



# CANADIAN Healthcare Technology

TWENTY-FIVE YEARS

CANADA'S MAGAZINE FOR MANAGERS AND USERS OF INFORMATION SYSTEMS IN HEALTHCARE | VOL. 25, NO. 6 | SEPTEMBER 2020

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PHOTO: COURTESY OF ST. JOSEPH'S HEALTH, HAMILTON

## Building a digital bridge between hospitals and LTC

The electronic systems used in acute care hospitals and long-term care centres traditionally haven't interacted with one another. Now, St. Joseph's Healthcare Hamilton, PointClickCare and the CAN Health Network, are linking the two worlds with a new solution. Pictured are team leaders (l to r) Tyler Aird, Andriana Lukich, Tara Coxon, Dr. Dan Perri, and Carina Andreatta. **SEE STORY ON PAGE 10.**

## Montreal's OROT solves COVID problems with new tech

BY NORM TOLLINSKY

**M**ONTREAL – A new research and innovation hub in Montreal is running trials of several groundbreaking technologies in response to the COVID-19 pandemic.

The hub was launched earlier this year by the Integrated Health and Social Services University Network for West-Central Montreal and the Jewish General Hospital (JGH) to re-imagine the future of healthcare. Once the pandemic struck with full force, the centre, called OROT, quickly refocused its ef-

forts on the healthcare crisis at hand. OROT means "light" or "illumination" in Hebrew.

"The Jewish General Hospital was the first hospital in Quebec designated to treat

**Once the pandemic struck, the OROT centre refocused its efforts on the COVID-19 crisis.**

patients with coronavirus, so we had to adapt our operations to the reality of having a large number of highly infectious people in need of our care," said Danina

Kapetanovic, OROT's strategic advisor for entrepreneurship and innovation.

"We quickly saw a need for technology to play a role and augment our capacity to deliver care in a way that not only protects our patients, but also protects our health-care workers – who we know are at higher risk of being infected when exposed for long periods of time to patients with COVID-19.

"Reducing the waste of personal protective equipment was another motivating factor because when you're in contact with pa-

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# Montreal's OROT solves COVID-19 problems with new technologies

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tients, there are certain protocols you have to follow that include frequent changing and in that context there's always a risk of shortages, so the idea is to minimize contact with patients while still providing excellent care."

One of the new technologies OROT is trialing is a My Vitals smartphone app developed by Israeli startup Binah.ai and Montreal-based Carebook Technologies Inc. Using a smartphone's camera and photoplethysmography (ppg) sensor, the app measures heart rate, heart rate variability, respiration, oxygen saturation and mental stress levels without any contact or leads.

The app works by gauging light absorption on a person's cheeks and detecting the rate of blood flow under the skin. From these signals, it can provide highly accurate readings of vital signs using analytics and artificial intelligence.

Pending a successful clinical trial designed to compare readings from My Vitals with industry-standard hospital equipment, the app can be used by pa-

tients in negative-pressure COVID-19 rooms to self-monitor their vital signs, reducing the exposure of nurses who would otherwise have to enter the rooms more often.

The app can also alert COVID-19 patients at home to seek hospital care if their vital signs worsen. Patients simply point the phone at their face and take a picture using the app.

The Jewish General Hospital is also one of the first health-care institutions in North America to experiment with Microsoft's HoloLens, an untethered mixed-reality headset ideal for limiting the exposure of healthcare professionals to COVID-19 patients.

"With a single person in the hospital room, we can secure the information we need about a patient's condition while minimizing the risk of infection spread," explained Dr. Lawrence Rudski, chief of cardiology and director of the JGH's Azrieli Heart Centre. "With the HoloLens and the Dynamics 365 Remote Assist app ... a physician or other healthcare professional dons PPE and a HoloLens and enters the patient room while colleagues



Danina Kapetanovic, Strategic Advisor

view the images (on a computer screen) and consult from a safe locale elsewhere in the hospital."

Several successful simulations have been carried out involving COVID-19,

palliative care, intensive care and wound care patients at the JGH.

"The HoloLens is very helpful in the context where you have to physically distance yourself from the patient, but we see a use case beyond COVID-19," noted Kapetanovic.

"A wound care specialist, for example, can only cover so much territory, but if she's able to provide guidance to home care nurses equipped with a HoloLens, you can amplify the coverage."

Other innovative technologies being deployed by OROT include Israeli startup Maisha Labs' COVID-19 Decision Support System, which uses the SSI algorithm and locally generated data to predict future COVID-19 patient volumes with 98 percent accuracy, and Montreal-based EQ Care's platform for mental health support services.

"The Maisha Labs dashboard tells us what we can expect the patient load to be a week ahead of time and that allows us to plan resources, organize bed flow, PPE and staffing," said Kapetanovic. It can also provide healthcare professionals with 24/7 situational awareness of patient status by collating vital signs and lab results in a dashboard and signaling patient deterioration.

The EQ Care mental health platform is ideal in the context of mental health staff shortages and the increase in depression and anxiety resulting from social isolation during the pandemic, said Kapetanovic.

A computer-based self-treatment tool monitored by healthcare professionals, the EQ Care platform uses cognitive behavioural therapy to treat mild to moderate depression and anxiety.

"OROT is unique in that it is very focused on the creation of value," said Kapetanovic. "It's not innovation for innovation's sake. Its mission is to collaborate with private sector companies and startups to address unmet needs in the healthcare system."

"We're really just getting started. I came on board in April, so we're still mapping out our plans. We will more than likely conform to a public-private consortium model funded by a combination of government grants, private sector investment and the support of our foundation."

Before joining OROT, Kapetanovic served as executive director of Hacking Health, a global, grass-roots network of innovators committed to creating digital solutions to support health-care systems. The network organized 160 hackathons around the world leading to more than 1,500 innovations.

Staffing and budgets for OROT are still to be finalized.

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## Healthcare Technology

CANADIAN

CANADA'S MAGAZINE FOR MANAGERS AND USERS OF INFORMATION TECHNOLOGY IN HEALTHCARE  
**Volume 25, Number 6 September 2020**

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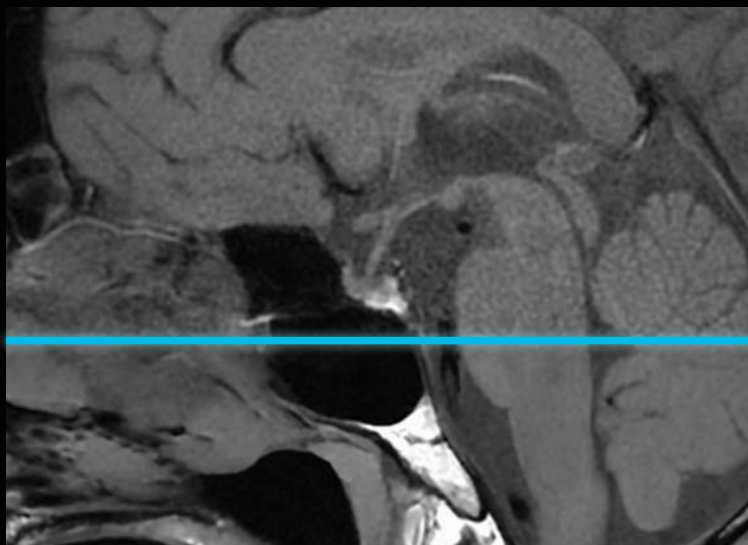
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# CHUM and MUHC innovate with Techno-COVID Partnership Program

BY DR. MARIE-PASCALE POMEY,  
KATHY MALAS,  
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AND DR. BERTRAND LÉBOUCHÉ

**M**ONTREAL – Since the beginning of the COVID-19 crisis, the two largest university health centres in Quebec, the Centre hospitalier de l'Université de Montréal (CHUM) and the McGill University Health Centre (MUHC), have cooperated to establish social and technological innovations adapted to each stage of pandemic patient care, from diagnosis to recovery. These innovations were implemented as part of the Techno-COVID-Partnership Program (TCP Program) by an interdisciplinary team that includes researchers, patient partners, healthcare providers, managers, and policymakers.

The TCP Program revolves around several social and technological innovations that target the care trajectory. It will adapt in real-time to the pandemic situation on a large scale. The main objectives of this program are to:

- decrease the risks of contamination while maintaining the quality and security of care for patients and clinical teams;
- reduce the irrelevant use of personal protective equipment (PPE);
- reduce the effects of isolation on patients and their loved ones due to preventative isolation measures;
- maintain a care and services partnership with patients and their loved ones throughout the care trajectory despite the crisis and thus,
- avoid both physical and psychological clinical deterioration.

At every step, the CHUM and MUHC relied on the state of knowledge and patient needs by involving them in the co-construction of the TCP program. In total,



it includes six innovative projects. The main projects are as follows:

- Care for and support hospitalized COVID-19 patients with different technologies and phone calls from volunteers at the CHUM and CUSM.

Telecommunications (smartphones, tablets), telecommunication tools between patients and professionals (via REACTS), and Internet of Things in health (pulse oximeters and glucose monitors) were deployed to clinical teams and patients at the CHUM and MUHC to support remote care and guarantee quality and security, while maintaining a partnership with the patients.

- Accompany the patients in their transition and return home using COVID-19 patient navigators (patients accompagnateurs, in French) and telehealth applications.

When they return home, COVID-19 patients are emotionally and clinically supported by patient navigators.

Moreover, the TACTIO app, a partner-

ship between Tactio and CHUM, allows patients diagnosed with COVID-19 at the CHUM to fill out questionnaires about their symptoms and body temperature. A nurse follows up and validates the answers every day and directs patients to a teleconsultation if necessary, with the support of the call center of the CHUM, the Centre d'optimisation des flux réseaux (COFR).

At the MUHC, the OPAL app, which was first used in oncology, allows COVID-19 patients at home to fill out daily questionnaires about their physical and psychological symptoms and their vital signs (e.g., temperature, oxygen saturation), the responses of which are monitored by a nurse. If required, a teleconsultation with an infectious disease specialist or a mental health professional will be offered.

- Care and entertainment for COVID-19 patients hospitalized with psychiatric disorders with a robot companion at the CHUM.

Soon deployed at the CHUM, a robot

companion at the bedside of patients will offer multiple functionalities such as measuring biological and subjective parameters, communicating information, supporting the performance of various tasks and entertainment activities, even setting off various alarms and warnings, while allowing human-robot interaction in a user-friendly and engaging way.

All these projects are part of a research programme conducted jointly at the CHUM and MUHC and funded by the Canadian Institutes of Health Research as part of the Operating Grant: COVID-19 May 2020 Rapid Research competition. This research program aims to evaluate in real-time the impacts of the innovations and the deployment of partnership during the COVID-19 health crisis with several different populations: patients, caregivers, clinical teams, managers, partners and technology providers.

The CHUM and MUHC together hope to generate state-of-the-art knowledge and share these innovations with the entire Réseaux Universitaires Intégrés de Santé et Services Sociaux (RUISSS), affiliated with the University of Montreal and McGill University, as well as with all of Quebec, Canada and internationally.

*Dr. Marie-Pascale Pomey is a Professor at the School of Public Health at the University of Montréal and Associate Researcher at the CHUM Research center (CRCHUM); Kathy Malas is Associate to the President & chief executive officer at CHUM, and Associate Researcher at the CHUM Research center (CRCHUM); Cécile Petitgand is Senior Advisor, Innovation & IA at CHUM, and Associate Researcher at the CHUM Research center (CRCHUM); Bertrand Lebouché, MD PhD, Center of Outcomes Research and Evaluation, Research Institute of the McGill University Health Centre-Research, Montreal.*

## ONMD plans to transform telehealth services in Ontario

**T**ORONTO – Telesense Canada, a company that is both a developer of telemedicine technology and a provider of digital care services in Ontario, is launching the Ontario Medical Network (ONMD.ca). The new organization and platform will allow patients to connect with doctors online, at their homes and offices, and in the near future at pharmacies and labs, where they can receive prescriptions and have lab work done more quickly.

As well, an ambulatory care service – using EMS ambulance outfitted with the latest medical equipment, operated by nurses – is in the works that can bring services to the point-of-care, connecting patients with physicians through virtual visits.

“When you go to your GP as a patient, you usually walk away with three things,” said Michael Haddad, president and founder of the Ontario Medical Network. “You’ll get a lab requisition, a prescription, and possibly a referral to a specialist.”

ONMD is in the process of establishing partnerships with major labs and pharmacies, so that patients can go to their local medical lab or pharmacy, see an online doctor on the premises, and either get their lab work or prescription done right on the spot.

Moreover, these sites will be equipped with medical workstations containing state-of-the-art instruments that allow remote physicians to conduct comprehensive exams.

The ONMD workstation includes video and medical cameras, ECG, pulse oximeters, non-invasive blood pressure instruments, an electronic stethoscope, a glucometer, and more.

A trained nurse will be at the site to facilitate the visit, handling the medical instruments and acting as the hands of the online physician. The live video, of course, gives doctors a better understanding of the patient, and the instruments in the ONMD platform – at walk-in sites – will allow them to perform extensive exams.

“We’re establishing a new standard and completing cycle of virtual care,” said Haddad.

Similarly, the mobile clinic – an ambulance outfitted with extensive medical equipment – will also benefit from the services of a nurse.

The ambulance will be able to visit patients who have trouble getting out and about, including housebound patients who are frail or elderly, and patients in retirement residences and nursing homes in need of care.

In the future, there are plans to include a portable X-ray service in the mobile van, as well as a “pharmacy on wheels.”

Physicians are now being recruited; Haddad said they can bring their own patients into the network and the

ONMD will also refer patients to them.

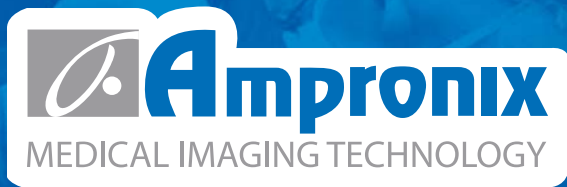
Recognizing that Canada is now a highly multicultural place, the Ontario Medical Network is offering video interpreters for patients who may have trouble conversing in English.

“We’re able to quickly connect to interpreters speaking Korean, Mandarin, Persian, all the high-demand languages spoken now in Ontario,” said Haddad.

Even sign-language is available, using the videoconferencing that’s part of the Ontario Medical Network system, as this will ensure hearing impaired patients are not left out of the digital healthcare revolution.

“We’re introducing multi-party video,” said Haddad, noting that the platform will support conversations among patient, doctor, family member or interpreter at the same time. “Most video visit systems out there now are one-to-one. With us, you get a more advanced system. We can bridge to interpreters and physicians to improve the online experience.”





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# Clinics can communicate with thousands of patients using Juvonno

BY JEFF VALDIVIA

**W**INNIPEG — During the COVID-19 pandemic, outpatient healthcare service providers have recognized that a technology gap is preventing them from effectively communicating with their patients at scale.

In the first half of 2020 alone, clinics have closed, re-opened, changed their hours of operation, offered virtual care, or required patients to follow certain procedures for face-to-face visits, and providers have struggled to inform their patients of the latest changes.

“With government mandates and practitioner associations [and] colleges changing their requirements for treatment almost on a weekly basis, the challenge has been how to communicate this with patients,” says Crystal Waldrum, Clinic Operations Manager of Optimum Wellness Centres.

In response to the challenges presented by COVID-19, Canadian EMR company Juvonno is bridging providers’ technology gaps with innovative software solutions. “Once the pandemic hit, we recognized there would be an immediate need for clinics to communicate their response plans effectively with patients,” explains Patty Romeo, vice-president of Marketing at Juvonno. “That’s when we decided to release JuvonnoComm ahead of schedule.”

JuvonnoComm enables clinics to send mass emails and texts to patients based on customizable criteria, like appointment history, demographics, or insurance details. To simplify the task for clinics, Juvonno created a pre-templated message for clinics to announce their COVID-19 response plan. “Within days of the release,” says Romeo, “Over 100,000 messages were sent using JuvonnoComm.”

Optimum Wellness Centres (OWC), which provides a wide array of healthcare services, including physiotherapy, massage therapy, and chiropractic therapy, began

using JuvonnoComm when the province of Alberta allowed non-essential health facilities to re-open their doors.

With 23 clinics in Alberta and Ontario, OWC had tens of thousands of patients with whom they needed to communicate the Phase 1 reopening of their clinics. “JuvonnoComm made it significantly easier to communicate with patients,” Waldrum remarked, “We were able to craft both a mass email and text to our patrons in minutes.”

Once messages are sent, Juvonno tracks real-time statistics showing which patients

Waldrum estimates that JuvonnoComm has cut the time and effort needed to send mass communications in half.

In addition, sending mass communications by text message would not have been an option for OWC without JuvonnoComm. “[Patients] enjoy that they can receive messages via text, and not to their inbox where [they] get lost,” says Waldrum. “They also like the flexibility of being able to control what content they receive and when they receive it.”

The features of JuvonnoComm, however, extend beyond addressing the imme-

payment reminders, and insurance renewal notifications.

These templates help clinics improve their communication quickly and easily. “Being able to use pre-templated messages,” Waldrum remarked, “has been extraordinary.”

Juvonno can also help clinics to implement a consistent patient follow-up process. “Clinics can use our Patients Insights tool to craft and automate messages to patients based on specific criteria,” explains Romeo, “For example, a clinic could automate messages based on services received, the treating practitioner, or the patient’s last appointment date.” With JuvonnoComm taking care of messages that are suitable for automation, staff then have more time to reach out to patients by phone when a human touch is required.

But communication needs to go in both directions, and JuvonnoComm offers clinics this ability, as well. “Survey features are our most anticipated need,” says Waldrum. “As feedback from patients is extremely important to us. We strive to provide the best level of service and experience for our patients, and having a quick and accessible response from patients is key.”

Ultimately, JuvonnoComm is helping providers more effectively engage and communicate with their patients. “We’re very excited about the possibilities with [JuvonnoComm],” says Waldrum, “And look forward to what Juvonno comes up with next.”

Juvonno is a long-standing software company that provides an all-in-one solution for managing electronic medical records (EMR), scheduling, billing, patient engagement, and analytics to more than 500 clinics and 3,000 healthcare professionals across Canada.

*Jeff Valdivia is a freelance writer and Medium Contributor covering topics at the intersection of science, meditation, and spirituality. You can follow him at Medium.com/@jeff.valdivia*



received, unsubscribed, clicked, or failed to receive the emails or texts. This helps clinics understand the success of their communication, like who may not have received the message.

By augmenting Juvonno with email and text messaging capabilities, JuvonnoComm has eliminated the need for clinics to shuffle information between their EMRs and third-party communication tools, like MailChimp. “Because JuvonnoComm pulls patient [information] directly from our EMR,” says Waldrum, “Our email lists continuously update automatically.”

mediate needs of clinics created by the pandemic. Many touch points throughout the patient experience can be automated with JuvonnoComm.

A key performance indicator that many clinics track and care about is their re-booking rate. The follow-up processes required to maintain a healthy re-booking rate commonly involve telephone calls that eat up hours of the work day. These follow-up processes can be easily automated with JuvonnoComm’s pre-built templates for post-appointment patient satisfaction surveys, outcome measures, outstanding

## Canadian-made solution shown to improve hand hygiene

BY NEIL ZEIDENBERG

**I**n North America about 5 percent of all patients in a hospital or LTC centre will acquire a hospital acquired infection (HAI), and some of them will die. In fact, 100,000 patients die each year in hospital from HAI and about 400,000 die in LTC – every year.

More frequent handwashing is a simple and effective way to lower infection. However, in a healthcare environment staff get busy treating patients, and sometimes they simply forget to wash up.

The answer may lie with a new Canadian solution called Buddy Badge. It reminds you to wash your hands prior to and after contact with patients.

Created by Hygienic Echo (hygienicecho.com) – a startup company founded by Dr. Geoff Fernie, senior scientist at Toronto Rehabilitation Institute (TRI) –

Buddy Badge was beta tested in 2019 at five care units of TRI and the results were later published in the American Journal of Infection Control. They also published 20 peer review papers, and hold eight patents on the technology.

“We showed it’s capable of doubling the rate of hand hygiene,” said Dr. Fernie. “And when prompted by Buddy Badge, nurses wash up sooner before going into a room.” However, studies also showed when Buddy Badge was taken away, hand hygiene declined back to previous or similar levels.

Buddy Badge is a wearable technology with an “eye” that senses when a healthcare worker approaches a patient zone (an invisible electronically monitored area around the patient). It vibrates to indicate the user should wash their hands.

After washing their hands, their badge will glow green for one minute. When leaving a patient zone, the badge will vi-

brate again reminding them to wash their hands on the way out.

“The goal of Buddy Badge is to save lives and prevent illness through improved hygiene,” said Geoff Fernie. “It’s the result of 18-years of research.”

Buddy Badge is not intended to be intrusive – it’s meant to be a friend. It qui-

**The Buddy Badge will vibrate to indicate when healthcare professionals should wash their hands.**

etly vibrates to remind people to wash their hands if they missed an opportunity to do so. It’s all done discreetly so as to not embarrass anyone.

The Buddy Badge System includes:

- Badges – small, lightweight wearable devices with an eye at the top for locat-

ing Zone markers that indicate when boundaries are crossed.

- Zone markers – beacons attached to or near the entrance to a patient room to indicate when healthcare staff walk in/out.

- Dispenser – counters that notice if you’ve used soap or hand sanitizer each time the pump is used.

- Charging station – a table top with 56 sockets and a touch-pad. By tapping the surface with an ID badge a message will flash indicating which badge the user should take.

Data is collected and securely delivered through a cellular network to the cloud. It doesn’t use any hospital infrastructure, or private or public Wi-Fi. Once in the cloud, the data is compiled into customizable digital dashboards that enable measurement and analysis of hand hygiene practices. It also tracks equipment status, battery

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# UHN's Medly app for cardiology patients improves care and outcomes

BY JERRY ZEIDENBERG

**M**edly, an app for heart failure (HF) patients that was created at the University Health Network, is now monitoring nearly 600 users. It runs on most smartphones and also on iPads. Originally aimed at patients reporting to doctors at the Toronto General's Heart Function Clinic, it's now being used with patients at the Toronto Western's Cardiology Clinic, too.

The app is demonstrating some impressive results. A recent study of 315 Medly patients showed a 50 percent reduction in HF-related hospitalizations in the six-month period after they began using the app as compared to the six months prior.

Moreover, the Medly app is also enabling better management of medications. As a result, there has been interest from other organizations across the province – in future, other hospitals and independent heart clinics may start using Medly.

Powered by an “expert system” algorithm that's been steadily improved over the past several years, the Medly app can advise patients on how to respond to changes in their health – improving their outcomes and keeping them out of hospital.

That's been extremely helpful during the COVID-19 crisis. But it's also an ongoing issue, too, as the numbers of heart failure patients in every Western country have been rapidly increasing. There's an urgent need to improve the health of HF patients at home and in the community, as it's expensive to care for them in hospital beds.

Patients are learning to manage themselves at home by using the Medly app. They're trained to input a number of metrics each day – such as their weight, blood pressure, and pulse.

Based on daily changes and readings, the app advises them on the best actions to take – just as a clinician would do.

“If you gain a certain amount of weight, the app may give you advice on your med-



ications,” said Patrick Ware, PhD, and Lead, Implementation Science at the UHN's eHealth Innovation unit. “It may tell you how much medication you should be taking, such as a diuretic, and when.”

He added, “I think we're unique in Canada in this regard, in giving this level of support for self-directed care.”

However, by no means is the patient on his or her own. Medly makes use of the Internet and connects the patients to clinicians. The program is supervised by nurses, who can monitor all of the patients and who receive alerts when results are out of whack.

“About 75 percent of the information the patients report is normal,” said Dr. Ware. “About 25 percent will have a caution alert for the nurse. And the nurses usually know the patients, as they've met them in the clinics – they know what's going on. If they're getting an alert a few days in a row, they'll follow up with the patient to see what's happening.”

Dr. Ware noted that in less than 1% of the cases, alerts are urgent, and involve a clinically important combination of symptoms such as chest pain, difficulty breath-

ing or blood pressure that is significantly high or low.

The nurses follow-up immediately on these incidents; they can also escalate the calls to physicians when needed.

The results of the Medly program speak for themselves: not only are the HF-related hospitalization rates 50 percent lower for patients using the app than for those who don't, they're also 24 percent lower for all-cause hospitalizations.

“It's been very effective,” said Dr. Ware. “We're also showing an improvement in the quality of life for these patients, in their emotional and physical health.”

The strength of the Medly system also means that fewer nurses are needed to monitor patients, Dr. Ware said. Currently, two nurses are monitoring 600 patients. That compares with one nurse for every 60 or 70 patients for some other telemonitoring programs, he said.

The team at the UHN is continuing to improve and modify Medly. They're collaborating now with the Vector Institute, which specializes in machine learning and other forms of artificial intelligence, to

build additional functionality into the app.

For example, in future, it may include the patient's particular medications or other health information in its algorithm, so the algorithm becomes even more personalized to the individual.

Medly has proven to be especially helpful with the challenge of titrating the medications of patients. Ideally, cardiologists like to see patients taking the highest dose of a heart medication that can be tolerated, for maximum effectiveness.

Normally, to gauge this optimal level, patients visit their cardiologist every two weeks, to determine the maximum level for the patient.

That's a lot of back and forth for most patients, and it has been difficult to accomplish during the COVID-19 lockdown.

But by using Medly, patients can record their symptoms in the app each day or directly call the Medly nurse. The nurse can in turn alert the cardiologist whether the patient is tolerating the medication or not.

“What used to be a visit to the hospital every two weeks – for what turned out to be just a short visit with the physician – can be remotely managed by the nurse and data collected by Medly,” said Dr. Ware.

“The nurse can send a message to the cardiologist to increase the dose, reduce it or keep it stable,” he said.

Dr. Ware noted that in practice, when patients were required to visit the cardiologist in person for titration, many could not come every two weeks. It was too far for them, they could not take time off work, they would forget, or other things would come up. But with Medly, they simply input their readings into their smartphone or iPad and the nurse becomes aware of what's happening.

“We're now making this feature a standard part of the Medly program,” said Dr. Ware. “Titration has been a cornerstone of heart failure management, but it is a real challenge. Medly improves the whole process.”

## New system connects patients, GPs with diagnostic imaging department

BY MEAGHAN QUINN

**K**INGSTON, ONT. – A new platform will now help make tracking referrals into the Diagnostic Imaging (DI) department at Kingston Health Sciences Centre (KHSC) a lot easier for both patients and primary care providers.

Known as the Ocean eReferral Network, this technology allows primary care providers to securely send electronic referrals in real-time while helping keep patients informed on the status of this referral.

“The wonderful thing with this technology is not only does it keep providers informed on the status of the referral but it also updates the patient via email on when the referral has been sent and confirms when they have an appointment created,” says Kelly Hubbard, manager of DI at KHSC. “It's an effective

way of keeping patients informed along every step of their care journey.”

With the Ocean eReferral Network, primary care providers send in an electronic referral on a patient's behalf to have them seen in the DI department at KHSC. This is a marked difference from the traditional faxed referral. At the same time the eReferral is sent, an alert also goes to the patient's email address and both the patient and referring provider are kept informed electronically.

If the patient does not have an email address or prefers to not provide one, DI will still book the patient via a phone call and letter confirmation while also keeping track electronically so the primary care provider is kept informed.

For the DI department this work also helps to manage a demanding workload of referrals. As the largest DI department in the South East region, they face one of the highest volumes

of referrals for a clinical area.

“In addition to streamlining work and keeping patients informed along their care journey, another advantage of this technology is that it may help to cut down on certain types of privacy breaches. When referrals are received via

**The technology allows primary care providers to send electronic referrals and keep patients informed.**

fax it can be difficult at times to read the signature on the referral form and consequently information is sometimes shared with the incorrect provider. With the electronic referrals there is no signature to decipher,” says Hubbard.

An added bonus with the Ocean technology is that DI can customize the

messages that are sent back to patients.

This means that they can update information on any changes that may be happening at KHSC when the appointment is booked or important information that is needed to know in advance of the appointment, allowing the patient to plan their visit accordingly.

Getting this technology put into place was a big investment of time and teamwork by DI staff and physicians with significant support from the Ocean eReferral team – but its work that DI has no regrets about.

“This is a win-win for our department, primary care providers and, most importantly, our patients,” says Hubbard. “We've received positive feedback from our community partners that are already using this platform to connect with us; I would encourage all care providers to get on board with this technology.”





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# Digital link between hospital and LTC aims to enhance health outcomes

BY ELAINE MITROPOULOS

As COVID-19 amplifies the need for collaboration among healthcare providers, a unique partnership is creating a digital link between St. Joseph's Healthcare Hamilton (SJHH) and St.

Joseph's Villa in Hamilton, Ont., to enhance the health outcomes of older adults transferred between hospital and long-term care (LTC).

By implementing Harmony by PointClickCare, an integrated platform, acute care teams will be able to send elec-

tronic medical information directly to LTC teams – in real-time. The same will be true in reverse for residents of an LTC home going into hospital.

"The project will enable two-way computerized exchange of clinical information making discharge from hospital faster,

helping to reduce readmissions, and potentially preventing some admissions," said Dr. Dan Perri, chief medical information officer at SJHH.

"As the number of baby boomers needing LTC facilities is expected to reach a record high, the benefits move beyond COVID-19. This data exchange could keep older adults safe, and out of hospital, longer."

Healthcare systems use electronic health record (EHR) platforms that best meet the needs of their organization. At SJHH, Epic (Dovetale) supports the hospital's acute and ambulatory care programs, while PointClickCare, which is designed to support LTC facilities, is used at St. Joseph's Villa.

In the past, when a patient was discharged from hospital to LTC, or a resident returns to a care home after a hospital visit, printed or faxed documentation was used in the transfer of care. As a result, clinicians lacked quick access to medical histories from the LTC home, and LTC staff would manually input clinical data into a resident's electronic records.

In integrating the two systems, Harmony will run in collaboration with Epic's Care Everywhere platform. By reconciling medical record numbers in hospital with PointClickCare's counterpart in the care home, healthcare providers on both sides of a care scenario will be able to view outside information within an individual's medical chart.

Up-to-date data will allow clinicians to know exactly what medication the patient is taking, and the right dosage and frequency – curbing potential delays in treatment and errors in care.

"Transitions between LTC and hospitals have the potential for poor communication and medication errors that can hurt older adults," said Dr. Hugh Boyd, medical director at St. Joseph's Villa. "This integration will eliminate clinicians wasting time sorting through fragmented data and allow more time to focus on caring for patients. It will save time and lives."

Throughout the project, SJHH is working collaboratively with PointClickCare to ensure the integration's infrastructure is resilient in maintaining cyber-security.

"Protecting personal health information is an important component of any data integration project," said Tara Coxon, chief information officer at SJHH. "To safeguard the solution, our teams are thoroughly assessing vendor threats and privacy risks to ensure the integration's architecture has the right mechanisms in place to address potential failures."

The team will test the integration's functionality to ensure the right information populates the right medical chart sections in the process. Testing will match demographic data, including an individual's name, address, and health card information, as well as the accurate transfer of clinical history.

The team will use baseline metrics to evaluate efficiencies in workflows and health outcomes to gauge the project's success. Once the benefits of the commercialization pilot projects are known, the hope is the solution will expand to other LTC homes using PointClickCare's EHR platform.



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# Think Research brings virtual care to Ontario Long-Term Care homes

BY GENEVIEVE TOMNEY

From the moment the COVID-19 pandemic found its way into Canadian long-term care and retirement homes, it was clear the impact of the novel coronavirus would be profound.

Seniors are at higher risk of developing serious COVID-19 illness. Long-term care and retirement homes are particularly vulnerable to outbreaks due to the communal nature of their living environment.

Efforts to keep the virus from entering homes by limiting visitors have been crucial.

In April, a program funded by Ontario Health was launched to bring remote care to long-term care residents in the province. Using the VirtualCare platform developed by Think Research, a Canadian health technology and clinical content company, long-term care homes have been

able to connect with external clinicians via audio, video and chat.

“It’s been a shift for everyone to change how we bring physician care to residents. Remote care options have long been available but hadn’t become part of the everyday workflow for long-term care,” says Mylee McDonald, nurse manager at King City Lodge. “It quickly became evident in this pandemic that a virtual solution was absolutely necessary.”

Primary care doctors play a vital role in the health of long-term care residents. They build relationships with the staff and residents and know their medical history. Importantly, the physicians also come to the home.

But with these visits there is always a degree of infection risk – something that has become particularly concerning during COVID-19. Physicians typically see many patients in a number of different settings, including hospitals. As they travel between clinics and other long-term care homes, the possibility of spreading any kind of virus increases.

McDonald says by quickly pivoting to virtual care, King City Lodge has been able to maintain those important doctor-patient relationships, but vastly reduce the risk.

“It’s allowed us to continue to offer the high-level of care we want for our residents by bringing in our doctors to care for residents without the physician ever having to actually step foot in our home. We can provide safe and effective virtual visits between physicians and residents. We can help contain the spread of COVID-19. We can protect our community.”

Since the beginning of the pandemic, King City Lodge has been COVID-free – no staff or residents have tested positive for the virus. As Ontario prepares for a possible second wave of infection in the fall, long-term care homes like theirs are constantly looking at how to improve care, reduce infection risk and prevent the spread of the novel coronavirus. Virtual care is an important part of that plan.

“We’re incredibly proud to be able to offer our platform to Ontario long-term care homes in these challenging times,” says Sachin Aggarwal, CEO of Think Research.

“We’ve seen how using a virtual care platform designed for use in a long-term care setting can ensure that residents continue to get the care they need, without the stress or risk of traveling out of the home. We know how important it is for long-term care homes to be able to continue delivering high-quality care for their residents and we’re working closely with them to support that.”

The VirtualCare for long-term care platform facilitates the interaction between the physician, the resident and the home’s staff via chat, audio and video. The technology doesn’t eliminate the need for in-person visits, but provides a safe alternative where appropriate.

Long-term care homes are using VirtualCare with a variety of providers including primary care physicians, nurse practitioners and dietitians. The platform is Canadian-made and fully compliant with PIPEDA legislation, with all data housed on a secure, Canadian cloud-based platform.

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**FUJITSU**

# GEHC MR scientists are innovating at academic sites across Canada

**G**E Healthcare (GEHC) has enjoyed a long-standing and productive collaborations with imaging scientists and clinicians at academic institutions across Canada – in some instances leading to licensing opportunities for the institution. GEHC's history of support to academic centres includes access to GEHC engineers, support for embedded scientists (working onsite with clinicians and scientists) as well as direct research support for projects of strategic interest. This article will spotlight four incredibly accomplished GEHC MR scientists who provide scientific and technical support to seven Academic institutions across Canada. Together the research collaborations are making an impact on patient care and accelerating innovation in Canada.

## Innovation in Vancouver

*Dr. Jing Zhang, MR Scientist GEHC  
Djavad Mowafaghian Center for Brain Health University of British Columbia, Vancouver, and British Columbia Children's Hospital, Vancouver*

**D**r. Jing Zhang has been working with Dr. Bruce Bjornson and his team at the BC Children's Hospital (BCCH) in Vancouver for the past six years. Dr. Bjornson's research is primarily focused on the application of multi-modality functional neuroimaging methods in childhood epilepsy. The goal is to evaluate outcomes and enhance neurological care in children. Dr. Zhang has also been working with Dr. Jonathan Rayment's team on establishing the utility of pulmonary MRI as a radiation-free imaging tool for assessing disease progression and therapeutic response in patients suffering from chronic respiratory disease.

Some of the challenges of pediatric MRI include motion, need for sedation and getting good image contrast in the developing brain and to avoid radiation dose in imaging. Dr. Zhang is helping to address many of these challenges by optimizing a prospective motion correction method, developing MR sequences that maximize contrast between gray and white matter of the brain and MR-based measurement of myelin.

Canada's only simultaneous PET-MR machine dedicated solely to brain-related research was installed at the Djavad Mowafaghian Center for Brain Health University of British Columbia (UBC), in Vancouver. The GEHC team is partnering with Dr. Vesna Sossi and her team to develop the next generation of Neuro PET-MR applications. Dr. Zhang has been key to development of the MR imaging protocols suitable for the PET-MR platform and to ramping up of the PET-MR imaging program.

## Innovation in Calgary

*Dr. Marc Lebel  
Lead Scientist, Neuro MR, GEHC  
The Foothills Hospital, Calgary  
The Alberta Children's Hospital, Calgary*

**D**r. Marc Lebel has been onsite at the Foothills Hospital & Alberta Children's Hospital for eight years, during which time he has led a broad spectrum of projects and clinical applications. He co-developed a technique for measurement of permeability and blood fraction by highly accelerated dynamic contrast enhanced imaging of glioblastomas with the aim of differentiating pseudo-progression from true progression with Dr. Richard Fraye at the Seaman Family MR Research Centre. He also developed an advanced spectroscopy sequence for metabolite measurement in pediatric cohorts with Dr.

Harris at Alberta Children's Hospital, and assisted in motion robust pediatric imaging (Drs. Catherine Lebel and Signe Bray, Alberta Children's Hospital) and shoulder instability assessment by zero-TE imaging (Dr. Rick Walker, Alberta Children's Hospital). Overall, Dr. Lebel maintains an active role in the academic and research settings, serving as an adjunct assistant professor in the Department of Radiology in the University of Calgary, advising on thesis and grant committees and is recognized internationally as an MR expert.

Dr. Lebel's technical innovations have had a significant impact on many aspects of brain MRI including brain perfusion and imaging of myelin. More recently, he directed his attention towards wide-spread

## GEHC's collaborations with researchers are making an impact on patient care and innovation across Canada.

MR image quality issues, such as insufficient signal-to-noise and ringing in images and invented a novel Deep Learning based reconstruction pipeline, AIR Recon DL, which addresses these problems efficiently by employing a deep convolutional neural network to reconstruct images with high signal-to-noise ratio (SNR) and sharpness from MR data corrupted with noise and truncation artifacts. This technique will have a tremendous impact in elevating MR image quality across the board since it is generalizable across anatomies, coil setups and field strengths. Clinically the impact of this new technique includes:

- SNR improvement in a given scan time;

- Scan time reduction while maintaining image quality; and
- Improvement in sharpness and resolution

The development of this new technique, AIR Recon DL, has also fostered clinical collaborations for evaluation and testing globally and is considered one of the most impactful innovations in GE MR business in recent times.

## Innovation in Toronto and London, Ontario

*Dr. Albert Chen  
Lead Scientist 13C MR GEHC  
Sunnybrook Research Institute (SRI), Toronto and Robarts Research Institute, London, Ont.*

**O**ver the last 12 years, Dr. Albert Chen has supported hyperpolarized 13C MR imaging studies with Drs. Charles Cunningham, Charlie McKenzie and Timothy Scholl focusing on development of MR hardware and data acquisition/reconstruction methods. The goal of their studies is to further develop Dynamic Nuclear Polarization (DNP) instrumentation and methods for clinical translation of hyperpolarized 13C imaging. Through Federal and Provincial government grant applications, both Sunnybrook Research Institute (SRI) and the Robarts Research Institute (RRI) were able to leverage the cash and in-kind scientific support contributions from GEHC to secure further funding for their research activities.

Highlights of research collaboration with Canadian GE users of hyperpolarized 13C imaging:

The world's first hyperpolarized 13C imaging of the human heart was performed at Sunnybrook in 2016. Building on their previous pre-clinical studies, the Sunnybrook team demonstrated both the immense potential and feasibility of using hyperpolarized 13C metabolic imaging to diagnose cardiac disease and its response to treatment. Both hardware and software used in this study were developed in a collaboration between GE and the Cunningham lab at SRI.

In clinical studies, hyperpolarized 13C

imaging has also been successfully translated to human brain applications in both health volunteers and patients with metastatic tumors in the brain. GE collaborated with the Cunningham lab at SRI on various aspects of the study, including RF coils and data acquisition methods. These studies demonstrated the potential of hyperpolarized 13C imaging to probe metabolic changes due to brain function, neurological diseases, as well as treatment responses. Dr. Chen has been assisting the McKenzie lab at Schulich Medicine & Dentistry who are developing hyperpolarized 13C imaging to non-invasively measure in vivo placental metabolism and nutrient transport. While this application is in an early stage of development, the ongoing study is supported by an NIH U-01 grant. Both hardware, software and study protocol used in the study were developed in collaboration between the McKenzie lab and GE.

## Innovation in Montreal

*Dr. Andrew Coristine  
Scientist MR GEHC  
McGill University Healthcare Centre (MUHC), Montreal*

**C**ardiovascular MR (CMR) is the accepted gold standard of quantitative cardiac imaging that provides key clinical insights into cardiovascular disease manifestation, severity, progression, and monitoring of therapeutic response. In state-of-the-art medical centres around the globe, CMR plays an important and efficient role in determining the optimal cardiovascular patient treatment pathway. Despite its apparent and often unique advantages, however, CMR adoption has been relatively limited outside of such institutions. Several factors are involved, but chief among them is the cost, complexity, duration and operator dependency of the CMR exam.

At the McGill University Health Centre (MUHC), Dr. Matthias Friedrich has led the development of a novel contrast-free method to probe coronary vascular function by assessing myocardial oxygenation via changes in myocardial signal intensity during breathing maneuvers. This method, along with standard cine and myocardial quantitative mapping methods, has the potential to enable a rapid, contrast-free, comprehensive CMR protocol that yields a comprehensive set of parameters of cardiac morphology, mass, function, myocardial tissue characterization, and vascular function in a single exam.

In parallel, GEHC has major development efforts underway, together with colleagues in GE Digital and GE Global Research, to build an intelligent MR scanner that automates and simplifies scanning workflow and post-processing based on deep learning and data analytics. This work is poised to dramatically improve CMR workflow, which today is heavily user-dependent, in addition to other clinical areas.

Together with the GEHC on-site MR scientist Dr. Andrew Coristine, the team is developing a rapid, standardized CMR imaging exam which doesn't require injections or other forms of stress interventions. This is a uniquely powerful academia-industry partnership with the goal of improving patient care globally.







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# Caption AI allows non-specialists to conduct meaningful echocardiograms

Conventional cardiac ultrasonography requires the skillset of an expert.

BY DR. SUNNY MALHOTRA

For decades, heart disease has been the leading cause of death in the United States, with one in four deaths among women and men being attributable to cardiac causes. Many of these causes can be managed with preventative assessments. Early detection by diagnostic tools is key to reduce the severity and costs of care.

Cardiac ultrasounds provide the necessary means to diagnose cardiac abnormalities effectively. However, current conventional cardiac ultrasounds rely on the skillset of experts to recognize and identify anatomical structures, ultimately limiting access of such a tool to only a subset of clinicians with years of specialized training.

This limitation contributes to the numbers of cardiac-related deaths as time-efficient diagnostic tools are not easily operable by non-specialized medical professionals and thus cardiac issues cannot be detected and prevented in a timely manner.

Caption AI, the first artificial intelligence-enabled cardiac ultrasound developed by Caption Health, can serve as a solution to this problem.

Caption AI is an FDA approved software system that's designed to direct medical professionals through diagnostic tests that would otherwise require ultrasound specialists.

The system begins by providing a probe positioning diagram to assist with positioning of probes and giving adaptive instructions to prompt users to make specific transducer movements to capture diagnostic-quality images.

It is enabled with auto-capture that allows for the recording of imaging clips, completely hands-free,

and saves these clips to review later. Caption AI also evaluates and selects the best clips from an exam to aid in the automatic calculation of a patient's ejection fraction to assess cardiac function.

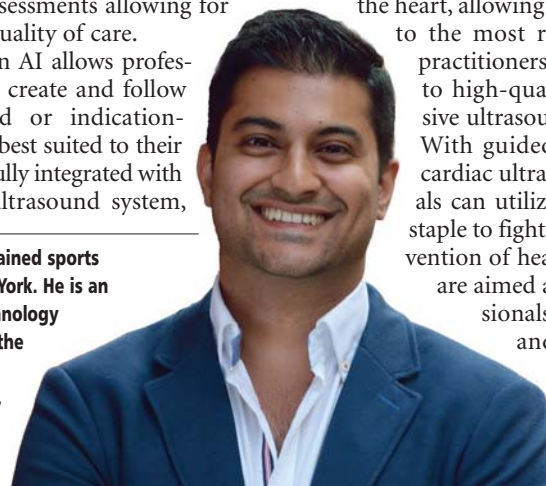
The tool guides professionals on how to place and move the scanner to produce the best quality images from each scanning session and displays a quality meter to allow users to see how close they are to cap-

**Caption AI can direct medical professionals through diagnostic tests that would otherwise require ultrasound specialists.**

turing a diagnostic quality image. Caption AI provides real-time feedback on exam quality in addition to automated quality assessments allowing for the standardization of quality of care.

Furthermore, Caption AI allows professionals the flexibility to create and follow custom workflow-based or indication-based protocols that are best suited to their practices. Caption AI is fully integrated with the Terason portable ultrasound system,

**Dr. Sunny Malhotra is a US trained sports cardiologist working in New York. He is an entrepreneur and health technology investor. He is the winner of the national Governor General's Caring Canadian Award 2015, NY Superdoctors Rising Stars 2018 and 2019. Twitter: @drsunnymalhotra**



which allows for a full range of clinical applications.

On a related cardiological note, Eko, a collaboration of scientists, specialists, and experts based in Singapore and the Netherlands, has developed an FDA approved AI stethoscope that can help practitioners better assess patient-care by aiding in the detection of heart murmurs, atrial fibrillation, and other cardiac sound abnormalities otherwise difficult to diagnose during routine physicals.

Recently, the company has introduced Eko.ai, an integrated machine learning software that predicts and treats early-stage heart diseases. Although Eko.ai is still in development, the platform of Eko.ai provides tools to improve cardiovascular research. It aims to reduce the amount of time required for diagnostic purposes and can classify and quantify frames from patient exam videos.

Caption AI and Eko.ai can simplify ultrasounds of the heart, allowing those from the most advanced to the most resource-constrained medical practitioners equal opportunity and access to high-quality, consistent, and inexpensive ultrasound analysis.

With guided assistance from AI-assisted cardiac ultrasounds, healthcare professionals can utilize these tools as a mainstream staple to fight in the early detection and prevention of heart diseases. These innovations are aimed at providing healthcare professionals with enhanced, time-saving, and reliable instruments to

streamline workflows and reduce the burden on over-worked specialists allowing for more productivity and effective healthcare.

## Environmentally sustainable healthcare leads to better outcomes

BY SIMON HAGENS  
AND DR. NICOLE SIMMS

What happens when a pandemic meets a heat wave? This is a question that many jurisdictions are asking themselves this summer, weighing the need for emergency cooling centres against the continued need for physical distancing.

Climate change affects various human activities, including healthcare. The effects of climate change are a risk factor for worse health outcomes, whether through direct impacts such as heat-related illness, or indirectly through factors like poor air quality and floods. Healthcare organizations internationally have identified climate change as the greatest threat to global health in the 21st century.

In turn, the healthcare system has significant effects on the environment. If the global health system were a nation, it would be the fifth largest

emitter of CO<sub>2</sub>. While the bulk of these emissions arise from the procurement of medications and equipment, the energy needs of infrastructure and health-related travel comprise a substantial portion as well.

There is a central paradox. While the healthcare system is responsible for maintaining health, by contributing to climate change, it adds to a problem that puts health at risk. This is a significant issue in Canada, which ranks third in per capita health system emissions globally.

However, the increasing use of virtual care holds promise for reducing carbon emissions. According to Infoway's 2019 Access Digital Health Survey, Canadians in rural areas travelled an average of 24 km to their regular place of care, while their urban counterparts travelled an average of 13 km, both significantly larger distances than the approximately 4-7 km travel break-even point (depending on vehicle fuel efficiency) needed

to offset the relatively minor carbon emissions of virtual care.

These carbon savings are magnified in Canada, where our notoriously fuel-inefficient vehicles can be replaced with virtual care technology running on energy from our largely non-emitting power grid.

If half of in-person visits were replaced by virtual visits, carbon emis-

**At the height of the COVID-19 pandemic, about 60 percent of visits were conducted virtually.**

sions would be reduced by 325,000 metric tons – savings equivalent to taking more than 70,000 passenger vehicles off the road for a year. At the height of the COVID-19 pandemic, approximately 60 percent of visits were conducted virtually, either by video, telephone or SMS.

From past studies, we know that patients with access to their personal health information are more confident in managing their care, particularly with respect to chronic conditions. Virtual care can provide a means to improve continuity of care and help manage conditions before they worsen, leading to fewer hospital admissions and/or emergency department visits.

The COVID-19 crisis has opened space in which to reassess how we deliver care. By making environmental sustainability an integral part of our health system post-COVID, we can secure better health outcomes for patients and the planet. We can also avoid making our next healthcare crisis an environmental one.

*Simon Hagens is Group Director, Performance Analytics, at Canada Health Infoway. Dr. Nicole Simms is Managing Director of the Centre for Sustainable Health Systems, in Toronto.*



# What we can learn from both successful and failed deployments of AI

BY LAURIE LAFLEUR, MBA, CIIP

Despite the explosive growth of artificial intelligence in health-care in recent years, deploying AI in clinical practice is still a complex undertaking. There are numerous algorithms available – each with its own distinct use case and value proposition.

Determining which AI applications will provide the most ‘bang for your buck’ requires thoughtful evaluation and identification of your organization’s own unique challenges and objectives. As well, it’s important to consider how AI will integrate into your existing technologies and day-to-day operations. Applications that fragment workflow or introduce cumbersome steps rarely achieve successful adoption – especially among busy clinicians.

There are a number of AI deployment

success stories and cautionary tales that can educate us.

The first example involves computer-aided detection (CAD), which was first introduced to assist radiologists in identifying potentially cancerous lesions in digital mammographic images that might otherwise be undetectable to the human eye. This technology evolved over time and has become a mainstream tool that is being used as a method to detect and monitor breast cancer worldwide.

Now marketed as computer-aided diagnosis (CADx), this technology has evolved again and is not only able to detect lesions but can now suggest a diagnostic classification for lesions on both 2D and 3D breast images.

A large teleradiology network deployed this technology in late 2019 in cooperation with their hospital partners and is actively utilizing the CADx results as a secondary

overread. While successful, the deployment wasn’t initially smooth.

Much like when CAD was originally introduced, there were some growing pains when the AI algorithms were refined to perform accurately and consistently

**It’s important to consider how AI will integrate into your existing technologies and day-to-day operations.**

against various imaging modalities, breast densities, and patient ethnicities, etc.

Working closely with the algorithm developer, the site has seen positive performance improvements and trust among physicians is slowly increasing.

Unfortunately, progress has stalled due to operational changes related to COVID-

19, but the organization is optimistic that the technology will ultimately reduce read times and accelerate time to treatment, provide a higher degree of sensitivity and specificity in diagnosis, and decrease the number of unnecessary call-backs related to unclassified or missed findings.

Shifting focus from diagnosis to workflow management, we can discuss a multi-hospital network that is leveraging image analysis algorithms to identify and prioritize clinically critical findings such as intracranial hemorrhage and pulmonary embolism in diagnostic imaging exams.

Once identified, the exams are automatically elevated and flagged at the top of the radiologist’s worklist and alerts are triggered to ensure clinically urgent cases are interpreted immediately and patients receive treatment without delay.

Because the AI algorithms were focused on very specific use cases and were trained against a highly varied dataset representing a diverse array of device manufacturers and patient populations, they performed relatively accurately against local datasets upon initial integration.

As well, the AI was able to integrate seamlessly into radiologists’ existing workflow, resulting in minimal training requirements and making application roll-out and user adoption quick and easy.

The full deployment was achieved in a matter of weeks, and physicians quickly realized the benefits, reporting two cases in the first month alone that, without the AI in place, could have resulted in missed or delayed diagnoses.

Unfortunately, not all AI deployments have been sunshine and roses. There are as

CONTINUED ON PAGE 22

## Tele-psychiatry helps clients open up to their therapists

MONTREAL – Compared to many other branches of medicine, psychiatry might appear to be a dubious candidate for telehealth, where bonds are forged with screens and keyboards, rather than in the privacy and intimacy of the doctor’s office.

And yet, long-distance counselling has taken root and flourished at the Jewish General Hospital – and more widely throughout CIUSSS West-Central Montreal – since the lockdown came into effect in March for the coronavirus (COVID-19) pandemic.

“I’ve noticed that the quality of the sessions and, in some ways, the nature of the therapeutic relationship improves when it happens virtually,” says Dr. Marc Miresco, a psychiatrist and director of Adult Psychiatric External Services in the Institute of Community and Family Psychiatry at the JGH.

“This may sound counter-intuitive, but it’s true. The fact is, many patients initially feel somewhat shy or reserved about opening up to a mental health professional, even though we try to be as receptive as possible and encourage them to speak freely.

“For these patients, there’s something about using their own computer in their own environment at home that makes it easier and more comfortable for them to say what’s really on their mind.”

“Many patients – especially if they’re new to therapy – may also feel nervous about possibly being stigmatized,” adds Tung Tran, director of the CIUSSS’s Mental Health and Addiction Program.

“The benefit of telehealth is that they don’t need to go to the hospital and be treated in a psychiatric setting, so they feel more comfortable and less self-conscious. If they feel secure at home, they’re more inclined to express their thoughts and emotions, and more open to talking about what’s happening in their lives.

“Of course, this means that as a professional, you have to make some adjustments and learn what to do when you’re in

front of a screen. For example, eye contact is extremely important, so you have to look into the camera and really talk directly to the patient. It’s not something we do instinctively, but if it’s done properly, it can be very effective.”

“Psychiatry and mental health are actually the low-hanging fruit and the most obvious candidates for telehealth,” adds Dr. Miresco. “We’re one of the only – if not the only – medical specialties where we don’t need to place our hands on our patients to examine them.

Before COVID-19 struck, says Mr. Tran,

telehealth was not an option for Quebec psychiatrists, because the Ministry of Health rarely remunerated doctors for work that was done remotely with a digital connection. By contrast, telepsychiatry had already been introduced in some other parts of Canada and the United States.

However, as the threat of a pandemic loomed in February, the government changed its policy and allowed payment to be made to physicians who practice with telehealth. In addition, safeguards were put in place to ensure the security and confidentiality of the online tools.

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# The COVID-19 crisis has spurred the use of remote monitoring and networking

Social networks are being deployed to keep patients better informed and healthy at home.

BY DIANNE DANIEL

Depending on who you talk to – or where you live – the COVID-19 pandemic is either bringing communities down or building them up. For those driving innovation in Canadian healthcare, the virus is proving to be a collaboration catalyst, bringing together funding organizations, researchers, vendors, clinicians and patients themselves to work on life-changing ideas, such as leveraging technology to ‘check in’ on people as they shelter at home.

Two examples are a new \$1.4-million Digital Technology Supercluster project that combines remote monitoring technology with a private social network to keep outpatients healthy and supported at home; and, a Roche Canada COVID-19 Innovation Challenge project that is using artificial intelligence to monitor and predict asymptomatic virus-related changes in seniors with the goal of preventing future long-term care outbreaks.

“The silver lining of COVID is how much everyone is leaning in and saying, ‘How can we help?’” said Lynda Brown-Ganzert, founder and CEO of Vancouver-based Curatio Networks Inc., the lead vendor on the Supercluster Stronger Together: Social Infrastructure for Community Health project. The project’s primary goal is to pivot traditional, in-person outpatient programs to an effective online model.

“We want every patient on the planet to have the type of support they need to achieve their best health outcomes,” said Brown-Ganzert, “There’s a lot of evidence that shows that having that peer support in place, and having a community around you, helps.”

Curatio’s private social network platform provides curated content about specific health conditions, digital tools to help manage those conditions, and a secure way to connect with others who are “just like you.” Privacy and regulatory compliant, it works like a social plug-in, giving health providers a tool to remotely connect their patients to evidence-based programs and peer support groups. Patients download the app to their smartphone and the company works behind the scenes to power the platform.

Curatio can be tailored to support a variety of health challenges, including chronic diseases, rare conditions, lifestyle issues or neurological disorders. Under the Stronger Together banner it is combining with proprietary remote patient monitoring hardware and software developed by Kitchener, Ont.-based Cloud DX to monitor and communicate with approximately 25,000 outpatients each week.

The project – in partnership with Age-Well NCE, OnCall Health, Zu.com, Wellness Garage, Pacific Blue Cross, University of British Columbia, University Health Network and Simon Fraser University – aims to give hospitals, doctors and community organizations a new way to deliver rehabilitation and disease management programs. Curatio addresses the social isolation aspect by bringing together curated online

communities, and the Cloud DX Connected Health Kit provides easy-to-use, medical-grade devices to remotely track and monitor symptoms and vitals such as blood pressure, weight and cardiac functions.

“When you look at the strengths of both products on paper, it’s like peanut butter and jelly,” said Cloud DX president and CEO Robert Kaul. “You’ve got the community aspect, you’ve got friends and family connected, and yet when required you have that very robust, medically valid and clinically accepted data from the home to help clinicians make better decisions about patients.”

One of the providers participating in Stronger Together is Dr. Michelle Scheepers, an anesthesiologist and quality improvement advisor within B.C.’s Interior Health Authority, in conjunction with UBC Southern Medical Program’s Faculty of Medicine Centre for Chronic Disease Prevention and Management. Interior Health quickly ramped up its virtual healthcare services in response to the pandemic. This project, supported by the Physician Quality Improvement Initiative and Interior Health, will provide a group of joint replacement patients the opportunity

to participate in the Stronger Together: Social Infrastructure for Community Health project. “Our optimization work has really looked at restructuring the process so that we’re able to get our patients on-boarded earlier with opportunities to improve their chronic disease comorbidities that will be relevant and effective in improving their surgical outcomes,” she said.

Using Stronger Together to support virtual pre-surgical optimization, is the project partners are now building a leading-edge social prescribing platform that Dr. Scheepers expects will live on once COVID-19 restrictions are lifted. The patient-centred online tool is being co-designed with input from a patient advisory board and focus groups, she said, and in addition to peer support and teaching, will offer “nudges” to change behaviour along with tools for self-monitoring. At the same time, it will provide a safe, online platform for sharing between hip and knee surgical candidates in the region and will eventually include post-operative monitoring as well.

“Within medicine, we’re finding that social determinants of health really have a significant impact,” said Dr. Devin Harris, Interior Health executive medical director, Quality and Patient Safety. “Having a social prescribing platform, meaning a community that’s curated to be able to assist with navigation for

something like surgery, is where we can have a lot of impact from a quality and safety lens.”

In addition to improved patient and family satisfaction, reduced length of stay and reduced risk of infection, social prescribing also increases satisfaction among surgeons and anaesthesiologists who “see their patients show up healthy and well, and mentally prepared,” he added.

In time Stronger Together is expected to expand to include recovery programs in mental health, anxiety, return-to-work after short-term disability, and disease prevention and management, said Kaul. In the meantime, he estimates 10 to 15 percent of the 25,000 weekly outpa-

tients participating in the platform will require symptom and vital sign monitoring at home, based on a case by case basis.

“They might get only the blood pressure cuff or pulse oximeter or the entire kit,” he said. “Our platform will be monitoring them at home and that data will flow up through our cloud-based infrastructure into the joint Stronger Together platform.”

At McGill University in Montreal, researcher Samira Rahimi is on a mission to remotely monitor another community group: seniors. After watching the rapid and devastating spread of COVID-19 in long-term care facilities across Canada – particularly in Quebec and Ontario – Rahimi decided to focus her research on saving the lives of the elderly and earlier this year her project was chosen as one of 11 to receive funding from the Roche Canada COVID-19 Open Innovation Challenge.

The goal is to use remote monitoring technology



ILLUSTRATION: LINDA WEISS



to facilitate early COVID-19 symptom detection, combining artificial intelligence with smart wearable sensors that measure parameters such as body temperature, blood pressure, sleep patterns, activity level and blood oxygen levels. Once collected, data is sent in real-time to a computer platform for automatic analysis, based on algorithms developed by researchers, and when something appears “off” an alert is sent, prompting care providers to check on the resident in question.

“We are targeting three months of data collection and hope to catch the second wave of COVID-19,” said Rahimi, an assistant professor in the Department of Family Medicine at McGill University. “If a second wave comes, we’ll be able to prevent the outbreaks and reduce the infection and mortality rates in long-term care facilities.”

The funded research – referred to as AiCoV19 – involves graduate students and researchers from Herzl Family Practice Centre and Lady Davis Institute for Medical Research at Jewish General Hospital, Donald Berman Jewish Eldercare Centre, University of Toronto, Ryerson University and McGill. Vancouver-based Agartee is providing the connected health devices and technology for symptom monitoring and the COVID-19 symptom thresholds are being defined based on observations in the latest research as well as input from clinicians and caretakers.

Overall, the project is targeting 60 to 80 seniors at long-term care facilities in Montreal and Toronto. Residents who enrol in the study will wear sensors from July to September, in the form of either a smart watch or patch. As data is collected, the research team will refine their early detection algorithms with the intent of having a scalable version of the monitoring solution ready for the fall.

One advantage is that system doesn’t require Wi-Fi. Rather, it relies on a built-in cellular connection, communicating via modems that are easily placed throughout a long-term care facility as required, explained Rahimi. No human intervention is required until an alert is received.

**M**ontreal’s Jewish Eldercare Centre is one of the long-term care facilities participating in the research effort. Attending physician Dr. Mark Karanofsky said the goal is early detection to better contain spread of the virus as well as to provide better care to those who are infected. Loss of appetite and dehydration appear to be early signs of the disease in the elderly, he explained, so the hope is to identify and isolate infected residents early, and then offer nutritional and fluid intervention to help them fight the virus.

“What’s interesting about this project is that it is using things that are measurable and then trying to get a machine to learn what a predictor of illness is,” he said. “We now know higher temperatures and oxygen levels going down are a sign of illness, but there are more subtle changes that these sensors could pick up.”

Though each measured parameter on its own might not be able to predict risk of COVID-19, the ability to apply machine learning to analyze the data collectively is the real differentiator, he added.

“Jewish Eldercare is one of the centres in Quebec that was hit by COVID-19. We

had a lot of residents who tested positive and one of the things we always lament is was there a way to identify who was going to be positive earlier,” said Dr. Karanofsky. “... I do hope for the patients who enrol in this study that early on, if there is a change in their temperature or oxygen levels, they’ll be more easily flagged.”

If the project proves successful, Dr. Karanofsky expects to find other uses for

remote monitoring in long-term care such as monitoring for aspiration pneumonia, a common condition among seniors. He also suggested that remote monitoring for vitals could result in time savings, freeing staff to focus on other aspects of care.

At Interior Health, Drs. Harris and Scheepers also see endless opportunities for remote technology moving forward, such as vitals monitoring of COVID-19

patients as they isolate at home. The technology could serve as a home check-in and patients would only be sent to hospital when symptoms escalate, keeping hospital resources at a sustainable level.

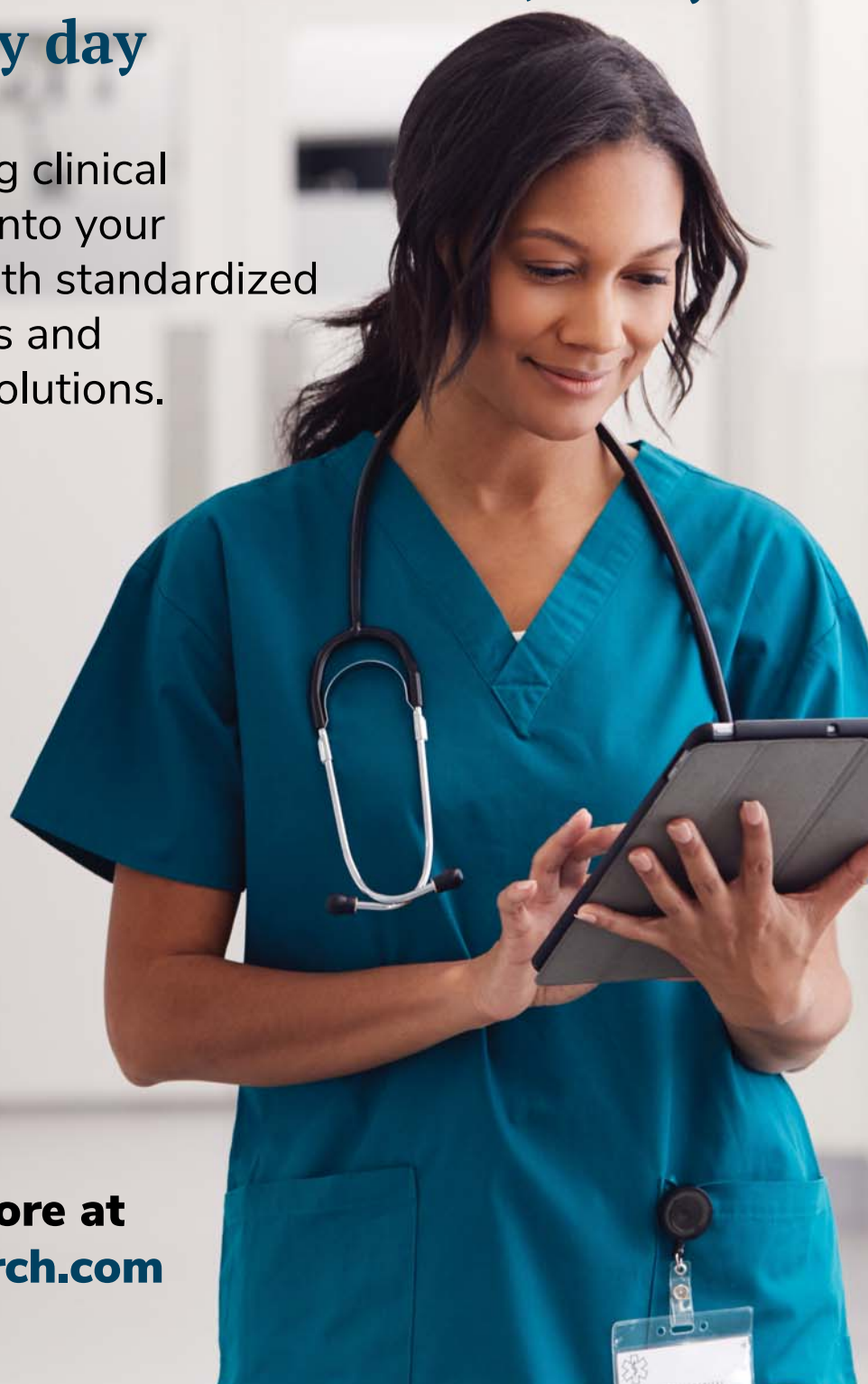
“I think the last few months have changed the way we do and offer medicine,” said Dr. Scheepers. “We’ve been able to see that remote care can be done safely and appropriately. How can we build from here?”



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# Client choice driving compassionate and personalized care at SE Health

BY SARAH QUADRI

Mary is making important choices – at home. She’s been doing that for over 70 years. “I choose survival, it’s always been that way for me,” said Mary, an artist, who loves gardening, collects old newspapers and makes her home in a 19th century, restored barn in Ontario. “As a baby, I was thrown between haystacks during the Second World War, when bombers flew over England. I am also a ‘phantom twin’ – I’m the one who survived; I am destined to survive.”

These days, Mary’s “survival” is about making the choice of how to receive care at home for a foot wound, during the COVID-19 pandemic. The wound is the result of a venous leg ulcer that developed post-surgery to repair her broken ankle, after she fractured it in the winter of 1995, when she fell while walking on a friend’s icy driveway. The wound flares up every so often.

SE Health is nurturing Mary’s commitment to making “choices,” while caring for her wound. As her home care provider and one of Canada’s largest healthcare organizations, SE Health is keeping client choice at the forefront of delivering care, even during these uncertain times. In March, when the pandemic began, SE Health was quick to mobilize their virtual care strategy, ensuring clients like Mary had “choices” and confidence in receiving care.

“We strongly believe that home is the safest place to receive care – during a pandemic and always,” said Mary Lou Ackerman, vice president of Innovation and Virtual Care Lead at SE Health. “This means understanding our clients’ needs and ensuring an optimal experience for our clients and staff. Care always comes first, that’s our commitment – for over 100 years.”



Melanie Brown, a Registered Practical Nurse with SE Health, provides foot care for a home-care client.

Keeping that “optimal experience” top of mind, SE Health’s virtual care strategy was developed with the intent to ensure that all clients continue to receive safe, quality and personalized care in the ways that work for them and their families, using communication tools they already feel comfortable with, such as the telephone, email, text and/or video.

“We’re extremely proud of our teams for collaborating and pivoting quickly to be able to offer our clients an outstanding virtual care experience that meets their care needs, promotes continuity in care and ensures client and staff safety through physical distancing,” added Ackerman.

For Mary, that care experience has been extraordinary. She began with in-person visits last November, but when the state of

emergency went into effect, she was afraid. SE Health put Mary’s care and concern first.

“As the days passed, and COVID-19 became more serious, I could sense Mary was uncomfortable with having anyone in her home,” said Melanie Brown, SE Health registered practical nurse and Mary’s care provider. “I assured Mary that I would continue to provide exceptional care from afar in the same ‘twice a week’ format and explain how to apply medication, dressings and even a Coban wrap. We embarked on a virtual care journey in early April and we haven’t looked back.”

“Melanie Brown is absolutely amazing; she’s the epitome of an excellent, caring nurse,” said Mary. “When I send her photos of the wound, she calls me on the telephone and we look at the photos together.

Melanie explains the measurement and presentation of the wound, if there’s been progress, any challenges we may be facing and step-by-step instructions on how to care for it. The support is wonderful and Melanie is very patient, knowledgeable and empathetic – I am so happy.”

Mary is one of thousands of SE clients choosing (and benefiting from) virtual care. As such, SE Health is closely monitoring feedback and results.

“We are always looking for ways to reimagine care for our clients and families,” said Ackerman. “From our research and the feedback, we’ve noted that wound care, chronic disease management and palliative care are among the most common practices that fit well with virtual care. As autonomous practitioners, our nurses and therapists are well positioned to provide virtual care; they work independently in clients’ homes, have incredible assessment skills, know the right questions to ask and use their clinical expertise to guide the client through their care needs.”

As part of the virtual care strategy, SE Health is also utilizing an Interactive Voice Response (IVR) or ‘Robocall’ solution that pre-screens clients for COVID-19 risks and allows them to share their preference for their home care visit: virtual or in-person. SE Health nurses and therapists work with clients to adjust their care plans and ensure the client’s voice and choice is at the forefront.

“We also recognize that not all care elements can be delivered virtually, added Ackerman. “In some cases, our clinicians deliver a hybrid model where in-person and virtual visits work together to meet the client needs, while at the same time reducing risk.”

SE Health staff are also benefitting

CONTINUED ON PAGE 22

## Mobii Magic Surface brings joy to Lanark Heights Long Term Care

KITCHENER, ONT. – A grey-haired woman slowly shuffles her walker toward a huddle of giggling residents. Her face is blank when she notices that her peers are sweeping their arms across a large black and white projection of spring flowers on a tabletop.

Magically, the flowers are turning vibrant colours with each pass of an elderly hand.

Within a minute of observation the woman joins in and begins moving her arms to “paint” flowers too. She smiles as she reaches and waves her arms across the tabletop. Her normally stiff limbs relax and her body flows as she enjoys the group activity.

A scene like this no longer surprises Hildy Nickel, administrator of the Lanark Heights Long Term Care facility in Kitchener, Ont. In fact, she has seen it enacted multiple times since her facility introduced the Mobii Magic Surface to its 160 residents two years ago.

“The Mobii is fun for our residents, and it involves more movement than most of our other activity offerings,” says

Nickel, who likes to stay current with the latest technology. “We offer exercise programs, colouring, puzzles and many other activities. But the Mobii is something different that always creates spontaneous smiles and laughter.”

The Mobii is a small, self-contained portable projector that houses a wealth of rich and stimulating activities for older adults, including those with dementia. The motion-activated, interactive tool uses images, games, quizzes, colour and music to evoke memories, stimulate conversation and encourage physical activity.

The technology makes it enjoyable and easy for people to move their bodies and to interact with the world around them. It also allows them to have some control over their environment.

Designed by sensory technology company OM Interactive, and winner in the Outstanding Dementia Product category in the U.K.’s Dementia Care Awards, the Mobii can be easily wheeled directly to groups of residents in communal areas or to individual bed-bound

residents. Images can be projected onto a tabletop or onto the floor for larger groups and games.

The floor projection is ideal for those who are able to ambulate. For example, they can walk or wheel across a virtual nature trail, scattering leaves along the way. Non-ambulatory residents can en-

joy the same experience using their feet from a seated position.

Its versatility is appreciated by staff members. They can adjust the volume, control the object speed, and easily create custom content with photos of family members or special events.

Residents can push tiny seashells, resting in shallow tropical water, into a pile. They can watch the water ripple and listen to the sounds of the sea.

Or toss a beanbag into a puddle. Watch and hear the splashes.

They might wipe away the image of an old-fashioned candy shop with a hand or baton to reveal childhood sweets, or use a feather duster to wipe away steam and reveal a train with actual family members peering out the windows.

They can tap on moving eggs and crack them open, using hands, feet, a cane or a walker.

Care homes report that while the physical activity and powerful visuals help improve their residents’ physical

CONTINUED ON PAGE 22



The award-winning Mobii Magic Surface motion-activated projection system, which easily glides to users, encourages physical activity and stimulates conversations.



# Allscripts connects the parts of the care continuum with innovative solutions

BY JOHN LEE-BARTLETT

There's no question about it: COVID-19 has affected every piece of the healthcare continuum – especially the clinical staff and, most important, patients everywhere. The past months have brought forth changes in point-of-care workflows and have created a heightened sense of urgency for virtual solutions, such as telehealth offerings.

There has never been a time that this level of change has been so universally recognized. At Allscripts Canada, we recognize those needs, are acting on them and have many clients using an array of solutions in Canada that are helping address challenges in community care as well as population health demands.

Allscripts has a wide variety of innovative solutions that drive everything from EHR efficiencies, patient engagement and care coordination to analytics and interoperability across entire connected communities.

Our population health suite of solutions, Allscripts CareInMotion™, helps healthcare organizations build open, connected communities of health by enabling users to know their populations, translate

**Using dbMotion, Fraser Health Authority is making information from systems across the region available at the point of care.**

that knowledge into action and manage patients across all care settings.

A fully interoperable platform, it seamlessly delivers harmonized information to the native workflow at all points of care, so care teams can coordinate care across the community, make better informed decisions and ultimately deliver more thorough, connected population care.

One specific case of excellent care coordination across the community can be found at Fraser Health Authority, the largest health authority in British Columbia. Fraser is using the Allscripts dbMotion™ Solution, part of the CareInMotion suite, with its community physicians.

dbMotion provides Fraser community physicians access to continuous care capabilities. Aneet Sahota, manager of e-Health Services, says, "Community physicians may be coming in and working within our hospital sites or community sites, and then when they go back to their office, they may be still looking after those patients, and so providing access through their office system also supports them in terms of being able to access that information as they need it."

With the dbMotion solution in place since 2014, Fraser Health Authority clinicians are making relevant clinical information from disparate systems across the region and province available at the point of care. dbMotion aggregates, harmonizes and displays patient data in a comprehensive record, which Fraser Health uses to gain a complete patient record, reduce duplicate testing and inform clinician decisions across the continuum of care.

Furthering the conversation on how we

help clients drive better care coordination across their communities and beyond, it's important to mention Allscripts® Care Director, also a part of the CareInMotion platform.

Care Director is a web-based, cloud-hosted solution enabling high-acuity care coordination across all healthcare settings. It helps healthcare organizations build structured care plans centered on the management of a patient's specific healthcare needs. These care plans can be viewed, actioned and shared by a multidisciplinary care team positioned across the health continuum.

Amid the COVID-19 pandemic, Care Director has been effective within the

Allscripts client base by creating a targeted care roadmap for patients to follow at home. With evidence-based care guidelines in place, clients can track and have outreach opportunities built into a patient's care plan.

These patients may have no desire to physically come into a hospital or community facility to follow up on their care. Custom dashboards have been created to identify these patients, track them into a point of actionability and create custom care plans.

With this tool in place, Allscripts is seeing organizations actively manage populations with more than 500 percent more patients leveraging this outreach

than what we've seen pre-COVID-19.

As an organization, Allscripts is proud to answer the call to advance the care of Canadian citizens through innovative healthcare IT solutions. Allscripts has a 36-year history of providing innovative solutions to the Canadian and global healthcare market, with the Canadian headquarters based in Richmond, BC, and more than 9,000 global associates. To learn more about how Allscripts solutions can help your organization drive the best care possible, visit [www.allscripts.com](http://www.allscripts.com), or reach out directly to [Canada@Allscripts.com](mailto:Canada@Allscripts.com).

*John Lee-Bartlett is Country Director, Allscripts Canada.*

## Dementia care blooms with MindfulGarden

BY ARIELLE TOWNSEND

A typical MindfulGarden therapy session begins with scenes of clear blue skies and butterflies floating peacefully through fields of white gerberas and purple lilies. The aim? An alternative approach to dementia care that focuses on compassion, dignity, and empathy.

MindfulGarden is a unique digital experience that de-escalates agitation among people living with dementia in hospitals and long-term care settings. Founder and CEO, Catherine Winckler, was inspired to create the platform alongside co-founder, Mark Ross, when her own mother passed away from undiagnosed delirium and overuse of restraints and psychotropic drugs in 2000. Since then, Winckler has fought hard to preserve her mother's legacy through the creation of MindfulGarden.

"MindfulGarden began as an exploration on how to use digital technology to 'interrupt' hyperactive delirium behaviours in the highly vulnerable population of frail elderly patients in hospital," Winckler says in her blog. "These are patients who, like my mother, could go downhill quickly post-surgery or on admittance to the hospital with urgent underlying conditions."

Today, caregivers use MindfulGarden more widely to reduce agitation and psychotropic drug use, and to promote a more positive journey back to health.

Up to 90% of people living with dementia are affected by behavioral and psychological symptoms such as agitation and aggression, which can be caused by changes in environment, misperceived threats, or disruptions in routines. Medication is traditionally used to address these symptoms.

Yet, significant evidence suggests that non-pharmaceutical interventions may be a gentler and more effective tool for arresting negative mood and behaviour changes in dementia patients.

Cue MindfulGarden – a digital solution that not only reduces the need for medication, but also calms patients enough for their caregivers to investigate what may be causing the agitation in the first place.

MindfulGarden responds to each patient's individual distress level. When someone exhibits distress cues in their voice, heart rate or gestures, MindfulGarden reacts by displaying soothing images, such as iridescent butterflies and blooming flowers, which helps to redirect their anxiety. The higher the anxiety level, the more responsive the images on screen become.

Ross believes the digital platform is effective because it works without being invasive or forcing patients to interact with it. "Most people at a heightened sense of anxiety don't want to be told how to relax," he adds. "We strip all that down and create a calming experience, one that is reacting to what's going on in the body."

After years of creating immersive in-

teractive environments for major organizations, such as the Olympics, Winckler and Ross were invited by their local health authority to leverage their technology as a resource for caregivers. The Centre for Aging + Brain Health Innovation, powered by Baycrest (CABHI), helped the company make the switch from entertainment to healthcare by brokering a relationship with Good Samaritan Delta View Care Centre. Here, they could validate their platform's effectiveness as an alternative tool for traditional de-escalation methods requiring medication.

Shahida Devji, a retired assistant site manager at the Good Samaritan Delta View Care Centre, and previous onsite project lead for MindfulGarden, says the platform helped her staff strengthen their commitment to a "hugs not drugs" policy.

"At the Good Samaritan Delta View Care Centre, we always try to exhaust our options before going down the route of medication," says Devji. "When we tried MindfulGarden with our patients, it gave us goosebumps. It's such an amazing tool that visually calms your head and your mind."

In today's changing healthcare climate, it's even more critical for caregivers to manage their patients' responsive behaviours and potential to cause self-harm or harm to staff. That's why Ross and Winckler are working to get their solution into the hands of those who need it the most. They are working with local healthcare providers to launch MindfulGarden on tablets and provide training to caregivers as part of their immediate COVID-19 response plan.

As for the future of MindfulGarden, it will continue to represent Esther Winckler's legacy. The team remains committed to developing healthcare technology that enhances quality of care and preserves patient dignity. As they bring their product to market, we will see the broader impact of this solution, one that benefits people living with dementia, and those who care for them the most.

*Arielle Townsend is Marketing & Communications Content Specialist, Centre for Aging + Brain Health Innovation.*



MindfulGarden is a unique digital experience that de-escalates agitation among people with dementia.

# Deployments of AI

CONTINUED FROM PAGE 17

many, if not more, cautionary tales where deployments met with insurmountable challenges related to clinical acceptance, data readiness, and inconsistent performance. One such example was a five-hospital system that deployed two AI applications as part of a larger enterprise imaging initiative, neither of which made it past clinical acceptance testing.

The first was an AI system that was intended to extract contextual information from the EHR and re-present it within other clinical applications to provide a more seamless workflow for physicians and deliver a complete and comprehensive

overview of patients' history and clinical conditions.

Unfortunately, while the algorithm performed well in the vendor's lab environment, and even at a couple of their initial clinical sites, the reporting patterns at this particular hospital system resulted in data that could not be accurately interpreted by the AI.

Worse, the vendor did not have sufficient quality controls in place to validate on-site accuracy pre-deployment or on an ongoing basis (should the deployment have gotten that far). These inaccuracies were identified during the throes of a larger go-live initiative, resulting in a lot of frustration among already stressed physicians and a loss of confidence in the vendor.

The second application was an AI system to identify potential mismatches be-

tween a patient's reported symptoms and their final diagnostic results.

For example, if a patient was admitted to hospital for pneumonia with reported symptoms of shortness of breath and fever,

**While the algorithm performed well in the vendor's lab, the reporting patterns in the hospital were not accurate.**

yet chest imaging results came back negative, the AI would flag the results as a possible false-negative and recommend a secondary review or possible subsequent imaging.

While possibly clinically useful, the retrospective workflow required busy radiologists

to go back and re-read studies a second time – sometimes 24 hours later. This duplication of effort was rejected by the radiologists, who noted that if the AI had been able to proactively suggest the possibility of a positive finding based on reported symptoms it could have achieved broader acceptance.

Ultimately, neither of these AI applications made it into clinical practice, highlighting the importance of data and workflow validation and integration for successful AI deployment and acceptance.

There's no question, AI holds huge potential for improving how our healthcare system delivers care to Canadians. As these case studies demonstrate, the key to success lies in identifying the AI use cases that will bring the most value to each unique clinical environment, ensuring workflow is well integrated and augments the quality and efficiency of our clinical teams, and confirming controls are in place to validate AI accuracy and performance before, during, and following deployment to maximize the value and benefits of your investment in AI and foster user acceptance and adoption.

*Laurie Lafleur is a seasoned healthcare information technology (IT) consultant with nearly 20 years of relevant experience in software engineering, product marketing, and business strategy in the Healthcare IT and imaging informatics industries.*

## Client choice driving compassionate and personalized care

CONTINUED FROM PAGE 20

from the organization's commitment to virtual care.

"We have tremendous resources and support internally for our teams," said Ackerman. "Our Clinical Practice Resource Team (CPRT) is a group of highly specialized, Registered SE Health Nurses who provide direct, clinical support, 24/7, 365 days a year, to our staff working in the field. The virtual team and the on-site/virtual care provider access the same digital platform to view a patient's medical history and work together to find the best care solution."

As for Mary, the results of her virtual care are outstanding in more ways than one.

"Mary's original (vascular) wound, healed," said Brown. "From my experience, those are some of the hardest wounds to close. Our conversations also changed. In home and community care, the connection with our clients is always there because we are delivering care in people's homes, but the connection became stronger, being in a pandemic and delivering care virtually," added Brown.

"We talked about Mary's feelings and how to cope during COVID-19, living mostly in isolation and Mary's fear about leaving her home. Mary also lost a relative and her dog in the past few months, it's been a very difficult time. I'm proud to be delivering holistic care and ensuring the

mental, emotional and physical well-being of my clients at all times."

As Mary resumes a combination of in-person and virtual care visits, she explained that overall, she feels more "in charge" of her care and acknowledges SE Health's commitment to client "choice" as critical in her care journey.

"Virtual care is the future; and being able

to choose how to receive that care is paramount. I often joke that I could be Melanie's assistant as I now have the confidence to care for myself, at home. I made some mistakes along the way but I also got great results. It's an enormous sense of accomplishment."

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

## Mobii Magic Surface brings joy to Lanark Heights LTC

CONTINUED FROM PAGE 20

fitness, they also reduce apathy, stress and anxiety.

With the Mobii, these visuals can include greenery, birds, trees and gardens. Research shows that nature experiences – even virtual versions – can boost emotional well-being and awaken feelings of happiness and peace.

For family members, interacting with the Mobii helps remove the pressure of struggling to make conversation with an elderly loved one. Family visits are more exciting for everyone when they know that they can play together with the Mobii.

A 2018 research study of 89 care homes in the U.K. found that 96 percent of respondents would recommend the Mobii. Additional findings showed that:

- 90 percent of respondents felt the Mo-

bii had a positive impact on their residents' physical ability, participation and movements; and

- 75 percent felt the Mobii had helped their most withdrawn residents

General survey comments were equally enthusiastic: "Our residents love it!" "Their lives are more fulfilled." "They

**The equipment allows residents to be actively engaged in an activity. It boosts interaction and makes them feel better.**

don't notice they're being physically active." "It brings residents out of themselves." "It's great to see them interacting with each other."

There is a current move away from the

idea that long-term care homes are solely medical treatment centres.

"Stimulating and engaging all older adults, especially those living with dementia, with meaningful person-centered activities is so important in care homes, centres and hospital settings," said Gwen Rose, vice-president of Toronto-based Sensory One, and North American distributor of the Mobii Magic Surface and other innovative and unique sensory products.

"There's a strong move toward an emotion-based model of care, which focuses on the idea that a long-term care home is a resident's home," said Rose, who practised as a physiotherapist in long-term care for over 14 years. "With this model, there's an added focus, beyond providing basic care, of helping people to live well by giving them a sense of belonging and opportunities for vibrancy. The Mobii stimulates physical, cognitive and social engagement and contributes to emotional well-being."

At Lanark, staff members particularly appreciate the Mobii's portability and versatility.

"If a resident is having a tough day, they can easily take the Mobii directly to that person and then have dozens of activity options to choose from," says Nickel.

It helps staff members more easily make a connection with residents by stimulating conversation, activity and fond memories. For withdrawn residents, it encourages them to interact and communicate with others.

And at Lanark, it is not just the residents who are benefiting from the technology.

"We've included the Mobii in family council meetings, a staff holiday luncheon, and several other staff events," says Nickel.

*For more information about the Mobii Magic Surface, contact Gwen Rose 1-877-232-3320, gwen@sensoryone.com or visit www.sensoryone.com.*

## Hand hygiene

CONTINUED FROM PAGE 6

life of the device(s), and soap or sanitizer levels.

"Stats can be viewed by anyone authorized to see it," Fernie explained. "Anyone wearing a badge can log into a Web application on their computer, cell phone or iPad, and view a dashboard displaying a graph of how they did over the last seven days, how the unit is doing on average and how they compare."

Buddy Badge can improve hand hygiene in more than just hospitals; it can be used effectively in long-term care institutions, the food industry, airlines and schools.

"Everyone talks about hand hygiene compliance, but our emphasis has shifted to calculating exposure," said

Fernie. "COVID has increased the monitoring of exposure in healthcare workers. The attempt is to reduce exposure to patients and to fellow colleagues so they don't take it home and get sick."

There are other hand hygiene systems on the market, but most of them only

**The Buddy Badge system can tell you who washed their hands, at which location, and who didn't.**

count. And they don't tell you if staff washed their hands at the right time, in the right place and who did it. Moreover, none are suited to long-term care facilities where residents spend most of their time in common spaces such as dining and recreation areas.





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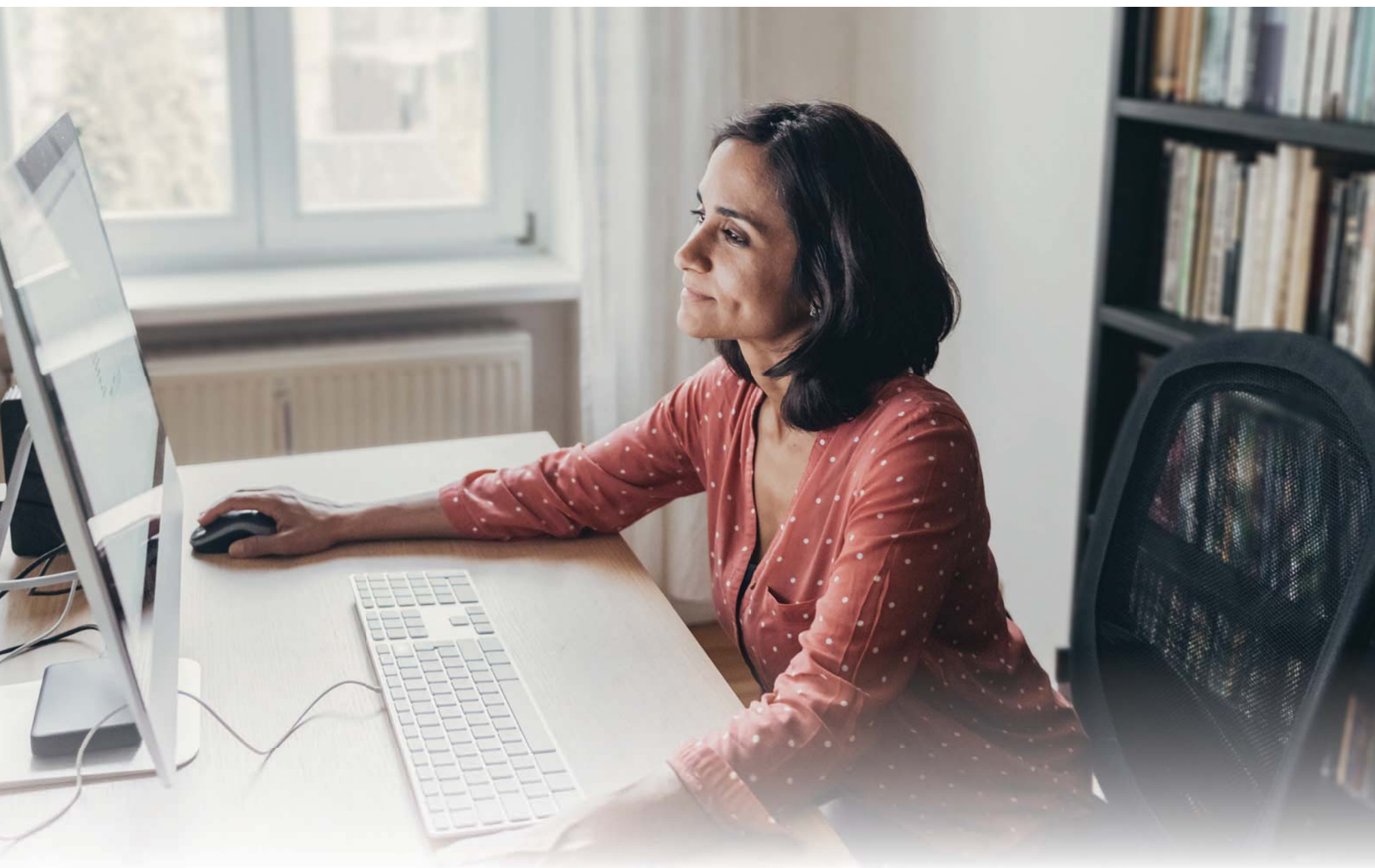
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