, that honed in on cardiovascular hospitalization."

The retrospective cohort study, published in JACC: Advances, included almost all patients in Ontario with laboratory-confirmed SARS-CoV-2 infection during the first three waves.

The study showed that across all waves and in all age groups, men experienced higher rates of a severe outcome (e.g., requiring hospitalization for a cardiovascular complication, intensive care, a breathing machine, or dying) compared with women, although the magnitude varied by age.

While the difference between men and women in the risk of all-cause death was highest during Wave One – with young men at four-fold higher risk – younger men and women were at similar risk by Wave Three, which could be due in part to vaccinations and non-pharmaceutical interventions.

However, for CV hospitalization, with each subsequent wave, there was little to no change in the increased risk borne by men versus women for all age groups. In general, across all waves, middle-aged men (ages 46 to 65) were at two- to three-fold higher risk compared to women of the same age.

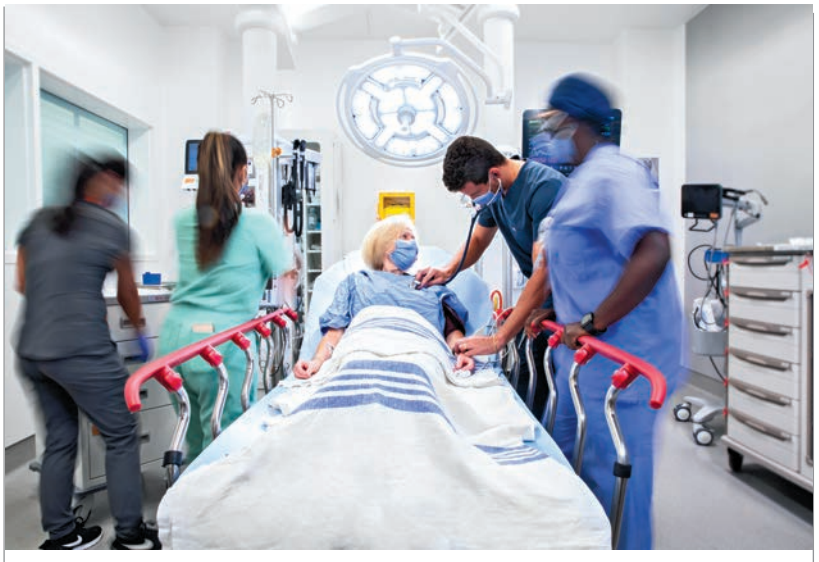
"We know that adopting an age- and sex-informed approach to patient care has improved outcomes," says Dr. Jacob Udell, cardiologist and clinician-scientist at the Peter Munk Cardiac Centre, ICES, and Women's College Hospital, University of Toronto, and principal investigator of the study. "Accounting for this variation in risk is especially crucial in early decision-making for patient treatment. Our findings suggest that in the first month after a positive COVID-19 test, patient care should be tailored to better prevent cardiovascular events, particularly among younger men."

The findings highlight the need for further efforts to examine clinical, biological, psychosocial, and health system factors contributing to the growing disparity between the sexes in the risk of cardiovascular hospitalizations following COVID-19.

The study, *"Sex-based differences in severe outcomes, including cardiovascular hospitalization, in adults with COVID-19 in Ontario, Canada"* was published in JACC: Advances.

Prioritizing safety: How Mackenzie Health is advancing its safety culture

By Maya Sinno



If you ask anyone what they expect from a hospital experience, they will likely tell you three things: "Keep me safe. Make me better. Treat me with kindness and compassion."

Keeping patients safe is a crucial aspect of health care that involves minimizing the risk of errors, accidents and other adverse events that can occur in health care settings.

While health care organizations have made strides in the area of patient safety and preventing avoidable harm, the reality is that patient harm still occurs in Canadian hospitals and hospitals around the globe.

In a recent report published by the Canadian Institute for Health Information and Healthcare Excellence Canada, it was revealed that 1 in 17 hospital stays in Canada involved at least one harmful event.

"Preventable harm is a challenge that hospitals across Canada and the globe face almost every single day," says Altaf Stationwala, Mackenzie Health's President and CEO. "This can be attributed to multiple factors including human error, technological challenges and unclear processes and procedures."

Health care settings consist of complex systems with professionals operating in high-volume, high-stress environments. So what are hospitals doing to mitigate some of the risks that come with such conditions?

For Mackenzie Health, embarking on a journey to zero harm in November 2019 was the organization's way of making a commitment to actively promote a culture of transparency, accountability and continuous improvement in order to prevent harm and ensure the best possible outcomes for patients.

To shift quality and safety from principles to practice, Mackenzie Health was committed to operationalizing the zero harm philosophy by introducing system-wide changes.

When they embarked on their journey to zero harm to become a high reliability organization, they developed a five-part strategy for cultural and process redesign using evidence informed methods including: engaging stakeholders and leveraging leadership support, developing a quality and patient safety framework, selecting meaningful organizational quality aims, evolving the safety review process to enhance reporting and learning and creating a comprehensive communication plan3. This strategy set the stage to improve the patient safety culture within the organization.

"We maintained our focus on safety and quality as a way to mitigate clinical risk in a highly turbulent COVID-19 environment – a time when the system was challenged to deliver basic care," explains Mary-Agnes Wilson, Executive Vice President, Chief Operating Officer and Chief Nursing Executive. "We were also in the midst of opening Cortellucci Vaughan Hospital, initially as a system solution to treat COVID-19 patients, and recruiting large numbers of new staff. Despite all the challenges and changes in our environment, we stood firm in our commitment to safety and have seen substantial clinical success."

While significant improvements across areas of quality, safety, experience and workforce engagement were made over a span of three years, Mackenzie Health didn't stop there1,2,4.

To accelerate its zero harm journey and advance quality and safety in pursuit of patient care excellence, the organization made the choice to invest in implementing High Reliability Organizing (HRO) principles – principles used in industries like the aviation and nuclear industries where the stakes are high and errors can lead to catastrophic outcomes. This includes outlining the reliability and service excellence behaviours and tools needed to continue building on its culture of safety, with a focus on compassionate and patient-centred care.

"By equipping them with highly effective learning behaviours and tools, we are empowering and enabling every single person at Mackenzie Health to provide reliable and consistent care to every patient, every time," stated Altaf Stationwala. "Mackenzie Health will continue to prioritize safety efforts such as implementation plans that include training, accountability mechanisms and effectiveness monitoring to ensure patient safety is always at the forefront of everything we do."

As a testament to this major investment in patient safety, Mackenzie Health was recently named the winner of the Canadian College of Health Leader's 2023 Excellence in Patient Safety Award. This prestigious award recognizes individuals and teams that are committed to transforming and improving patient safety within a health care environment, through leadership, culture change, quality improvement, patient partnership and innovation.

It is reported that organizations who commit to adopting HRO skills as practice habits can reduce their serious safety event rate by 80 to 90 per cent within the first two years. Enhancing patient care starts with adopting and maintaining a culture of safety by being open and transparent about current challenges, continuously assessing existing processes and systems that are not optimized for safety, and introducing system-wide changes and practices to support health care professionals perform reliably every time.

As part of their 2022-2025 strategic plan, Mackenzie Health is focusing their efforts on transforming quality and safety through the pursuit of highly reliable care - a continuous journey that will help the organization to continue to deliver excellent care to its communities. Maya Sinno is the Director, Quality Patient Safety and Patient Experience and Léa Salameh, Senior Communications Consultant, Mackenzie Health. H

Maya Sinno is the Director, Quality Patient Safety and Patient Experience and Léa Salameh, Senior Communications Consultant, Mackenzie Health.

Tackling health data reform one prescription at a time

Announced in May, the Ottawa Hospital is the first hospital in Canada to launch PrescribeIT® through its hospital information system, making it available to approximately 2,500 prescribers. The national e-prescribing service enables prescribers to send prescriptions and renewals electronically to a patient's pharmacy of choice, resulting in safer, more efficient patient care while also improving clinicians' workflows and communication with pharmacies.

Jamie Bruce, Canada Health Infoway's executive vice president for PrescribeIT, shares why the launch is an essential step towards building a more connected health care system.

Q. Why is the Ottawa Hospital rollout so significant on the journey towards health data reform in Canada?

A. The Ottawa Hospital rollout represents a major milestone for e-prescribing in Canada. Prescriptions are the number one touchpoint Canadians have with the health care system – there's well over 250 million new and renewed prescriptions coming from prescribers to patients every year – and many of those are paper. The paper and faxed prescription processes come with inherent risks to the patient, both from increased risk of errors due to transcription as well as data privacy, and it also makes it difficult to ensure continuity of care. PrescribeIT "fixes" and integrates into the backend of systems already in use by prescribers and community retail pharmacies, to ensure true digital transmission of prescriptions.

The Ottawa Hospital rollout is especially significant as we look ahead towards building a more connected health care system. While hospitals are a central component to care, when a patient leaves the hospital, continuity of care is transferred to their primary care provider and their community-based pharmacist. By implementing PrescribeIT in the hospital setting, we're helping to improve continuity of care because the hospital-based prescribers now have better line of sight to ensure that the prescriptions are getting to the right pharmacy and their patient is getting the appropriate medications. At the same time, the primary care provider has line of sight to see that a new medication has been dispensed.

Q. What impacts will electronic prescribing have on the day to day functioning of the hospital, its prescribers, and the patients it serves?

A. Ultimately, this rollout will help ensure patients are receiving more consistent care and will support better adherence to medications, which we know leads to better health outcomes. Adverse drug events are a huge driver of emergency visits and longer hospital stays impacting access to care for all Canadians – and within the prescription process there's many steps where electronic prescribing can help reduce the frequency of these errors. With PrescribeIT in place within the hospital setting, hospital-based prescribers can have the confidence that the prescription will end up in the right pharmacy and will be filled, whereas in the past, they had no visibility once the paper prescription left with the patient.

Prescriptions that originate in hospitals also present a unique challenge for pharmacists when questions or the need for clarification arises, because tracking down a hospital-based prescriber is very different than reaching out to a local family physician. Through an integrated clinical communications tool, pharmacists can communicate directly with the prescriber in these cases to ensure the medication is dispensed correctly and without significant delays.

Q. What are some of the challenges with implementing electronic prescribing in a hospital setting and how were those mitigated in the Ottawa Hospital rollout?

A. Our priority was to ensure that the prescribers were well trained and there were change management structures in place. We worked closely with our hospital partners to ensure that the solution is a seamless addition to the workflow, that it's easy to use and the prescribers all understand the functionalities. On the other side, we also worked to make sure that the pharmacies who are on the receiving end understand the nuances of receiving prescriptions from hospitals.

Q. How does implementing PrescribeIT in hospitals support the government's broader goals of health care reform?

A. Health care interoperability and data reform is a key national priority and PrescribeIT is a prime example of how data can save lives – if you want to practice good medicine, you need good data, and you can't have good data without strong digital tools. PrescribeIT enables prescribers and pharmacists to instantly exchange more detailed health data and it also happens to touch one of the most important pieces of health care information: medication. If you're thinking about digitizing the system and digitizing data, tackling one of the biggest buckets of information such as medications is a great place to start. With 14,000 prescribers and 7,000 pharmacies enrolled in the service across Canada, Canada Health Infoway is working closely with the provinces and territories on additional rollout plans. The Ottawa Hospital launch has been an unmitigated success and we're very excited about expanding to other hospitals. H

Jamie Bruce, Executive Vice President, PrescribeIT

Biologics are 'galaxy changers'

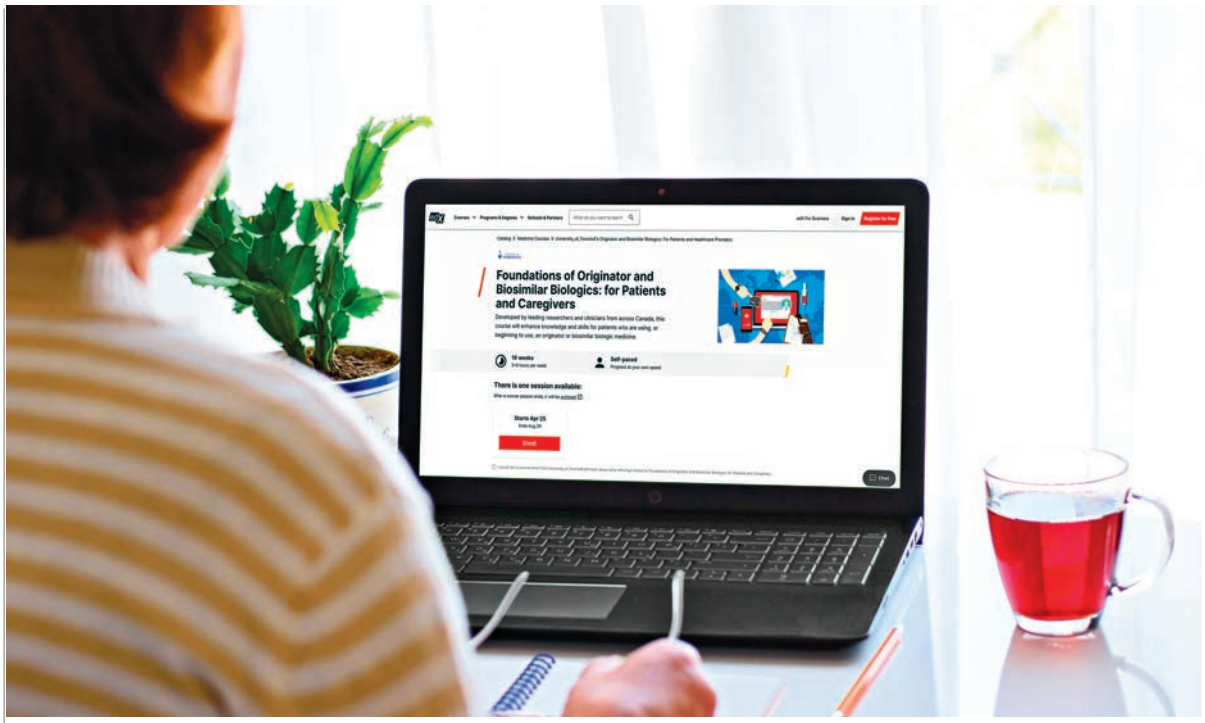
The Leslie Dan Faculty of Pharmacy at the University of Toronto has launched two new online courses to help patients, caregivers, and health care professionals enrich their knowledge and skills related to the use of biosimilar biologic medications.

Developed by leading experts from across Canada and hosted by the edX online learning platform, these courses are free and available for anyone to enroll. There is also a paid professional certificate stream that is fully accredited by professional accreditation groups for nursing, pharmacy, and medicine in Canada.

"Biologics are powerful and effective medications that have been very successful in stopping the progression of disease and have been used to treat serious illnesses like cancer, forms of autoimmune arthritis, and inflammatory digestive disorders, with very impressive outcomes," says Kathy Vu, assistant professor, teaching stream at the Leslie Dan Faculty of Pharmacy.

Unlike the chemical compounds that makeup conventional medications, biologics are a class of drugs created from a complex protein molecule made inside a living cell or system. This approach allows for a more targeted treatment of specific diseases and has been shown to increase the beneficial effect to the person taking the medication. "Now we are targeting selective receptors and cells that are contributing to the disease in question and have achieved tremendous success treating at this fundamental level that just wasn't possible before," says Vu who specializes in oncology.

As patents on originator biologic medications expire, biosimilar biologic medications have entered the market as more cost-effective treatment options. Specifically, a biosimilar is a biologic medication that is demonstrated to be highly similar to the originator biologic, has similar effectiveness and safety, and has been approved for sale by Health Canada. Currently, 52 biosimilar biologics are approved for chronic diseases, including inflammatory arthritis, cancer, inflammatory bowel disease, diabetes, multiple sclerosis, and psoriasis.



Most provinces and territories in Canada, including British Columbia and Alberta, have introduced switching policies to expand access to the use of biosimilar medications. Most recently, Ontario announced a switching policy that went into effect at the end of March 2023 for people on provincial drug plans. The new online courses were developed in part to help patients, caregivers and health care professionals better understand biosimilar biologic medications, how they are approved, taken or administered and monitored. "As more biosimilars enter the market and clinical settings, there is a need for consistent and reliable information to help people switching from originator biologics to biosimilars across therapeutic areas," says Vu. "These edX courses will help people who are currently using originator or biosimilar biologic medications get access to comprehensive information they need to feel more informed about their treatment and be active participants in their care."

BIOLOGICS ARE 'GALAXY CHANGERS'

Cheryl Koehn was diagnosed with rheumatoid arthritis over 30 years ago. A devoted athlete, she struggled with pain and mobility after her diagnosis and received only minimum improvements from treatment options available at that time. She learned about the potential of biologic medications and, after researching and discussing with her health provider, decided to begin taking the newer medication. "We hadn't seen any new drug development for my disease in roughly 60 years and the best we could hope for pre-biologic was to tamp down the cascade that happens when the immune system goes off. So, this was an important opportunity to consider." Koehn recalls that only one day after receiving her first dose of a biologic medication, she was able to hold hands with her husband for the first time since their relationship began three years earlier. "For people who respond well to these medications, these aren't just game changers, they are galaxy changers," she says.

Koehn is also founder and president of Arthritis Consumer Experts, a national organization that provides free, science-based information and education programs to people with arthritis. As a patient and patient advocate and health educator Cheryl participated in the creation of the online course and co-led the development of the module focused on patient and health provider communication.

"It was important that patient perspectives and experiences be central to developing the courses. People with lived experience of using biosimilar medications to treat illness like cancer and rheumatoid arthritis directly contributed to the content and modules," says Vu.

The module helps patients prepare questions for their care provider and even gives "real-life" examples of how to ask questions through role play. It also provides additional resources so people can search safely for information online. "Health care isn't the same anymore. There is a different dynamic and we are living in a world with modern patients, and we owe it to ourselves to step up and create something that allows people to function in today's healthcare system as a modern patient," says Koehn.

For Koehn, biosimilars offer taxpayers, governments, and patients more affordable and sustainable treatment options. "It might not be dinner table conversation but biosimilars matter to the people they affect," says Koehn. "And that is a growing number of people who deserve to have information available free and consumable at their own pace. It's just the right way to do it." H

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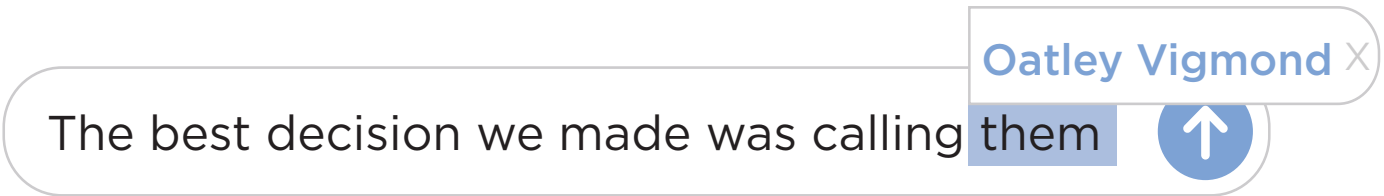

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Unlocking a cure for heart disease

Funding totalling $23.6 million has been announced to establish an international team – led by Dr. Michael Laflamme at UHN's McEwen Stem Cell Institute – to develop cutting-edge regenerative therapies for heart disease.

The project, titled Enabling novel cardiac therapies with pluripotent stem cells, is highly collaborative. It was built out of core team of researchers at the McEwen, Toronto General Hospital Research Institute (TGHRI) and the University of Toronto – in total, 22 leading laboratories will be involved across 10 research institutions in four countries (Canada, the United States, the United Kingdom and Israel).

The funding was announced by the Honourable François-Philippe Champagne, Minister of Innovation, Science and Industry, and the Honourable Jean-Yves Duclos, Minister of Health, and will be administered through the Government of Canada's New Frontiers in Research Fund (NFRF) Transformation program.

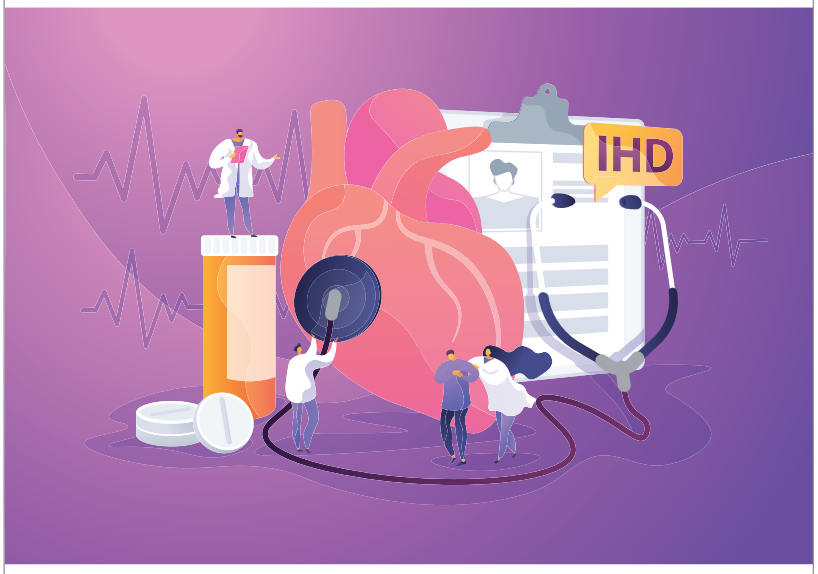
"We have reached a pivotal point in the field of regenerative medicine with the convergence of new technologies, significant advances in basic research and recent strides towards clinical application," says Dr. Sara Vasconcelos, a Senior Scientist at the Toronto General Hospital Research Institute and a co-principal investigator on the project.

"This funding will enable the big thinking, sharing of knowledge, and interdisciplinary teams needed to push regenerative therapies for heart disease towards the clinic."

Heart disease is the leading cause of death worldwide, accounting for nearly one-third of all deaths globally. Despite this, there are no curative therapies – existing treatments can only ease symptoms or slow disease progression, rather than restore function. Because of this, the median survival for patients with heart failure is just over two years.

The key challenge to developing curative therapies – those that can restore heart function – is that once the adult human heart is damaged, it has a very limited ability to regenerate.

When a heart attack or other injury occurs, the damaged heart tissue is replaced by non-functional scar tissue. This tissue compromises the heart's ability to pump enough blood to supply the body, and can lead to progressive heart failure.



The project will bring together researchers from around the world to develop therapies for heart disease. Pictured are just a few of the members of the research team, including, (L to R), Dr. Sara Vasconcelos; Dr. Stephanie Protze; Ryan Yee, graduate student in Dr. Vasconcelos' lab; Dr. Gordon Keller; and lead investigator Dr. Michael Laflamme.

The research project will address these issues by developing new regenerative therapies that aim to replace the damaged heart tissue with new heart muscle made from stem cells. This will be achieved through three different, but complementary experimental strategies:

- Create all the authentic cell types found in the heart. The heart contains heart muscle cells, support cells, immune cells, and specialized cells that are essential for transmitting electrical signals, as well as blood vessels to supply nutrients to the organ. An important goal of this aim is to establish methods for generating these cell types from stem cells in the quantities needed for therapeutic applications.
- "Create better than nature" heart muscle. Using cutting-edge genetic approaches, the team will create heart muscle cells that are better at healing, less prone to causing arrhythmias and able to survive longer when blood supplies are interrupted (which happens during cell and tissue transplantation procedures).
- Use 3D bioprinting to fabricate a neonatal-scale human heart. With advanced printing strategies, the research team will bioprint functional ventricular chambers of the heart, using the different cell types made from stem cells. These bioprinted ventricles will be tested for their ability to function as a biological biventricular pump. If successful, this work could lay the foundation for future treatments for infants who are born with severe heart defects who currently cannot receive a heart transplant due to a lack of neonatal donor organs.

Societal and ethical aspects will be carefully considered and tightly woven into these aims and the project as a whole. Ethicists, decision scientists, and clinicians will collaborate to establish a clear framework to determine when technologies are ready for clinical trials as well as decision aids to help patients better understand the trade-offs of participation.

"The scope of this project is truly exciting. By bringing together biologists, engineers, clinicians, clinical trialists, mathematicians, bioethicists and health economists, we are launching a Canadian-led program that has not been seen before in terms of breadth and potential impact in the field," says Dr. Laflamme, who is also the McEwen Chair in Cardiac Regenerative Medicine and a staff pathologist in the UHN Laboratory Medicine Program.

"As well, we are engaging with the public, health charities and patient advocacy groups to ensure that those who will most immediately be affected by the therapies can watch our progress and directly provide input," adds Dr. Laflamme.

The over 20 laboratories that will contribute to the project include those located at UHN's McEwen Stem Cell Institute and Toronto General Hospital Research Institute, the University of Toronto, the Hospital for Sick Children, the Toronto Metropolitan University, McGill University, the Centre Hospitalier de l'université de Montréal, Carnegie Mellon University (Pennsylvania), George Washington University (Washington D.C.), Technion – Israel Institute of Technology, and the University of Exeter (Devon, England). The project also leverages existing research projects and networks such as the Ted Rogers Centre for Heart Research, Medicine by Design at the University of Toronto, and the Centre for Commercialization of Regenerative Medicine, based in Ontario.

"This project is built on a strong tradition of pioneering stem cell research in Toronto," says Dr. Brad Wouters, UHN Executive-Vice President of Science and Research. "These contributions have led to the discovery of blood-forming stem cells over 50 years ago, as well as the discovery of cancer stem cells close to 30 years ago.

"The success of this project is also built on the unwavering philanthropic support provided by our donors through the UHN Foundation – funding that enabled us to establish the McEwen Stem Cell Institute."

"With this transformative funding from NFRF, our researchers can now build outward from their success to involve new provincial, national and international collaborators," Dr. Wouters adds. "Only through large-scale and team-based interdisciplinary projects like this will we be able to overcome hurdles and move closer to improving the lives of patients." H

Pet therapy in hematology unit

There are a couple of new dogs in town and they're hitting the hematology unit at Hamilton Health Sciences' (HHS) Juravinski Hospital (JH). Patient pet therapists Manu and Penny have been bringing smiles and warmth to some of our patients.

TWO SISTERS AND THEIR DOGS

Leanne Parsons, volunteer resources coordinator for pet therapy visits at HHS, was excited to onboard this addition to JHs' hematology unit (C4). "When Diane Crawshaw, system navigator requested pet therapy for patients on C4, I had a pet therapy team that I knew would be a great match," says Parsons.

Twin sisters Carolyn March and Margaret MacKenzie volunteer with the St. John's Ambulance pet therapy program. The pair have been providing pet therapy for HHS at St. Peter's Hospital for over 20 years, and have recently added JH to their visits. The sisters own two rescued greyhounds, with the oldest being Penny, a 13-year-old Italian greyhound, and Manu a younger Spanish greyhound. They also have another hound, Lola, who alternates visits with the crew.

"Bringing the dogs to Juravinski changed a lot of patient experiences," says Parsons. "Their faces light up when they see the dogs. I see patients become more animated, interested, and communicative."

FEELINGS OF HOME

"The dogs have become a transformative part of the program that patients really look forward to," says Crawshaw.

> **"IT'S A GOOD THING FOR PEOPLE, AND IT FILLS PEOPLE'S HEARTS WITH HAPPINESS," SAYS ART REBEK, PATIENT AT JH.**

Many patients who are admitted to the hospital have furry friends at home that they miss very much. "It brings a sense of comfort getting to interact with these sweet dogs, and brings a feeling of home into their hospital rooms," says Crawshaw.

"It's a good thing for people, and it fills people's hearts with happiness," says Art Rebek, patient at JH.

Parsons adds, "Patients often start talking about their pet at home or the pet they had growing up. These visiting pets often have a calming effect and we see the patients less stressed and more relaxed."

Juravinski Hospital patient, Art Rebek, always looks forward to visits from the dogs. "When these two come to visit me, it makes my day and brings me the comfort of home," says Art. "It's a good thing for people, and it fills people's hearts with happiness."

PAWS-ITIVELY IMPACTING PATIENTS

"I remember one patient was sad one morning," says Crawshaw. "She didn't want to eat her breakfast, was very quiet, and just really down. As soon as the dogs came through, she instantly perked up and her whole mood changed. She even had something to eat after."

Patients can't express enough how this program helps make their day and lift their spirits.

"The amount of requests we're getting for pet therapy at our hospitals is a clear indication of the interest and excitement of pet therapy in our organization," says Parsons. "For many, just seeing the pets come to Juravinski has a positive impact on patients, family members and staff." H

Volunteer Garry Herridge's weekly watercolour classes inspired optimism and hope for inpatients of Toronto Rehab's Spinal Cord Injury Program. Garry is retiring after nearly 20 years of volunteering.

Photos: Courtesy Garry Herridge

'Painting has always been a source of therapy for me'

Garry Herridge learned the value of therapeutic recreation programs firsthand.

An inpatient at Toronto Rehab's Lyndhurst Centre in 1999, Garry's work with multidisciplinary teams dedicated to helping patients with spinal cord injuries (SCIs) increase their functional independence proved key to his coping and recovery.

So, it felt natural when Garry became a volunteer in 2004 that he chose therapeutic recreation – leading weekly watercolour painting sessions, with a recreation therapist, for inpatients at Lyndhurst Centre.

"Throughout my life, painting has always been a source of therapy for me," says Garry, a retired visual arts teacher. "I wanted to give back in a way that allowed me to relate to patients as a peer, and introduce them to something that may be new."

Now, almost two decades later, Garry is retiring as a volunteer, but leaving an indelible mark.

National Volunteer Week runs April 16 to 22. This year's theme is "volunteering weaves us together," which underscores the importance of volunteering to the strength and vibrancy of our communities through the interconnected actions we take to support one another.

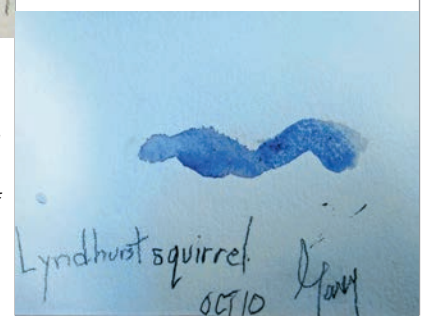
At UHN, while many of the volunteer programs were paused earlier in the pandemic, Volunteer Resources is excited to be welcoming back our volunteers and programs. There are volunteers in a wide range of roles, including navigators, Infection Prevention and Control hand hygiene auditors, administrative support, nutrition patient tray auditors, rehabilitation support roles in therapeutic recreation, physiotherapy, occupational therapy, OTAs/PTAs, wellness, speech-language pathology, pet therapy, HBB and clinic and waiting room support.

Proceeds of print sales of Garry Herridge's "Gates of Lyndhurst" have supported the Therapeutic Recreation program at Toronto Rehab's Lyndhurst Centre, where Garry volunteered for nearly two decades.

Prior to the pandemic, there were close to 3,100 people actively volunteering in more than 150 clinics and departments at UHN, coming from a wide range of backgrounds and performing a number of roles.

For Garry, despite his expertise in painting watercolours, when it comes to sharing his love for art over the years, it's never been all about the craft.

"I like to tell patients, 'there's no experience necessary – just a willingness to participate in an activity, where you can forget about what you're dealing with, and share with others,'" he says.



Artist Garry Herridge's first, (R), and last watercolour images as an inpatient in Toronto Rehab's Spinal Cord Rehab Program. The paintings created in between tell the story of Garry's recovery, through art.

"My goal is to make this the best hour of your week."

And his classes reflected that.

Each one-hour session started with Garry sharing his own personal story. At age 47, he sustained an SCI colliding – hard – with another player during a slow-pitch baseball game.

A highlight for everyone was when Garry would pull out the book of watercolours he created as an inpatient. Titled Rebirth, it reflects his recovery, through art.

"It opens with 'Lyndhurst Squirrel,' which is the first painting I completed with a single brush stroke, and closes with 'Peaceful Brook,' he says. "The renderings in between reflect the progress of my fine motor skills."

While staff say it feels rewarding to see patients engaging in meaningful activities, Nicole Leong, a recreation therapist in Lyndhurst's Spinal Cord Rehab Program, says she's also learned a lot, working with Garry.

"I'm forever grateful for the years I worked alongside Garry," she says. "He taught me that art is everywhere, if we stop and take the time to appreciate our surroundings.

"But he also listened. Truly stopped and listened. To every patient and their story. He met them where they were at – with gentle encouragement, kind feedback, and a thoughtful lesson plan."

For patients such as Gabriele Markle, participating in Garry's watercolour classes became a source of hope and optimism for the future.

"When I first arrived at Lyndhurst Centre, the reality of my spinal cord injury felt overwhelming, and the struggle was very real," she recalls.

"But through Garry's class, I not only got to forget my limitations and have fun, but I developed a love for painting."

Since returning home, Gabriele has continued to paint with watercolours, as well as acrylics and pencils.

"I will always be thankful to Garry, for introducing me to the wonderful world of art," she says.

And that's the benefit of therapeutic recreation, which promotes leisure independence, as patients prepare to safely and successfully transition back to their communities.

Programs at Lyndhurst include everything from opportunities to trial specialized sports equipment, to community integration outings and art.

"Garry's sincerity in meeting patients' needs, through a creative outlet, allowed them to explore a hidden or untapped talent and interest that they can take home with them," says recreation therapist Charlene Alton.

"We will always be grateful for the many years of tremendous volunteer contributions he spent inspiring patients and making a positive difference in their lives – in the hospital, and in the community." H

Canadian Society of Hospital Pharmacists | Société canadienne des pharmaciens d'hôpitaux

Advancing care:

How can we improve patient care with equity, diversity and inclusion considerations?

By Jody Ciufo and Sean Spina

In this special section of Hospital News, the Canadian Society of Hospital Pharmacists (CSHP) is proud to shine a light on the contribution of hospital pharmacy to improving patient outcomes and health systems across Canada.

This year is the final year of CSHP's current 2020-23 strategic plan. This set of benchmarks laid out an ambitious plan to transform our society and the foundations we are built upon. It encouraged us to strive for financial and membership sustainability. It provided us with strategic priorities like providing members with more opportunities for specialized education and the welcoming of pharmacy technicians. It also pushed us to provide even more value for our members' money and to mold our previous governance and infrastructure into something much more nimble and adaptable.

Now, as we begin the process of creating our next strategic plan, our focus is starting to shift outward. Yes, we will carry on our internal work focusing on membership growth, engagement, and value, but now we will also be setting our sites farther out. We will look to more advanced professional practice development, greater advocacy for improved healthcare systems and a higher profile for pharmacists and pharmacy technicians working in hospitals and other collaborative models of practice.

One such way that we have done that is through our equity, diversity, and inclusion efforts.

We have applauded and collaborated with the Indigenous Pharmacy Professionals of Canada (IPPC), launched by Founder and Chair Dr. Jaris Swidrovich and CEO Amy Lamb in 2022. They are dedicated to eliminating racism and promoting frameworks to ensure culture-safe and affirming environments for Indigenous patients and pharmacy practitioners. We were honoured and educated by their presence and address to our CSHP Board Meeting last October. The relationship has allowed us to amplify the work of the IPPC and to examine CSHP's own programs in initial areas such as governance and residency accreditation. To this end, as a Metis Nation of British Columbia citizen himself, our own CSHP National President, Dr. Sean Spina is also an IPPC Founding Board Member.

Our commitment to inclusion carried through to the education offered at Together 2023, our national conference. It featured sessions on a primary care perspective of healthcare delivery for Indigenous Canadians, 2SLGBTQ+ health and how professionals can help transgender people thrive in healthcare and more. By amplifying the perspectives of equity-deserving groups, we can be sure to make healthcare for all people all the time.

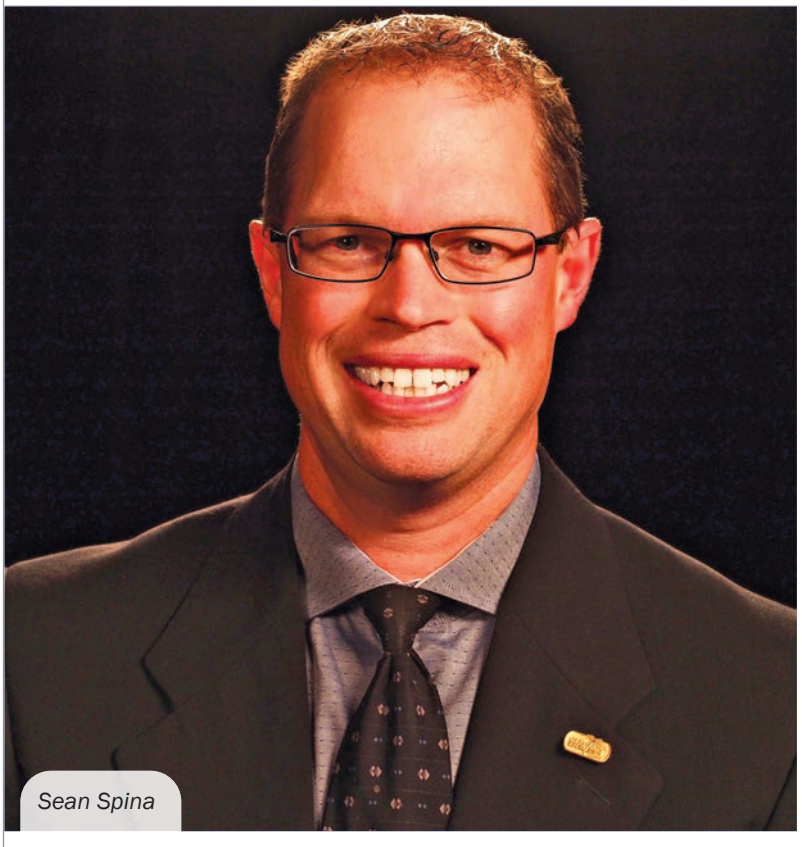
We view our advocacy as the joining of conviction and hard evidence. Our commitment to hospital pharmacy comes from our conviction that the fullest expression of the profession will improve people's lives. When we match this with the actual evidence of hospital pharmacy positively affecting patient outcomes, we can bring about systemic change. Our conviction helps us draw others into our vision of a better healthcare system where safe, effective medication use underlies all patient care. But it is the evidence and the argument that will lead decision makers in governments and institutions to implement meaningful change to healthcare systems.

At CSHP, we are more than prepared to continue to put in the work regarding our advocacy efforts that impact our diversity, equity, and inclusion goals that will, in fact, see that we are a force in advancing care for all.

To learn more about us, our advocacy or our many other member benefits including education, position statements, volunteering and more, our website is CSHP.ca.

Jody Ciufo, Mba – Chief Executive Officer & Dr. Sean Spina, RPh, BSc(Pharm), ACPR, PharmD, FCSHP – CSHP President

Jody Ciufo



Sean Spina

Pharmacists as EDI champions:

Reflections of a pharmacy resident on the role of pharmacists in minimizing health inequities for underserved populations

By Zach Kennedy

We've all heard it a thousand times: pharmacists are any team's medication experts. They're often called upon to review medications, provide recommendations on drug therapy, and educate patients on their treatments. What's talked about less, however, is the work that hospital pharmacists undertake to minimize health inequities for underserved populations.

The ever-growing body of evidence demonstrates that pharmacotherapeutic outcomes are worse for marginalized populations, and the impacts of social determinants of health can decrease access to care, create health inequities, and ultimately worsen outcomes for marginalized patients.

The American Society of Health-System Pharmacists' (ASHP) 2023 Forecast panelists predicted that there will be integration of community-level social determinants of health data into a patient's record within 5 years, and that this data will be supported to implement care plans. Are pharmacists ready to utilize this data to improve patient outcomes? Do they have the necessary expertise? Do they have the support from their colleagues and organizations?

As a pharmacy resident, I've had the opportunity to observe many pharmacists in action, and the above are all questions I've asked myself and my colleagues throughout my residency.

Despite often working quietly behind the scenes, pharmacists play a vital role in enhancing pharmacotherapeutic outcomes for underserved populations. They achieve this in a multitude of ways. Be it through liaising with community organizations or patient assistance programs to obtain drug coverage for patients who couldn't otherwise access medications or educating their teams on the monitoring of lab values for individuals on gender-affirming hormone therapy, the pharmacist is an ally and advocate for equitable healthcare access and outcomes. However, I don't know if many of these pharmacists would self-declare themselves as equity, diversity, and inclusion (EDI) "champions", despite being perfectly positioned to be advocates for practice and policy changes to improve health outcomes for underserved populations.

WHILE MANY PHARMACISTS MAY NOT HAVE RECEIVED FORMAL EDUCATION ON HEALTH INEQUITIES AND CULTURALLY SAFE CARE, THERE IS STILL A STRONG SENSE OF PRIDE AMONG PHARMACISTS IN SERVING AS PATIENT ADVOCATES.

While many pharmacists may not have received formal education on health inequities and culturally safe care, there is still a strong sense of pride among pharmacists in serving as patient advocates. What's more, there a strong commitment to supporting patients, particularly those who are most vulnerable. The dedication and tenacity displayed by the pharmacists I've had the chance to learn from, for example, are an invaluable resource that teams should utilize to help minimize care gaps for vulnerable patients.

For instance, while on an obstetrics rotation, I saw some of the most vulnerable patients come through the hospital doors. Pregnant individuals who had been traumatized by the medical system, had very little social and financial support, and difficulty with trusting health care professional. My preceptor, with great confidence, shattered what I thought I knew about our role as pharmacists. She identified gaps in care that were inevitably going to lead to patients falling through the cracks, and filled them without hesitation, even though these tasks often fell far outside of her job description. In my eyes, she was the last line of defense against these patients being left behind, working tirelessly by doing everything from organizing outpatient care visits for patients, to going above and beyond to ensure that her patients on opioid agonist maintenance therapy got the appropriate therapy and never missed a dose. This served as evidence that pharmacists are ideally positioned to act as patient advocates, despite not always having the structural support.

During a mental health and addictions rotation, I got to work with a team who proudly exemplifies what it means to incorporate trauma-informed care and social determinants of health into practice. Though, the hospital pharmacist with whom I had the privilege of working, like other pharmacists, would likely never call herself an EDI champion, she recognized and opposed the systemic barriers and inequalities that created an unfair playing field for her patients. Drawing on her wealth of knowledge regarding the health inequities faced by her patients, she was able to confidently make drug therapy recommendations that others may not have considered. She took the time to gather information about a patient's past experiences, family histories, beliefs, and attitudes with regards to psychotropic medications to predict with which therapies the patient would likely succeed. She prompted the team to think about potential financial and socioeconomic barriers faced by the patient, and always incorporated the intersection of medications and patients' personal and cultural beliefs. Ultimately, this illustrated the utility of providing pharmacists with time and support to address the needs of underserved populations.

Based on these experiences, it appears evident to me that pharmacists can be great advocates for their patients, in the area of EDI, particularly when nobody else takes up that role. However, despite having the best intentions, there are still great distances to travel to turn intentions into concrete impact. As I finish my pharmacy residency and reflect on my experiences in EDI, here are a few of my take home messages, I would like to share:

To the pharmacists: Become painfully aware of the health inequities faced by the marginalized populations you serve. Your voice is incredibly valuable, therefore change what you can, and advocate for what you cannot.

To the pharmacy leaders: Incorporate EDI initiatives into your organizational culture and promote diversity in your workforce. Create an environment where health inequities, resources, and experiences can safely be shared and discussed.

To the organizations and other healthcare professionals: Invest in your pharmacists and allocate the appropriate resources to allow them to thrive. Utilize their tenacity and expertise to improve patient care and get closer to health equity.

Zach Kennedy is a pharmacist and is currently completing his pharmacy residency at iwk health in Halifax, NS. He aims to utilize his platform to promote edi in hospital pharmacy and advocate for underserved populations

Free online risk assessment tool: Helping Canadian hospitals prevent and detect drug theft and loss

By Mark Fan

Hospitals have been struggling with loss or theft of medication for a long time, and until recently, data and solutions have been elusive. Finally, there is a new tool to help hospitals' address this sensitive and complex problem.

"Preventing drug diversion is complex," says Dr. Patricia Trbovich, who is the Badeau Family Research Chair in Patient Safety and Quality Improvement at North York General Hospital (NYGH) and an Associate Professor at the Institute of Health Policy, Management and Evaluation at the University of Toronto. She is one of the leads behind a new study (funded by Canadian Institutes of Health Research), which created a Canadian risk assessment tool for hospitals to identify diversion risks and provides guidance on how to address them. "Many hospitals may treat diversion as a 'people-problem', but improving the design of the overall medication system is critical. Without well integrated policies, technology, and practices, hospitals won't have the understanding they need to detect and prevent diversion."

There is another benefit to taking a system-based approach. "Standardizing the policies and data infrastructure around medication records leads to more equitable and effective approaches to identifying when and how controlled drugs go missing," says Trbovich. For example, ambiguous hospital policy around record-keeping, lack of strong security measures, and haphazard investigation procedures can perpetuate biases or exacerbate existing inequities and discrimination, and negatively influence how hospitals and staff respond to instances of diversion. Investigations must be supported by confidential and impartial audit data to overcome bias and inequity in decision making.

Movement forward with truth and reconciliation within hospital pharmacy

By Amber Ruben with contributions from Amy Lamb

As an Inuvialuk pharmacist, born and raised in a small community in the Northwest Territories, with the integration of Dene, Cree, Métis, Inuit, and white people throughout the community, it was difficult to move to southern Alberta. There was no integration of First Nations into the urban community, and unfortunately, many of the First Nations who were visible in the downtown core were visible because they fit negative stereotypes. Although I had grown up in many ways blissfully unaware of the impacts of colonization and assimilation in my hometown, the Indigenous social and health disparities seemed very visible in seemingly stark contrast to home. In hindsight, the signs of colonization and assimilation were evident where I grew up, but not visible to me because they were normal. I didn't grow up with ceremony or traditional culture, or with my extended family because my dad went to residential school at a young age. Many people at home had similar experiences, and as an adult, I can see the health and social impacts of colonization on the community.

When I started developing presentations about Indigenous health within the context of historical and current colonization, it was a difficult process. I kept reflecting upon all the people I know who have experienced the negative impacts of these systems and are incorporated into the statistics for health and social inequity. It is particularly distressing to connect historical and current racist systems to impacts on my community. With each presentation, I am aware of those we have lost in life or spirit, including those who have chronic diseases and those who battle with substance use disorders, violence, and suicide. Within a small community these losses are felt by everyone, and communal grief often amplifies the intergenerational traumas that lead to these inequities. These people from my home are not just numbers or statistics, they are people with stories, feelings, personalities, who have families who love them.

Thankfully, my research also has connected me to the strengths of my ancestry and all Indigenous Peoples. My own resilience is strengthened as I too continue learning more about Indigenous worldview, wisdom, and Indigenous strengths. There are also so many Indigenous Peoples that I grew up with that have strength, resilience, happiness, and success and being able to think of them helps to ease that heaviness you're left with when you are focusing on the health and social deficits.

You may wonder how my story fits with current Indigenous issues in hospital pharmacy. Every Indigenous patient has their own story, family, community, and likely their own hurt and resiliency. Cultural safety for pharmacy professionals means being aware and sensitive to these pasts that have shaped our present. Trauma - informed care should be the standard of care for every patient but is especially important for Indigenous patients as many have had a traumatic experience or have intergenerational trauma. Patients must be recognized as individuals with their own experiences. As health care professionals, we must create safe and trusting environments, acknowledging patient-centric factors that facilitate that safety. It is our responsibility to be honest, compassionate, and consistent in intention and delivery, while making space to adapt to the unique needs of an individual or community. Patients must be given choice and collaboration to help empower them and we must focus on individual's strengths. Healing and recovery must be viewed and supported as a possibility, formed in partnership with the patient's environmental factors, and in consideration to their personal and cultural motivations and values. When I consider people who have a trauma response, the most powerful concept that I integrate is recognizing that people's behaviours are an adaptation to past experiences. In other words, something bad has happened to them and they are responding to that hurt. Behaviours form to create safety or withdrawal in response to trauma, fear, pain, and grief and not as a result of being a "bad person."

I have seen a significant improvement of the intentions of pharmacy professionals to improve Indigenous health over my 17 years of practice. Colleagues are now interested in learning the truth about Canadian history as it relates to the health consequences of Indigenous patients and are participating in reconciliation discussions and efforts. What is emerging are questions from the pharmacy community on how to proceed with these intentions." What does reconciliation look like? "How do you participate in this vast and, at times, overwhelming idea?"

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CANADIAN SOCIETY OF HOSPITAL PHARMACISTS

With the backdrop of the continuing opioid crisis and widespread recognition that diversion is under-detected and under-reported, hospitals must urgently attend to this issue. Diversion deprives patients of needed pain relief, jeopardizes staff and patients, and risks spreading new infections from non-sterile syringes. Hospitals face costly internal investigations when diversion occurs, negative publicity, and litigation.

Healthcare workers are not immune to substance use disorders, and identifying staff in need of treatment is another reason to detect diversion. Dr. Darryl Gebien, an emergency medicine physician, who has publicly shared his story of forging prescriptions while addicted notes, "A person doesn't choose to blow their life up with an opioid addiction. It grows from initial subtle use in the beginning, and then to escalating doses and risky behaviour."

Gebien was caught, filed for bankruptcy and incarcerated, but has now recovered and returned to practice. He advocates for change in the system, "I could have been helped much sooner. There's a lot of good we can do help people early. We can't arrest our way out of this problem."

Dr. Trbovich partnered with Dr. Michael Hamilton to create the free online tool, with early designs reviewed by the Ontario Branch of the Canadian Society of Hospital Pharmacists. Dr. Hamilton is the Medical Director of the Institute for Safe Medication Practices Canada (ISMP Canada) an independent, not-for-profit organization that advances medication safety. "Currently the Pan-Canadian Diversion Risk Assessment Tool is free and open to any Canadian acute care facility," Hamilton explains.

Hospitals register for the tool by emailing mssa@ismpcanada.ca and the tool itself can be accessed here: https://mssa.ismp-canada.org/cdn-diversion. Hamilton adds, "The aggregated anonymized results from the tool will be hugely beneficial as there is no national snapshot of diversion risks in Canadian hospitals, and hospitals will be able to benchmark against themselves against the aggregate."

Over 50 hospitals have signed up so far, and early feedback has been positive. The tool takes about 2 hours to complete. "We have found it very effective in helping us focus our resources on those things that have the greatest impact," says Edith Rolko, NYGH Pharmacy Director.

"We have rolled it out to all UHN sites," says Lori Taylor, Manager of Professional Practice Lead at University Health Network "We think it will help us compare practices and share best practices internally. It is also helping us prepare for future Accreditation reviews."

While hospitals will see their scores immediately to support local improvements, Trbovich and Hamilton are looking forward to analyzing the aggregated results starting July 2023. They plan to share and use this information to propel innovation and national system changes so we can finally have data-driven solutions to this long-standing and widespread issue. H

Mark Fan is the research manager with humanera, an applied human factors research team based at North York General Hospital and University of Toronto.

Equity, diversity, and inclusion in HIV care

By Caitlin Olatunbosun

HIV care and treatment has come a long way but there is a hurdle we continue to struggle to overcome. In the past 40 years of the HIV epidemic, we have gone through phases of devastation, discovery, and now the end of the HIV epidemic. The first phase of the HIV epidemic in the 1980-early 1990s was marked by the devastation of many lives lost. It was the story of a mysterious illness, newly named "AIDS", identifying a virus as its cause, and having no cure. The discovery of effective treatment with triple therapy of antiretrovirals in 1996 changed the course. Over the next decade and a half, treatment options snowballed going from highly complicated cocktails with handfuls of medications to simple one tablet once daily regimens. Not only could patients live long healthy lives with minimal risks from treatment, but we also learned that being on treatment dropped the risk of spreading the virus. In fact, having the virus well controlled completely prevents sexual transmission. Testing early and initiating treatment can eliminate the spread of HIV – yet according to the Public Health Agency of Canada, someone in Canada is newly infected with HIV every four hours. Something is holding us back from stopping HIV.

One cannot talk about HIV without talking about stigma. Stigma is inextricably intertwined in the HIV epidemic. Stigma is prejudiced attitudes and beliefs, as well as discriminatory behaviour or policy, that leads to exclusion. Being marginalized by society causes chronic stress, and challenges with coping. It can, as a result, keep people from being tested, engaged in care, and treated successfully. Evidence that stigma is a barrier to an effective HIV response continues to grow, particularly for key populations such as men who have sex with men, persons who have been incarcerated, and people who inject drugs. These individuals tend to bear the largest burden of HIV and often experience multiple intersecting stigmas.

HIV stigma is not a stand-alone. There are all kinds of stigma that worsen health outcomes including stigma based on race, gender, sexual orientation, and poverty. The Canadian Institute of Health Research has created a wheel (see image) showing how different components can intersect. These overlapping identities create multiple pathways for oppression and the effects of these experiences on health and well-being do not just add together, they multiply. Thinking about stigma in terms of intersectionality allows us to think about this problem more holistically, as well as allows us to consider protective factors such as social support, community, and resilience. Addressing stigma and the inequality it creates is key to ending HIV.

Equity, diversity, and inclusion (EDI) can be applied to patient care as an anti-stigma framework. Diversity is understanding the background of the patients being served – their culture, gender, sexual orientation or religious beliefs. While equality is about giving to everyone equally, equity is about giving based on need. Health inequities perpetuate to the most vulnerable populations, the ones that are also often the hardest to reach. Applying equity in patient care is to see who is falling behind and make changes to ensure they have what they need to be able to receive and benefit from best practices. Affected groups should be centered at the core of the response with real engagement to make meaningful change. Inclusion is practiced by giving patients a voice in the delivery of their care that is appropriate to them both as an individual and as a population.

Innovative approaches in HIV care have been developed using an EDI lens to make health care accessible to the most vulnerable. For testing, new simple tests remove the need to test in a lab or health clinic and later return for results. People can now be tested at home or in non-healthcare environments and get a result in minutes. Engaging patients in HIV care is key to getting on and staying on effective treatment. Approaches to engaging patients include using case managers to follow up or outreach workers to manage care where the patient is, or outreach to settings such as bath houses or prisons, and leveraging peer support. It also includes coordinating across sectors to meet patients needs for transportation, housing, and mental healthcare to set them up to access care.

The challenges and progress in HIV care give insight into caring for marginalized patients broadly. The healthcare system can cause harm through systemic racism, discrimination, and individual provider bias. It often results in medical avoidance affecting individuals' health, increased costs to the health system, and health and economic effects on society. Addressing stigma in care through EDI requires a multi-level approach: government or policy level (address structural component that marginalizes people), the organizational or institutional level (policies, partnerships), and the individual level (information, skill building). Health care needs to be culturally safe, consider the trauma people have experienced, and create an environment where everyone can feel safe to get help. H

Caitlin Olatunbosun BSP, ACPR, MPH is a clinical practice leader with Alberta Health Services and works in HIV.

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Truth and reconciliation

"How do you continue to do this work in meaningful ways that involve more than taking the required module?" "How do we incorporate Indigenous holistic healing and ways of viewing the world into our health care systems?" Although these are not questions with easy, or static answers, continuous reflection on them, and adapting to our evolving roles in reconciliation are foundational to progress our individual and systemic impact on Indigenous Health. We must shift our focus to Indigenous strength and resilience. Indigenous Peoples, including my community, have survived a lot over the past few hundred years. Our Peoples are thriving in culture, ceremony, art, research, and self-governance, with growing momentum that leads to intergenerational healing and empowerment. To prevent further harm from colonization, we must proceed with the idea "Nothing about us, without us", and accept and include Indigenous guidance and consultation in all decisions, at all levels of our healthcare and pharmacy systems. Educational standards, training standards, and policies for organizations and research must include Indigenous consultation and leadership. All health professionals require training in Canada's colonial impact on Indigenous wellness, cultural safety, and trauma-informed care, again in partnership with the Indigenous community.

For pharmacy professionals, connecting with Indigenous patients starts with cultural awareness and humility. Learn more about the Indigenous communities you serve. Advocate to leadership within your hospitals to make connections with local communities. Attend free Indigenous community events. Join a local Indigenous social media page. Read Indigenous authors. Do the hard work of learning the colonial history by watching YouTube residential school survivors, or The Unforgotten video by the Canadian Medical Association and Government of Northwest Territories, or read stories from the Truth and Reconciliation Report. Engage with Indigenous Pharmacy Professionals or traditional Knowledge Keepers to learn more about Indigenous ways of knowing and how you can integrate those concepts into your practice for the benefit of Indigenous and non-Indigenous patients alike.

I leave you with the challenge to look at every Indigenous patient you have as someone who has been negatively affected by assimilation, prejudice, and structural racism, but with cultural, community, familial, and individual strengths. Challenge yourself to find and accept the Truth. Only then will you be able to contribute to Reconciliation. H

Amber Ruben (BSC NEUROSCIENCE, BSC PHARM, APA) is a clinical hospital pharmacist and a msc student at the University of Alberta with a focus on indigenous health.

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Implementing inclusive practices in the pharmacy school admissions process

By Victoria Ezekwemba

Equity, Diversity and Inclusion- or EDI for short- refer to principles used by institutions to ensure fair treatment of individuals from minority groups who have historically been discriminated against. Equity means aiming for fairness as well as helping to equalize the imbalances among people. Diversity means acknowledging the differences in people (ex: race, sexual orientation, religious beliefs, etc) and celebrating those differences. Finally, inclusion refers to the creation of an environment where everyone regardless of their differences feels accepted.

EDI is important in pharmacy and in healthcare in general because medical discrimination has been associated with poorer health outcomes such as lower life expectancy, strained mental health, higher blood pressure and lower rates of influenza immunization as reported by the Centers for Disease Control and Prevention (CDC) in 2015. Thus, it is important to incorporate EDI in pharmacy practice to minimize health disparities faced by marginalized groups, thus allowing for the optimal safety and well-being of all patients.

For patients from underrepresented groups, having healthcare professionals who look like them is important as they feel more comfortable confiding in their providers about their health. Several U.S studies show this increased trust is because providers who are from the same minority group as their patients tend to be more culturally competent, less likely to discriminate against the patient and they have a better understanding of patient preferences/how to best communicate with them. Also having a provider who identifies similarly to their patients can lessen the chance of patients being neglected or not believed which results in better health outcomes for patients.

According to the 2021 Census done by Statistics Canada, about 27 per cent of Canadians are from minority groups (not including the Indigenous) and only 5 per cent of the Canadian population is Indigenous. However, the percentage of minority groups in Scientific and Professional occupations (which includes pharmacy) is about 22 per cent and for Indigenous people is roughly 4 per cent. This means there are less minority pharmacy professionals than there are patients from minority groups.

For all patients to see themselves accurately represented in their pharmacy team, there needs to be an increase in representation of minority groups in pharmacy. This can be done by making the pharmacy school admissions process more inclusive to better recruit students from minority groups.

Black, Indigenous, and People of Colour (BIPOC) students are underrepresented in Canadian pharmacy schools. It is estimated that less than five per cent of students enrolled in pharmacy schools are Black. Indigenous students and other people of colour have low numbers in pharmacy programs as well. Thus, it is important to make the pharmacy school admissions process more inclusive.

Currently, several if not all Canadian pharmacy faculties have implemented EDI efforts in their programs/faculties. However, there is more that can be done to help increase the admission of students from minority groups.

Schulich School of Medicine and Dentistry at Western University has implemented strategies to enhance EDI in their medical school admissions process. The strategies include having applicants complete a diversity survey, making the admissions committee more diverse as well as having an equity representative on the committee, mandatory bias training for the admissions committee, a bio sketch of the applicant's life experience and a pathway specifically for minority students. These strategies help to make the admissions process more inclusive and equitable, thus enhancing the diversity of the school.

There are several other resources (listed below) which can be used by pharmacy schools to help increase the recruitment of minority students.

These are mainly research and medical school focused. However, most of the strategies are transferable and thus can be used by pharmacy school admissions panels when considering applicants. To learn more about strategies for an inclusive admissions process, please check out website for the University of Toronto and Western University.

Some strategies included in the resource:

- Use of inclusive language when posting about applications.
- Having an equity officer
- Considering EDI in the composition of your team.
- Having a process that minimizes the chance for bias.
- EDI Training
- Considering diversity in the interview process.
- Publicizing positions in places that underrepresented groups can see it.

EDI is important in pharmacy in order to ensure the best health outcomes possible for all patients. For this to happen, there needs to be an increase in BIPOC professionals in pharmacy. As such, the pharmacy school admission process needs to be more inclusive. H

Victoria Ezekwemba is a pharmd candidate class of 2023 at the Leslie Dan Faculty of Pharmacy, University of Toronto. She is passionate about inclusion in pharmacy practice and chronic disease management.

A national survey of equity, diversity, inclusion and accessibility initiatives within pharmacy residency programs

By Sarah Burgess

Academic and healthcare institutions have become increasingly focused on incorporating and committing to equity diversity, inclusion, and accessibility (EDIA) as it is understood that the programs and organizations should be reflecting the diverse communities that they serve. Similarly, learners, graduates, and health care professionals should be prepared to meet the needs of our diverse communities.

At Nova Scotia Health, we felt compelled to examine our pharmacy residency program to ensure we were adhering to EDIA principles and in addition to seeking out areas where we could improve. To start, I reviewed relevant institutional and academic policies and guidance documents and engaged with relevant stakeholders within our organization. A literature review was completed to see what EDIA initiatives within residency programs and guidance around best practices was available. Several articles were found describing EDIA initiatives within faculties of pharmacy and undergraduate pharmacy education and training (even more so for medical education and training). Most initiatives focused on strategies such as reducing barriers to entry, promoting retention, the importance of increasing as well as fostering diversity and inclusion among those entering the profession. However, less literature is available specifically to pharmacy residency programs beyond improving the diversity among residents through recruitment measures. Of note, the American Society of Health-System Pharmacists (ASHP) produced a diversity resource guide that includes strategies to increase diversity and reduce bias during the pharmacy residency recruitment and selection process (ASHP Diversity Guide, 2022). At present, no similar guidance documents or resources were found specific to pharmacy residency programs in Canada.

Given the limited information available, we developed and distributed an on-line survey to all the pharmacy residency programs in Canada to determine if and how programs have implemented EDIA initiatives on top of identifying any potential challenges and opportunities. The survey included questions regarding demographics of the residency program, general questions about EDIA in residency programs and perceived importance, implementation of EDIA initiatives, and challenges. For the implementation piece, we were interested in if and how EDIA has been incorporated into aspects of the program. We looked specifically at recruitment, applicant screening, interviews, ranking, and education and training for residents and preceptors.

Of the 44 Canadian pharmacy residency programs (year 1 and year 2 programs) surveyed, 28 responded with many surveys having been completed by the residency program coordinator. Overall, there was overwhelming agreement that incorporating EDIA into pharmacy residency programs is important. Only a handful of programs stated that they had formal policies around EDIA, but many programs are planning to incorporate EDIA principles into applicant recruitment and screening. Around half of all the programs responded that they had a diverse team of residency interviewers, with 80 per cent of programs responding that they had a diverse team of residency preceptors. Incorporating EDIA into education and training for residents and preceptors was currently done or in development for 64 per cent (residents) and 44 per cent (preceptors) of programs, respectively. There were several other interesting findings (e.g., what EDIA education and training is provided to residents), but the main takeaway was that residency programs agree that incorporating EDIA is important, though there is variation in if and how this is achieved. Most programs stated they were in the development phase of implementing EDIA with few having established initiatives or policies. Our program, like others that responded, recognizes the importance of incorporating EDIA but are less confident about where and how to begin.

The results of the survey showed 64 per cent of respondents reported they face challenges implementing EDIA initiatives. Most of this related to a feeling of lack of knowledge, experience, and skills related to addressing EDIA. They also faced staffing and preceptor limitations, time and resources required to implement, and competing interests (particularly during the height of the pandemic). When respondents were asked what could be done to address these challenges, some suggestions offered included educational and training workshops on EDIA for residency programs, development and dissemination of compiled resources, collaboration and sharing strategies amongst residency programs, and leadership around EDIA from affiliated institutions and the pharmacy residency board. These suggestions are reasonable and serve as a call to action. The results of the survey show residency programs are supportive of EDIA but may be struggling with the 'how to' start EDIA initiatives. For those residency programs looking to incorporate EDIA, start by looking to your affiliated academic and institutional resources for support as all opportunities may not be fully appreciated. It may also be fruitful to reach out to other non-pharmacy residency programs (e.g., medicine, psychology, etc.) to see what initiatives they currently have in place. Residency programs should share resources and publish their initiatives and strategies to help inform those programs that are looking for ideas and inspiration through a central hub, like the Canadian pharmacy residency website. Programs should also consider if and how EDIA is incorporated into the various vision statements and strategic plans of the pharmacy residency program, pharmacy department, and institution, at large. This can be helpful when trying to prioritize your goals and to find a starting point. Finally, I am hopeful that additional guidance, similar to that released by the American Society of Hospital Pharmacists (ASHP 2022), will come from organizations such as the Canadian Society of Hospital Pharmacists and the Canadian Pharmacy Residency Board to help inform EDIA in pharmacy residency programs, with the goal of improving the quality of pharmacy residency programs in Canada from an EDIA perspective. H

Dr. Sarah Burgess BSCPharm, ACPR, PharmD, is a clinical pharmacist in critical care and currently coordinates the pharmacy residency program at Nova Scotia Health.

‘MitigAID-ing’ the impact of supply disruptions

Mohawk Medbuy’s industry-leading solution reduces risk and supports better patient care

When someone requires treatment at a hospital, they naturally have questions and worries. Will I be okay? Will I receive good care? How long will I be in hospital? Prior to 2020, one question that was unlikely to even cross a patient’s mind is: Will the hospital have the medical supplies and drugs it needs to treat me?

That all changed following the emergence of COVID-19. Global shortages of everything from computer chips to appliances to automobiles increased the general public’s awareness of how supply chain disruptions that impact their daily lives also affect health care. That reality was underscored by the scarcity of personal protective equipment (PPE).

While the pandemic may have thrust supply disruptions into the spotlight, they’re nothing new to the health care sector. With increasing frequency, supply constraints are adding stress to a system that’s already straining to recover from the backlog created by the pandemic.

“Manufacturer supply disruptions of essential medical products and drugs are an unfortunate daily reality in every hospital. Clinical staff are spending more and more time maneuvering around shortages – which puts further workload on our teams and affects the delivery of patient care. MitigAID has helped tremendously on both fronts – lightening our load and helping us mitigate the risk to patients that shortages can cause.”

– Dr. David McNeil, President & CEO, Brant Community Healthcare System

SHORTAGES AFFECT PATIENT CARE

Manufacturer supply disruptions profoundly impact the delivery of patient care. Product shortages, recalls or discontinuations may necessitate changes to established clinical protocols – resulting in less-than-optimal workarounds. They can also delay surgical procedures or prevent patients from beginning therapy on a preferred drug if it’s in short supply. Beyond that, manufacturer supply disruptions further burden hospital staff with additional work – exacerbating staff shortages and reducing time available for frontline patient care.

As a national, not-for-profit, shared services organization (SSO) for the health care sector, Mohawk Medbuy (MMC) sees firsthand the challenges created by manufacturer supply disruptions for the hundreds of hospitals and health care providers it supports. MMC consolidates the collective needs of those Member hospitals for medical supplies, pharmaceuticals, services, and capital equipment and conducts large-scale procurements on their behalf – rather than each facility going to market independently. In 2022, hospitals utilized MMC contracts for more than $1.6 billion of their purchases. By leveraging hospitals’ collective spend, MMC generates millions in much-needed savings each year that hospitals can reallocate to frontline care.

Fiscal challenges are certainly an ongoing issue for hospitals, but supply disruptions are just as critical according to Marc Lemaire, Mohawk Medbuy’s Senior Vice President, Sourcing. “Hospital staff were using their scarce time seeking out supplies, determining replacements and figuring out how to make do with the items on hand,” said Lemaire. “It’s a top pain point for hospitals, and they were asking for our support.”

A key inflection point came in 2017 when Hurricane Maria caused extensive damage to a vital production facility in Puerto Rico, prompting a large-scale supply disruption of IV mini-bags. For supply chain professionals, it was a perfect storm. Mini bags are ubiquitous throughout hospitals but, despite having a DIN (drug identification number), which is the domain of Pharmacy, they’re often ordered by Materials Management departments. That overlap in responsibility exacerbated the challenges of managing on-site inventories and implementing conservation strategies.

“There was so much parallel wheel-spinning,” said Ally Dhalla, Mohawk Medbuy’s Senior Vice President, Pharmacy & Clinical Services and Innovation. “Hospitals scrambled to find their own substitutes individually; distributors and manufacturers were overwhelmed with inquiries.” Mohawk Medbuy implemented an existing program developed to help hospital pharmacies navigate backorders – but the unique dynamics of the mini-bag crisis demonstrated more was needed. “We had the foundation for a comprehensive program and focused on how to make it work for the medical/surgical side as well,” said Dhalla.

The shared services organization consulted extensively with Member hospitals and vendors in shaping a program that would be embraced across the supply chain. The result was MitigAIDTM, which launched in 2019. The comprehensive supply disruption management program was developed with a singular objective – helping hospitals minimize the risk to patients in the event of a product backorder, discontinuation, or recall.

DATA AND INFORMATION ARE GAME CHANGERS

MMC’s MitigAID team has instant access to comprehensive data necessary to quickly assess the scale and scope of a disruption. An analyst reviews MMC’s extensive database of hospital spend information to determine which facilities are impacted and their individual and collective purchase volumes. Real-time updates are provided over the course of the disruption from the contracted suppliers.

Having a single source of truth has been a game changer, according to Jessy Samuel, Director of IPAC, Pharmacy, Laboratory & Diagnostic Imaging at Joseph Brant Hospital in Burlington, ON. “The entire MitigAID team has been there to really help us understand not just how we’re resolving today’s shortages, but what Members can anticipate going forward. Having this valuable information has allowed us to stabilize and recover in so many ways.”

“A cornerstone of the program are clear accountabilities for all parties – for us, for hospitals and for suppliers,” said Lemaire. Contracted vendors have password-protected access to Mohawk Medbuy’s online Portal. In the event of an actual or pending product supply disruption, they’re required to log in to the Portal and submit a notification indicating what products are impacted, the start date of the disruption, estimated end date, suggested substitute products and other relevant information.

TRACKING DOWN SUBSTITUTE ITEMS

Addressing the immediate needs of hospitals for an alternate item is a top priority of MitigAID, according to Sheri McLeod, Director of Sourcing Operations at Mohawk Medbuy. “Our database includes years of RFP and other information, which feeds a vast Like Product Repository. It identifies products submitted in previous bids that may be equivalent to the out-of-stock item. From there, our clinical team of registered nurses and pharmacists assess those potential substitutes

for suitability, which reduces the workload of hospital clinicians."

"MMC's introduction of MitigAID has allowed us to manage supply shortages much more effectively," said Dean Martin, Unity Health Toronto's Executive VP of Corporate Services and Chief Financial Officer. "The MitigAID online portal gives us instant visibility on the status of active disruptions – all in one place. The program also addresses a more fundamental challenge – sourcing alternate products that are clinically suitable and available."

Before advising Member hospitals of a potential substitute item to help them through the disruption, that vendor is contacted to confirm they have the required supply and to pre-negotiate pricing. "This step is key to ensuring a smooth transition," said MMC's Lemaire. "It's no good to direct hospitals to a supplier that doesn't have the inventory or capacity to meet a sudden demand." Throughout the process, Mohawk Medbuy never recommends a particular substitute item over others or selects substitutes for Member facilities – each hospital always determines what will work best for them and their patients' needs. MMC recently created SubHub – a robust repository of potential choices.

PROVIDING VALUE ACROSS THE SUPPLY CHAIN

The MitigAID program offers incredible value for hospitals navigating the daily challenge of supply disruptions. "MitigAID provides tremendous insight into what's happening across the supply chain to help us manage our response," said John Aldis, Senior Vice President, Finance and Corporate Services at St. Joseph's Healthcare Hamilton. "It's a collaborative, streamlined process from start to finish and incorporates MMC's top-notch clinical support. MitigAID has been a very helpful resource for us – we use it every day."

Supply disruptions are challenging for everyone in the supply chain, and manufacturers and suppliers are equally quick to acknowledge the merits of the MMC program. "What we value about MitigAID is it greatly improves the efficiency and consistency of communication in times of supply disruption," said James Teaff, President and General Manager of Baxter Canada, a medical equipment manufacturing company. "We can ensure we broadly communicate the facts in a timely manner, and Mohawk Medbuy's culture of collaboration helps us mitigate the impact on affected hospitals."

Manufacturer supply disruptions continue to be a reality in health care. Through its collaborative approach to addressing the challenges they create for hospitals and suppliers, MMC's MitigAID program is mitigating risk to patients and reducing workload at hospitals and across the supply chain. H

MitigAID by the Numbers: 2022/23

Items in MMCs Product Master Database: 579,000

Medical/Surgical

Manufacturer Supply Disruptions: 1,650

Disruptions in Which Substitute Item(s) Were Identified: 71%

Pharmacy

Manufacturer Supply Disruptions: 1,056

Disruptions in Which Substitute Item(s) Were Identified: 80%

Reimbursements Remitted Automatically to Members: ..... $750,000+

The consequences of supply disruptions

Given the sheer number of backorders, recalls and discontinuations of medical/surgical products and pharmaceutical drugs that take place every year, it's inevitable that patients will be affected. In 2022, hospitals were hit with 471 "actual shortages." In many instances, there are therapeutic equivalents (generics) or alternate therapies available – but that still requires multiple steps. Hospital pharmacists need to determine what substitute drug is appropriate and educate prescribers and those who administer the drugs about the change. Procurement staff must confirm supply is available from the alternate supplier, coordinate the purchase and delivery to their facility, and have the new product information entered into the hospital computer system. Those are the behind-the-scenes realities of just one supply disruption. When you multiply that by an average of ten shortage per week, the workload can be staggering.

With the advent of very specialized, high-cost drugs, such as biologics, there may be no equivalent available. In such cases, conservation strategies for the backordered drug are implemented at the hospital. But "conservation" can equate to a moral dilemma for doctors – putting them in the very difficult position of choosing which patients get the optimal drug for their therapy and which don't. In other cases, medications in short supply are rationed to people undergoing treatment at less than the therapeutic dose. While equitable, it's far from ideal.

SURGERIES CANCELLED

Operating Rooms (OR) are precious resources at a hospital – and for patients, surgery can be a life-changing event that has been months or years in the making. When there's a cancellation, it's significant for all concerned. That was the case when a critical instrument used for an elective surgical procedure at a Canadian hospital went on backorder without notice.

In this instance, the instrument – an energy tissue sealing device – is essential for bariatric surgery. Also known as gastric bypass surgery, it's a major procedure that involves making changes to the digestive system to help people lose weight when diet and exercise have not been sufficient. In many cases, the patients are also contending with other serious health issues due to their weight.

Every Monday and Wednesday, bariatric surgeries are performed at this regional facility. The patients, some of whom travel significant distances for the procedure, are also required to complete two weeks of unpleasant prep leading up to their surgical date. One Monday, as the OR was being set up for the first of three bariatric surgeries that day, it was discovered that there were no energy tissue sealing devices. Due to a supply disruption, the hospital's inventory of the instrument hadn't been replenished, as was the normal routine.

Being a regional centre, there were no nearby hospitals that could share the specific instruments. Compounding the issue, surgeons who perform bariatric surgery are skilled and experienced with a specific version of the instrument, which they use to seal blood vessels. Despite the availability of previous generation laparoscopic instruments, the surgeons cancelled the procedures in the best interest of their patients. The alternative was to use a lesser instrument with which they had limited experience, and which had greater occurrence of post-surgical pain and complications.

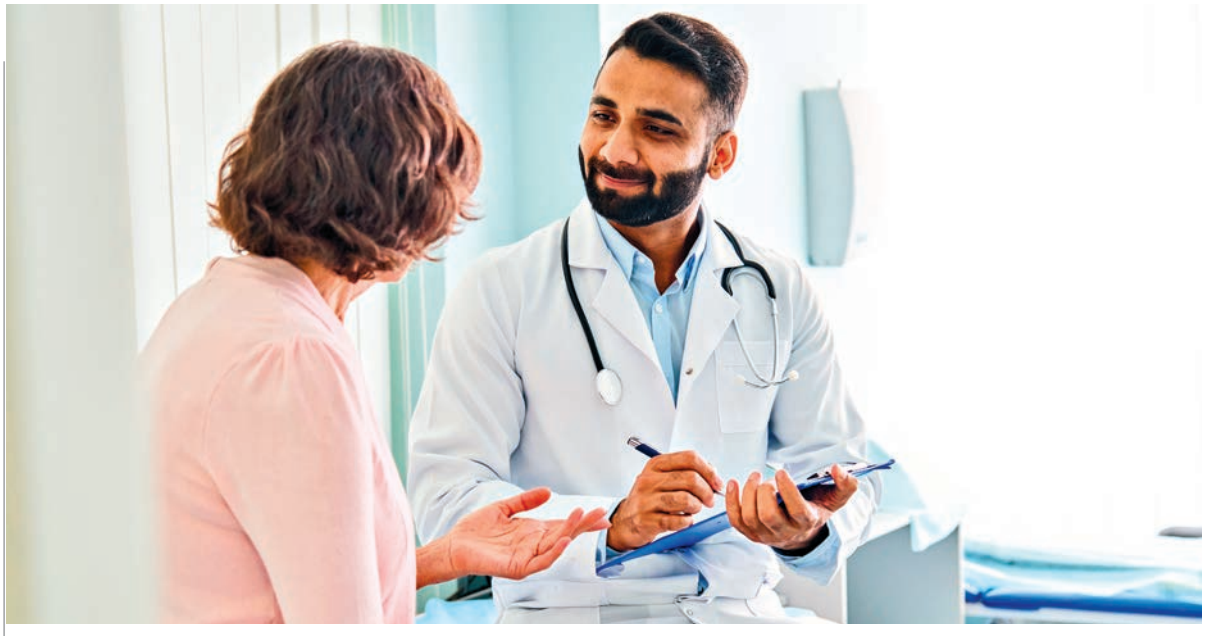
On that Monday and Wednesday – and for several weeks afterwards until supply of the instrument resumed, it was a crushing disappointment for patients. It meant rescheduling surgery that they'd been counting on; praying for to give them a new lease on life. It also meant going through the ordeal of the challenging pre-surgical prep all over again.

The supply disruption had implications for the hospital, as well. An in-demand Operating Room sat vacant on that first Monday. Surgeons and anesthesiologists scheduled to do the procedures were idle while the backlog of bariatric patients grew. From a financial perspective, the hospital receives a portion of its funding based on performing a pre-defined number of bariatric surgeries each year. In the absence of a single instrument, that revenue was now at risk – and making up for the lost days in the OR would require overtime and extra resources. It was a no-win situation for all concerned.

The pandemic highlighted supply chain challenges – particularly for personal protective equipment (PPE) and therapeutic drugs, such as propofol, which is used in Intensive Care Units (ICUs) for very ill COVID patients on respirators. But for hospitals, shortages are a daily reality with no end in sight. Processes and programs that mitigate their impact on patient care and on staff resources and time are essential to keeping our health care system running. H

Trust-powered healthcare benefits everyone

By Jennifer Zeifman



Trust is a popular topic nowadays, but it also seems to be under unprecedented pressure. The word is all the buzz within marketing and branding and is something that every organization wants to achieve and maintain. It is also centrally critical to the patient-physician relationship.

For those reasons, and more, Proof Strategies studies trust via our annual CanTrust Index. One of the largest annual studies of trust in Canada, the study is conducted in January and uses a 7-point scale to assess varying levels. The recent three years of pandemic have been a particularly interesting period to study trust in our health care system and those who work within it.

Canadians love to boast about our health care system, especially compared to the U.S., and overall, we have high levels of trust. The pandemic has put that under pressure.

When asked which institutions Canadians are willing to trust to operate competently and effectively and do the right thing – our health care system got the top score, ahead of the Canadian military, the Supreme Court and the education system. However, that trust does seem to be eroding slightly year over year, dropping from 63 per cent to 58 per cent in the past three years. This shift isn't cause for alarm bells, but is certainly something to keep watching.

Trust levels in Canada's health care system vary across the country, possibly resulting from the disparity of services from province to province. Atlantic Canadians are seven per cent less likely to trust the system (coming in at 45 per cent compared to Ontario, the most trusted province, at 58 per cent). Further, trust levels differ between generations. The least trusting are millennials coming in at 45 per cent and the most trusting are Boomers at 64 per cent. This latter difference appears throughout our research, with younger people almost always being less trusting.

We know that some of the key issues facing our health care system continue to be wait times, lack of family physicians, nursing shortages and equal and timely access to medications. Some governments appear to be tackling these issues.

For instance, provinces are trying to tackle issues related to physician and nursing shortages, which have a direct impact on patient care. The solutions, however, often seem inconsistent and even reactive. Unfortunately, the uncoordinated and almost competitive atmosphere threatens to impact trust levels even more.

Though we do need solutions to solve these more complex systemic issues, there is another piece of the patient care puzzle where trust levels are equally as important – those with individual care providers, the medical doctors. Our research shows that medical doctors topped the list of trusted individuals to provide reliable information – ahead of family and friends or educators. However, trust in physicians is also eroding. It peaked in 2021 during the height of the pandemic and has fallen since – dropping from 81 per cent to 73 per cent. The frustration among Canadians caused by the pandemic has had an inevitable impact.

While 73 per cent is still a strong trust level – it is a critical number as the trust that one has with their physician can directly lead to better health outcomes. If a patient trusts their physician and feels like they can be honest without judgement, they will be more likely to provide information that can help them receive better care.

One way to accomplish this is by working to humanize health care. A simple shift from directive behaviour to empathic engagement can have an immediate impact on trust building. For instance, rather than focusing on a patient's behaviours by asking whether they have done as they were told, employ an empathetic approach and engage the patient in the discussion to determine whether compliance would be a challenge for them. Asking questions such as whether they are able to travel to appointments, affordability of treatments, or how well they understand their diagnosis, can solidify the patient-physician relationship and powerfully build trust. Academic research has found that empathy is a key driver of trust, along with ability and integrity.

Knowing that time is at a premium, it may feel counter-intuitive to add more time to an appointment by asking these questions, or that they may not even be relevant. But consider that providing a quick set of instructions, however accurate they may be, and sending a patient on their way may provide a false sense of accomplishment. An engaged approach may take more time initially, but the trust it builds may ultimately save you time as you will have armed the patient with the information and motivation needed to make change and better their health outcomes. This type of trust-powered care benefits everyone.

Canadian health care leaders must take note and ensure all aspects of our health care system is rooted in trust. Once trust is gained, it's a strong and resilient resource that benefits everyone involved. H

Jennifer Zeifman is SVP, National Lead, Health & Wellness, at Proof Strategies with over 25 years of experience specializing in healthcare communications. The annual Proof Strategies CanTrust Index, now in its eighth year, is a leading source of research and understanding of trust in Canada.

How AI is saving time and improving care at Canada's largest MS clinic

By Robyn Cox

An AI-powered tool in Canada's largest Multiple Sclerosis (MS) clinic is integrating tens of thousands of patient notes into individualized patient histories, saving countless administrative hours for staff and doctors and freeing them to focus on what matters most: the people in their care.

MS is an autoimmune disease that can impact vision, memory, balance and mobility. People who have MS can experience times when their symptoms are more severe and periods when they have few or no symptoms. It can also be progressive, meaning that symptoms get worse over time.

"MS is a disease that lasts decades. Often when a clinician is seeing someone for the first time, they have ten or more years of medical notes to go through," says Dr. Jiwon Oh, clinical director of the BARLO MS Centre at St. Michael's Hospital. "The goal of MuScRAT is to – in a quick snapshot – summarize a person's relevant clinical history in MS."

Neurologists and other staff in the BARLO MS Centre at St. Michael's Hospital are using MuScRAT, which stands for Multiple Sclerosis Reporting and Analytics Tool, to get quickly up to speed on new patients, prepare for upcoming appointments and plan next steps in their care. The tool is an example of the partnership between Unity Health's Data Science and Advanced Analytics (DSAA) team and clinical teams at the network, which has developed more than 40 AI tools since launching in 2016. The DSAA is one of the first applied artificial intelligence (AI) departments in a Canadian hospital and operates using a unique model that brings together healthcare providers, data scientists and data and software engineers to build AI solutions and put them into action.

We connected with some of the people behind the MuScRAT tool to learn more about how they created it and how it works:

> **"WE RECOGNIZED THAT OUR EXISTING DATABASE AND RECORDS WERE REALLY DIFFICULT TO USE, AND WE WANTED SOMETHING BETTER," SAYS OH. "WE ALSO WANTED TO LOOK AT WHAT COULD WE DO WITH THE REGISTRY DATA TO IMPROVE CLINICAL CARE."**

Ashley Jones joined the MS program at St. Michael's as a research assistant in 2015 to develop the MS Clinic Registry, a centralized database for the nearly 9,000 patients the clinic follows. She began working with the DSAA team to see how AI could be used to help ease the burden of data entry for the registry, which was an entirely manual process.

"Entering data is very time consuming, very labor intensive and – because we have a large volume of patients at the clinic – it was challenging to keep the registry up-to-date," says Jones.

One of the key data points used to create individual patient timelines in MuScRAT is the Expanded Disability Status Scale (EDSS) score, a value used to measure and monitor a patient's level of disability due to MS. Jones worked closely with the DSAA team to translate her method for evaluating clinical notes to determine a patient's EDSS score so the AI tool could mimic her process.

Chloe Pou-Prom is a data scientist with the DSAA team at Unity Health. She is one of the data scientists who helped develop the algorithms for MuScRAT.

The tool uses two main sources of information to create patient timelines. The first is the previously mentioned MS Clinic Registry database. The second is clinical notes on the MS clinic's electronic medical record.

"Our role as data scientists on this project was to create AI models to help augment the existing database," says Pou-Prom. "When a clinician wants to look at a patient's history, we can pull the existing information from the database but it might be missing more recent data."

MuScRAT uses natural language processing – a type of AI that interprets language in speech or text to complete a task – to add the most up-to-date data. In this case, the tool interprets the text of clinical notes from patient appointments and physical exams and populates a timeline for each patient, saving countless administrative hours for staff and doctors.

Pou-Prom also notes the important role of software developers on the DSAA team in creating the dashboards and interface for AI tools. They help to ensure that data appears to clinicians and hospital staff in a way that is intuitive and easy to understand.

One of Pou-Prom's favourite things about being a data scientist at Unity Health is how her work is put into action.

"I like that I can work on projects that people actually use," says Pou-Prom. "Clinicians are using the tools we develop in their everyday decisions. I think that's really cool."

Dr. James Marriott is a neurologist with the MS program at St. Michael's. He also does MS research and runs the centre's clinical trials program for new MS treatments. He joined the team in October 2022 and – while he wasn't involved in the development of MuScRAT – he has become an avid user.

Without MuScRAT, Marriott would need to go through each patient's electronic medical records to map out their disease history and prepare for their appointment. This would involve sifting through individual clinical notes and files – a tedious and time-consuming process.

While Marriott will still review documentation in the electronic medical record when needed, MuScRAT saves him time by streamlining the process significantly.

"It's helpful for discussions with patients that I'm meeting for the first time," says Marriott. "I hope it's also helpful from the patient perspective that I'm able to get up to speed sooner and can focus more on getting to know them as people, and on the next steps in their care."

Dr. Jiwon Oh is the Medical Director for the BARLO MS Centre and a world-renowned MS researcher. Her role on the MuScRAT project was helping the team vision what the new tool could achieve and providing clinical input throughout its development.

When she and her team began working with the DSAA team their goal was to improve and build upon the centre's existing database.

"We recognized that our existing database and records were really difficult to use, and we wanted something better," says Oh. "We also wanted to look at what could we do with the registry data to improve clinical care."

Oh sees the potential MuScRAT has to help her team be even more efficient and proactive going forward. For example, the centre has a number of drug access navigators who support insurance applications when patients need a new drug treatment. These team members use MuScRAT to find information and manually complete this paperwork. Now they are working with the DSAA to automate parts of this process so patients can get faster access to the treatments they need.

They're also looking at AI models that will help clinical staff anticipate a patient's future care needs.

"Our goal is to apply AI to try to predict: who are the patients that are at high risk of developing a relapse in the next year or two? Who are the patients that are at high risk of developing neurological progression?" H

Robyn Cox works in communications at Unity Health.

13 companies chosen for UK-Canada healthy ageing exchange programme

By Charlotte Thompson

Thirteen innovative companies from across the UK and Canada have been selected to develop their healthy ageing solutions as part of an international innovation exchange programme.

The UK Canada AgeTech Innovation Exchange called on businesses with products that have the potential to improve the health and wellbeing of older people to apply to take part in an in-person international exchange visit.

Over 60 companies applied for a place in the coveted programme, with a total of eight UK companies and five Canadian companies invited to take part in the in-person exchange. Over the coming months, they will be supported by leading experts with in-depth knowledge of the healthy ageing innovation ecosystems within each country, from national healthcare providers, academia and industry. An additional 31 companies have also been selected to benefit from a related virtual programme of support.

The successful UK companies are:

- Abtrace
- Bridgit Care
- GaitSmart data driven rehabilitation
- Isla Remote Monitoring solution
- KiActiv
- Memory Lane Games
- The Tribe Project
- Ufonia

The Canadian companies selected are:

- AltumView
- CareTeam
- ImaginAble Solutions
- Tenera Care
- Tochtech Technologies

The Canadian companies will visit the UK in mid-June, to coincide with NHS ConfedExpo, and the UK delegation will then visit Canada later that month, to coincide with the COLLISION event in Toronto.

The programme is funded by the UKRI Healthy Ageing Challenge, delivered by Innovate UK and ESRC and led by the Northern Health Science Alliance (NHSA) with the following partners: Department for Business & Trade; the four northern Academic Health Science Networks (AHSNs) from the UK – Health Innovation Manchester, Yorkshire and Humber AHSN, Innovation Agency (North West Coast AHSN), AHSN for the North East and North Cumbria; and AGE-WELL and Centre for Aging + Brain Health Innovation (CABHI) from Canada.

Dr Mandy Dixon, Executive Lead for Corporate Engagement and Cluster Development, who leads the Healthy Ageing Programme at the NHSA, said: "We are thrilled to have seen so much interest in this exciting new initiative which will bring two countries together to collaboratively work on solutions that address key healthy ageing needs. Improving the health and wellbeing of people as they age is a particularly challenging area for both countries, and we hope that our partnership working will see great innovations and ideas come to fruition and will also lead to further investment and growth in this sector."

Dr Alex Mihailidis, Scientific Director and CEO at AGE-WELL, Canada's technology and aging network, said: "Canada and the UK have much in common with respect to the challenges and opportunities around aging. AGE-WELL supports numerous innovative Canadian companies in AgeTech, and we are excited to see the potential of such companies being made available to older adults in the UK through this Innovation Exchange. Similarly, we look forward to the innovation that selected UK companies will bring to Canada. This exchange builds on a track record of engagement and collaboration between AGE-WELL, CABHI, the AHSN Network and the NHSA and holds great promise for future impact in both countries."

Dr. Allison Sekuler, President and Chief Scientist at CABHI, said: "We're proud to support the UK Canada AgeTech Innovation Exchange, fostering the growth of innovative companies addressing older adults' needs worldwide, and building on CABHI's longstanding national and international partnerships in the aging innovation ecosystem. This collaboration will enrich lives in Canada, the UK, and beyond, and highlights the value of international partnerships to accelerate innovation. We are excited to see the positive impact these companies will have through the Exchange, and through our joint commitment with all the partners to advance healthy aging solutions globally."

Chris Ward, Innovation Lead, UKRI Healthy Ageing Challenge, said: "We're really encouraged by the level of engagement and the quality of innovation that has been identified by this exciting new international exchange programme. The high levels of collaboration and aspiration being created between the expert teams brought together across the UK and Canada is exemplary. We hope this shared initiative will stimulate novel insights, new commercial opportunities and significant onward investment to enable inspiring technologies to positively transform our ageing experiences."

COMPANY BIOGRAPHIES

UK companies:

- **Bridgit Care.** Bridgit Care is Microsoft Partner, DIT Top 100 Business, and Social Enterprise using digital technologies to support carers across the UK. They have reached over 500k carers through their outreach campaigns and provide a number of services to help identify and support carers. They also provide opportunities to innovate how health and social care is delivered, while reducing system demands.
- **GaitSmart data driven rehabilitation.** GaitSmart is a sensor-based tool that measures gait kinematics and presents this in an easy-to-understand format. This data is used to generate an AI-driven personalised exercise programme to address the muscle deficiencies identified from the gait assessment. Collectively, the unique solution informs diagnosis and provides a personalised

exercise plan without the need for a highly-skilled physiotherapist. The report is available immediately after the 10-minute test.

- **Isla Remote Monitoring solution.** Isla is an innovative health-tech company offering a secure platform for the capture, storage and sharing of photos, videos and structured assessment forms between patients, carers and clinicians. This enriched data creates a visual record of a condition over time, allows for remote monitoring and assists clinical decision-making.
- **KiActiv.** "KiActiv® Health rethinks exercise and makes everyday movement a medicine for the prevention and management of disease, and supports older adults to age well. KiActiv is a digital behaviour change therapy that delivers improved health outcomes, quality of life and social impact at scale.
- **Memory Lane Games.** Memory Lane Games delivers professionally-curated, inclusive reminiscence and speech and language games to over 90,000 users and is available to individuals as well as assisted living and care environments. Designed for those living with cognitive decline such as dementia, the app is simple and frustration free (error-less learning).
- **Ufonia.** Ufonia's mission is to use automation to increase capacity in healthcare systems. They have built Dora – an AI enabled autonomous clinical assistant. Dora telephones patients and conducts a routine clinical conversation in a similar way to a human clinician. Dora doesn't require patients to use any technology, they simply have a normal phone call. It is a highly accessible way for patients to receive reliable, convenient and consistent care.

Canadian companies:

- **AltumView.** AltumView is an AI company that has developed the Sentinare smart activity sensor for senior care and remote patient monitoring. The sensor has a build-in AI chip, and uses the latest deep learning algorithms to monitor the activities of people, collect health statistics, and send alerts when emergencies like falls are detected.
- **CareTeam.** CareTeam's innovative digital health platform is designed to flexibly enable care planning, collaboration and coordination to better the lives of health professionals, patients and their families and achieve the best possible outcomes and experiences, specifically focused on ageing, multimorbidity and complex chronic care.
- **ImaginAble Solutions.** ImaginAble Solutions is a social impact company that creates assistive technology to improve the quality of life for people with disabilities. The company's award-winning product is Guided Hands™, an assistive device that enables people with limited hand mobility to write, paint, draw, and access technology through touchscreen devices and keyboards.
- **Tenera Care.** Tenera Care is a highly precise Indoor Positioning System (IPS) platform that utilizes wireless technology, wearable devices, and a mobile-app to monitor people and assets in real-time. The platform serves as an advanced nurse call system, meeting the mandatory requirements for long-term care facilities, this is just one of Tenera's functions.
- **Tochtech Technologies.** Tochtech Technologies is an award-winning digital health tech company on a mission to enable healthcare and senior care providers to improve safety and wellness care through timely intervention and evidence-based practise, while also enhancing staff efficiency. Our innovative smart care products empower care teams with real-time information, AI-powered analysis and prediction methodology, and decision support tools to improve staff efficiency, and reduce missed care incidents. H

Charlotte Thompson is Senior Communications Officer at the Northern Health Science Alliance (NHSA). The NHSA is a health and life sciences partnership between the leading NHS trusts, universities and Academic Health Science Networks in northern England. For more information, visit https://www.thenhsa.co.uk/

World's first 'Pee on a Stick' test to measure muscle health

Up-and-coming company is developing a home urine test to monitor muscle loss in diseases like ALS, muscular dystrophy, prevent falls and improve quality of life by keeping muscles healthy

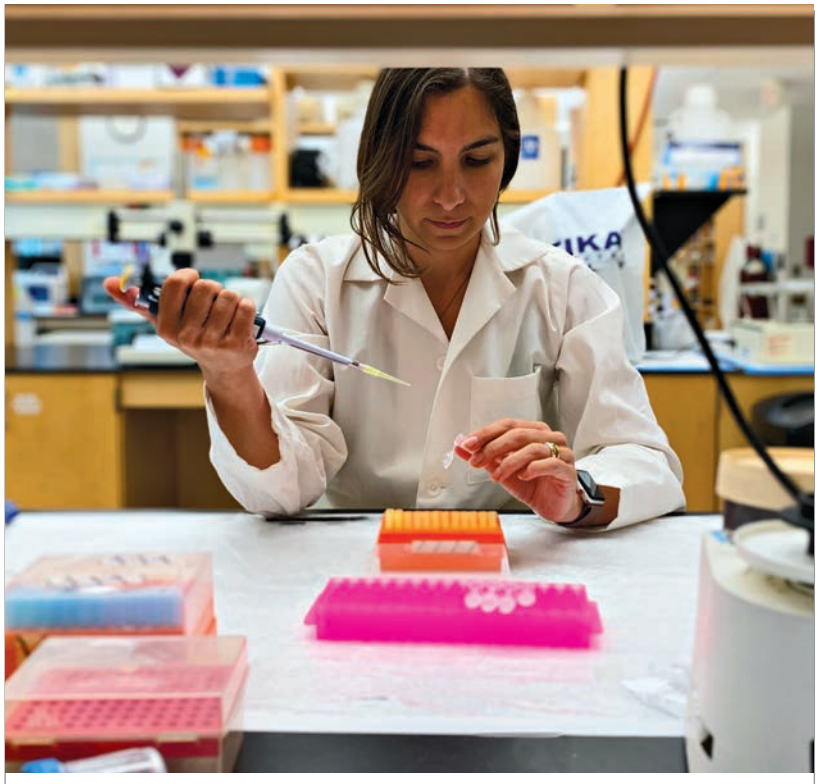
After losing a close relative to the consequences of muscle loss, Dr. Rafaela Andrade is on a mission to keep people healthy and safe by giving them a simple at-home test to monitor their muscle health, just by peeing on a stick.

Her ground-breaking work to develop the world's first urine strip test for measuring muscle loss has earned Andrade a prestigious award and $5,000 from Mitacs, Canada's leading innovation organization that boosts economic growth and innovation by helping companies solve business challenges with research solutions from academic institutions.

In recognition of her efforts to advance the test through her company, Myomar Molecular Inc., Andrade – who serves as Myomar Molecular Co-founder and CEO, and is a post-doctoral researcher at Dalhousie University's Department of Biomedical Engineering working under Associate Professor John Frampton – will be presented the Mitacs Outstanding Entrepreneur Award on May 18 at a ceremony in Waterloo, Ontario.

"Right now, there's no way to know how much you're suffering from muscle loss until you develop a disease, or experience a fall or some other health event," said Andrade, who is dedicating her ongoing work to the memory of her elderly aunt, who died from complications due to a fall, yet had no indication her muscles were getting weaker beforehand.

"The idea is that if we can monitor early on for accurate indicators of muscle loss, we can take precautions to change our behaviours to protect our muscle health," she said, noting that muscle health has many implications, including promoting brain health. "Just as we regularly use a cholesterol test to monitor heart health or a glucose test to monitor for diabetes, we need to start being proactive about safeguarding our muscles. The more tools we have to keep our muscles healthy, the better chance we have at living a high-quality life as we age."



Normally, muscle loss is only monitored after neuromuscular diseases such as ALS or muscular dystrophy are diagnosed or signs of muscle loss appear, using expensive medical imaging systems like an MRI or CT scan. Myomar Molecular's test is designed for the general population and works like a simple home pregnancy test, allowing users to get their test results by snapping a picture of the completed test strip on their phone.

The ground-breaking technology works by identifying unique and specific molecular changes in urine that are associated with muscle degeneration. The resulting panel of specific muscle health biomarkers is then fed into a mathematical model to predict muscle loss, with 80 per cent accuracy in males and 96 per cent accuracy in females to date.

The short-term goal is to commercialize the test kit as a consumer product by fall 2024. Longer term goals include the development of an AI assistant that can provide individualized recommendations to improve muscle health, and a more robust test that can be used as a medical monitoring tool for neuromuscular diseases. Right now, the startup is seeking beta users to participate in product development by signing up at myomarmolecular.ca as it completes its first round of pre-seed funding.

Andrade is one of five winners of the Mitacs Entrepreneur Award who are being recognized for their efforts to turn their research into an innovative business that impacts the lives of Canadians.

"Mitacs funding allowed me to work full time on growing our company with tremendous results," Andrade said. "We wouldn't have been able to get to this stage without the support of Mitacs."

"A successful innovation economy cannot exist without entrepreneurs. Startups drive innovation in Canada, they dream big and push boundaries, bringing research from ideation to commercialization," said Mitacs CEO John Hepburn. "Mitacs is extremely proud to play a role in supporting small businesses and emerging entrepreneurs through our continued investment in talent, research, and development. It is a pleasure to celebrate the incredible accomplishments and impact of our 2023 Mitacs Entrepreneur Award winners."

ABOUT MITACS

Mitacs empowers Canadian innovation through effective partnerships that deliver solutions to the world's most pressing problems. Mitacs assists organizations in reaching their goals, funds cutting-edge innovation, and creates job opportunities for students and postdocs. A not-for-profit organization, Mitacs is funded by the Government of Canada, the Government of Alberta, the Government of British Columbia, Research Manitoba, the Government of New Brunswick, the Government of Newfoundland and Labrador, the Government of Nova Scotia, the Government of Ontario, Innovation PEI, the Government of Quebec, the Government of Saskatchewan, and the Government of Yukon. Learn more at mitacs.ca.

Hand therapy plays key role in road to recovery

Hamilton Health Sciences (HHS) patient Stuart Farintosh hopes to regain the use of his left hand with help from our Hand Clinic team.

The linesman was injured last September while performing upgrades on a section of power lines in Huron County. During the scheduled outage a wire he was holding became unintentionally energized at 4,800 volts.

"That's 40 times that of a standard household outlet," says Farintosh. "Every muscle in my body locked up as I felt waves of pain crash over me before everything went dark."

Largest hand therapy clinic

Hamilton Health Sciences (HHS) operates the largest hand therapy clinic in the region. Our Hand Clinic, located at the HHS Regional Rehabilitation Centre, treats patients who are recovering from hand surgery or have serious traumatic hand injuries.

Care is provided by physiotherapists (PTs), occupational therapists (OTs), and PT/OT assistants with advanced training in treating hands.

He was airlifted to HHS Hamilton General Hospital and admitted to the burn unit. There he underwent multiple surgeries to repair arteries and tendons, and have skin grafts.

"I'd like to thank all of the doctors, nurses and staff who helped assist me in my recovery," says a grateful Farintosh, whose rehabilitation includes treatment at the Hand Clinic.

While Farintosh has overcome many challenges caused by his injuries, he still has extensive damage to his hand which will require many months of therapy and additional surgeries to help heal nerves, muscles and other tissues.

"I have very limited use of my hand," says Farintosh, who every day practises hand therapy exercises he learns at the Hand Clinic. "I can't make a fist or move my fingers yet, but through hand therapy and a recent surgery to help improve my hand function, I'm hoping to progress."

A HELPING HAND

Typical Hand Clinic patients include people recovering from fractures, burns, nerve injuries, tendon injuries, amputations and even hand reattachment. About 90 per cent of patients are referred by plastic surgeons, with the remaining 10 per cent from orthopedic surgeons, says Pam Ball, an HHS registered OT with over 30 years of experience in hand therapy.

The team works with patients to lessen impairments like stiffness, swelling, pain, loss of strength, reduced sensation or overactive sensation, and scar tissue formation while also working to improve function.

"Hand therapy is the perfect combination of science, critical thinking and creativity," says Ball, whose patients include Farintosh.

"I dedicated my career to hand therapy because I find this work to be extremely rewarding. Our goals include helping patients get back to activities that are important to them, and I really enjoy helping our patients on their road to recovery."

Ball is working with Farintosh to help improve his range of motion, reduce pain and swelling, and manage scarring since scar tissue can reduce mobility and limit range of motion.

> **"HAND THERAPY IS THE PERFECT COMBINATION OF SCIENCE, CRITICAL THINKING AND CREATIVITY."**

"Scarring can also be hypersensitive and uncomfortable, which prevents people from using their hand to its maximum potential," says Ball.

Patients are taught exercises and techniques so that they can continue daily therapy at home. "Typically, hand therapy needs to take place multiple times a day, every day," says Ball.

"A lot of what we spend our time on is patient education. It's extremely rewarding to see patients learn these techniques so that they can continue to improve as we work together on their recovery journey. H

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