FEATURE REPORT: DEVELOPMENTS IN TELEHEALTH – SEE PAGE 10

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INSIDE:

APPS FOR HEALTHCARE
PAGE 14

Real-time ED clock
Patients are able to check how long they will be waiting to see a doctor in the Emergency Department at Markham Stouffville Hospital, in Markham, Ont. The system allows them to plan their visits, and to make arrangements for children, family and friends.
Page 6

Remote pharmacy support
Five small and mid-sized hospitals across Ontario have implemented a cloud-based system that includes quick and effective review of physi-

cian medication orders by pharmacists, around the clock. The technology is supplied by Ricoh Canada and North West Telepharmacy.
Page 4

Super-nurses for homecare
An innovative eShift system is enabling remote nurses to supervise and care for up to six patients in their own homes, assisted by care technicians.
Page 10

Home monitoring tests
The Ontario Telemedicine Network is working with partners to test systems for three types of home

patient monitoring: diabetes, mental health and chronic kidney disease. There are benefits for both patients and caregivers.
Page 13

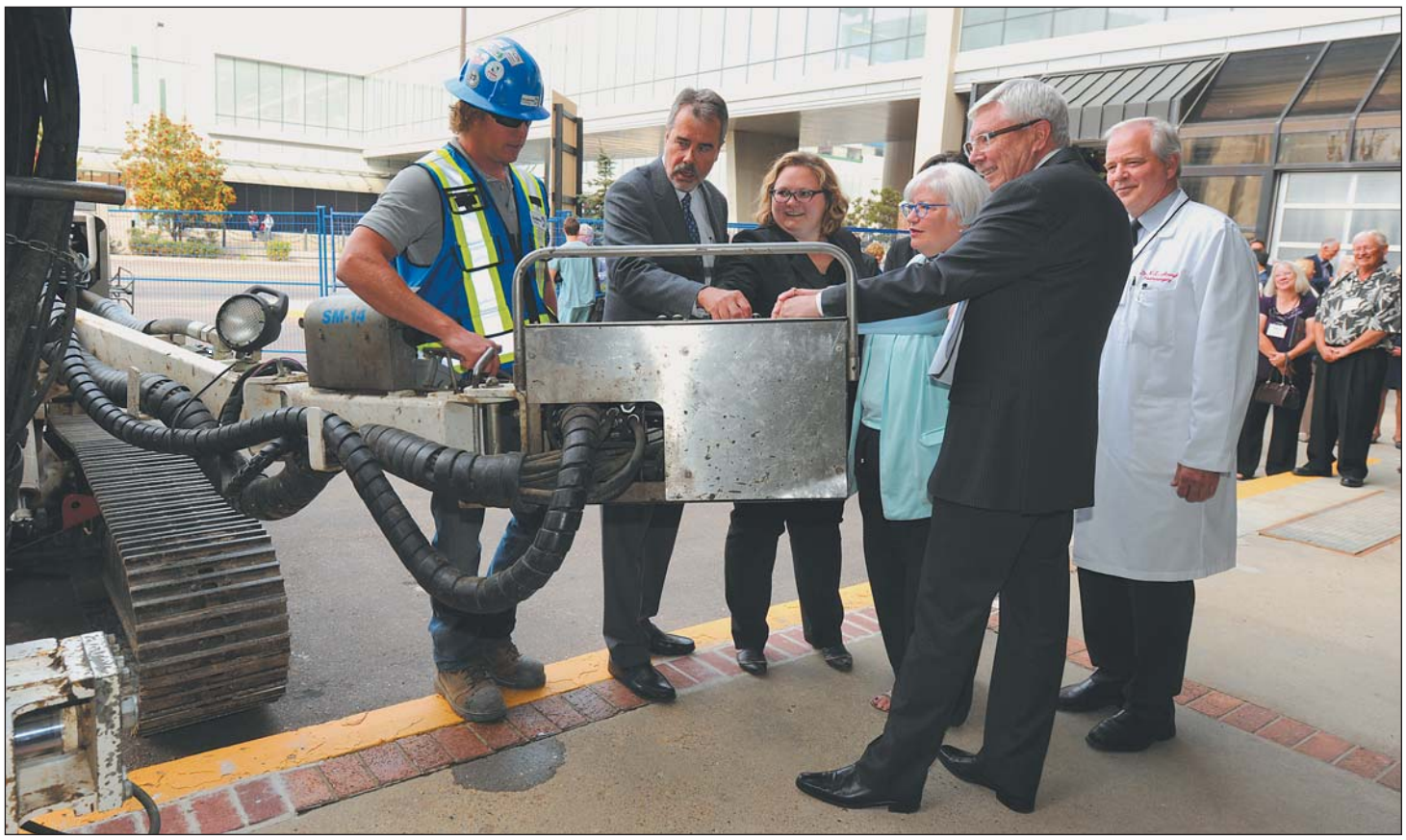

PHOTO: DALE MACMILLAN

Edmonton prepares for gamma knife centre

The ground has been broken on the site of a $17.5 million Gamma Knife and Clinical MRI Centre. Pictured with the augur operator are: Guy Scott, Brain Centre Campaign Co-Chair; Alberta Health Minister Sarah Hoffman; Vickie Kaminski, CEO of Alberta Health Services; Jim Brown, Campaign Co-Chair; and Dr, Keith Aronyk, Director, Division of Neurosurgery, University of Alberta Hospital. **SEE STORY ON PAGE 7.**

Video-visits with doctors are taking off in U.S.

BY HUGH MACKENZIE

Video-visits with doctors are steadily growing in Canada, especially in the province of British Columbia. But the trend of patients talking to their doctors using computer-based videoconferencing appears to be positively exploding in the United States.

In 2014, a study by Parks Associates, a research firm in Dallas, Tex., focused on the growth of videoconferencing for physician-patient visits. It predicted that virtual visits in the United States are about to triple – from 5.7 million in 2014 to over 16 million in 2015 – and will skyrocket to over 130 million in 2018.

Also in 2014, a HIMSS Analytics report revealed that of over 400 hospitals and physician practices surveyed, 46 percent already use some form of telemedicine technology, with videoconferencing the most widely used tool (by 57.8 percent) and the most widely considered for future use (by 67.1 percent).

The American Medical Association (AMA) recently opined that a hands-on visit is the preferred form of doctor-patient interaction, and for serious health issues, a person-to-person visit remains the gold standard.

But for everything else, especially ailments like colds, coughs, rashes, and minor aches and pains, video-visits might be the best solution.

> **A video-visit makes it easier to see the doctor, and some services provide 24/7 availability.**

Too often, patients will avoid a trip to the doctor for these seemingly minor conditions. Among the top reasons for postponing a visit, a Harris Poll survey found, were an inability to take a day off from work, the length of time it takes to get an appointment, and sitting too long in the doctor's waiting room.

On the other hand, a video-visit makes it easier to see the doctor, and some organizations are providing 24/7 availability.

Employees of the technology giant Oracle, which uses American Well's telehealth platform and virtual network of physicians, pay only a $5 co-pay to see a board-certified doctor online, which they can do at home or at their desks at work. And even patients who pay retail rates are generally charged less than $50, a bargain compared with the alternatives.

As well, many doctors like providing video-visits. A national survey of 2,016 primary care doctors in the U.S., conducted by American Well in collaboration with QuantiaMD, found that 57 percent of physicians are willing to conduct video visits with their patients. Just 12 percent of physicians were

CONTINUED ON PAGE 2

Computer-based videoconferencing with doctors taking off in U.S.

CONTINUED FROM PAGE 1

unwilling to see a patient over video, while 31 percent remained uncertain.

In November 2013, for example, the University of Pittsburgh Medical Center (UPMC), which includes 21 hospitals and 400 outpatient sites, began offering patients throughout Pennsylvania 24/7 access to a physician via videoconferencing or telephone. The cost to patients: $38. The savings to the UPMC Health Plan are an average of $86.80 per member visit compared with the cost of an office visit.

Just as importantly in the U.S. context, insurance companies are funding video-visits with doctors. They're finding the technology-enabled encounters are more cost-effective than visits to emergency departments, urgent care centres and even primary care offices. Particularly for minor ailments, video-visits are proving to be just as effective. In December, Anthem, the nation's second-largest insurer, announced that it would begin offering telehealth visits with no co-pay to its Medicare Advantage members in 12 states, including California, Florida and New York.

And the country's largest health insurance provider UnitedHealthcare and three leading telemedicine companies, NowClinic, Doctor on Demand, and American Well, will make virtual doctor's visits available to many Americans. The insurer is rating telemedicine as equivalent to a trip to the doctor's office.

In Canada, organizations offering video-visits include Medeo, now part of Kelowna, BC-based QHR Technologies, and LiveCare, of Vancouver. Business is growing for both.

Indeed, the number of video-visits in B.C. rocketed from just 897 in 2013 to 8,253 in 2014 – a jump that caused the Ministry of Health to announce the formal review of cost/benefits of this form of telehealth. Doctors are paid $41 for each virtual visit.

While the ministry said a report would be released in the Spring of 2015, it has yet to make its findings public.

Patient-to-doctor video visits are just getting off the ground in other provinces.

Some physicians are still wary of video-conferencing with patients, because they don't have traditional medical instruments at their disposal. But it seems that hurdle, too, is now being surmounted.

One of the most interesting and ambitious developments in the video-visit arena has been the emergence of HealthSpot, an Ohio-based start-up that is producing enclosed kiosks where consumers can conduct private video-chats with doctors.

In July, Rite Aid, one of the leading drugstore chains in the United States, announced the opening of HealthSpot stations at 25 Rite Aid pharmacies in Ohio.

Healthspot stations are self-enclosed kiosks that enable video chats with physicians using interactive devices.

Using cloud-based telemedicine software, HealthSpot allows users to interact with medical providers in a private, 40-square-foot station using high-definition videoconferencing and interactive medical devices including a stethoscope, an otoscope, a pulse oximeter and a magnascope. Each HealthSpot station is supported by a trained wellness attendant who can help the patient as needed from check-in to check-out.

Through the HealthSpot stations, customers will be able to access a variety of healthcare services including pediatric care. The HealthSpot stations are located inside select Rite Aid pharmacies in Akron, Cleveland and Dayton. Rite Aid and HealthSpot first announced their partnership in November 2014.

"The opening of the first HealthSpot stations inside select Rite Aid pharmacies in Ohio is another step in our transformation into a retail healthcare company," said Robert Thompson, Rite Aid executive vice president of pharmacy. "This first-of-its-kind model pairs licensed healthcare providers with state-of-the-art technology to deliver a truly unique solution to consumers looking for convenient and quality healthcare."

Customers ages three and above can be treated for minor and common health conditions, including cold and flu, rashes and skin conditions, eye conditions, earaches and seasonal allergies. A record of the visit is maintained, ensuring continuity of care. The software platform also interfaces with insurance eligibility, electronic medical records and billing systems.

The cost of the eVisit with a doctor is approximately $60, which can be paid by insurance or via cash or cards by uninsured patients. "HealthSpot brings together a set of unique technologies, devices and local healthcare providers to create a one-of-a-kind healthcare experience," said Steve Cashman, HealthSpot CEO. "We are thrilled to be working with Rite Aid to pilot this new healthcare model as the first retail clinic truly integrated with local health systems to expand access to affordable and convenient healthcare in Ohio."

In Ohio, customers will be able to connect with a network of medical professionals from Cleveland Clinic, Kettering Health Network and University Hospitals, including pediatric specialists from UH Rainbow Babies & Children's Hospital, as part of HealthSpot's Care Network.

The care network, a key component in building the infrastructure necessary to offer affordable, quality healthcare in retail, enables clinicians to extend their reach into local communities and serve more patients with expanded hours through HealthSpot stations. Since opening in late May, HealthSpot stations at Rite Aid have served thousands of Rite Aid customers.

Rite Aid Corporation is one of the leading U.S. drugstore chains, with nearly 4,600 stores in 31 states and the District of Columbia and fiscal 2015 annual revenues of $26.5 billion.

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Centralized medication order management improves patient safety

BY REBECCA AGAR

With increasing pressures to reduce turn-around time for delivery and/or access to medication, five small-to-medium sized hospital sites across the province of Ontario have turned to a centralized solution for physician order review by their respective pharmacy departments.

St. Francis Memorial Hospital, Lady Dunn Health Centre, Glengarry Memorial Hospital, and Muskoka Algonquin Healthcare (Huntsville District Memorial Hospital site and South Muskoka Memorial Hospital sites) have all implemented Ricoh's Pharmacy Order Manager Solution, a fully automated medication ordering, processing and fulfillment solution.

These five hospitals now have a virtually paperless medication order management system with full pharmacist support and rapid drug profiling for their patients' electronic medical records. The solution surpasses the level of pharmacy service at many larger, urban Canadian hospitals.

Each of the hospitals reached out to North West Telepharmacy Solutions (NWTS) to help provide remote pharmacy services and were recommended by NWTS to implement Ricoh's Pharmacy Order Manager Solution for secure transfer of physician orders.

Kevin McDonald, director of NWTS, a division of Health Products and Services, The North West Company LP, realized the need for a sophisticated but simple software solution to allow his remote pharmacists to safely view physician orders in a timely manner.

"The old way of doing things was to scan physician orders into PDF files. However, there were numerous issues with this method, including quick retrieval of archived scanned orders and obtaining pharmacy workload statistics. We looked at various software solutions and felt that Ricoh's was the most versatile and best suited to interface with the remote pharmacy services we already provide."

In April 2015, The North West Company partnered with Ricoh Canada to provide a cloud-based Pharmacy Medication Order Management scanning solution to increase pharmacy workflow efficiency for hospital clients.

The Ricoh solution features DocuScripts software; an automated medication order management system for hospitals that integrates with any scanning device or Computerized Physician Order Entry (CPOE) system to send orders directly to the pharmacy with the touch of a button.

Pharmacists can process orders more efficiently, based on their priority, time, and location. Caregivers can track the progress of their orders in real-time, which reduces phone calls to the pharmacy. Back and forth communication tools allow both pharmacist and caregiver to clarify, consult, and correct medication questions and errors.

"We are excited to partner with North West in delivering a valuable solution to hospitals in Canada," said Brent Brandmeyer, Sales and Support Manager for DocuScripts. "Together we are helping to drive down costs while improving patient outcomes. It is incredible to be part of a solution where everyone benefits."

Team members at the Glengarry Memorial Hospital, which has deployed Ricoh's pharmacy solution.

Hospital administrators were pleased to learn that the new solution will now provide them with reliable pharmacy workload statistics, including order turn-around time, staff productivity and full order audits, all instantly available.

One of the best features of Ricoh's Pharmacy Order Manager Solution is its ready-to-use functionality. St. Francis Memorial Hospital in Barry's Bay, Ontario, was brought on line and all users were trained in one business day. The solution can leverage a hospital's existing infrastructure including scanning technologies and other multi-function devices, to significantly reduce start-up costs.

"This is an efficient and cost-effective solution for small to medium-sized hospitals to strongly consider", says Sammu Dhaliwall, business development manager and clinical pharmacist with NWTS. "The hospitals not only share the costs of implementing this solution, but also share the costs of the remote pharmacists. Essentially, you can have one or two pharmacists reviewing physician orders for numerous small hospitals at the same time, which frees up other pharmacists to maintain clinical programs to improve patient safety."

Joan Sullivan, a registered Pharmacy Technician at St. Francis Memorial Hospital in Barry's Bay, had this to say about the DocuScripts software: "The DocuScripts scanning program has improved the link with the healthcare team in providing patient medications accurately and safely.

"Communications are documented directly on the order scan and keep all members informed as to the order status. I love the colour-coding of scans, as it prioritizes the workflow, which helps deliver timely medication access."

North West Telepharmacy and Ricoh have teamed up to provide an innovative, cost effective solution for hospitals who wish to streamline remote pharmacy services to reduce costs, increase departmental productivity, improve patient safety, and maximize the impact of limited pharmacy resources.

As the leading Canadian provider of remote pharmacy solutions, North West Telepharmacy Solutions currently supports over 40 hospital clients across Canada with services including around-the-clock real-time pharmacist medication order review.

For more than 50 years, Ricoh has been delivering solutions for healthcare clients across North America. Their solutions include on-site and off-site managed services, technical services and support, and customized workflow design and implementation. Ricoh's team of dedicated healthcare solutions experts work with healthcare organizations to drive efficiencies, support information security initiatives, and improve patient care.

For more information about DocuScripts and North West Telepharmacy, visit www.ricoh.ca/pharmacy and www.northwesttelepharmacy.ca

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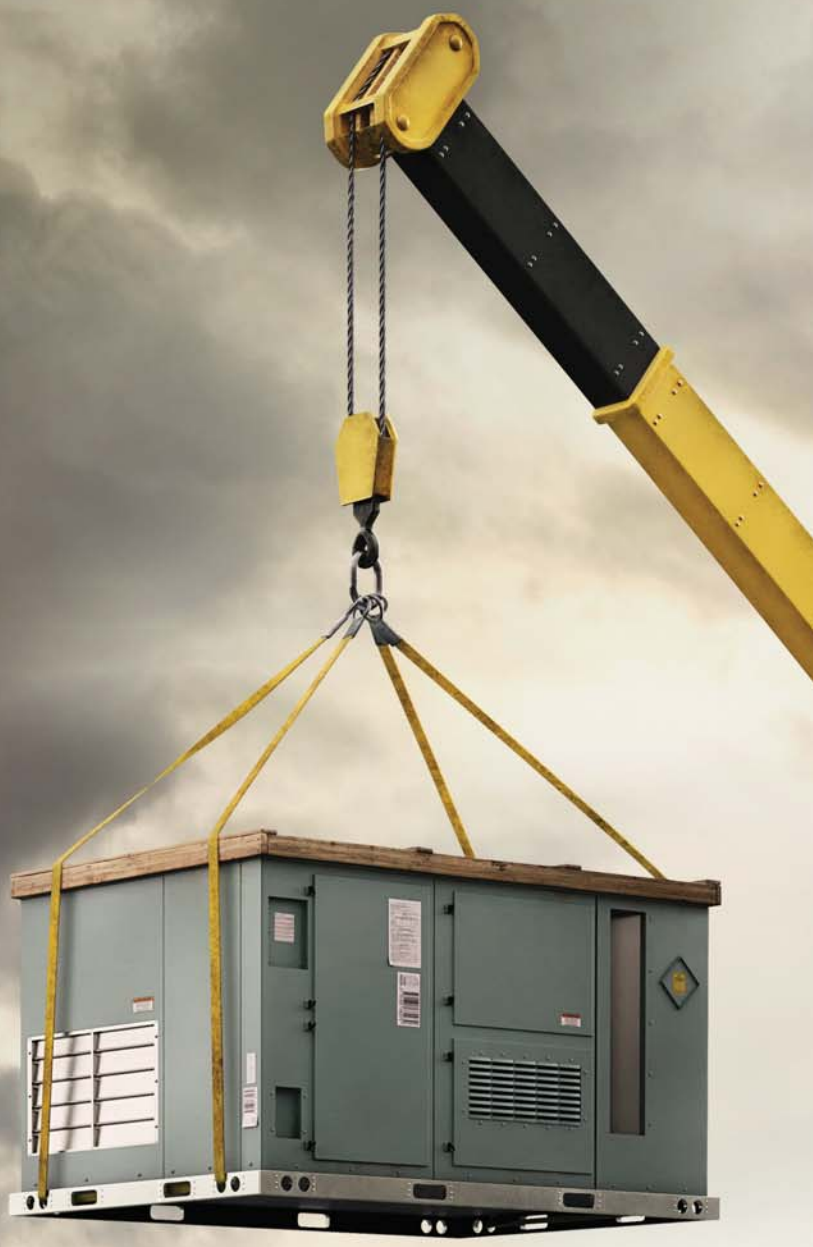

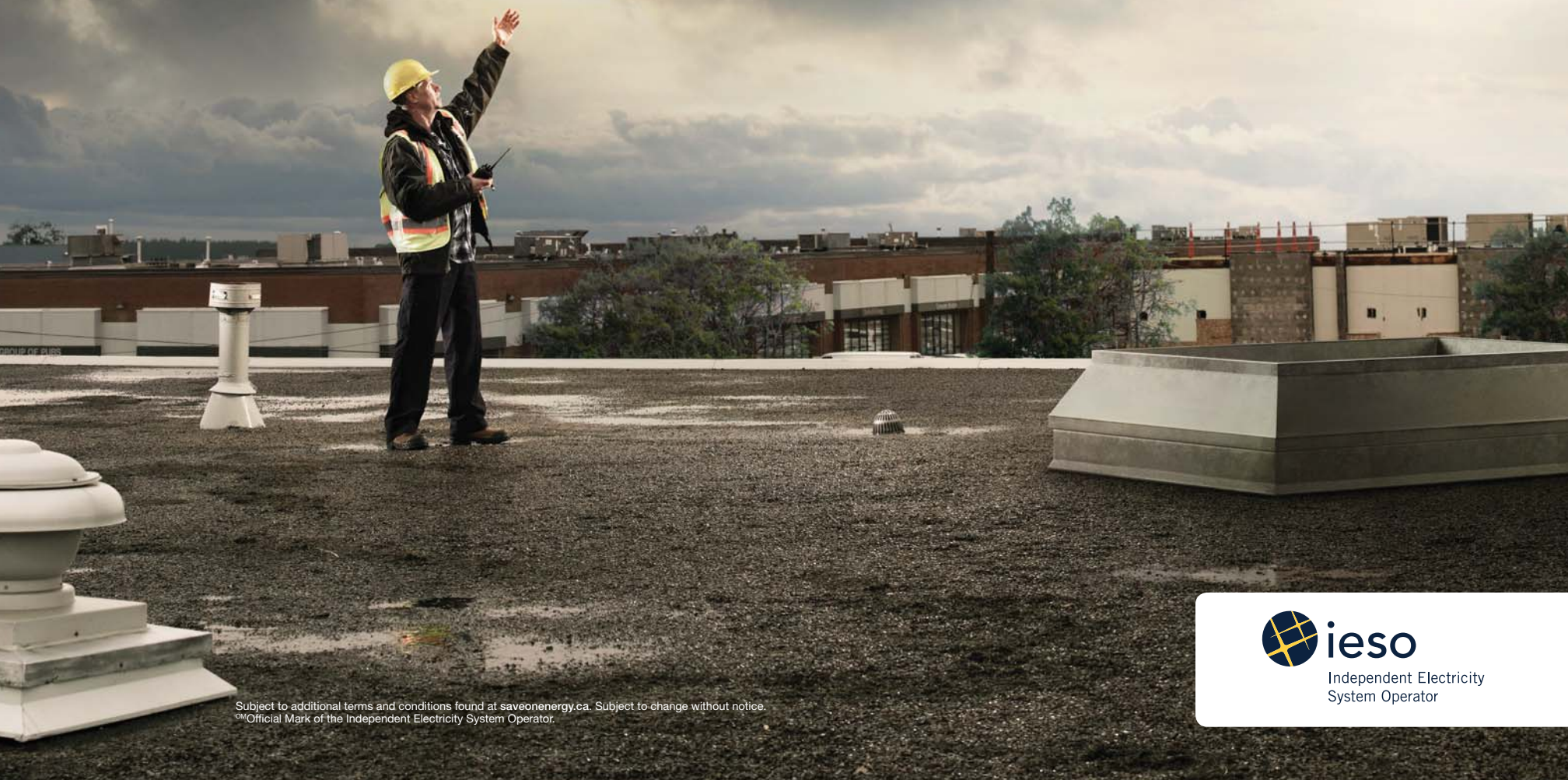

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Wait-clock manages expectations of ED patients, both on-site and online

BY ALANNAH SMITH

Following the expansion of Markham Stouffville Hospital (MSH), the emergency department (ED) was facing a challenging time meeting the expectations of patients. Patients felt they weren't being kept in the loop on wait times; registration and triage staff were being pulled away from their duties to answer questions about who would be seen next – all while the number of emergency visits continued to grow.

The number one question patients ask in the ED is how long will I wait? To help satisfy patients' needs for constant progress updates without interrupting the flow of the ED, MSH searched for an answer that provided patients with the information they were looking for without the need for extra manpower.

The solution: a real-time wait clock in the ED and online.

The real-time wait clock is a patient-centered communication tool designed to enable real-time information on the current wait times in the ED.

Designed and formulated with input from the very patients who visit and make use of ED services, the wait clock delivers a simple, visual message that indicates the estimated wait time to see a physician, as well as the projected wait time over the following six hours based on past trends.

In early 2015, MSH introduced the first wait clock in the ED at the Markham site, followed by the launch of the online wait clock and Uxbridge site wait clock.

Now, anyone sitting in the ED at either site, or anyone with a computer or mobile device can access, in real-time, information about the current state of the Markham and Uxbridge site EDs.

"Staff and patients have appreciated having ready access to the information and have found the wait clock to be a very useful tool," says Clint Atendido, director, emergency, surgical services and patient flow. "The numbers also speak for themselves – we have had over 15,000 visits to the wait clock online alone since the online launch on April 1, 2015."

From the minute you realize you need to visit the ED, life is on hold for patients and their families. For some people, that means figuring out what to do with children, figuring out work schedules and planning for rides to and from the ED.

Having access to the wait clock not only helps patients and families within the ED – it helps them prior to their visit. Patients and their families can access the Markham and Uxbridge site clocks online and make plans to accommodate their visit with accurate information, making their time less stressful and more about direct patient care.

The online clock also lists other care providers/alternatives to the ED in the area to help patients make an informed decision about whether the ED, a walk in clinic or a phone call to Telehealth Ontario is the best option for them.

Cari McCulloch, Markham Stouffville RN

"The wait clock is visual and easy to understand. It keeps patients informed and frees up staff to provide direct patient care," says Cari McCulloch, ED RN. "Our ED puts a high importance on good patient/provider communication and this clock is another tool we can use to keep patients informed. Most importantly, it ensures staff, patients and visitors all have access to the same information at the same time."

The wait clock displays wait times in 30 minute increments and updates every five minutes with high accuracy; 90 per cent of patients are seen within the projected time.

Every 5 minutes a file with ED data is generated from our Meditech Data Repository. The Meditech Data Repository holds all the data that is inputted into the Meditech System.

The file in the Meditech Data Repository is then uploaded to our Oculys server. Using a wait time algorithm designed by Oculys, data from the file is used to predict an estimated wait time at the 90th percentile, meaning the wait time information displayed is 90 percent accurate for the time it takes between when the patient has been registered in the system until the time they are seen by a doctor.

The Markham and Uxbridge site wait clocks are one more step in improving and enhancing the patient experience at MSH. An informed patient is an empowered patient – and the best outcomes happen when patients are partners in their care. Together with Oculys, the wait clock technology provider, MSH is changing the patient experience – one click at a time.

MSH's real-time ED wait clocks can be accessed online at www.msh.on.ca

Alannah Smith is a corporate communications specialist at Markham Stouffville Hospital

Scarborough Hospital delivers care through integrated EHR, ECM

TORONTO – To improve care delivery and workflow, The Scarborough Hospital (TSH) has been integrating its OnBase enterprise content management (ECM) solution with its Meditech EHR.

Patients' paper records – such as clinician transcribed reports – are scanned directly into OnBase by Hyland and the information is directly accessible in Meditech, reducing duplicate processes.

While other hospitals and health systems across Canada are also scanning patient information to create digital records, most of them do not have advanced workflow processes in place, says Devee Perna, Manager of Health Records at TSH. Nor do they make the information easily available to other providers in the continuum of care.

"We were early adopters in completely automating the process," said Perna. "We share information twenty-four-seven within our own organization, as well as with our circle of care providers, including long-term care facilities and Community Care Access Centres."

In July 2015, the Health Records department further integrated OnBase records into the ConnectingGTA portal, Ontario's regional electronic health record at the point-of-care.

Customizing document management: Each year, The Scarborough Hospital receives more than 100,000 visits to its Emergency Departments at the hospital's two campuses (Birchmount and General), has nearly 30,000 inpatient admissions, and performs over 40,000 surgeries.

As a result, the organization generates an average of 25,000 pages of scanned images per day. Prior to the ECM solution, this massive volume of paperwork strained the ability of the Health Records department to make the documentation available in patients' paper charts.

"Before implementing the ECM solution, TSH took time to understand how clinicians accessed and used patient information," explains Dion Maxwell, Manager, IT Applications and Clinical Health Informatics. Once the processes and workflows were evaluated, Hyland and TSH customized OnBase to meet user needs.

"OnBase has allowed us to make changes to the way we utilize health records," Perna says. "Now with an automated workflow, every scanned document is identified and bar coded by form and then put into a universal chart order."

"We've done significant work," Maxwell adds. "We're not just scanning; we're really using the software as a content management system."

As a result, the organization has greatly reduced the amount of time required to pull files to provide clinicians with access to patient records. "You have to measure the cost of labour," Perna says. "Tracking down specific information is labour-intensive and document identification and a management system like OnBase saves significant time for our staff.

Immediate and long-term benefits for TSH: In Ontario, all hospitals are required to submit patient visit and clinical information to reconcile the funding they receive from the province's Ministry of Health and Long-Term Care. Coding departments at each hospital must complete charts and submit information on a timely basis, or face penalties and fines.

Scarborough's Dion Maxwell and Devee Perna.

Through OnBase, documents are scanned directly into the system and are available within seven days of a patient's discharge, allowing coders to easily search online for patient information, thereby greatly reducing reconciliation delays, penalties, and fines.

For Perna, another important impact of this ECM solution is the reduction of time that physicians spend addressing deficiencies in patient charts.

Physicians must complete charts in a timely fashion, as per provincial health regulations. Patient records can be inches thick and it can be tedious and time-consuming when looking for a document, such as a surgeon's operative note, Perna explains.

OnBase enables TSH to organize charts in such a way that physicians can click on a tab and go directly to the content they are looking for. Signatures are also captured electronically, so that physicians are able to complete their documentation even when they are not at the hospital. As a result, TSH physician and Health Records staff satisfaction has risen significantly.

Looking to the future: TSH continues to innovate with its EHR strategy. OnBase is now being used in the Human Resources department to scan and easily retrieve employee files, and it is being implemented in other areas of the hospital as well.

In addition, TSH is exploring OnBase to allow clinicians to view patient information, complete patient charts, and capture clinical images at the point-of-care from their mobile devices.

"Our goal is to provide world-class care to the global community of Scarborough, while continuing to build on our history of leadership and innovation in health information technology," says Perna.

University of Alberta Hospital set to acquire gamma knife, 3T MRI

EDMONTON – Alberta's first gamma knife and clinical 3T MRI Centre – with the capability to pinpoint hard-to-reach brain tumours and perform life-saving surgery without a scalpel – will be installed at the University of Alberta Hospital.

Construction on the new Gamma Knife and Clinical 3T MRI Centre begins in October. With $17.5 million in donor support, the hospital will acquire the two medical devices that offer the most advanced, non-invasive and pain-free technology now available for treating brain-surgery patients.

"Gamma Knife radiosurgery is pain and incision-free," said neurosurgeon Dr. Keith Aronyk, director, division of neurosurgery, University of Alberta Hospital. "There's no operation. So there's no anesthesia. You come in the morning and go home in the afternoon, having had the definitive treatment for many brain conditions. It's almost miraculous."

"Our vision for the Brain Centre has always been to provide the best doctors with the most advanced equipment," said Jim Brown, Brain Centre Campaign co-chair with the University Hospital Foundation. "Breaking ground on the new Gamma Knife and Clinical 3T MRI Centre is the culmination of tremendous community support and a shared commitment to provide the best care possible to brain patients across northern Alberta."

Vickie Kaminski, president and CEO of Alberta Health Services (AHS), agrees. "This project has the potential to revolutionize neurosurgery in this province and to provide new hope to individuals who need, but cannot undergo, traditional brain surgery," said Kaminski. "This is another outstanding example of foundation dollars being invested in areas that are advancing the health system's priorities and overall direction."

Gamma Knife radiosurgery focuses close to 200 tiny beams of radiation on a target to treat brain tumours, malformations and movement disorders such as Parkinson's disease.

With no need to open the skull, not only is the patient spared scalpels, general anesthetic, blood loss, infection risks and prolonged recoveries, but they typically return home the same day.

They're back to living their regular lives within 24 to 48 hours with a noticeable difference – their debilitating headaches, terrifying seizures or life-threatening tumours are either completely gone or reduced enough for them to live a life that's not dictated by their condition.

If a picture is worth a thousand words, then the complementary technology – a 3T MRI (magnetic resonance imaging) scanner – provides an encyclopedia of brain details for neurosurgeons. The 'T' stands for tesla, a unit of measurement used to quantify the strength of a magnetic field.

Twice as powerful as the more common 1.5T device, the 3T MRI scans up to four times faster, meaning patients who struggle to lie perfectly still in a confined space for long periods, such as those with movement disorders, won't have to. 3T MRI images let neurosurgeons make more precise diagnoses and deliver more focused disease management in many therapeutic areas.

Images taken with the 3T MRI scanner have proven so crisp and clear that they have been known to pick up aneurysms in patients during routine imaging, and to also provide pinpoint guidance for delicate surgeries.

Edmontonian Brad Freeman, who had a brain tumour treated with a Gamma Knife in Winnipeg, says he's delighted with news of the new local centre.

"Future brain care patients in Alberta are incredibly fortunate to have access to this remarkable technology," says Freeman. "Patients in the past had to make really tough decisions on how to handle devastating brain conditions.

"With the Gamma Knife, they will receive the best treatment in the world and their lives will carry on with minimal impact," Freeman added. "This is an exciting day for all Albertans."

VIEWPOINT

2015 Canadian Telehealth Report charts the rise of services in Canada, notes key issues

Since 2013, there has been a 45 percent increase in the number of clinical sessions delivered.

BY GRANT GILLIS

From COACH and the Canadian Telehealth Forum, and on behalf of our federal, provincial, territorial and First Nations partners, we are pleased once again to deliver the 2015 Canadian Telehealth Report.

The report is a bi-annual, survey-based publication of national telehealth programs and services. It is unique in providing Canada's only coast-to-coast-to-coast compilation of available telehealth programs and services, including detailed information on program demographics and volumes, clinical services, client/stakeholder engagement, accreditation, education and training as well as new/emerging telehealth technologies and techniques.

Widely recognized domestically and internationally for contributing key information for analysis at the local, regional and jurisdictional levels, circulation of the 2013 Report included approximately 300 printed and electronic copies, along with more than 1,000 downloads/view of the online version.

So, what's new for 2015? Well, a lot really. Since the last report in 2013, there has been a 41 percent growth in the number of telehealth endpoints across Canada and an even greater 45 percent growth in clinical sessions delivered.

Almost 90 distinct types of clinical services are now delivered or facilitated via telehealth, including an array of mental health services, along with pediatrics, rehabilitation therapies, internal medicine, cardiology, nephrology (including dialysis), diabetes care, discharge planning, and a range of surgical services from plastics to transplant.

Telehealth-based education delivery continues to be prominent in services, as the number of sessions for patients/families as well as healthcare providers increased to over 400,000, a very substantial increase of 78 percent since 2013.

This year's report also features the latest data in telehomecare services and remote patient monitoring. Ontario, New Brunswick, British Columbia and Québec have telehomecare programs in place and the number of patients cared for increased 54 percent since the last survey. Congestive heart failure and chronic obstructive pulmonary disease continue to predominate the conditions being monitored. The report features a cameo from Bobby Gheorghiu of Canada Health Infoway exploring some of the challenges in growing this area of telehealth.

In terms of devices used as clinical peripherals in telehealth, not surprisingly the scope of digital devices (and their portability) continues to increase, ranging from dermatology cameras, exam cameras, stethoscopes, otoscopes, ophthalmoscopes, ocular cameras, retinal cameras (for diabetic retinal exams), ultrasound scanners, home health monitors (HHMs) as well as tablet and smartphone-based apps.

The 2015 report once again features the progress and success of First Nations Telehealth programs in all major categories, including program statistics, clinical and educational services, medical peripherals, software video technology, etc.

> **Almost 90 distinct types of clinical services are now delivered or facilitated via telehealth, including an array of mental health services.**

Responses from the First Nations Health Authority Telehealth Program of British Columbia, the Alberta region of First Nations and Inuit Health (FNIH), and the Keewaytinook Okimakanak eHealth Telemedicine Services (KOeTS) in Ontario profile the substantial progress and achievements that First Nations continue to make on expanding the scope and scale of telehealth to their communities.

Finally, another new component in the 2015 Report involves the 'perspectives' of telehealth professionals on: alternative metrics assessing the impact of telehealth; new emerging practice trends and techniques of telemedicine/virtual care; key barriers to the ongoing growth and development of telehealth; and how clinical professional educational programs can better support virtual care.

The responses, as might be anticipated, were wide-ranging, reflecting the implications and nuances of how telehealth affects not just patients and providers but the entire healthcare system.

Just a few of the responses included: the tracking of carbon emissions avoided through travel not being required; the closer scrutiny and analysis of user experiences; considering 'cultural competency' as it relates to the capacity of providers to engage with First Nations patients about their health and well-being; the value of on-demand and self-scheduling of care; improved patient self-management and more immediate access to disease-specific information; the beneficial transformation and evolution of clinical practice for isolated healthcare providers; streamlining the governance, management and operation of telehealth services as part of the healthcare continuum; and incorporating telemedicine and virtual care as a (much) greater part of the core curricula for healthcare providers.

An excellent closing cameo from Carol McFarlane of the Ontario Telemedicine Network describes telehealth agencies in the role of virtual care stewards and catalysts supporting the larger technological transformation of the healthcare system.

The 2015 Report profiles the continued remarkable, ongoing growth of telehealth across Canada, in particular the development and evolution of service creation, adoption and diversification. While delivering on its traditional benefits of eliminating distance barriers and improving access to services that often would otherwise not be available to remote and rural communities, telehealth today is transforming care, making it more virtual, immediate and 'disrupting' accepted practice paradigms to improve health tomorrow.

Grant Gillis is Executive Director, Forums & Practices, with COACH: Canada's Health Informatics Association. For additional information on the topics covered in this article, or more information on the CTF and COACH, please visit www.coachorg.com

Who champions information governance in your organization?

BY DANIEL GAUVREAU

Managing patient information when it was on paper did have its challenges, but in today's hybrid environment, with its mixture of electronic and print data, managing healthcare information has grown in complexity and importance.

Healthcare organizations are often reactionary when it comes to managing patient information, its growth, its accuracies and more often than not, its breaches.

Because information is at the core of sound decision-making and improved communications, whether it is during a patient consultation, staffing for the operating room or reporting to the ministry, information is a strategic asset.

Like all assets, there is a need for guidelines on how to properly maximize the utility of this asset while balancing cost and risk.

Information Governance policies for healthcare have evolved over time, along with the way in which information is used in healthcare.

Historically, we viewed information as what was written or printed on paper, whereas current information formats and sources have multiplied.

> **There is a need for guidelines on how to maximize the utility of healthcare information.**

Information is now in both physical and electronic media; it can be hand written, pictures or electronic files, an email, DICOM or audio files, etc. Not only have the types of formats increased, but so too have the sources of its generation.

Information continues to be generated from the traditional sources, such as clinicians, administrators and researchers, but new sources are also playing a significant role; patient portals, EHRs, wearable devices and facility management devices are only a few examples.

All these variables have added complexity to proper information

CONTINUED ON PAGE 11

Capita Healthcare Decisions leads the way in clinical decision support

Dr. Charles Young is Chief Medical Officer for Capita Healthcare Decisions, based in Basingstoke, UK. The following Q&A with Dr. Young informs us about the company's industry-leading solutions for telephone-based triage. Capita has developed systems for both clinicians and the public.

CHT: Hello Dr. Young, please tell us about yourself.

Dr. Young: I'm an emergency physician and I work one day each week helping medical and trauma patients in the emergency department at St Thomas' Hospital in London, UK - directly across the river Thames from the Houses of Parliament.

For the rest of my week, for the last 15 years, I have worked in healthcare IT/healthcare information. My previous roles have included Executive Editor at The Lancet, Editor in Chief at the BMJ Evidence Centre (where one of the teams I led created the clinical decision support tool, BMJ Best Practice), and Vice President for Clinical Solutions at Wiley, looking after the world's most important evidence based medicine resource, the Cochrane Collaboration, and another clinical decision support data base, Essential Evidence Plus.

Dr. Charles Young

My interest in all of those roles has been understanding and using the interface between technology, different types of clinical information, and clinicians themselves, to drive improvements in the care patients receive.

CHT: Who do you work for now?

Dr. Young: In my non-clinical time, I now work as Chief Medical Officer for Capita Healthcare Decisions. I also sit on committees for the UK's National Institute for Health and Care Excellence (NICE), and the Cochrane Collaboration.

CHT: What do they do?

Dr. Young: At Healthcare Decisions we lead the world in making clinical decision support software and content which is primarily used to support telephone triage. Our products and services are have been deployed globally, translated into more than 10 different languages, and have effectively and safely supported over 90 million patient interactions - at the last count!

When NHS Direct launched their telephone triage service in the UK, it was the largest of that type of service in the world, and was entirely based on our content and software.

This summer we have just finished a large project to convert all our clinical information, called TeleGuides, into information suitable for patients and their caregivers to use directly, via the internet. We call this new product WebGuides.

Our aim is to empower patients to make their own healthcare decisions, using exactly the same information resources their clinicians use. Just from a linguistic perspective it was a surprisingly hard job. Non-clinically trained people have a much better understanding of clinical concepts and clinical terminology than they used to have, which is fantastic and important, but it's still hard finding sensible everyday alternatives to phrases like 'erectile dysfunction'!

CHT: What has been the most important thing you have worked on recently?

Dr. Young: In addition to the patient-focused project, we have also just successfully completed a major installation of our software and content in Australia. Commissioned by Healthdirect Australia, who provide services on behalf of the majority of state governments, and working in partnership with a service provider called Medibank.

The new service went live in July 2015,

CONTINUED ON PAGE 14

Innovative eShift platform helps nurses monitor home-care patients

A remote registered nurse can care for up to six patients in their own homes, regardless of where they live.

BY JERRY ZEIDENBERG

Using an innovative, web-based technology, a large portion of southwestern Ontario has been able to use a new model of care for complex pediatric and palliative patients in their homes.

eShift is a secure, web-based technology that enables a registered nurse to remotely care for as many as six patients in their own homes – simultaneously. Each patient has an unregulated provider, known as a homecare technician, at their bedside, who is continuously connected to and supervised by the RN.

The technology enables the RN to direct the technician in the collection of patient data, which is then reported in the application. The result is a robust, real-time view of the patient. With 'virtual eyes' on the patient, the RN can assess, monitor and even direct the technician to provide care, or summon another nurse if required.

This seemingly simple solution may revolutionize care in Ontario and abroad, as the technology can be used for patients with a variety of ailments – from frail seniors to housebound youngsters with complex needs.

It means that instead of keeping these patients with higher needs in expensive hospital beds, they can return to their homes.

But when home can be anywhere, getting a nurse with the specialized skills when the patient needs them can be a stumbling block.

Those patients who have returned home, without specialized nursing care, can run into trouble – and trigger a cycle of unnecessary use of emergency department or hospital readmissions.

"It used to be that if something went wrong, and a caregiver panicked, they'd call 911 and the patient would be taken right away to the hospital emergency department," said Gordon Milak, senior director and the lead for e-home care at the South West Community Care Access Centre (SW CCAC).

Moving patients into the ED, of course, only contributes to hospital crowding and cost-overruns.

It is also a great inconvenience to patients and their families.

Milak explained that under the eShift system, RNs are in constant contact with the patient. The unregulated technician acts as their eyes, ears and hands. Because the RN is remote, it means patients can access the right care, no matter where they live.

That's reducing the pressure on hospital emergency rooms, cutting costs, and improving the quality of care for palliative patients and their families in southwestern Ontario.

The project was pioneered by the SW CCAC, whose catchment area stretches from London, Ont., to Owen Sound. In partnership with the Victorian Order of Nurses and CarePartners, along with technology partner Sensory Technologies, of London, Ont., the developer of eShift.

Together, the partners "are bringing technology to a problem that needs solving," said Milak. "It's about enabling home care workers to work differently."

Milak noted in a two-year period that was studied, the eShift project in the SW CCAC cut hospital re-admissions for palliative care from 35 percent to just 1.9 percent, a dramatic reduction.

As Milak explained, the approach not only enables an RN to care for patients through a technician, but documentation about patients can be also be shared with their physicians.

There are several key indicators that are regularly charted, such as pain and shortness of breath.

The information also helps RNs who are contacted about patients in emergencies or when something unusual comes up.

In addition to the documentation, there's also a visual dashboard that shows the condition of the patient in an instant.

Significantly, one remote nurse can monitor four patients, and in some cases, the nurse can keep tabs on six. In the SW CCAC, eShift nurses are now supervising 60 beds, predominantly palliative patients who are being cared for at home.

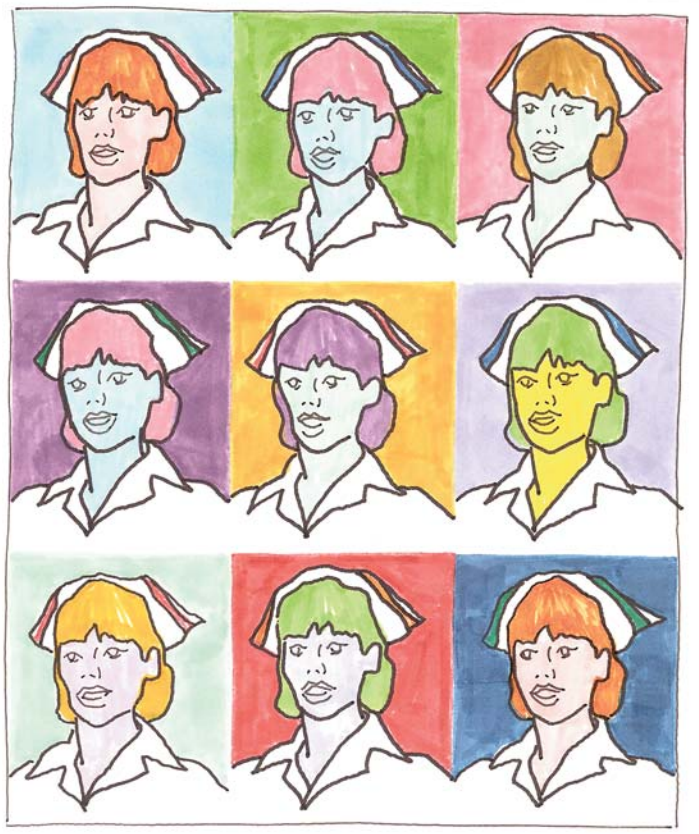


ILLUSTRATION: LINDA WEISS

"eShift has revolutionized Registered Nurses' abilities to provide expert palliative care and care to children with complex medical needs. The technology guarantees that the information collected by the technicians is shared consistently, timely and accurately," said Charlotte Koso, Director of Program Development & Innovation at Care Partners. "I honestly can say, eShift is the most exciting program that I have ever led in my 43 years of nursing."

What's more, the system operates 24 hours a day, seven days a week. "It's like having virtual eyes on the patient," said Milak.

And with close collaboration between nurses and technicians, it's also like having the nurse's hands at the point-of-care, too. Since the project started in 2010, the eShift nurses and technicians have cared for more than 4,000 patients and logged over 750,000 hours of care.

Significantly, the service brings expertise to areas that haven't been able to attract highly skilled nurses to provide overnight care. Milak said that in the rural Grey-Bruce area of Ontario, the CCAC had not been able to offer shift nursing care at night for six years. Now, a remote nurse has been able to work with a team of technicians to care for patients in their homes.

The original effort started in 2009 with $100,000 in seed money from the Ontario government, and initially focused on caring for children with complex conditions at home. These children often needed watching around the clock, which turned out to be too difficult for the parents to do alone.

As Milak observed, the parents would quickly burn out. But by making use of remote pediatric nurses connected to technicians in the home, care could be provided 24/7.

The system was then expanded to include palliative care, which requires similar, intensive care for patients.

Milak noted that families who bring their loved ones home for end-of-life care start with the best of intentions, but they don't realize how challenging the task can be.

Family members who support palliative patients need time off to rest and recuperate, too, and eShift is a life-saver for them. "They're brave and stoic, but they don't always know what they're in for," said Milak. "They can crash."

The eShift technology is the brainchild of entrepreneur Patrick Blanshard, who launched Sensory Technologies, the developer of the platform, in conjunction with several partners.

It's being rolled out to other Ontario CCACs, as well as to care-givers in the U.K., France and parts of the United States. (A Sensory Technologies system in Michigan is being used for adult complex care, including COPD and chronic heart failure.)

The system has many useful features. For example, when a technician needs support and isn't getting a response, the system automatically rolls over to another nurse to take charge. In many cases, if the Sensory Technologies solution wasn't in place, the patients it is currently monitoring would likely be in hospital care. Now, they have the choice to die at home, or stay at home longer.

To make this possible, Sensory Technologies trains nurses and technicians in the use of the computerized platform. The technicians are taught how to report the data that's needed by the nurses.

Directing RNs can work from home or a telemedicine centre, and interact with technicians who use smartphones. In Ontario, Sensory Technologies owns and operates data centres that store the information logged by the system.

Blanshard explains that the company was originally launched in 2006, with the purpose of providing in-home directions to physiotherapists from orthopedic surgeons in hospitals.

The local CCAC caught wind of the project, and approached Blanshard with its own problem: whether the system could be used by RNs and unregulated staff (technicians) to provide overnight care for pediatric patients in their homes.

The CCAC couldn't find enough nurses to do this work," said Blanshard. "So we modified our existing tool set, and created a new solution. It was successful, and it's still running to this day."

Who is the Information Governance champion in your organization?

CONTINUED FROM PAGE 8

governance. In the current environment, IG is based on practical experience, information theory and legal doctrine.

It is aimed at providing an overarching framework that offers assurances to patients, clinicians and administrators that all decision in the healthcare environment are made using trustworthy information.

To assure effective and proper use of information, healthcare organizations must have an IG strategy in place. Abrams and Gibson, in Fundamentals of Health Information Management (2013), explain that the governance and accountability of the delivery of the health information services relies on a framework managed by the organization.

The internal policies and procedures that will constitute this framework must be specific and responsive to the organizational environment and be compliant with the HIM Lifecycle standards and best practices.

For example, policies and procedures put in place for a single site facility will not be representative of those required for a regional or provincial initiative. This October will be an opportune time to review and validate these organizational policies and procedures, as this is when eCHIMA anticipates publishing the updated Canadian HIM Lifecycle stage document.

Assuming that all organizations engage and integrate a Life Cycle Management process in their organizations, they need to have a tactical plan on how to adopt it and who will execute it. Roles and responsibilities vary in organizations due to their respective environment. Certain facilities have dedicated HIM professionals while other facilities have other resources tasked with this and other responsibilities. Either approach is acceptable if it is meeting the organizational objectives of a the LCM, with the underlying assumption that in both scenarios key stakeholders are well identified, that their roles are well defined and that they can be effective at carrying out their duties.

Interestingly, IG frameworks have yet to be widely adopted. In a recent survey of healthcare organizations, only 36 percent of survey respondents indicated that their organizations have designated a senior executive to sponsor IG. (AHIMA, 2015). While this represents an increasing trend over previous years, it shows that not all organizations have a well-defined IG plan.

Organizations that do not have an IG plan are exposed to greater risk. With the advent of Bring Your Own Device to Work (BYODW), increased bidirectional information flowing through patient portals, the potential of data breaches, new research using data mining, increases in regulatory compliance are but some to the areas where an improper governance of information augments the potential of errors and risk.

Poor governance of information also impedes organizational efficiencies and operational excellence by creating situations where information is not available when it is needed, is not accurate or is incomplete.

For organizations that are evolving their IG principles for healthcare, the first area for consideration is who in the organization will be responsible for setting the IGPHC vision and implementing it. While the IT department may be very proficient at managing clinical and administrative data, they require guidance from the administrators and clinicians on how the information is to be consumed.

For example, the IT department can render prior patient history available in a PDF and add it to the current EHR and provide a complete view of the patient history for the clinician. The coordination of this scenario and countless others are contingent upon a well-structured approach to information guidance that will build alignment in policy and procedure and key stakeholders. A well-executed IG plan with assigned stakeholders will drive a higher level of regulatory compliance and assure organizational information is properly managed.

Daniel Gauvreau, M.Sc., is Canadian Director, Healthcare, for Iron Mountain.

The 'Virtual' Family Health Team: a concept whose time has come

BY RONAK BRAHMBHATT, KARIM KESHAVJEE AND JIM MURPHY

Current State: Mary Jones, a 79-year-old widow, wakes up at 1 am not feeling well. She calls the Provincial Nurse Triage line to get some advice. The remote tele-nurse does a thorough assessment asking her about her present illness and other health problems.

But Mary has several diagnoses, is currently on 13 different medications and can't remember all her recent procedures. The tele-nurse is at a disadvantage without access to the medical record, including a list of medications and care plan.

Based on her professional assessment, she recommends that Mary stay at home and book an appointment with her doctor in the morning, but also states that if Mary feels worse to please call her back or if it is an emergency to call 911 right away.

Mary feels that's a good idea ... until 3:30 am, when, unable to go to sleep, she does feel worse. Mary believes that she won't get in to see her doctor because the phone is always busy when she calls. She panics and calls 911.

Mary ends up in the Emergency Department where her entire medical history is recreated through a myriad of tests that she is certain she has already had. Mary is sent home and told to follow-up with her family doctor the next day. She still doesn't know what is going on.

Future State: 79 year-old Rina Patel wakes up at 1 am, not feeling well. She tries to go back to sleep unsuccessfully, so she calls her doctor's office. The nurse on the line is able to access Rina's electronic medical record (EMR), and quickly get an understanding of Rina's medical history.

After her assessment, and feeling more confident, she recommends that Rina stay home and see her doctor in the morning. The nurse accesses the doctor's schedule and books Rina in for a 10:30 AM appointment. The nurse is able to do this in spite of being at a virtual location as part of a telehealth program.

Rina is able to rest easy, knowing she has a confirmed appointment. When her symptoms worsen, she waits it out. In the morning, her doctor is able to reassure her that there is nothing that requires urgent attention and sends her for some outpatient tests. Rina leaves confident that her symptoms are being investigated.

The future state is not science fiction. It is achievable using today's technologies. The recent report from the Conference Board of Canada on the success of Family Health Teams (FHTs) in Ontario should encourage us to pursue inter-professional care even more aggressively. Yet, the Ontario Government has backed away from expanding this successful model. Why? Because costs are high and expansion into remote and rural areas is fiscally unattainable.

Bricks and mortar FHTs can be expensive because professionals are often co-located in actual clinics. They are limited to a 9-5 clinic day with a few evenings available for after-hours care. FHTs require extensive planning and capital investment to house all health professionals under a single roof. Hiring new staff, developing organizational processes and the expertise to manage multiple health professions takes time, delaying the return on investment, sometimes for many years.

A virtual FHT (vFHT) with remote teleproviders, which could include every type of allied health professional that is found in a traditional site based FHT, could allow 24/7 care to be provided almost immediately, at a fraction of the cost of bricks and mortar FHTs. In addition vFHTs can be deployed in rural areas where a bricks and mortar FHT would not even be possible.

vFHT providers would also be attractive to existing FHTs, as it is often a challenge for FHTs to provide high-quality care after hours and during peak hours when the phones are busy. They are also attractive because they can support patients between visits by helping them to implement recommended care plans, make better lifestyle choices and navigate the increasingly complex healthcare system.

> **A virtual family health team, with remote teleproviders, could allow 24/7 care to be provided almost immediately.**

The vFHT is an attractive model, but also faces some barriers to implementation. Barriers and their solutions are discussed below.

How would continuity of care be managed? Continuity of care is shown to improve patient adherence to treatment and patient outcomes. Telehealth systems that rotate healthcare providers so that patients never get to know their healthcare providers, and healthcare providers never get to know their patients, detract from continuity of care. There are two ways to maintain continuity of care in a virtual provider system.

The first is to assign a fixed set of telehealth providers to a particular set of clinics using contractual mechanisms. The drawback of this approach is that economies of scale are lost when providers are assigned to very small groups of patients.

A more acceptable approach would be to have a fixed set of telehealth providers assigned to clinics to maintain continuity of care, but have a single and scalable backup queue with providers who can handle calls on a 24/7 basis, such as is available in every province through their provincial nurse line programs. Patients can decide whether they want to speak to someone immediately or wait for someone they know.

How is privacy and confidentiality maintained in vFHTs? There are several practical tools to help maintain patient confidentiality and privacy.

Health professionals' ethical and professional codes of conduct act as a basis for the service.

- Audit trails identify the telehealth provider who entered the system and when and which part of the EMR was viewed or altered.
- accessing care, patients can enter their healthcare number, providing consent for the telehealth provider to access his/her medical record.
- Regular third-party threat risk assessments can identify holes in security arrangements.
- Regular reviews of audit logs can help identify lapses in protocol and breaches.

How should patient referrals to a teleprovider be managed? Patients don't like surprises and they certainly don't like to get calls from strangers. They also don't like getting unsolicited calls about their health.

The best time to refer a patient to a teleprovider (other than having the patient call and be routed to one) is after a discussion with the patient during an in-person visit. The patient's motivation and readiness for change can be assessed during the encounter and a referral to a remote teleprovider can be negotiated at that time.

Using existing technologies in creative new ways, we can help patients with evidence-informed healthcare services on a 24/7/365 basis. The virtual family health team can provide most of the benefits of the bricks and mortar solution, and do so for more people in more communities at a fraction of the cost. The virtual family health team is an idea whose time has come.

Ronak Brahmbhatt is a physician trained in India. He is currently working on a variety of health related projects, including a systematic review on interventions in multimorbidity and the analysis of EMR data to better understand opioid prescribing. Karim Keshavjee is a family physician and CEO of InfoClin, a leading health-informatics consulting firm. Karim is a clinical and research architect, designing large-scale research and interventional projects using information technology. Jim Murphy is the Vice-President Healthcare Strategy & Business Development at Sykes Assistance Services Corporation, a leading Canadian telehealth service provider. Jim has over a decade of experience in healthcare governance with a special interest in quality and patient safety.

New telehealth projects target diabetes, mental health and kidney failure

The Ontario Telemedicine Network (OTN) has launched three new demonstration projects this fall under its "Home is the Hub" umbrella. Working with the private sector and established healthcare providers, OTN's initiatives are designed to discover whether new patient groups can benefit from remote patient monitoring.

OTN already oversees a well-established and successful Telehomecare program that supports Chronic Obstructive Pulmonary Disease (COPD) or Congestive Heart Failure (CHF) patients with self-management coaching and remote monitoring.

The new projects, supported by Canada Health Infoway and the Ontario Ministry of Health and Long-Term Care, use remote patient monitoring in the management of chronic kidney disease, mental health and diabetes.

"We're testing the potential for innovation in the healthcare system, not just through the outcomes of these particular projects, but through the approach we're taking to create an evaluation framework," says Ed Brown, OTN's chief executive officer.

"We want to learn to fail fast or succeed quickly. We want to create the conditions for patient empowerment and faster, cheaper, better healthcare that can be sustained.

"In every case, we have to test for patient-centredness – whether the patient will like and use it. We have to find out if providers like it and use it. We have to learn if the expected outcomes are achieved and we have to ensure it adds value to healthcare delivery and supports the Ministry of Health's transformation agenda.

"Finally," says Brown, "we have to figure out how it can scale. If it doesn't scale, it isn't an innovation – it's just another invention."

That's why for Brown and the OTN team, the new remote patient monitoring projects are vital to the future of healthcare in Ontario.

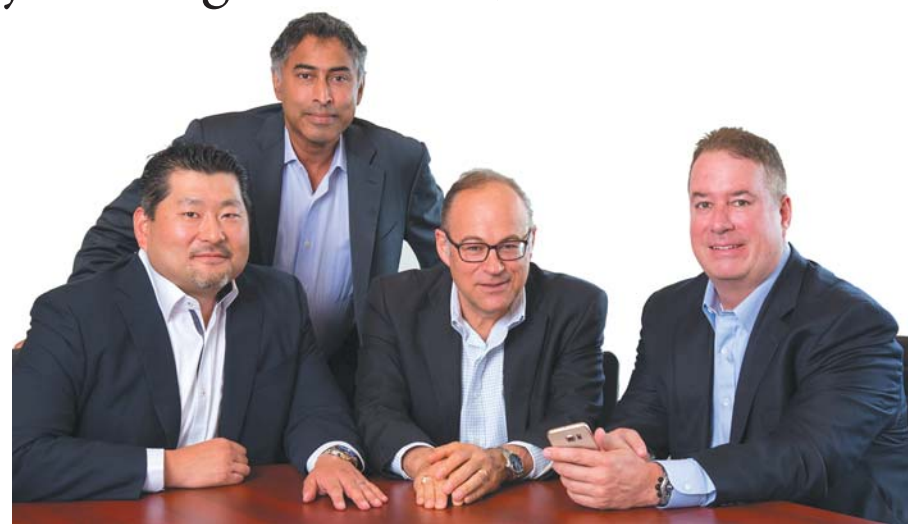
"It's exciting because we're going to learn so much," says Laurie Poole, OTN's vice president of telemedicine solutions. "With Telehomecare, we learned about technology as an enabler in the home and about the fact that coaching for self-management works. But the most important thing we learned is that there is so much more to do."

A key component of the process will be evaluation. "We'll be working with a leading academic research organization that will help us study this in real-time so we can learn and adjust as we go along," says Rhonda Wilson, OTN's Telehomecare executive lead, who spearheaded project development.

"Real-time research will allow us to learn if the approach works for the patients, for the family and volunteer caregivers, as well as whether the healthcare providers like it."

The evaluation process will also shed light on whether the projects have a positive impact on the sustainability of the healthcare system, Poole adds.

For Wilson, the projects are a dream come true. "All my working life I've tried to figure out how to make healthcare an integrated part of everyday life. Telehomecare, these projects – and all the iterations that will come after – are the first steps."



OTN partners in its new remote patient monitoring initiative for diabetes, BlueStarSC. Left to right, Harry Kim, Global Director, Samsung Healthcare Enterprise Business Team; Anand K. Iyer, Chief Data Science Officer, WellDoc; Dr. Ed Brown, CEO, OTN; Kevin McRaith, CEO of WellDo.

Diabetes: The rising prevalence of all forms of diabetes in Ontario outstrips the healthcare system's ability to provide preventive and disease management services. Fewer than half of all people with type 2 diabetes are regularly tested for blood sugar levels, blood pressure and cholesterol levels or kidney function.

Surveys indicate that people with diabetes receive too little education and too little support.

With partners WellDoc, a digital health technology company, and Samsung, OTN will work with three diabetes education centres to provide patients with a customized mobile self-management and lifestyle tracking tool. Jane DeLacy, executive director of clinical programs at William Osler Health System, draws on her experience with Osler's successful OTN Telehomecare program to project the impact of the new trial.

"The combination of immediate feedback and the availability of a healthcare professional has a huge impact on hospital and ER visits," she says. "And it's more patient-centred."

DeLacy says the frail elderly, those with mobility issues and those who don't have anyone to take them to appointments, will have better access to healthcare.

Mental health: In any given year, one in five people in Canada experience a mental health problem. According to a 2012 study, while 91 percent of Canadians were prescribed the medication they sought, only 65 percent received the therapy they felt they needed. Access to evidence-based psychotherapy is limited and wait-lists are long. As of April 30, 2015, Ontario Shores Centre for Mental Health Sciences alone had hundreds of patients on waiting lists for outpatient treatment.

Working with partners Ontario Shores and Lakeridge Health, OTN will pilot a social media-based online early intervention service for people 16 and older who suffer from mental health problems.

Members come together online anonymously to share feelings, join guided online courses and assess themselves to set goals and track progress. The online interactions are monitored by an automated system that issues alerts if 'danger words' are used and by clinicians trained in how to intervene.

For Sheila Neuburger, executive vice president of clinical services at Ontario Shores, the bottom line on the trial is straightforward: "We've been looking for something to help our waiting list people. I think we've found it."

Moreover, she says, the online community can be a constant in people's lives, even when patients have a therapist. "Your therapist appointments might be once a month. This is a 24/7 resource people can access from wherever they are."

Chronic kidney disease: In Ontario, about 10,500 patients receive some form of dialysis, either hemodialysis (HD) in a healthcare setting or peritoneal dialysis (PD) that can be performed at home.

PD is associated with numerous benefits over HD, including a survival advantage. It

CONTINUED ON PAGE 14

Hamilton's Mohawk College is poised for the rise of medical apps

BY ANDREA JOHNSON

Right in your pocket is one of the most powerful and exciting tools that is currently being used to improve healthcare. Mobile technology, which includes your smartphone, tablet and wearables, has become an unavoidable force that is changing how you can monitor and support your patients – both in and out of the doctor's office.

So how can we effectively use healthcare apps and mobile health (mHealth) to help patients?

The first step, says Duane Bender, is not to think about how you can include and adopt mobile health, but instead consider how you are already using it.

Bender is the director of Mohawk College's mHealth and eHealth Development and Innovation Centre (MEDIC) in Hamilton, Ont., and one of Canada's leading experts on mobile health.

He is a professional software engineer who researches the application of systems engineering, software engineering, information technology and mobile technology to healthcare.

Even if you aren't actively using clinical healthcare apps on your phone, suggests Bender, there is a good chance that your patients have already embraced consumer wearables or apps, such as Fitbits, MyFitnessPal and the Apple Health Kit, or looked up healthcare information on their smart phones.

"If your patients are using it, then you are using it," says Bender. "In fact, most clinicians would be surprised by the level of consumer demand for mHealth. We know now that consumers and patients are extremely interested in these technologies and I think some providers would be surprised to learn how many of their patients are experimenting at home with Fitbits and Fuel bands."

That ease of consumer adoption is important for the integration of mHealth into patient care, but this ease of use also comes with some risk. While it allows for easy integration, it also means that clinicians may have to be more vigilant about how patients use the technology.

"These devices and applications provide a degree of self-empowerment that patients have never had in the past. This is great opportunity to lead to more meaningful clinician-patient interactions," explains Bender, who advocates that clinicians and consumers alike use a good "dose of common sense" when adopting healthcare apps.

"While I highly doubt that counting your steps and estimating your caloric burn in a day will hurt you, there have been cases where apps have been provided directly to consumers which claim to be able to diagnose complex medical conditions, such as melanoma. This is obviously a highly risky practice and I suspect that people could be seriously harmed by a delay in seeking appropriate medical attention."

It's also important to remember that mHealth isn't pure science, it is a confluence of forces, including healthcare, technology, consumer demand and public policy.

In a sense, it is a contradiction: easy to use but hard to understand. Understanding the types and features of healthcare apps that are currently available for clinicians and for consumers is the first step to evaluating the best way to integrate them into practice.

"There is a clear distinction in the industry between apps and devices that are used by patients to collect and record data about their conditions and devices and apps that are used by clinicians for diagnostic purposes," says Bender.

"The first type are not currently regulated by Health Canada or the FDA and their clinical effectiveness is not really known. Devices and apps that are used by clinicians for diagnostic purposes, like diagnosing a disease or condition, are regulated by Health Canada or the USA FDA. This is a much more complex and expensive process which requires proof of clinical effectiveness."

The exacting process that is involved in the development of clinical grade mHealth products and solutions is an area that Bender and the MEDIC team are familiar with.

While MEDIC doesn't provide end-user apps directly to consumers, it does assist organizations in developing their apps in the research centre. It's Bender's own personal knowledge, gained from working on over 20 different mobile health apps, that allows him to articulate the complexity of developing a mHealth app.

Duane Bender

"Healthcare technology development has aspects unique to the health industry – such as specialized privacy and security requirements and detailed specifications for the structured exchange of health information," says Bender.

There is more to mobile health than just the actual app and there continues to be a desire and need to integrate apps and devices together, he adds.

"Most people don't realize the tremendous amount of infrastructure that is behind modern smartphone apps. Have you ever tried to use an app without the network connected? You generally don't get too far. Companies such as WebMD and Epocrates have been collecting and developing medical content for many years and have tremendous platforms.

"Public agencies such as Canada Health Infoway and eHealth Ontario have also been building sophisticated infrastructure in recent years that will enable the next generation of highly integrated medical apps for Canadians."

Bender is optimistic that the pace of mHealth adaptation and development will increase thanks to these infrastructure investments. He points out that Mohawk's Apps for Health Conference continues to grow, with upwards of 400 attendees attending last April, to hear from startups, small and medium enterprises, government agencies and hospital systems that are developing and using mobile health technologies. Bender suggests that Canada is still in a "wait and see" mode while most of the commercial activity in healthcare apps is happening in the USA and abroad.

"Canada has a world-class health system with both some of the best clinicians in the world, as well as some of the best engineering and innovation talent in the world," says Bender. "I hope to see a change in our mHealth focus in the next few years."

Innovation and adoption – those are the two paths that Bender sees for the future of mHealth in Canada.

"I see massive potential in mHealth for alleviating some of the pressure from the healthcare system through virtualized care and patient self-management," says Bender. "The only way that we can sustain the current level of care without raising costs is to become more efficient through the use of technology."

Telehealth projects

CONTINUED FROM PAGE 14

is also the least costly form of dialysis. But studies show that the low uptake of home dialysis is the result of patients' fear of caring for themselves once separated from their healthcare team.

Support for patients to successfully transition to independent dialysis at home may be achieved with the addition of technology to the patient's care plan.

Working with the London Health Sciences Centre (LHSC) and eQOL Inc, a company started up through Toronto's MaRS innovation hub, OTN will conduct a randomized control trial to study the use of a remote telemonitoring solution to improve health-related quality of life and peritoneal dialysis (PD) management for patients undergoing PD.

Dr. Arsh Jain, LHSC medical director for peritoneal dialysis, says home-based peritoneal dialysis creates a burden for patients who experience anxiety about all of the tasks associated with choosing home dialysis over the more costly in-centre dialysis.

"We had tele-home-monitoring for a number of years, but it was such old technology. We needed to move things on, replace the pen-and-paper strategy patients used for recording data, automate the ordering of supplies, do away with nurses transcribing data. This technology gives us the opportunity to do that. Best of all, the trial gives us eyes in the home so we can see how the patient is doing."

Capita Healthcare Decisions leads in clinical decision support

CONTINUED FROM PAGE 9

and provides high quality health information online and over the phone enabling all Australians access to healthcare advice where and when they need it most. Clearly a huge responsibility for us.

The project was excellent, from my perspective, partly because I was able to work closely with the Medibank Chief Medical Officer, Dr Georgia Karabastos, and one of my clinical team based in Australia worked hand-in-hand with the Medibank clinical team.

This type of close communication with customers is absolutely essential. Without it we can't work out what our customers really need, and so we can't give it to them.

We also learn a massive amount from our customers in this type of working environment. In fact, our approach is much more like a close working partnership than a transactional relationship, and that partnership continues for as long as, and sometimes even after, they continue to use our products.

CHT: What went well?

Dr. Young: The best thing about working with Georgia and Medibank was the communication. We found they were excellent partners in working together to develop the content to suit Healthdirect's requirements, and it was fantastic to see the new system go-live without a hitch.

CHT: What were the challenges?

Dr. Young: All very large projects face challenges. For example, the Healthcare Decisions editorial team is based in many different locations around the world, and so, coordinating calls and web-based meetings in multiple time zones between us and our customers can prove challenging. But we always manage it somehow.

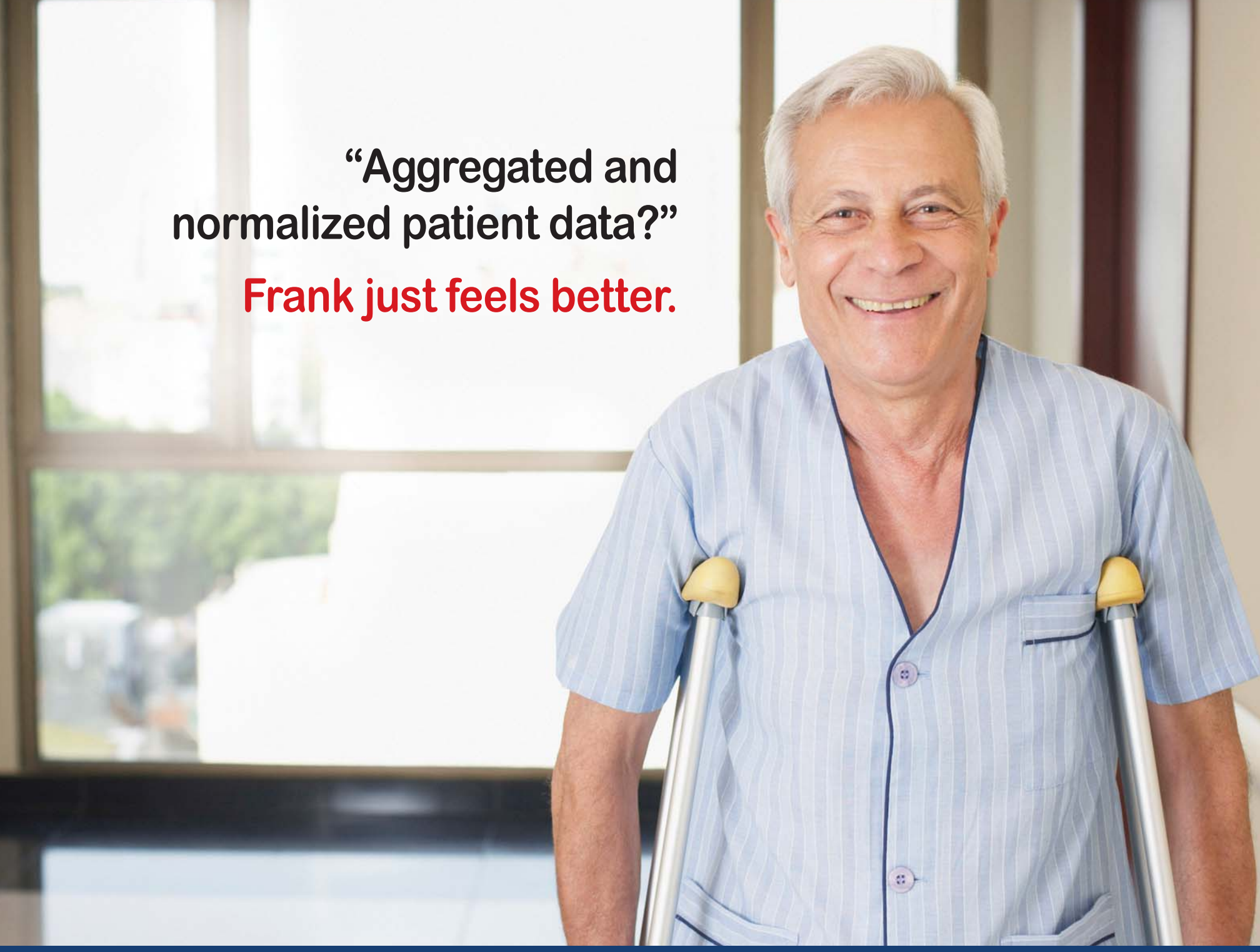
A key concern in dealing with a very experienced partner like Medibank is providing them with enough support and guidance so they understand our content and its complex architecture, while still allowing them the freedom and control to make the changes they need to.

We learn a massive amount from our customers, and our approach is much like a close working partnership.

CHT: What's going to happen in the future?

Dr. Young: More sophisticated linking of different types of clinical decision support tools. I can already see a spectrum of different types of information-based clinical decision support tools emerging and maturing, but they still seem to work in very isolated environments.

In the future, I'm sure this will change as information systems progressively link together to give clinicians and their patients a more seamless flow of the information they need, exactly when and where they need it.



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Laura Adams,
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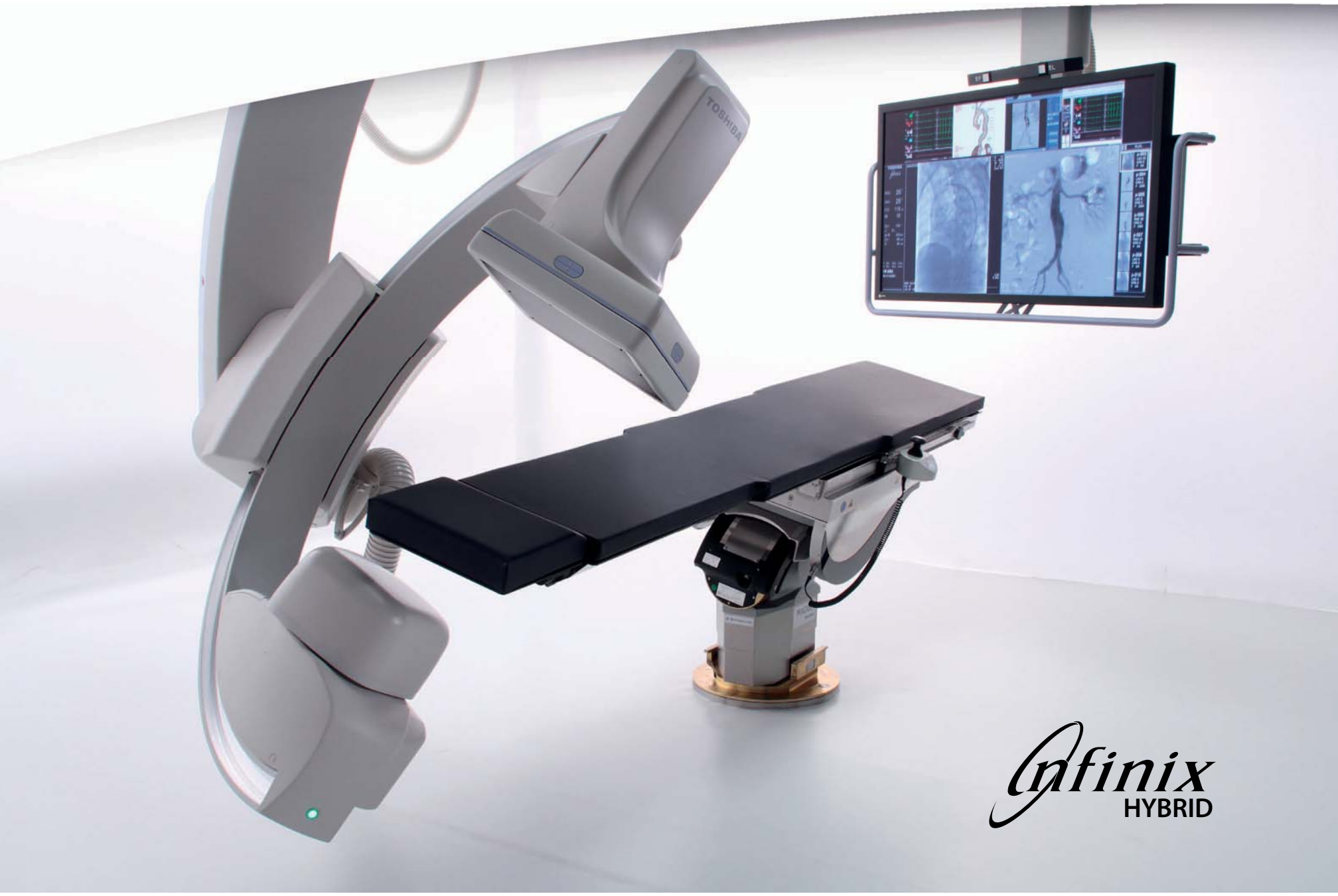

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