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CANADIAN
Healthcare Technology

CANADA'S MAGAZINE FOR MANAGERS AND USERS OF INFORMATION SYSTEMS IN HEALTHCARE | VOL. 28, NO. 3 | APRIL 2023

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Early warning system
Unity Health, in Toronto, has deployed an AI-powered early warning system that checks up on surgical patients. The system monitors patients and alerts clinicians of patients at risk.
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Relieving burnout
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Easy-to-use ultrasound
Exo, a company in Edmonton, has developed AI technology than enables nurses and other clinicians with minimal training in ultrasound to take expert scans. Ultrasound can be light and portable, but normally requires special skills to use well.
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PHOTO: CEMTL

Quadriplegic patient regains use of her hands

Surgeons Élie Boghossian and Dominique Tremblay, pictured above, plan a procedure to restore the use of Jeanne Carrière's hands and arms by way of nerve transfer. This new approach, now being offered at the Maisonneuve-Rosemont Hospital, in Montreal, moves healthy nerves to inactive ones for eligible patients. It's making it possible for Ms. Carrière to return to her work as a screenwriter. **SEE STORY ON PAGE 4**

Ottawa's health information demands will benefit patients

BY NORM TOLLINSKY

The recent federal-provincial agreement on health-care spending is being hailed as an important step toward the liberation and sharing of personal health information between healthcare providers and patients.

"We've now moved out of the arguing phase and into the solutioning phases," said Will Falk, senior fellow at the C.D. Howe Institute and executive-in-residence at the Rotman School of Management. "There's real money and intent here, and they've agreed they're going to get things done."

As part of the funding agreement, Ottawa will require the provinces to annually report their progress on several indicators, including the percentage of health professionals able to share patient health information and the percentage of Canadians able to access it.

"In the U.S., they've had greater transparency through a number of programs for a good decade. We know from some of the research they've done that patients with access to their information are more engaged with their care and they come to their appointments prepared to have important conversations," said Dr. Trevor Jamieson, chief medical information officer at Unity Health, formerly St. Michael's Hospital in Toronto.

> **Data will need to be interoperable and machine readable to be useful to patients and policy-makers.**

Both Falk and Dr. Jamieson insist that the data be computable or machine readable, and that raises the whole issue of interoperability.

"Five years ago, if we were having this discussion, we would have been looking at a portal," said Falk. "Pretty clearly though, we've moved past the portal stage to talking about open APIs.

"If I'm a patient," said Dr. Jamieson, "I should be able to pull my information from multiple sources and do basic things with it – like draw a graph. And if you can do that for a patient, then that establishes the inter-

CONTINUED ON PAGE 2

Ottawa's demand for better health information will benefit patients

CONTINUED FROM PAGE 1

operability standards that can be used to also exchange information between clinicians, institutions and research registries."

Rather than build a government-run, consolidated digital repository at the national level, Dr. Jamieson proposes the use of third-party tools like Apple Health that allow patients to import data from multiple sources.

"A government-run central repository of personal health information would be difficult to pull off, but if you have a good model that patients can access in a standardized way, you don't need it," said Dr. Jamieson.

"It offers choice at the user end, too, in terms of the tools they use and not have the functions prescribed by some central agent who has decided these are the five things you're allowed to do because that's how the system was built. If you have a third-party tool that does some amazing things and you want to share your data with that tool, ultimately that should be your choice."

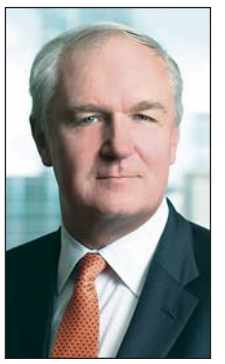
Rather than reinvent the wheel, both Falk and Dr. Jamieson urge Canada to adopt the same interoperability standards mandated by the U.S. 21st Century Cures Act, which was passed in 2016 and formally enacted last year.

Under this Act, all certified health information technology must support application programming interface functionality and be able to provide patients with their personal health information in a digital and computable format.

Apple and other third-party tools have leveraged that standards-based interface to pull information, so in the U.S., people have the ability to import information from a number of different sources. It's difficult to do that in Canada because of the lack of standards.

Adopting the same standards as the U.S. and our other trading partners, including Fast Healthcare Interoperability Resources (FHIR) and the United States Core Data for Interoperability (USCDI), is important because digital health is a global industry, said Dr. Jamieson.

"When you subdivide that market into a whole bunch of little markets, it creates a real challenge for small vendors because they have to continually rebuild their product for one-offs, which really puts them at a disadvantage. It's also a problem for the big multinational vendors who may not be interested in rebuilding their products to accommodate a different set of standards. We need to realize that a whole lot of work has already been done in the international community, so we need to accept it."



Will Falk

Dr. Trevor Jamieson

Many of the EHRs used by hospitals and long-term care institutions in Canada already have these standards because they have to meet U.S. accreditation requirements, but that's not the case with Canadian vendors who dominate the primary care, home care and other markets.

Adopting the same standards that are already legislated in the U.S. and our other trading partners will create a regulatory environment in which Canadian digital health companies can serve the entire Canadian market and drive business internationally.

"The current fragmented provincial approach to healthcare is a drag on innovation, creating barriers to the efficient procurement of technologies, interoperability and data sharing," concluded a December 2021 University of Calgary School of Public Policy paper co-written by Dr. Jamieson. "Our heavily siloed system disadvantages not only the healthcare system and patients, but Canadian digital health companies who, because they are unable to scale up in Canada, will find it hard to compete in the growing global digital health industry."

Citing the examples of Canadian Armed Forces personnel and their families who regularly relocate from one province to another and Indigenous communities adjacent to provincial borders that use health facilities in different jurisdictions, the paper points out that a common set of interoperability standards for all of Canada will also help with the portability of digital health information.

In addition to the requirements to report on progress toward the sharing of patient health information, the feds are asking the provinces to measure and report on the percentage of people attached to primary care, as well as surgery backlogs, net new health professionals and access to mental healthcare.

"These reporting commitments will likely get more specific once the bilateral agreements are negotiated, but it's a good start," said Falk. "A high-performing healthcare system should be reporting on these measures and others to their citizens on a transparent basis. It should be clear if they're succeeding or not."

The agreement, concluded Falk, is a positive step. "A whole bunch of things didn't happen here that could have happened. We could have ended up in squabbling and useless time spent and we didn't."

However, there is still work to do to bring Canada's healthcare sector into the 21st century, said Falk, citing the need to do away with the fax machine and to move more rapidly toward ePrescribing and eLabs.

"Encouraging people toward new technologies and standards is great, but it's much stronger if we also sunset the old technologies," he advised.

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Made For life

AI-powered tool on St. Michael's surgical unit helps to improve care

BY ROBYN COX

TORONTO – On a busy day in St. Michael's Hospital's surgical unit, the care team can look after upwards of 42 patients, coordinating everything from pain management to wound treatment to deciding when patients can go home.

In November, Unity Health Toronto introduced a new Artificial Intelligence (AI) solution, CHARTWatch Surgical, in partnership with Signal 1, a Canadian health AI startup. CHARTWatch Surgical uses patient data on the hospital's existing electronic medical record – such as the diagnostic test results and patient vitals – to predict the level of support a patient will need. This insight, paired with clinical expertise, is helping the care teams communicate and make decisions.

A similar tool has already been in place on St. Michael's General Internal Medicine unit since 2020. Preliminary data show the tool, which predicts when patients are at risk of getting sicker or being transferred to intensive care, has led to a significant drop in mortality among patients who were flagged as 'high risk'. While CHARTWatch is a new tool for the surgical unit, they are already seeing benefits.

Charge nurses – who provide supervision of the unit as well as a nursing role – have been critical to the rollout of CHARTWatch Surgical. Every morning and evening, they receive a full CHARTWatch report via email, telling them whether patients are at low, medium or high risk. Throughout their shifts, they also receive alerts if a patient's status changes to high risk.

PHOTO: EDUARDO LIMA

Every morning and evening, and through the day, CHARTWatch Surgical reports on the status of patients.

"As charge nurses, we have the responsibility to scan that email or pay attention to those high alerts, and then to notify the bedside nurses caring for those patients on the unit and notify the surgical team doctors," said Ruth Mega, a charge nurse on 16CCN.

The information from CHARTWatch helps Mega and her colleagues to plan their shifts.

"As a bedside nurse, if I have five patients, I will start my shift with that high alert patient," said Mega. "It helps you prioritize your day and then you are more proactive as opposed to just being reactive."

Dr. Reza Gholami, a physician on the unit who primarily cares for gastroenterology patients, finds CHARTWatch makes his work more efficient.

"During my shift, I will round with every patient and I usually have somewhere between 10 to 15 patients," said Gholami. "I will get a good idea from CHARTWatch of which patients I should pay more attention to, and even see first."

CHARTWatch also makes it easier for charge nurses to plan nursing assignments for the incoming shift.

"We're mindful to assign the high acuity patients evenly across the team to ensure that assignments are safely divided," said Mega.

CHARTWatch is also strengthening communication across the team.

"What we're seeing with CHARTWatch is improved teamwork on the unit and improved communication between the nursing and physician teams," said Swanee Tobin, clinical leader manager for 16CCN.

For example, the unit has included CHARTWatch in their daily quality huddles on the unit.

"Every person that is on the unit at that time is engaged in the huddle and CHARTWatch is part of the conversation," said Tobin. "Everybody is aware that the patient in a particular bed is high on CHARTWatch, and to keep an eye on them."

"The main positive impact is creating a strong focus on the sickest patients," said Gholami. "Everyone on the floor is more sensitized to those patients so they get the care that they need."

The team continues to work closely with Signal 1 and Unity Health's Data Science and Advanced Analytics team to refine the CHARTWatch Surgical platform.

They also continue to gather and analyze data to see if the platform is having a positive impact on patient outcomes on the unit. As the team more closely monitors patients who are at high risk, they hope to see fewer medical emergencies and intensive care transfers.

"CHARTWatch gives you that added reassurance and validation," said Mega. "There's a reason these patients are flagged. It doesn't replace your clinical intelligence, but it definitely helps to enable better patient outcomes."

Robyn Cox is a senior communications advisor at Unity Health Toronto.

Surgery restores the use of hands and arms to quadriplegic patient

MONTREAL – The CIUSSS de l'Est-de-l'Île-de-Montréal (CEMTL) is proud to announce the results of the nerve transfer work carried out by Drs. Dominique Tremblay and Élie Boghossian, plastic surgeons at Hôpital Maisonneuve-Rosemont. This new approach essentially involves moving some healthy nerves from eligible patients to an inactive nerve, in order to reanimate the muscles in their hands and arms that were no longer functioning.

This was done in the case of a young quadriplegic patient, Jeanne Carrière, who regained the use of her arms and hands thanks to this new surgical technique.

"In quadriplegic patients, we replace the nerve impulses of a nerve that does not function with that of a nerve that is still functioning. With time and rehabilitation, nerve impulses reform and the use of hands and arms gradually returns," explained the Dr. Tremblay – who is also head of the division of plastic surgery at the Université de Montréal – on this great innovation in surgery.

Jeanne Carrière fell and broke her neck in December, 2021. When she woke up after the accident, she found herself almost completely paralyzed. She could lift her arms, but her hands were clamped shut.

In an interview with CTV News, she demonstrated how she can now move her thumb and index finger. After seven months of therapy, she expects to build more mobility in her hands over the course of the two-year program.

"It's a beautiful thing," she said. "I was able to imagine myself in a wheelchair, and not being able to walk, but my hands, that is too important for me. That's my independence."

"It's being able to cook, eat by myself, brush my teeth, put my makeup on," she said.

She has also been able to return to work as a screenwriter after gaining enough dexterity to use her computer or a pen to take notes. "It's a beautiful gift that they gave to me."

For the past two years, as part of a development phase, more than a dozen patients have undergone this type of reconstruction at the hospital and all these interventions have been successful.

It should be noted that all stages of patient rehabilitation were carried out in close collaboration with the Institut de réadaptation Gingras-Lindsay-de-Montréal. On the strength of these successes, the CEMTL is now able to end the development phase and offer this type of intervention to all patients who could now benefit from it.

The Hôpital Maisonneuve-Rosemont, a national leader in plastic surgery, recently obtained a designation from the Quebec Ministry of Health and Social Services, which identifies this institution as unique in Quebec in carrying out vascularized composite allotransplantation activities, mainly face grafts and upper limb (arm) transplants.

Dr. Daniel Borsuk, a plastic surgeon at the hospital who performed the country's first face transplant at the facility, said the innovation of Drs. Tremblay and Boghossian "exemplify the unique expertise in plastic surgery that exists in this hospital and the reasons that led to this designation. There is no doubt about our leadership in this area and our accomplishments are being recognized internationally. And that's something to be proud of."

For his part, Jean-François Fortin Verreault, president and CEO of CEMTL, emphasized that such innovations in plastic surgery are "the result of years of extremely rigorous concerted work that is only possible thanks to the constant commitment of all the members of these formidable teams who have only one objective: to improve the quality of life of their patients. We are all very proud of their unwavering commitment to the patients of the CIUSSS de l'Est-de-l'Île-de-Montréal."

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Bots are helping doctors reduce the time spent on electronic records

BY JERRY ZEIDENBERG

Physician burnout has become a major issue of late. Growing patient volumes have contributed, but so have all the forms and paperwork that doctors must now get through – including coding, billing and reporting.

"Family doctors are spending 25 percent of the week on administrative work," said Ted Alexander, vice president of the eHealth Centre of Excellence in Kitchener. "They call it 'pajama time', when they're at home cleaning up their charts. It's time they'd rather spend with their families."

Alexander made his remarks in a presentation at the recent UpOnDigital Ontario conference, in Toronto, which was put on by Digital Health Canada.

Alexander said various jurisdictions across Canada are looking at ways to reduce the time spent on administrative tasks by doctors. Nova Scotia is talking about bringing it down to 15 percent, and others are targeting even more aggressive goals.

For its part, the eHealth Centre of Excellence has been working on its own solutions to this problem by creating a family of "bots". As Alexander noted, these are not "walking, talking robots", but instead, they're pieces of software that once launched, can automatically carry out tasks.

One of them, called Bernie, works in the background of a clinic's digital records to find diabetes patients in need of a follow-up, as well as missed billings for patients with diabetes. It also finds patients who've had their COVID-19 shots and automatically updates the immunization portion of the patient records. And it spots patients who still need COVID-19 immunizations, alerting doctors.

Ted Alexander, VP at the eHealth Centre of Excellence, discussed how bots are able to reduce burnout.

These are time-consuming and tedious processes when done manually. When performed by a robot, they're fast and the results help the physician. They can also raise the quality of patient care.

According to the Centre, one primary care clinic's use of the Bernie process to help document COVID vaccination information saved 87 hours of manual data entry.

Another bot, called Cody, goes through each patient record, opens the problem list, and automatically adds the appropriate ICD-9 and SNOMED codes. If clinical validation is needed, it will generate a report for review.

Currently, Cody can code for 18 conditions. "It cleans up and standardizes the data," said Alexander. "It improves data quality." Improved EMR data quality provides potential for proactive care for patients, population health management and data sharing.

And a bot named Sharon is able to connect the information in a doctor's EMR and link it with the CHRIS system used by Ontario's home care providers. The EMR can also be updated with patient data stored in the CHRIS system, ensuring that both doctors and home care providers have the most up to date information.

Alexander said that about 400 Ontario doctors are now using the centre's bots. The goal, he commented, "is to have every clinician in Ontario have access to a bot."

The eHealth Centre of Excellence is continuing to expand the capabilities of its bots. To date, bot development has been supported by an innovation grant from Joule, a subsidiary of the Canadian Medical Association, as well as Ontario's Ministry of Health, Ontario Health, and several Ontario Health Teams.

Organizations across Canada interested in learning about partnering opportunities can contact the eHealth Centre of Excellence via their website at www.ehealthce.ca.

Matt Anderson outlines priorities for Ontario Health at conference

Last year, Ontario launched its 811 service, a part of the new Health Connect Ontario program that enables residents to reach health advice and information by phone or online. It replaced the old Telehealth Ontario nurse help-line.

This year, the Ontario government and Ontario Health are making refinements.

"A major focus this year is the 811 service," said Matt Anderson, CEO of Ontario Health. "We're striving to bring a provincial lens to it, with the intelligence underneath to direct you to your local Ontario Health Team."

Anderson was speaking at the Up on Digital Ontario conference, an annual gathering to address digital health issues in Ontario's health sector. It's put on by Digital Health Canada.

"The more it's connected to your OHT or FHT, the more effective it is," said Anderson.

Ontario residents with health concerns can phone 811 or access the website to speak with a registered nurse or to chat online. The service helps people find a primary care provider if they don't have one. It even offers a symptom assessment tool to understand health concerns.

At the time, then Health Minister Christine Elliott said: "This new modern service offers more choice and convenience for Ontarians seeking care and information, whether they have a primary care provider or not. It will help keep more people out of hospital and preserve beds for those who need them most."

Anderson said there's a major effort underway to consolidate or connect disparate sources of health information. "Work is being done to connect information between providers."

"We're building on the OLIS system," he said, referring to the Ontario Laboratory Information System that successfully connected repositories of lab data.

In a lighter moment, Anderson quipped, "I used to be a card-carrying member of the OLIS crowd, and I tried to kill it. Thank goodness I was unsuccessful."

He noted that OCInet is now taking a similar approach to connect the diagnostic imaging repositories across the province. And in home care, work is being done to connect silos of information through the CHRIS system.

Anderson said the OHTs will also be a continuing focus, along with the standards that will be required to tie together the various systems of team members – including hospitals, nursing homes, home care organizations, complex care sites, medical specialists and family doctors.

More effort will be made to "axe the fax", Anderson asserted, noting that his colleague Michael Hillmer, an assistant deputy minister, had discussed this issue in an earlier address. The faxes used by medical professionals and administrators have been identified as a major source of privacy problems – too often, medical faxes are sent to the wrong number. Moreover, faxes can be lost or read by unauthorized personnel.


Matt Anderson

At the same time, Anderson observed that in eliminating the fax, "you don't want to implement 17 new systems," creating new interoperability problems. In short, interoperable electronic solutions are needed.

He said the creation of a centralized wait list management system is also needed and will be "a major next step".

"We already have wait list management, but it has quite a bit of data lag," commented Anderson. He said the province is aiming for a system that offers quickly refreshed information; as well, Anderson said it's important to apply analytics to the data.

"We want it to be a real-time system. We see it as being useful to both healthcare professionals and patients."

Cyber-security is another major concern, but he hinted that some in Ontario still don't take security seriously enough. "Maybe we need a few more bad hacks to really learn," he quipped.

He referred to a major cyber-attack at Eastern Health in Newfoundland that occurred last year, shutting down many hospital applications for weeks.

In Ontario, as opposed to Eastern Health, "we don't have a single front door that takes down the whole system."

On the other hand, "we've got hundreds of open windows," in reference to the many independent hospitals, nursing homes and other large public and non-profit healthcare organizations in Ontario.

"When there's a breach, we've got to move fast to make sure the rest of the system isn't affected."

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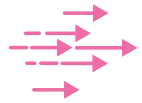
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Bissell Centre uses analytics to better understand its client data

BY ANDREW FRANCES

Raised in Edmonton, Jakob Koziel is an enthusiastic champion for North America's northernmost metropolis. Its cold winters thankfully give way to northern summers boasting up to 18 hours of sunlight a day – perfect for a place known as Festival City for the large volume of events over the summer months.

But Koziel often sees another side of Festival City. He's the senior research analyst for Bissell Centre, an Edmonton-based social agency offering outreach services to people experiencing poverty and houselessness.

"Many of the challenges we face mirror the challenges that are being seen across most cities post-pandemic," Koziel says. "Growing citizen vulnerability, cost of living, isolation, polarization, and infrastructural issues are the significant problems Edmonton faces now."

There's also a cultural component: "Living in an oil city, many people consider employment as people's value to society – everyone just needs to pull themselves up by the bootstraps and get to work," says Jesika Lefebvre, manager of administration at the centre.

Lefebvre has experience with Bissell's family programs. She and her husband adopted a two-year-old from foster care named Alex, who struggled with aggression and anxiety. "Those first eight months were really tough," she confides. "I was exhausted, unsure if my husband and I were using the right strategies and burning out quickly."

Jaye Brown, manager of the centre's early childhood development program, points to the lack of compassion for a diverse population as problematic, along with the shortage of affordable housing in Edmonton. "The lack of urgency to allocate enough funding for housing is a major setback to the city," Brown says.

Jakob Koziel has observed the growth of urban isolation, cost of living and their effects on the populace.

While there has been progress on those fronts, "the city still has a lot of work to do."

An essential part of daily life: Bissell Centre offers programs for individuals, families, and communities, aimed at lifting them out of poverty. The organization provides housing, employment, mental health supports, harm reduction practices, and much more.

"Life for many children and families who access Bissell services would be drastically different" without the programs, Brown says. "Without these supports, many families would not have their basic needs met on a consistent basis. They would not have the support they need to be set up for success and turn their lives around."

Bissell leverages data to evaluate its programs, determine factors directly associated with leaving poverty, and communicate program successes to stakeholders. It's also crucial for identifying areas of improvement. Koziel's job is to "amplify voices" of these programs and ensure everyone who is passionate about eliminating poverty can contribute to this mission. Data has also helped the organization receive continued funding for some of its programs.

The biggest challenge, he says, is the sheer volume of information they have.

"We estimate that it would take nearly 100 years to analyze all our data," he says. "That is how much information we collect. While there is tremendous opportunity in having all that data available, one can also become overwhelmed with how much there is."

Turning data into insights: Along with other software, Bissell Centre uses SAS to evaluate and improve its programs. Koziel and his team got a chance to experiment with higher-end data mining and visual analytics tools by participating in SAS's Hackathon in 2022. The team is also participating this year and is looking to assess factors associated with improved program outcomes.

Bissell Centre's maturity around navigating data and leveraging analytics has attracted people like Jakob to the organization. But it's also inspired community partners to collaborate with the non-profit and develop new strategies to fight poverty, according to Gary St. Amand, Bissell Centre CEO.

"As we've seen our reputation grow around how we use data, partners in the community like SAS, but also other partners in the non-profit space focused on data analysis, are coming around and telling us 'We want to be part of the work you're doing,'" says St. Amand.

The more partners involved in eliminating poverty, he says, the more data could be analyzed to develop concrete strategies. It's led to the development of a referral tracking system, which allows them to gain insights into the referral process and track factors like wait times. St. Amand says their use of analytics has also enabled them to show the government the impact an increase in disability benefits has had on housing retention in the city.

"We are honored to support Bissell Centre's mission to eliminate homelessness," says I-Sah Hsieh, SAS principal program manager, Corporate Social Innovation and Brand. Hsieh has worked with non-profits and NGOs around the world to harness their data, including partnering with the United Nations on earthquake relief and refugee crises. Hsieh believes the Bissell Centre's proactive approach to enhancing its services has been impressive.

"By harnessing the power of data, Bissell has been able to gain critical insights into the complex challenges facing those experiencing homelessness and develop targeted programs that address their unique needs," says Hsieh. "We are inspired by the work Bissell Centre has done, and SAS is committed to continuing to support their efforts through the use of data-driven strategies."

Those strategies underpin the staff's efforts to deliver programming that touches families and communities of Edmonton in diverse ways. For Lefebvre and her family, it meant the confidence that Alex could blossom in day care – and that she and her husband could find a balance between the demands of their jobs and raising a child.

"If it wasn't for the expertise and encouraging culture at Bissell Centre, I don't think I would have been able to leave Alex in childcare," she says. "I don't think Alex would be thriving as much as he is today, and I wouldn't have known where to turn for the resources and counseling he is receiving."

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Canadian team is disrupting ultrasound field, making it easier to use

BY JERRY ZEIDENBERG

An Edmonton-based team that is part of Exo has produced AI-based algorithms that enable healthcare providers with minimal training in sonography to take skillful ultrasound scans of the thyroid gland and to detect dysplasia in infants.

The team was created a few years ago as its own company, Medo.ai, but its expertise recently attracted the attention of California-based Exo (pronounced Echo), an ultrasound technology company, and it purchased Medo last year. While it's now part of Exo, the Edmonton team is staying in place.

"We're located right in a building with AMII (the Alberta Machine Intelligence Institute)," said vice president of AI at Exo and former Medo.ai co-founder, Dornoosh Zonoobi, PhD. In fact, the group is hiring more employees, adding to its team of 14 in Canada.

Both the hip dysplasia algorithm and the thyroid ultrasound algorithm, to aid qualified users, have gained FDA clearance in the United States.

Dr. Zonoobi explained that her team's AI technology is solving some major problems. While ultrasound machines are highly portable, the expertise needed to take and interpret scans is often unavailable in remote communities.

As a result, patients needing exams in remote areas are often transported at great cost to an urban centre. In non-urgent cases, the patient must find their own way, causing them lost time and added expense.

With the solution, created by Dr. Zonoobi's group and to be commercialized by Exo, caregivers with even minimal training in ultrasound can take accurate exams.

"We have nurses who have never used ultrasound before using probes to check babies for dysplasia," she said.

This can have an enormous impact on the lives of individuals. Dysplasia of the hip – when the femoral bone does not fit perfectly into the hip socket – will lead to pain and suffering in later life, and most likely to a hip replacement by the time the patient is in their 40s.

Doctors check for it at birth, but they tend to miss 80 percent of the cases when only conducting a physical exam.

An ultrasound exam has far higher sensitivity for detecting dysplasia, said Dr. Zonoobi, but most birthing centres can't afford to send all of their babies to radiology departments for the exam.

With Exo, on the other hand, the exam can be done right at the point-of-care.

Exo is testing the technology at sites across Alberta, said Dr. Zonoobi. After checking 300 newborns, they detected dysplasia in six babies, and the researchers will be writing a paper about their results. Exo is hoping that word will spread, and that the solution will be adopted across Canada and beyond.

Exo allows nurses and other clinicians with minimal training in ultrasound to take skillful exams at the point-of-care.

On a related note, she observed that Indigenous communities tend to have a much higher incidence of dysplasia in newborns – up to 30 times higher than the general population – and the majority of cases are missed.

"It's a driver of opiate use in later life," said Dr. Zonoobi. "The patients face a great deal of pain."

Exo is currently working to add more sites for the detection of dysplasia using its ultrasound solution. "We're aiming to screen 20 percent of newborns in Alberta in the next phase," she said.

The company has also devised an impressive AI algorithm for ultrasound exams of the thyroid gland.

Dr. Zonoobi explained that thyroid exams are lengthy – they typically take 30 to 40 minutes of an ultrasonographer's time. They're also highly prone to error, as the sonographer must be skilled in the art of properly sweeping both sides of the gland.

With Exo's AI-powered system, however, any technologist or care-giver can perform the exam and the artificial intelligence finds and fills in the needed information.

Moreover, this can be done in a fraction of the time needed for a traditional thyroid ultrasound examination. "Instead of 30 to 40 minutes, it takes five to 10 minutes," said Dr. Zonoobi.

The exam can then be sent to a radiologist for interpretation.

"We're taking away the variation in exams that occurs with different sonographers," she said. And by cutting the exam time, more patients can be seen each day.

In the United States, for example, over 1.5 million thyroid ultrasound exams are done each year. Lumps or "nodules" often appear on the thyroid gland, and while usually benign, they can become cancerous in some cases and require regular check-ups.

In addition to reducing exam time, Exo's solution also assists radiologists by selecting the optimal images for analysis, calculating measurements (a tedious task for the radiologist), and characterizes any nodules present using TI-RADS – short for Thyroid Information-Reporting and Data System.

Dornoosh Zonoobi, vice-president at Exo

Further, the system contains several breakthroughs, including a cross-referencing ability previously only possible on multi-plane CT and MRI. This feature assists the radiologist with viewing nodules across all planes of interest, such as transverse and sagittal views.

She said that when it comes to AI, Exo's solution is not a 'black box', referring to the phenomenon of an algorithm performing work but end users not knowing how it did it. "Everything is verifiable," she said. "You have to allow the user to verify the results."

Being able to do this and seeing that the solution provides accurate results over time leads to physicians and other professionals gaining trust in the AI solution, she observed.

Dr. Zonoobi said her team at Exo is now working on additional types of ultrasound exams and that announcements will be made in the near future.

She commented that eventually, with the help of AI, ultrasound exams will be able to be taken in the home by consumers. Untrained users will be able to take accurate exams and the results can be interpreted by the algorithm or by sending them to a radiologist.

To this end, Exo in the United States is working on a highly portable, point-of-care ultrasound device, a powerful but tiny instrument that will be available for use in hospitals and clinics. It's currently a work-in-progress, but it's one of the company's major goals. "It will be like the Tricorder in Star Trek," observed Dr. Zonoobi. "Exo is building it, plus a whole ecosystem of applications."

Siemens' photon-counting CT scanner approved by Health Canada

OAKVILLE, ONT. – Siemens Healthineers is pleased to announce the availability of the Naeotom Alpha, the world's first photon-counting CT scanner, in Canada, following Health Canada licensing. Conventional CT imaging has reached its technical limitations: Resolution can only be improved by small margins and dose cannot be reduced significantly. By contrast, photon-counting technology enables drastic improvements.

These improvements include an increase in resolution and a reduction in radiation dose by up to 45 percent for ultra-high resolution (UHR) scans compared with conventional CT detectors with a UHR comb filter. This would be impossible with conventional detectors. Photon-counting scans contain more useable data, since photon-counting technology directly detects each X-ray photon and its energy level instead of first converting it into visible light as with conventional CT imaging.

These aspects combined open up new capabilities, such as scanning a patient's lung at a high scan speed and getting high-resolution images with inherent spectral information – without the patient having to hold their breath.

This spectral information also helps to identify materials inside the body that can even be removed from the image should they obstruct an area of interest. This helps physicians to assess issues quickly and offers the possibility to start treatment early. Through the reduction in radiation dose, regular examinations, such as lung cancer screenings using CT imaging, can become routinely available for larger patient populations. And the high resolution reveals even small structures, taking clinical decision-making to a new level of confidence. The technical complexity of photon-counting CT imaging does not mean increased complexity for the user, thanks to myExam Companion from Siemens Healthineers.

"More than 15 years ago, work on photon-counting CT and this clinical vision started at Siemens Healthineers. We always believed in the tremendous clinical value and relentlessly worked on it together with our partners," says Scott MacDonald, Business Manager, CT at Siemens Healthineers. "Today, with the introduction of Naeotom Alpha to the Canadian market, we are taking a huge step in furthering patient care in a wide range of clinical domains by effectively showing things impossible to see with conventional CT scans. This required a radical rethinking of practically every technological aspect of computed tomography."

Photon-counting scanners are considered to be the biggest breakthrough in CT tech in the past decade.

The clinical fields of cardiac imaging, oncology, and pulmonology all have their own unique demands of medical images. In cardiac imaging, it is capturing the heart while moving, which therefore requires speed. Naeotom Alpha delivers speed thanks to its Dual Source design and benefits from spectral information and high resolution for removing obstructions caused by calcifications. This enables diagnostic assessment and allows more patients to benefit from CT imaging – even those with a high calcium burden.

The high precision offered by Naeotom Alpha is also highly beneficial in oncology, where reliable and consistent evaluation of disease progress is the most important factor.

Cardiologists use machine learning to improve outcomes for heart failure

VANCOUVER – More than 750,000 people in Canada are living with heart failure, and another 100,000 are diagnosed with this incurable, chronic disease every year. Heart failure significantly impairs the quality of life for patients – and their caregivers – and is one of the leading causes of hospitalizations, and rehospitalizations, adding to the strains faced by Canada's healthcare systems.

In 2019, Decision Support at Vancouver Coastal Health (VCH) and Providence Health Care (PHC) collaborated with Medical Quality Leadership and Practice teams to create a repository of de-identified data from patients who have experienced heart failure. The repository, known as the Heart Failure Patient (HFP) audit, is a detailed examination of heart failure-related hospitalizations across three Vancouver hospitals over a two-year period, along with enriched data from Cardiac Services BC, part of the Provincial Health Services Authority that coordinates and evaluates cardiac disease treatment and prevention.

Input of the audit data was a manual process, and resulted in a significant number of missing values. In order to create a robust prediction model, the missing values were estimated according to established research methodology. The team then used data to create a model using medical history data that aimed to predict the future risk profile of individual heart failure patients, based on their medical history.

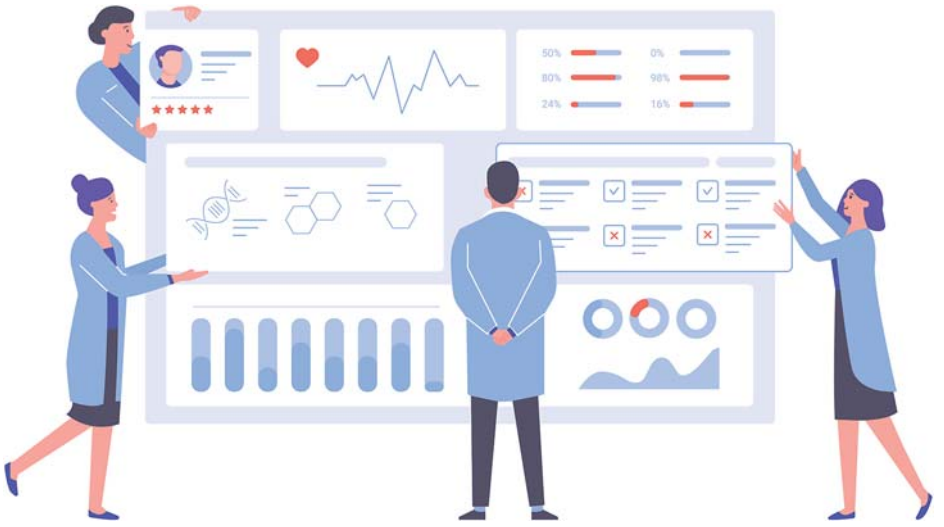
Dr. Nathaniel Hawkins, a clinical associate professor at the University of British Columbia (UBC) and the physician lead for the VCH Regional Heart Failure Program, believes artificial intelligence and machine learning applications like this will help healthcare practitioners make sense of vast amounts of data and improve accuracy of patient outcome predictions.

"The main aim is to be able to improve patient outcomes, in particular by reducing the risk of hospital readmissions," said Dr. Hawkins. "If we have a good way of discriminating between high-risk patients and lower-risk patients, we would be able to tailor the follow-up and treatment intensity to that risk."

After learning about a previous UBC Cloud Innovation Centre (CIC) technical prototype, Dr. Hawkins and his colleagues submitted a project proposal. Support was requested to assist with the analysis of the HFP audit data, confirm the utility of the data collected and identify the types of data most important for predicting patient outcomes.

This project turned out to be an ideal fit for the UBC CIC, which is a public-private collaboration between UBC and Amazon Web Services (AWS) that aims to provide solutions for digital transformation challenges from the community. One of 17 Cloud Innovation Centres around the world, the UBC CIC focuses on Community Health and Wellbeing.

Working with the UBC CIC, the team developed the Heart Failure Patient Prognosticator. The solution loads de-identified patient data, fully under the control of VCH, into an Amazon Simple Storage Service (S3) bucket and then trains models to



analyze the data using Amazon SageMaker, an AWS cloud machine-learning platform.

The Prognosticator provides a new way for practitioners to interact with the HFP audit dataset to analyze, interpret and visualize the data. The results obtained from this solution are intended to serve as a baseline for healthcare practitioners to better inform decisions regarding post-discharge treatment plans, yield more targeted interventions, reduce hospitalizations and improve overall survival of heart failure patients.

"There is no doubt in my mind that artificial intelligence and machine learning will be a large component of the solution to healthcare challenges over the next five years as we move into an era of personalized medicine," said Dr. Hawkins.

"We chose the CIC's focus on community health and wellbeing to be intentionally broad," said Coral Kennett, AWS's Canada Education Lead. "AWS is committed to supporting healthcare organizations and we've done a lot of healthcare projects, but we've also done things related to sustainability, which is connected to community health. We've even done a project with the University of Toronto analyzing trade patterns during war to see if this provides insights about how war affects trade patterns and food availability."

Ms. Kennett says the goal is not to try to solve massive, complex problems all at once but to break issues down into projects that could be solved in a reasonable amount of time. When the UBC CIC finds a suitable innovation challenge, it works with the group that submitted the challenge to refine it using some of Amazon's innovation practices, including its working backwards method.

Before project development even starts, the group works backward from what patients and medical staff need, to deeply understand current pain points and desired outcomes to invent on their behalf.

After the challenge is completed, the UBC CIC prepares detailed documentation, which is shared as an open-source solution on GitHub so others can use it or adapt it.

"The documentation is really important – we share our solutions with anyone who can use them," said Ms. Kennett. "We can work with a lot of different organizations that fit into the general theme of community health and wellbeing, but they all need to have the same commitment to open-source solutions that the CIC has."

Another key feature of the UBC CIC is that it provides work-integrated learning opportunities for students, who are involved in the projects and the information on the CIC website, all under the supervision of UBC and AWS staff.

Although the first stage of the Heart Failure Patient Prognosticator project has now ended, Dr. Hawkins is hopeful the next stage could begin in 2023 to refine its prediction capabilities using more extensive data.

This could include data collected through remote monitoring and sensors, as well as patient-reported data. The intention is to develop an open-sourced, scalable solution that can be used in any healthcare system and with any electronic health records.

The UBC Cloud Innovation Centre is available to any interested group or organization in Canada with a proposal that contributes to the common good and which falls under the over-arching theme of community health and wellbeing. Challenges can be submitted to the CIC website at cic.ubc.ca.

New tools are needed to reduce DI wait lists and burnout

BY IAN MAYNARD

Canadian healthcare organizations and stakeholders are sounding the alarm about Canada's growing backlog of radiology exams. The goal is to avoid the kind of chronic and critical backlog situations that have been faced by countries such as the United Kingdom, where some patient exams went unread for months or were never read, forcing the UK to open up radiology interpretation to non-UK licensed radiologists in an attempt to deal with their crisis.

As it is, Canadians waiting too long for exams face poorer outcomes; for example, a delayed diagnosis of cancer means that patients will start therapy later. As we know, with cancer, the earlier the treatment begins, the better the outcomes.

While COVID-19 made DI wait lists longer, we faced this problem even before the pandemic struck. A familiar adage states that you can't do the same things and expect different results.

We should really be asking: can Canada learn from the experience of others and proactively avoid the pitfalls of using the same tools while hoping for different results?

It turns out that there are a number of tools and solutions available today to help us avoid a critical crush of exams tomorrow. These tools also enable radiologists to become more productive while enjoying more satisfying lives in the process, with more personal and family time.

These solutions include a combination of the following attributes to create the efficiency gains we so desperately need.

Radiology productivity platforms such as RealTime Medical AICloudWorks have demonstrated an ability to increase radiology throughput by 15 percent to 47 percent. They give radiology operations a head start on their productivity, even prior to the application of image-based AI solutions such as assisted-detection algorithms.

Ian Maynard

For its part, RealTime Medical AICloudWorks eliminates the time radiologists lose on an ongoing basis by improving the following processes:

- automating and prioritizing cases in their worklists, enabling them to focus on diagnosing the case in front of them.
- digitally communicating critical results
- digitally searching different data sources for the latest findings applicable to the case at hand.
- digitally searching different sources for guidelines applicable to the case at hand.

As well, the platform enables volume-driven responsiveness with capabilities such as:

- on-demand, workload balancing, collaboration, and cooperation on case load as desired.
- patient anonymization, sub-speciality collaboration on any case.
- a single, vendor neutral interface layer for all third party AI. Enabling users to adopt an agile, best of breed solution approach to solutions now and in the future.

One user of the platform, Dennis Janzen, chief radiologist at Surrey Memorial Hospital, said: "We've seen a 15 to 20 percent improvement in efficiency and productivity. The RealTime platform has been of great benefit to my practice."

A resource-strapped healthcare system would obviously benefit from the elimination of service delivery barriers for licensed physicians in any discipline. In radiology, making it easier for provincially licensed radiologists to read from anywhere only makes sense.

Ian Maynard, P.Eng, M.Sc., M.B.A., is CEO and Co-Founder, RealTime Medical Inc. He can be reached at: ian.maynard@realtimemedical.com

VIEWPOINT

Medical records systems: disciplinarians or helpful collaborators?

Information systems, though crucial, may be imposing an unrealistic burden on physicians.

BY DOMINIC COVVEY

First a little bit of history. Over six years ago I began a publishing venture when Dr. David Zitner invited me to work with him on a book based on his Health Informatics course at Dalhousie University. We conceived the book as "An Introduction to Clinical Practice". Naively, I thought this would take a few months, but it is only now drawing to a close.

Here materialized one of the most interesting ventures of my professional life – an opportunity to dissect and comment on many topics we have all encountered in Health Informatics. David and I met every week, our discussions ranging over many issues, but medical record-keeping is the one that's relevant here. To say the least, we did not agree on many aspects of this topic!

We argued about what should be in the record, who should put it there, the importance and effects of the information in the record, the time physicians spend record-keeping, the way in which record-keeping can detract from the practice of medicine, and the physician's record-keeping responsibilities.

My bad: I admit to being an advocate for "Information Protocols", which specify what must go into the record. In other words, I've seen the computer system as an 'Information Disciplinarian' that ensures information is in the record so others can use it.

Many ascribe to this idea, and what has availed is that many physicians now spend an additional hour or more daily on record-keeping.

In the last six months, members of the American College of Medical Informatics (ACMI) have been discussing record-keeping. They have pointed out that information systems, though crucial, may be imposing an unrealistic burden on physicians.

This has led to short cuts like 'copying and pasting' records, where previous reports end up in the current record with minor modifications. This, in turn, engenders huge records and the inclusion of no longer correct or relevant information.

Designers have implemented many tricks to purportedly make record-keeping quicker, like using pulldown lists. Unfortunately, the hand slipping can select the wrong information. Then there are dictation systems, which, though good, are imperfect.

David and I have agreed that record-keeping cannot delay or deny care to waiting rooms full of patients.

What the record must be: On the other hand, I have argued that information must be there for other physicians, administrators or researchers who need it. The questions are:

- what is really crucial in the record for the care of the patient
- how can it get there without interfering with patient care
- what must be there for those other users.

Dominic Covvey

We must also recognize that professional organizations, e.g., the medical colleges, can set standards for records. But the computer system, by its meticulous demand for information, cannot and should not vacuum up time and hinder timely patient care!

Regretfully, what we have today are computerized Information Disciplinarians – formalistic, mercy-free information capturing agents.

Solutions? At this point I am confounded. The issues are clear: patients must receive unimpeded care and information is essential for communication and care process evaluation. How can we achieve both?

What about using some of our new technologies to change the nature of our record-keeping systems, mutating them from hungry time-parasites to assistants?

We have seen the rise of artificial intelligence in the form of machine learning systems (AI/ML) that we now converse with, albeit they sometimes proffer bad advice or manufacture "alternative facts".

Some even promote therapeutic chatbots. After suffering from decades of mass technology hallucination, I smell hype – some of it dangerous. However, AI/ML may help us deal with this confounding matter.

What if we could use some form of AI/ML to gather patient information that already exists from other sources, including existing medical records, personal health records, lab reports, pharmacies, etc., and then assist the physician in documenting the episode of care?

This would be a truly useful application of one of our most sophisticated technologies. In this instance, the physician's office system could work with the physician, rather than just making demands for information, and help build a current record of the patient's history, condition and care.

With simple problems, like earaches or colds, this would mean that the physician's time in capturing information would be minimized. In more complex situations, the system could gather not only information about the patient but also about the nature of the problems and ask appropriate questions of the physician. The potential is obvious.

Back to you: What do you think? Should systems in the physician's office continue to be disciplinarians, or should they become collaborators that ensure good records without encumbering patient care?

Do you agree that we need a change, that we need new thinking, that our previous focus on just the technology to capture records was limited and put us in a box? Some have called it a change in the medium with no change in the message.

Dr. Larry Weed called the paper record a "medical-legal dumping ground". Have we made it an automated dumping ground and a time-suck? Is it high time to get out of the box?

How better managed mobile assets result in better experiences

BY RICHARD WOODBURN

It's hard to overstate the importance of accurate and efficient asset tracking in a hospital setting. There is literally not a minute to waste when a patient's well-being hangs in the balance. The inability to find medical equipment or mobile assets in hospitals as soon as they're needed – from an infusion pump to an ultrasound machine or even a wheelchair – can have a far-reaching negative impact.

Mobile assets are often shared between departments in a hospital, or even across hospitals, creating the scenario where clinicians, nurses and other hospital staff spend precious time trying to track down the location of important assets. And the impact of time spent looking for the equipment extends beyond the floor or area where it's missing.

It also impacts the other areas where workers have to stop what they're doing to answer a call and then go look for the missing equipment in their area, resulting in frustration all around. Some departments may even hoard, hide or lock up equipment so they can be sure to have it when it's needed. In some instances, hospitals resort to renting equipment just to fill equipment gaps for assets they can't locate but actually have. This impacts operations and the patient experience.

As healthcare continues to digitize its operations, and it will, 95 percent of IT decision-makers in Zebra's Healthcare Vision Study say they expect to increase healthcare IT and clinical mobility investments in the next year – the need to efficiently manage assets also grows. In fact, eight in 10 hospital decision-makers say they plan to implement automation to locate critical equipment and medical assets in the next year. Proper asset management of movable assets and equipment is critical in a healthcare environment to increase staff efficiency, improve operating budgets, and enhance the patient experience.

> **Many hospital decision-makers plan to automate locating critical equipment and assets this year.**

That's where real-time location systems (RTLS) using active radio frequency identification (RFID) technologies such as Bluetooth Low Energy (BLE) come in.

Stop the search and put the patient first: When RTLS is in place in a hospital, it can provide positive results and experiences. Clinicians can find their mobile assets and equipment more quickly and monitor them more efficiently, spending less time searching and more time caring for patients.

It's a proven solution that stands the test of time. When Orillia Soldier's Memorial Hospital (OSMH) in Orillia, Ontario implemented the GE HealthCare Encompass RTLS solution, it enabled them to realize true efficiencies and benefits in terms of clinician satisfaction, quality of patient experience and the hospital's bottom line.

As the saying goes, "you don't

CONTINUED ON PAGE 19

Cyberattacks on healthcare targets are increasing. What is to be done?

BY KARIM BHALOO

One of the by-products of the pandemic has been an increase in cyberattacks to healthcare institutions. Healthcare facilities hold a treasure-trove of patient data and private information that unscrupulous entities would love to get their hands on and then ask for a payment, usually in bitcoin. In exchange, the healthcare facility gets a key to get the data back.

In 2020, staff at the University of Vermont (UVM) Medical Center bombarded their information technology (IT) department with calls that they were having problems accessing their computers. After investigating, the IT department found malicious software that had a set of instructions to contact the alleged individuals that launched the cyberattack.

The medical centre responded by locking down their system (including email, internet access and computer network to mitigate further damage).

The fallout from this attack affected not only the employees but patients as well. Some examples include the inability to access the electronic health records (EHRs), scheduling patients and directing cancer patients to go elsewhere for their radiation therapy.

While the institution never paid a ransom, the estimated cost, mostly through lost revenues, was about $50 million and it took the IT staff almost three weeks working around the clock to restore the system back to normal.

Not even the children are spared. In December 2022, The Hospital for Sick Children was a target of a cyberattack bringing its system to a halt with no access to laboratory data and imaging information.

Most vulnerable are the small rural and teaching hospitals. All it takes for the cybercriminals to enter a hospital's IT system is for one of the employees to click on a fake e-mail that releases a code throughout the system and shutting it down. Employees are the weakest link in the whole security system.

This issue is not confined to North America only. Ireland's healthcare services faced a ransomware attack that led to a disruption in patient services for months, including the cancellation of cancer treatment and maternity appointments and of Covid-19 vaccinations. In early 2022, the André-Mignot teaching hospital in a suburb of Paris was forced to transfer six neonatal and intensive care patients to other facilities after its phone and computer systems were encrypted.

According the HealthITSecurity, since November 2020 the healthcare sector has faced a 45 percent increase in attacks. The bad guys understand that healthcare facilities treat the sick so at some point, somebody will pay to get the patient data so that treatments can continue.

What can healthcare institutions do to prevent future attacks? According to experts, investment in cybersecurity should be a top priority. Other measures experts recommend facilities should look at include:

- Update firewalls and anti-virus software. Use a 3-2-1 approach (saving three copies of all critical data in two different formats and storing one copy offline thus making it inaccessible to malicious codes).
- Divide the network into small segments (if a segment gets compromised, the rest of the system can continue to provide care).
- The biggest cybersecurity measure an institution can deploy is a partnership with all employees. Educating staff about what a phishing e-mail looks like, and sending fake emails to see what exactly the employee will do, goes a long way to protecting the integrity of the entire IT system and ultimately patient care.

Karim Bhaloo

Hospitals and healthcare groups understand and acknowledge that they are easy targets for ransomware. The Hospital for Sick Children was well prepared for such an attack, thus responding to it much faster (and yet some delays were noted).

On an international level, according to Politico, the European Union's Agency for Cybersecurity held an exercise in early 2022 that simulated an attack on a healthcare system to evaluate the EU's health sector's attack readiness, similar to an exercise held by Estonia's cybersecurity agency.

For those institutions who think they can rely on cybersecurity insurance, or cyber insurance, to recover from the disaster inflicted by a cyberattack, think again. While some companies are offering such product, many are revisiting the offering given that the insurance companies are losing money on such claims.

Bottom line is this. Hospitals and healthcare institutions need to invest in a robust cybersecurity infrastructure and invest in their employees with frequent checks and audits to see if employee education is paying off or not. If some employees continue to click on fake e-mails, then either additional education or a private conversation is warranted.

Karim Bhaloo, BSc, is a medical laboratory professional at UHN in Toronto. He is a Canadian Advisory Board Member with the International Association of Privacy Professionals (IAPP).

Text-based applications help populations experiencing mental health issues

An app customized for Indigenous populations has become especially useful in Saskatchewan.

BY DIANNE DANIEL

Not that long ago a young Indigenous person in Saskatchewan was sitting at home struggling with their math homework. With no one around to help, they reached for the Talking Stick – not a physical one used in many Indigenous cultures to allow people to speak and be heard respectfully in turn at meetings, but a virtual one.

Launched by the Federation of Sovereign Indigenous Nations (FSIN) in Saskatchewan, in partnership with TryCycle Data Systems Inc. of Ottawa, Talking Stick is an innovative digital behavioural health platform designed to give First Nations youth and adults a safe place to talk.

Building on the theme that 'Every Voice Matters' and available in 10 Indigenous languages to date with more to be supported this year, the free, text-only chat platform instantly and anonymously connects users to peer advocates who are trained to listen with compassion, respect and humility on any topic of conversation.

TryCycle Data Systems founder and CEO John MacBeth said it "made his heart sing" to hear about a child getting help with fractions because it confirms his company's 'by First Nations, for First Nations' approach to delivering mobile behaviour health support is indeed building trust among community members.

"Man, oh man, was it ever a good feeling to know that one little guy out there got some help with their homework and hopefully their next day was a little bit better than the one before," said MacBeth. "It just warmed my heart that first of all, this little kid knew Talking Stick existed and number two, they were comfortable enough to use it."

The anecdote also "humanized" the journey Talking Stick has been on since April 2020, when it was first launched to support conversations related to COVID-19 vaccine hesitancy, as well as to encourage listening related to mental wellness, violence, anger, isolation, trauma, grief or loss, all of which was heightened during the pandemic.

Now available to all 74 First Nations represented by FSIN in Saskatchewan, Talking Stick logged 25,000 engagements from September 2022 to February 2023 alone. It is currently staffed by slightly more than 200 Indigenous peer advocates, people aged 16 or older from First Nations communities who are hired by TryCycle Data Systems and trained in partnership with Indigenous knowledge keepers. MacBeth expects to continue to work with FSIN – which has taken a leadership role in supporting Indigenous behavioural health – to expand the service.

A simple text messaging platform, Talking Stick is accessed through a web browser or smartphone. No login or registration is required and anyone using the service remains anonymous, with peer advocates identified by first name only. When a chat closes, the information disappears and any data collected by TryCycle relates to usage metrics only.

"What we're trying to do is create a trust-based, predictable environment where people can just be listened to," said MacBeth. "It's an antidote for Facebook."

When 11 people were killed and 18 were injured in a mass stabbing in the James Smith Cree Nation and Weldon, Sask., communities on September 4, 2022, Talking Stick saw a 500 percent spike in requests the next day, said MacBeth. Similar jumps occur whenever a new mass grave is discovered at a former residential school site.

FSIN Chief Bobby Cameron calls the service an important tool that gives people an extraordinary opportunity to express themselves. "They're opening up like you wouldn't believe and that's a good thing, because people begin to heal when they feel like they're being heard," he said. "We're trying to reignite – or ignite – that positive energy, positive spirit, in every one of us."

TryCycle Data Systems is taking a disruptive approach to supporting behavioural health in Canada by focusing solely on two under-resourced populations highly prone to challenges: Indigenous people and war veterans. In addition to Talking Stick, the company also offers TetherAll, which provides a private digital connection between a client and their health team, and is in the process of building Mylo's Wish, a gamified platform aimed at preventing suicidal ideation and self-harm among Indigenous adolescents and youth.

ILLUSTRATION: LINDA WEISS

TetherAll is the company's flagship product. It 'tethers' a patient to a practitioner, using patient collected data (from journaling, for example) to create a secure, smart clinical dashboard that applies AI to proactively identify factors that could indicate regression or relapse in a patient's condition, including their mental health.

In remote First Nations communities, TetherAll will serve as a "medical guardian angel," said MacBeth, allowing clinicians to share anonymized patient data with remote subject matter experts such as substance use disorder specialists or psychiatrists. The experts monitor the patient data but only the local staff know who the patient is.

"If the psychiatrist sees an issue, they say this patient ABC is exhibiting early signs of depression or is at risk of relapse, and now the clinician and psychiatrist can collaborate and triage the person, deciding on the best course of action to keep them stable," he explained.

TryCycle Data System solutions are customized to each target audience. The goal within Indigenous communities, said MacBeth, is justice.

"There's a massive deficit and lack of proprietary, culturally based, super sensitive engagements that speak to this demographic," he said. "They are owed the same respect and attention that every other non-Indigenous community gets, but instead we always seem to 'hand it down' – we design solutions for a non-Indigenous environment and then we give it to them and say they should be happy with what they get. We're not doing that."

In addition to only hiring Indigenous people to support its three offerings for First Nations communities, TryCycle Data Systems takes a holistic approach to development, partnering with different jurisdictional partners to ensure the platforms accurately support different languages and cultures. They are also working to build capacity by partnering with the Saskatchewan Indian Institute of Technologies (SIIT) and First Nations University of Canada to train the next generation of Indigenous employees.

At the same time, their Indigenous partners are securing the funding necessary to keep the platforms freely available.

Chief Cameron expects usage to climb because digital behavioural health platforms are needed in every First Nations community across Canada. "We're all doing a good service here. We're helping people young and old to better their lives, to better themselves, to heal themselves," he said. "It has to be sustainable; there's no way around it. People are going to need that assistance and extra support every day."

In the veteran population, TryCycle Data Systems is working on gap management, using digital connections to support veterans who've asked for help but are waiting for services as well as those who've been recently discharged from a care program and are having a difficult time adjusting. The company is currently working with the Royal Canadian Legion, Saskatchewan First Nations Veteran's Association and Aboriginal Veterans Autochtones to recruit retired veterans who will be educated and trained as support workers.

"We don't want to lose these people on the wait list," said MacBeth. "When somebody has come to the conclusion that they need help – which is a very strong thing for them to do – we want to make sure that person is in connection while they wait."

The ability of a simple text messaging platform to serve such an important role in supporting mental health isn't surprising to Gillian Strudwick, chief clinical informatics officer at the Centre for Addiction and Mental Health (CAMH) in Ontario, and co-

creator of the MEMOTEXT BeWell mental health text messaging program.

BeWell was initially launched in the early days of the COVID-19 pandemic to make it easier for people to access curated mental health resources and receive targeted wellness support. The program is now evolving to serve multiple populations, including front line healthcare workers.

In January, CAMH and MEMOTEXT were awarded funding from the Ontario Bioscience Innovation Organization (OBIO) to create a version of BeWell tailored to support CAMH social workers and occupational therapists (OTs), two groups that showed higher rates of burnout compared to other health disciplines in a July 2022 organizational study carried out by the organization. Specifically, 50 percent of social workers and 21.3 percent of OTs reported one or more burnout symptoms, including emotional exhaustion, depersonalization, and/or a reduced sense of personal accomplishment.

Designed in close partnership with an in-house clinical advisory group made up of OTs and social workers, the CAMH BeWell service launched this month. The number one goal was to help the frontline workers feel supported by creating a strong sense of community and camaraderie among them.

As Strudwick explained, the roughly 300 social workers and OTs employed at CAMH don't have a general forum to bring them together regularly. Some work independently in the community and others may be the only social worker on their unit.

Enrolment in the new BeWell service – a 12-week program consisting of tailored messages and wellness resources delivered via text – is voluntary. Some messages are simple shoutouts related to positive news, such as the completion of a project or an outstanding individual contribution to patient care at CAMH. Others are more motivational in nature such as reminders that it's okay to take a break and engage in self-care.

The service also shares information about discipline-specific resources available that can help OTs and social workers in their practice, to alleviate the burden they may be experiencing in their workload. Five burnout measures are highlighted to help users identify whether they have signs and symptoms.

"The largest sense we're getting from this group of individuals is to build a community in which individuals can feel that they're not alone in how they're feeling," said CAMH research coordinator Iman Kassam, noting that her research shows text messaging is a very accessible means of delivering support.

"What we found is that text was just simple and convenient, and that everyone engages with a text message service at some point in the day," said Kassam. "Even when you receive a message, you don't have to read it at that exact point. You can save it for later and it will still be there. I think that's perhaps one of the more unique components of text messaging. It's so simple and yet so effective."

BeWell is not a crisis support service or replacement for care, she added. Rather, it's intended to bridge connections and build awareness of wellness initiatives and wellness resources available to staff.

An earlier study conducted by the CAMH Digital Mental Health Research Lab found that one of the biggest barriers preventing Canadians from using digital mental health tools was lack of awareness about what's available. "It's challenging to determine what's out there, what's evidence-based, what's credible and what would actually be helpful," said Kassam. "Having a resource that does that legwork for you, and filters out the good from the bad in finding mental health resources, is very helpful."

Strudwick said there's value in keeping things simple. The hope is that making a tailored BeWell service available to OTs and social workers will help to "move the needle" on front line staff burnout, but they also recognize that addressing it at an individual level is only one piece of a very complex and systemic issue, she said.

"Mental distress or burnout is not a diagnosed mental health condition or disorder at the clinical level, but we do know that you're more likely to get anxious and depressed, and it's a negative trajectory from then on," said Strudwick. "So if you're able to support people before things get worse, and hopefully be proactive, you won't necessarily have as many people experiencing that negative spiral into depression and anxiety."

SE Health expands MySE Life app to include community rehabilitation

BY SARAH QUADRI

Melissa Tambeau is taking her day planner digital home, and it's making a big difference. Tambeau, a Waterloo-Wellington, Ontario area Registered Dietitian, is thankful to her employer, SE Health – a not-for-profit, social enterprise and one of Canada's largest health care organizations – for expanding its MySE Life app earlier this year to include home and community care rehab professionals like herself.

"The MySE Life app is amazing. It's exactly what we need to keep organized and it gives us client information at our fingertips," said Tambeau, who is part of a champion group that brings together SE community rehab professionals from many disciplines across the organization to work with the MySE Life app digital team.

"SE Health is doing a great job listening to our needs and giving us a chance to participate in customizing the app so we can enhance care for our communities," she added.

In 2021, with the help of its nurses, SE Health co-designed and implemented the MySE Life app – a one-of-a-kind mobile application and digital platform for direct care providers.

Since then, SE Health extended the app to include personal support staff, whose insights continue to drive the app's features and design. And the most recent expansion to include the needs of rehab professionals marks a third expansion of the solution.

"It's truly about ensuring the best user experience for everyone," said Candace Moore, SE Health's digital product lead, who meets and interacts regularly with staff from all disciplines to ensure she and her team are receiving the latest feedback on the app.

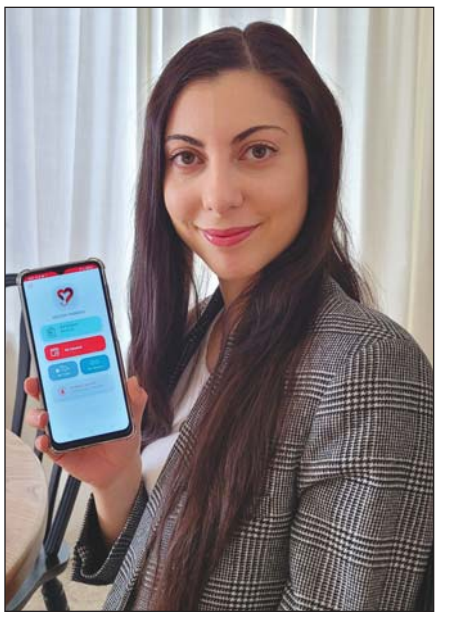
As Moore explained, with three different groups of direct care staff, "there are unique needs for each group."

"We continue to make significant enhancements to our digital platform – building an ecosystem of capabilities to help provide a next generation experience to our direct care providers and the care teams," said Imtiaz Ahmed, vice president, Digital Experience and Enablement at SE Health. "Our flexible architecture enables us to personalize the experience for the various roles while using the same application."

When it comes to community rehabilitation, Moore noted, it's such a "diverse group with many sub-disciplines" and there are varying requirements within the actual rehab service offerings.

Unlike nursing and personal support, rehab has large administrative loads without the support of coordinators. In her experience, Moore also noted that rehab professionals learn and absorb information differently than what she's seen from nurses and personal support care staff.

"They have more of a 'peer-to-peer' approach and because of this, we adapted app training materials to maximize their learning and engagement."



An SE Health dietitian with the new app.

The SE digital team developed an immersive training environment they call "MySE Life Sandbox." This tool helps everyone (including managers) familiarize themselves with the MySE Life app's interface, learn its capabilities, and utilize them effectively.

Guided tours provide a step-by-step walkthrough of key features of the app, complete with prompts and messaging to get self-learners started. Partnering with the SE Learning Team, a new 'Free Play' simulator allows staff the opportunity to explore all the features of the app in a test environment, risk-free.

"Almost everything about the MySE Life app for rehab is unique, including the way rehab professionals schedule their new client admissions. That's why they have their own custom container, called Required First Visit Date (RFVD) – the date they must provide the first initial client visit," explained Moore.

On the app, their "My Caseload" shows their RFVD and all their clients, including new ones. They can also filter to display only their new clients. This "custom container" helps to prioritize and schedule new admissions.

"We are enabling them with client and schedule information, tasks and resources which allows them to plan their visits, know when their reports are due and complete these reports quickly and efficiently while promoting accountability," said Moore. "With one login they can access everything they need."

SE community rehab professionals continue to make their own schedules in Procura, but with the app, they now have tools that minimize their travel time and optimize their routes.

They also have their employee and client screeners, status, and reminders, and can see their visit count.

Some rehab professionals have caseloads of two hundred or more clients. Before the MySE Life app, they would have to log into work spot; launch and log into Procura; open clinical day view; scroll through a long list of clients to identify the client they want to call or add to their day; open client information and finally from there they can view information like the client phone number, and manually dial that contact.

With the MySE Life app, they are already logged in. They navigate to "My Caseload;" type to search by client name or BRN and then a quick call icon is pinned and puts the clients phone number directly in their phone to make a call.

At the end of the day, Moore added "it's an application that truly fits with the life of a rehabilitation professional."

"I can quickly get to a screener, and my contacts," added Tambeau. "I can also see more info in the app that Procura pulls for me. For example, if there is a comment from one of my team members about a client, I can now see it instead of taking notes from a phone call. We have full content access and information and quick access to other tools like supply ordering, reports, etc."

Tambeau also noted that she can see that her visits are verified with a clear check mark the next day, keeping her accountable. This is a big difference from Procura when the visits were only completed using italics.

Being able to do it all from her phone or tablet is "life changing," added Tambeau. "It's designed so well, it's very easy to use on my phone, and it's the perfect fit for the various roles we play in rehab."

Sarah Quadri is Director, Corporate Communications, at SE Health.

Inpatient surgery unit is equipped with wearable monitors

BY BOB PETERS

CORNWALL, ONT. – The Inpatient Surgery Unit at Cornwall Community Hospital (CCH) has been equipped with new, Masimo wearable patient monitors to allow greater patient mobility during recovery and continuous monitoring of post-operative patients, particularly those at high risk of respiratory complications from anesthesia or breathing disorders such as obstructive sleep apnea.

The new Masimo monitors work by having patients wear a lightweight and wireless device on their arm. Using Bluetooth and Wi-Fi technology, signals are transmitted from the device on the patient's arm to a main unit mounted at the bedside or on a trolley.

With continuous wireless monitoring functionality, staff are alerted of critical changes in oxygen saturation, pulse rate, blood pressure, and respiration no matter where they or their patients are located. The wireless monitors also eliminate the need for clinicians to disconnect the patient each time they get out of bed, reducing some workload for busy staff.

The new monitors will eventually maintain continuous communication with the hospital's electronic health record, ensuring up to date information support for staff and physicians on the care team; a testament to the hospital's high adoption of electronic health record technology to improve clinical outcomes and clinician engagement.

Nearly 25 new wearable Masimo monitors have been installed on the hospital's Inpatient Surgery Unit.

Wearing a wireless monitor, clinicians don't need to disconnect the patient when they get up from bed.

"The use of a continuous wireless respiratory monitoring system for post-operative patients will improve patient safety and outcomes, especially for those with risk factors for respiratory depression, while the monitor's wearable technology will help promote patient mobility, recovery and comfort," said Linda Gravel, vice-president of Patient Services and chief nursing officer at Cornwall Hospital. "We're proud to be advancing innovation to enhance patient care and support our surgical recovery efforts at Cornwall Hospital."

CCH has been hard at work with the implementation of its 2022-2027 Strategic Plan, which identified Advancing Innovation as a strategic priority to support the hospital's post-pandemic recovery efforts. Following two years of disruptions to surgical services due to the pandemic, today operating rooms at CCH are running safely at 100 percent capacity and nearly 6,000 surgical procedures were completed in 2022.

Cornwall Community Hospital was incorporated in 2004 with the amalgamation of the Cornwall General Hospital and the Hotel Dieu Hospital, both with over 100 years of healthcare service to Cornwall and the surrounding area. With the completion of a major redevelopment project in 2014, and the construction of the Addiction and Mental Health Centre two years later, the hospital consolidated all acute care and community-based services at one site.

Reducing surgical backlogs and readmissions with Digital Care Journey

With 206,000 people waiting for surgical procedures in Ontario alone as of January 2023, more than 9,500 people on the Nova Scotia wait-list, and other provinces facing extensive backlogs, providers are adopting digital solutions to combat bed shortages, staffing challenges, and the backlog prompted by the pandemic. Today, more than 30 hospitals and health systems across Canada have taken a digital health approach with SeamlessMD's Digital Care Journey platform.

Accessible on smartphones, tablets, or desktops, Digital Care Journey platforms like SeamlessMD guide patients step-by-step through their care plans. Patients are prompted through pre-op and post-op processes via condition-specific, automated reminders, daily check-ins, to-do lists, and an extensive patient education library, available 24/7.

Engaging with patients through their everyday devices, providers can access alerts and dashboards to remotely monitor patient compliance, symptoms, recovery progress and digitally collect patient-reported outcomes and other data. It enables them to shorten length of stay, reduce readmissions, ED visits, phone calls and empower early discharge, improving the overall patient experience and shrinking surgical wait times.

"Using technology to stay connected with our patients and improve their experience outside the hospital is a priority in our Digital Health strategy, and SeamlessMD is a key partner in achieving this. SeamlessMD's remote monitoring capabilities are critical in our strategy to provide a virtual safety net for patients that leads to safe, earlier discharge and decreases the wait time for in-demand surgeries," said Jennifer Sheils, vice president of Strategy, Transformation and chief innovation officer, Horizon Health Network, New Brunswick.

Hospitals and health networks have benefited by deploying five key strategies with SeamlessMD.

• Streamline pre-op processes with automated, daily patient education: The more prepared a patient is for surgery, the faster they recover and are ready for discharge. However, paper and verbal instructions can be overwhelming or easily forgotten. In the preoperative phase, digital patient engagement platforms can be used to collect anesthesia questionnaires, deliver video recordings of pre-surgery classes, and send just-in-time reminders (e.g., when to stop certain medications, how to prepare the home, when to stop eating and drinking before surgery, etc.) – all without the healthcare team having to do extra work.

• Increase same-day or earlier discharge by setting clear expectations: Digital health solutions like SeamlessMD's Digital Care Journeys help streamline processes that support shortened length of stay and same-day or earlier discharge, including outlining what patients should expect and providing access to a centralized location for information about their care and recovery.

Timely pre and post-operative instructions and personalized evidence-based education allows providers to set clear expectations with patients, ensure patients are aware of discharge timelines, and improve discharge process efficiencies, effectively reducing the time patients spend in the hospital.

For instance, Grand River Hospital, in Kitchener, Ont., achieved a 29 percent and 16 percent decrease in length of stay in hip and knee replacement surgeries respectively using SeamlessMD.

• Increase compliance with evidence-based care pathways: The literature shows that patient compliance with evidence-based protocols, such as Enhanced Recovery After Surgery (ERAS), is directly correlated to faster recovery and shorter length of stay. However, complicated, large paper booklets and lack of easy-to-follow education often leads to low patient adherence. With SeamlessMD, healthcare teams can automatically deliver pathway reminders, track patient compliance, and provide feedback on adherence, thereby motivating patients to stay on track. Providers can also monitor pathway compliance on dashboards and intervene sooner when a patient falls off track.

Features like caregiver enrollment also ensure a higher rate of compliance and reporting from the patients – 50 percent of patients choose to enroll a caregiver to follow along their journey.

• Inspire confidence through Remote Patient Monitoring: When patients and providers learn that the patient will be well-supported after discharge with a Remote Patient Monitoring solution like SeamlessMD, both parties are more confident for the patient to be discharged earlier. Moreover, the accessibility to care through digital health platforms also plays an important role for serving rural populations. Through remote monitoring of vital signs, symptoms, and incision photos, patients can receive faster care and avoid an ED visit or readmission.

The Montreal Heart Institute, Canada's largest cardiology research centre, deployed SeamlessMD Digital Care Journeys for open heart surgery, TAVI, TMVR, other mitral and tricuspid procedures to opti-

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Home-care client portal improves organizational efficiency

BY NEIL ZEIDENBERG

GoldCare, a leading provider of healthcare information management solutions for home and community care, has recently launched a new web-based client & family portal named MyCloudCare. This portal empowers clients by allowing them to connect with their care team and organizational resources using their cell phone, tablet, or a home computer.

"The MyCloudCare portal enhances participation for clients by the services they receive," said Al Hamilton, chief operating officer. "The client's appointments, information on their care team and other available resources are accessible at their convenience. They also have the option to allow designated family to participate."

By signing into the portal, clients can:

- access and make changes to their information
- view or modify or cancel scheduled visits
- access organizational information and resources
- see a picture of the worker assigned to their upcoming appointment.

This last feature may reduce stress for clients as they get to know their caregivers before their appointments, allowing them to make a personal connection.

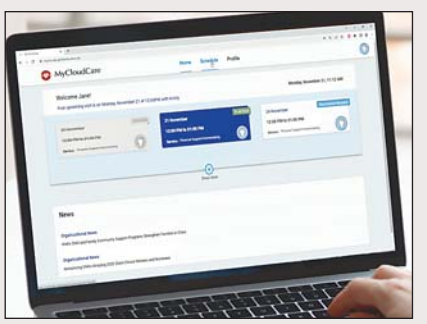
"Having an opportunity to connect with their care team in the portal supports clients having more engagement in their own care," said Hamilton.

For homecare organizations, MyCloudCare can increase patient satisfaction while reducing the number of phone-in requests allowing staff to focus on delivering a higher level of service.

When developing the portal, GoldCare engaged with VHA Home HealthCare – a GoldCare marquee customer – to determine features that would be of most benefit. VHA invited a group of their clients receiving service from VHA to also participate.

One of the requested features was to allow an organization to rebrand the portal as their own. VHA Home HealthCare adopted the name MyVHA for their implementation of the MyCloudCare client portal. The portal was completed and launched by VHA in December 2022.

"VHA Home HealthCare customers asked approximately 10 participating clients what they wanted from the portal, and how the information would be delivered," Hamilton commented. Involving users in the design and review stages ensured that clients had their voices heard,



and the portal would include features that were important to them.

The portal was designed to be easy-to-use and operates on a secure platform. It's available from anywhere at any time on any device. All data is stored safely in the cloud. Clients have access to a training guide with step-by-step instructions to help them navigate.

Although client portals in home care aren't unique, the end goal is about finding ways to better serve clients and their family. "Not many home care organizations currently offer a client portal, so it's definitely something more will be looking at putting in place," said Hamilton.

Regarding future development of the MyCloudCare portal, a few important features are in the works. These include:

- a multi-account feature that grants additional family members permission to access a client's account. For clients who are uncomfortable in using technology, they can still call in to speak with a member of their care team.
- a Message Centre for communication between the client and care team; and
- a function where clients can rate their appointment experience.

Although the portal has only been available for a few months, it's already making a difference for clients. Many clients used to call and wait to speak to someone about appointment details, but the portal has changed that. Now they can login and view the necessary appointment details themselves, improving their experience and saving time.

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Hamilton Health Science's EMR improves journey for cancer patients

BY ROSITA SIEBERT

HAMILTON, ONT. – Hamilton Health Sciences recently launched its Epic health information system, replacing dozens of electronic and paper systems and making every patient's medical information available in one secure place. HHS' Juravinski Cancer Centre's C3 Oncology and Gastrointestinal program is now taking advantage of Epic's communication tools to make reviewing a patient's journey easier.

Caring for patients with solid cancer tumours affecting all organs, the C3 team says Epic is improving patient safety.

"With Epic, there is an ease in which the team can view the patient's history and plan, especially when most of the patients start their journey at JCC and are admitted to our area," says clinical manager Celia Aiello. "Our staff have hands-on capacity with rovers to do things like scan medications and lab procedures, resulting in better accuracy."

Using Epic also makes it easier to follow patient movement between sites, including getting the right bed.

Staff on the unit provide acute care to patients, helping to manage uncontrolled pain and symptoms. Notably, C3 patients are also under the care of a hospitalist. With Epic's centralized communication tools, they report a better understanding of the oncology plan.

Using Epic also makes it easier to follow patient movement between sites. Getting the right bed at the right time, for instance.

"Complete visibility guides the unit leader in managing the flow of the inpatient beds and making decisions on appropriate bed and staff assignments," says Aiello. "Leaders can also view the patient's reason for admission and care plan."

Another area that Epic has helped increase visibility into treatment and care plans is through MyChart. Epic's MyChart is a free, secure, online tool that gives HHS patients easy access to their hospital health record, including test results.

Social workers on the unit are the champions of informing patients about MyChart and its function. Other staff and hospitalists have also been great advocates in ensuring patients are knowledgeable about real-time access to information such as lab results, clinician notes, and details about their care team while in the hospital.

Not readily available before Epic, Aiello can now review patients undergoing active cancer treatment by creating an item in her customized patients' list. Fast access to this kind of information branches into other areas of workflow, such as ensuring appropriate staffing with the proper care provider.

"This impacts site-level awareness of the unit concerning flow and site staffing," explains Aiello.

The C3 team regularly uses Epic to streamline their work. For example, using patient lists, chat and patient lookup to monitor patient progress. "Although still a work in progress, using Epic has definitely helped to close the gap between the oncology plan at JCC and inpatient settings. We are looking forward to optimizing the use of Epic," says Aiello.

Reducing backlogs and readmissions with Digital Care Journey

CONTINUED FROM PAGE 17

mize patient engagement and operational efficiencies. Introducing SeamlessMD for the TAVI program provided a way to remotely monitor patients, digitally collect Patient-Reported Outcomes (PROs), and track symptoms in real-time, reducing ED visits by 50.1 percent and hospital readmissions by 33.5 percent.

The Thunder Bay Regional Health Sciences Centre (TBRHSC), an acute care hospital serving over 250,000 residents across Northwestern Ontario, deployed SeamlessMD across 12 surgical pathways including orthopedics, bariatrics, colorectal, cardiac, urology, surgical oncology, and women's health in just 16 months to engage and remotely monitor patients. Boasting an 85 percent patient enrolment with a 90 percent activation rate, TBRHSC saw improved clinical outcomes and higher surgical throughput:

- 48 percent decrease in average length of stay
- 32 percent decrease in 30-day ED visits
- 91 percent of patients felt more confident before surgery
- 97 percent of patients felt more confident at home after surgery

As Caroline Fanti, director of Regional Surgical Services for TBRHSC explains, "We've now had several patients that had their first joint replacement surgery completed at the beginning of the pandemic, and their second joint replacement in the past months with the SeamlessMD app. The feedback we have received is very compelling with patients saying their experience was 100 times better with the app and the support of our NP."

Long-term benefits of mobile health solutions are becoming more evident as patient adoption of digital health platforms continues to increase. As with other aspects of their lives, patients today expect to have better access to their care plans, education, and health teams through easy-to-use digital channels.

Thunder Bay has deployed Seamless MD across 12 surgical pathways and has seen a steep drop in length-of-stay.

Digital Care Journey platforms, acting as a virtual care companion, have proven to reduce surgical anxiety and increase a patient's confidence during their recovery journey. At Grand River Hospital, 95 percent of hip and knee surgery patients recommend SeamlessMD, 91 percent said it helped them feel more confident before surgery, 89 percent felt more confident during recovery, and 97 percent felt more confident at home, knowing they have quick access to education materials and can report symptoms and progress while staying connected to their care team.

Interoperability between digital health solutions and Electronic Health Record (EHR) systems is critical for streamlining clinical workflows. Leading Canadian hospitals have utilized SeamlessMD's direct turn-key integrations with Epic, Oracle Cerner, and MEDITECH, embedding SeamlessMD dashboards into their EHR.

Sault Area Hospital was the first organization in Canada to integrate MEDITECH Expanse with SeamlessMD, allowing remote monitoring dashboards to be launched from the patient chart.

Cornwall Community Hospital was the first in Canada to integrate SeamlessMD with its Cerner EHR using SMART on FHIR technology to streamline patient enrollment and monitoring on SeamlessMD from within the Cerner patient chart.

St. Joseph's Healthcare Hamilton was the first in Canada to deliver a fully-integrated Digital Patient Experience, connecting Dovetale (Epic) MyDovetale (Epic MyChart) with SeamlessMD.

In efforts to increase surgical throughput by shortening length of stay, reducing readmissions, and ED visits, SeamlessMD continues to collaborate with hospitals across Canada to enable providers to better engage, connect, and monitor patients beyond the four walls of the hospital.

How better managed mobile assets result in better experiences

CONTINUED FROM PAGE 12

know what you don't know." That proved to be the case for OSMH in terms of time wasted searching for equipment without question and accepting it as the norm. But if essential equipment isn't found quickly, it can directly impact the amount of time devoted to patient care and the hospital's own bottom-line.

For clinicians, already stretched by doing more with less, RTLS instantly helps to remove the stress of not being able to find necessary equipment quickly, helping to reduce overall frustration and burnout due to increasing workloads.

The overall improved operational efficiency helps strengthen financial performance. Equipment and related maintenance costs are reduced, compliance is maintained, equipment service life is extended and staff productivity is increased.

The results of the Encompass RTLS solution speak for themselves. The improvements in clinical efficiency and cost reductions at OSMH before and after the RTLS solution was implemented are staggering: In a small to medium size hospital, based on an average 24-minute search time without RTLS and 4-minute search with it, time spent searching for equipment dropped from 29,000 hours/year to 4,975 hours/year for a savings of 24,025 hours/year; the costs of searching for equipment were reduced from $860K cost of time/year to $146K cost of time/year – saving $714K per year. The ultimate benefit of these savings? A better patient experience.

How it works: The RTLS Encompass solution is a combination of Zebra Technologies BLE hardware and GE HealthCare software and applications that automatically track assets throughout a healthcare facility. It's web-based and cloud-deployed and it tracks, manages, and analyzes location data for mobile assets in a healthcare facility. Assets are tagged and tracked by a series of beacons throughout the hospital enabling staff to automatically pinpoint the location of assets moving around the facility.

Asset information can be viewed on computers, phones, and tablets. When the name of the asset being searched is entered into the app, RTLS provides the relevant information needed for the asset.

A small hospital can reduce an average search time of 24 minutes for equipment to just four minutes.

Real benefits in real-time: RTLS provides real-time information about the status and location of assets, equipment and supplies allowing for more time to care for patients, less stress for staff and improved operational efficiencies. The benefits are clear, and most clinicians (83 percent) and decision-makers (89 percent) agree real-time intelligence is essential to optimal patient care. It's no surprise that nine in 10 or 90 percent of hospital decision-makers plan to use location solutions for asset tracking within five years.

RTLS is a cost-effective, simple, and proven solution that helps to increase operational efficiencies, improve the bottom line and most importantly, improves clinician and patient experiences. Learn more about GE HealthCare's Encompass RTLS at www.gehealthcare.com/encompass. Or visit GE HealthCare and Zebra Technologies Booths at HIMSS 2023 in Chicago, on April 17-21 to see the latest RTLS asset tracking solutions including GE HealthCare Encompass Real-Time Location System.

Richard Woodburn is Director, Product Line Management, Zebra Technologies.

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