



CANADIAN Healthcare Technology

CANADA'S MAGAZINE FOR MANAGERS AND USERS OF INFORMATION SYSTEMS IN HEALTHCARE | VOL. 21, NO. 1 | FEBRUARY 2016

INSIDE:

FOCUS REPORT: EDUCATION PAGE 8

Province-wide peer review

Alberta is implementing a system that will provide quality controls for diagnostic imaging. The system is designed more as an on-going educational tool than as a way of finding outliers.

Page 6

Easy eConsults

GPs often have trouble getting through to specialists, and as a result, their patients can wait days or weeks to find out if they really need a referral. A solution developed in the Ottawa area enables family doctors to send questions to



specialists via an electronic network; in some cases the answers come back in minutes.

Page 6

Shared community records

A pilot program in Ontario, as part of Health Links, is making patient records accessible to care-givers across the continuum of health, as well as to patients and families.

Page 13

Shared education & training

A web-based educational system, based on the popular Moodle, is enabling hospitals and other



healthcare organizations to pool the courseware they have developed. Among the first to sign on is the Montfort Hospital.

Page 8



PHOTO: COURTESY HUMBER RIVER HOSPITAL

Futuristic Humber River Hospital blazes new trails

Dr. Rueben Devlin, president and CEO of the Humber River Hospital, accepts a donation to the new facility from Gordon Burrill, on behalf of the Canadian Centre for Healthcare Facilities. The CCHF hosted a conference at the Humber River Hospital on the planning and design of smart hospitals. Humber River opened last October using a wide array of innovative digital technologies. **SEE STORY ON PAGE 4.**

Mackenzie Health moves ahead with Epic HIS

BY JERRY ZEIDENBERG

RICHMOND HILL, ONT. — Mackenzie Health is going ahead with a full implementation of the Epic hospital information system, as part of its drive to achieve Level 7 in the HIMSS EMRAM scale within three years. In the process, Mackenzie Health, which is opening a second major site in 2019, will become the first hospital in Canada to implement the full suite of Epic systems.

Other Canadian hospitals have installed Epic, but only for ambulatory care. Mackenzie Health's solution will encompass both ambulatory and acute care; it will also be able to connect with outside referring physicians through a portal.

The investment in Epic is part of the hospital's drive to higher performance and patient care. "We're at EMRAM Level 3 right

now, but we aim to be at Level 6 in two years and Level 7 in three years," said Richard Tam, executive vice-president and chief administrative officer at Mackenzie Health.

The HIMSS EMRAM scale measures the extent of electronic system usage in hospitals on a scale of zero to seven, with seven repre-

Mackenzie Health intends to reach HIMSS EMRAM Level 7 in just three years.

senting the most advanced implementations. Hospitals at this stage are expected to be more efficient, with increased patient safety and better medical outcomes through requirements like computerized order entry, medication management and adverse-event checking, and standardized order sets.

Altaf Stationwala, president and CEO of Mackenzie Health, explained that the acquisition of new technology is not an end in itself, but a way of attaining the highest possible performance — in clinician communication, patient safety and cost effectiveness.

Technology must support better workflows, said Stationwala. "It's not just about buying shiny boxes, it's about making sure clinicians are using the technology, and that we optimize it to support better decision-making and patient-care."

For this reason, Mackenzie Health recently launched its Innovation Lab, an actual unit of the hospital with 34 beds that serves as a testing ground for hardware and software. The goal is to pilot systems that can improve patient care — such as wireless patient alarms and bed falls alerts that are con-

CONTINUED ON PAGE 2

Mackenzie Health installing Epic HIS, and other advanced solutions

CONTINUED FROM PAGE 1

nected to a nurse's phone – to ensure they are effective. The systems, and the associated clinician-friendly workflows, can then be rolled out across the hospital.

Mackenzie Health is working with partners such as Cisco, Hill-Rom, BlackBerry and ThoughtWire to produce these solutions. Stationwala pointed out that the hospital is not planning to profit from the rights to any new solutions that are produced in the Innovation Unit. Instead, the vendor partners are able to commercialize solutions and enhancements developed from projects in the Innovation Unit.

"We're not demanding any IP [intellectual property] from the Innovation Unit," said Stationwala. "We're not in the business of selling IP, we're in the business of improving patient care. IP and licensing would simply be a distraction to us."

Through the Innovation Unit, the hospital is creating a "smart layer" of software and workflow solutions that improve productivity and patient safety. It's being done by connecting various systems in ways that

are easy to use by physicians, nurses and other clinicians.

When the new Mackenzie Health Vaughan hospital opens in 2019, several kilometres away, the same innovations will be used there. "We see the new hospital as an extension of this one," said Diane Salois-Swallow, chief information officer. "We have A, B, C, and D wings here at Mackenzie Health Richmond Hill. Information should flow easily between us and the new site, as if it were E wing."

To ensure this seamless interoperability between the two sites, Mackenzie Health recently issued an RFP for vendors who can build on what's already in operation at the Richmond Hill site and implement it at the new Vaughan location.

"It's not an easy task," said Salois-Swallow. "Too many vendors want to start installing new and different systems, which don't mesh in the same way with what we have produced. We need things to work in the same way at both locations."

Mackenzie Health is also highlighting patient-centred care. For this reason, it recently launched a patient portal and MyChart, a personal health record that was pioneered at



Altaf Stationwala with Iain Burns, of Philips Canada.

Sunnybrook Hospital, in Toronto. MyChart will enable patients to view portions of their electronic records, to make or change appointments, and to communicate through secure emails with their care-givers.

Systems like MyChart give patients more control over their care, helping them to become more involved in getting better or staying healthy.

Mackenzie Health's MyChart system was launched with patients in the department of medicine; it will gradually be rolled out to other parts of the hospital.

Management has also been paying a good deal of attention to the new Mackenzie Vaughan site, a 350-bed "smart hospital" that will be the first hospital built in the region in 50 years.

Mackenzie Health recently named Philips as its 'managed equipment services' (MES) partner, an innovative deal that will see Philips supply leading-edge equipment (its own and from other vendors), procurement services, installation and maintenance, for the next 18 years. The total value of the arrangement has been pegged at \$300 million.

Mackenzie Health is the first to work with its MES partner in the early RFP phase of the project – in this case, before its new Mackenzie Vaughan Hospital has been constructed. "We're the first to engage [with the MES partner] before the construction phase of the project," said Tam. "So our vendor can actually participate in the design of the facility."

That means, said Tam, that Philips can advise the architects and builders about the future requirements of hospitals, to make it easier to maintain and replace equipment. For example, equipment vendors can advise architects to position MRI suites near outside walls, so that it is easier to move magnets in and out of the facility when upgrades are required.

Iain Burns, President and CEO of Philips Canada, said the MES with Mackenzie Health is itself an innovation, one that will help streamline the operation of the hospital.

That's because Philips will look after the procurement and acquisition of technology for the next 18 years, relieving the hospital of this chore. It will issue RFPs, evaluate technologies, and work with management to make final decisions.

"Issuing RFPs is an expensive and time-consuming process for any hospital," said Burns. "We are now going to handle that, and Mackenzie Health will be able to focus on patient care."

If the hospital is evolving through its partnerships, said Burns, so is Philips. "We will be working more closely with other vendors."

For its part, Philips has been forging ahead in leading-edge technologies like analytics, cloud and remote patient monitoring. "Mackenzie Health will have early access to our innovations around the world," commented Burns.

And the hospital will become an international showcase for Philips. "We'll be doing a lot of first-of-their-kind projects with Mackenzie Health."

He credited Stationwala on this score. "Altaf is a visionary and a forward thinker. He and his team are really creating the hospital of the future."

Apps for Health 2016
and Education April 28
Mohawk College, Fennell Campus
Hamilton

EARLY BIRD FEE
of \$85 (+HST)
available until
March 15, 2016

Connecting Consumers and Care Providers

- Patient Engagement
- Virtual Care
- Big Data
- Global mHealth

Register at www.apps4health.ca

Keynotes from



William Charnetski
Chief Health Innovation
Strategist for Ontario



Mark Casselman
CEO, COACH



Paul Biondich
Regenstrief Institute



Renato Discenza
Executive Vice President
Strategy and Innovation
Hamilton Health Sciences

MOHAWK

Healthcare Technology

CANADIAN

CANADA'S MAGAZINE FOR MANAGERS AND USERS
OF INFORMATION TECHNOLOGY IN HEALTHCARE
Volume 21, Number 1 February 2016

Address all correspondence to Canadian Healthcare Technology, 1118 Centre Street, Suite 207, Thornhill ON L4J 7R9 Canada. Telephone: (905) 709-2330. Fax: (905) 709-2258. Internet: www.canhealth.com. E-mail: info2@canhealth.com. Canadian Healthcare Technology will publish eight issues in 2016. Feature schedule and advertising kits available upon request. Canadian Healthcare Technology is sent free of charge to physicians and managers in hospitals, clinics and nursing homes. All others: \$67.80 per year (\$60 + \$7.80 HST). Registration number 899059430 RT. ©2016 by Canadian Healthcare Technology. The content of Canadian Healthcare Technology is subject to copyright. Reproduction in whole or in part without prior written permission is strictly prohibited. Send all requests for permission to Jerry Zeidenberg, Publisher. Publications Mail Agreement No. 40018238. Return undeliverable Canadian addresses to Canadian Healthcare Technology, 1118 Centre Street, Suite 207, Thornhill ON L4J 7R9. E-mail: jerryz@canhealth.com. ISSN 1486-7133.

Publisher & Editor

Jerry Zeidenberg
jerryz@canhealth.com

Office Manager

Neil Zeidenberg
neilz@canhealth.com



Contributing Editors

Dr. Sunny Malhotra
Twitter: @drsunnymalhotra
Dianne Daniel
dianne.daniel@cogeco.ca
Richard Irving, PhD
rirving@schulich.yorku.ca
Rosie Lombardi
rosielombardi@hotmail.com
Andy Shaw
andy56@telus.net

Art Director

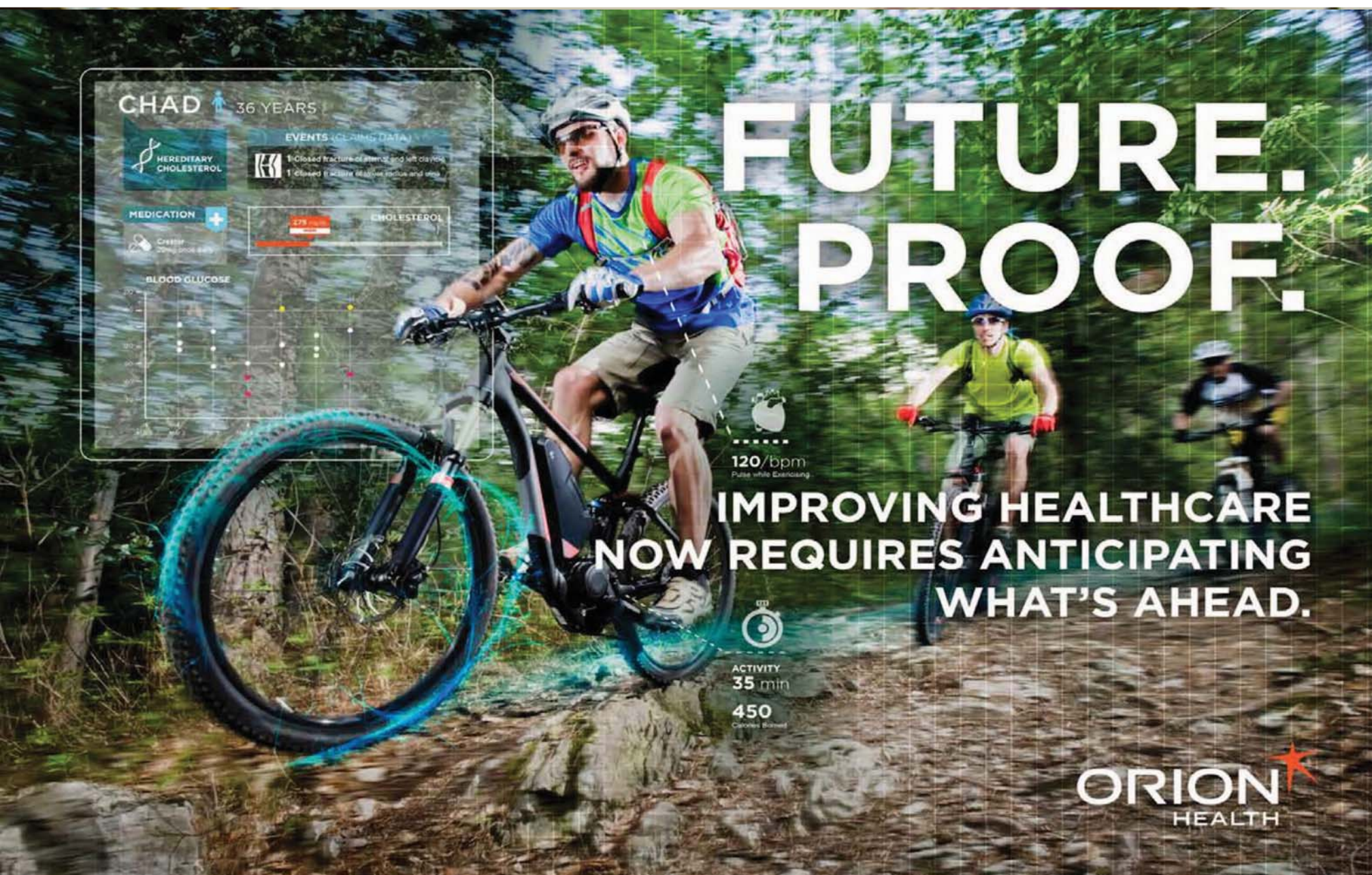
Walter Caniparoli
art@canhealth.com

Art Assistant

Joanne Jubas
joanne@canhealth.com

Circulation

Marla Singer
marla@canhealth.com



Another adventure. And the future-proof technology to help keep them healthy for many more.

Health information has the power to change the quality of our lives, and we're working hard to improve healthcare across generations. When clinicians have access to complete patient information from the entire care continuum, everyone benefits. Enhanced analysis. Increased insight. Informed decisions. And that adds up to a better quality of life for everyone.

Open platform technology built for today with the vision to adapt to tomorrow.

For more information, please visit us at HIMSS booth #1626 or e-mail CanadianSolutions@orionhealth.com



Automation boosts performance at the new Humber River Hospital

BY JERRY ZEIDENBERG

TORONTO – When planning what has become North America's most automated hospital, the management team at Humber River Regional Hospital would have been quite happy to emulate another hospital that had put all the pieces together. That would have saved a lot of time and effort, but it turned out that nobody had done it yet – so they decided to create the world's first 'digital hospital'.

"We thought there had to be a fully automated hospital somewhere in North America, and that we'd copy it," said Dr. Rueben Devlin, president and CEO of the new Humber River hospital, which opened in October. "After searching, we came back and said, 'It doesn't exist.'"

Dr. Devlin and his team set out to do it themselves. In the process, they decided to borrow the best practices from around the world, including some from other industries.

Because the facility would be much larger than the older one it replaced, saving steps for staff was a big issue.

For example, it went from Emergency Department space of 21,000 square feet to 46,000 square feet, and the OR space nearly tripled to 29,000 square feet. Overall, the bright, beautifully designed building is 1.7-million square feet – with a long, patient drop-off area that resembles an airport terminal.

"We did a study and found that in the previous building, a nurse walked 5.4 kilometers in a 12 hour shift," said Barb Collins, VP of operations. "We projected the nurse would walk 11.6 kilometers in

the new building," she added, unless step-saving measures were taken.

Collins and Dr. Devlin conducted an hour-and-a-half long presentation on the new 'superhospital' at the Design for Technology Innovations conference in December, held at Humber River Hospital and organized by the Canadian Centre for Healthcare Facilities.

One of the most useful 'step-saving' ideas has been the deployment of automated guided vehicles – motorized platforms on wheels with computerized-brains, able to navigate hallways, open and close elevators, warn people to stand back, and to let staff know when they've delivered their payloads.

"The AGVs are capable of delivering 75 percent of our supplies," said Collins. "They're saving us a lot of steps."

The AGVs, for example, are extremely useful for delivering medications (except for narcotics, which are tightly controlled).

Collins noted it's the first time the vehicles have been used in a hospital in North America. The idea came from Norway, where AGVs are already used to boost the efficiency of healthcare facilities.

Many of the processes in the Humber River Hospital have been completely redesigned, with heavy usage of electronic systems to speed-up workflow and improve patient safety and satisfaction.

The lab workflow is a case in point. Previously, orders were faxed to the lab to start the process. Now, orders are sent by computer to the lab, which dispatches a technician with a cart to the bedside. The cart contains tubes for samples and a barcode printer – labels can be printed right at the bedside and attached to the tubes, after blood is drawn.

The samples can be sent quickly to the



Dr. Devlin: A fully automated hospital didn't exist as a model, so his team devised North America's first.

lab via a pneumatic tube system. The new method has reduced turnaround time from several hours to just one hour – from order to result. And because of the barcoding, there are fewer mistakes made with samples.

Similarly, medication orders are sent to the central pharmacy electronically. A robotic system picks and packages medications into envelopes that are organized on a ring; each envelope is barcoded, as is the entire ring.

The rings are packaged into trays and bins, and sent by the automated guided vehicles to the appropriate nursing stations. They are unpacked, sorted into carts, and delivered to patients at the bedside, where the barcoding is used by nurses to check

that the right patient is getting the right med at the right time.

Vital signs are transmitted from bedside monitors right into the Meditech electronic health record, again eliminating the need for paper, re-keying data, and the chance of transcription errors.

All of these digital systems were implemented with the purpose of improving patient care. "In going digital, the goal wasn't merely to acquire toys," said Collins. "It was to allow people to move through their day more efficiently, and we have largely done it."

The systems at Humber are collectively referred to as "ICAT", short for Information, Communication, Automation and Technology.

"Our biggest challenge was interoperability, how to get systems to work together," said Collins. "It's hard to do when it takes three to four years to build a hospital, since technology changes in that time, too. We drove the builders crazy with changes."

Clinical information systems, fire and safety alarms, bedside terminals, nurse call systems and wayfinding systems can all be monitored from a centralized data centre – something that looks like Captain Kirk's command centre on the Starship Enterprise.

"Many of things we were asking for had never been designed before," said Collins. "We pushed our vendors for them."

They include intelligent bedside terminals (IBTs) in each of the patient rooms that provide a wide range of functions – access to the Internet, menu ordering, educational videos, and access to the patient's own medical records.

Dr. Devlin commented that giving patients the ability to view their records gives them the respect they deserve, and also empowers them by supplying the means to take charge of their own health. Humber has created a patient portal that allows patients to access their records while in hospital and from the comfort of their homes.

The bedside terminals can also be used by clinicians to call up patient records and enter information, or to explain X-rays or lab results to patients.

Communication is often a pain point in

CONTINUED ON PAGE 12



A Canadian Innovation

Allscripts Sunrise™ connects people, places and insights by integrating clinical and operational data across all care settings. This delivers a complete view of a patient's health that follows them through each stage of care.

**The Power to Transform Canadian Health Care.
That's the Power of Allscripts.**

www.allscripts.com | @allscriptsCAN



Copyright © 2015 Allscripts Healthcare Solutions, Inc.

Find
documents
faster



Improve document efficiencies,
management and patient care.



fi-7160



fi-7260



fi-5950



fi-6800



fi-6400



fi-6770



fi-6670



For more information on Fujitsu scanners,
please visit www.fujitsu.ca/scanning.

shaping tomorrow with you

FUJITSU

Ottawa-area eConsult service speeds up GP's access to specialists

BY JERRY ZEIDENBERG

OTTAWA — In most places across Canada, getting the opinion of a specialist takes months — after the phone or fax referral, patients can sit on a wait list for an awfully long time. But in the Ottawa-Champlain district of Ontario, communications between family doctors and specialists requires just days — or even minutes.

That's because over 50 percent of the family doctors in the area are now using the Champlain BASE (Building Access to Specialists through eConsult) eConsult service, which employs a simple and secure web-based form to electronically connect primary care providers with over 80 kinds of specialty services in the region.

Family doctors, as well as nurse practitioners and even specialists, can send questions and attach any relevant photos, diagnostic images, charts and reports for consultation with any of the available specialties. The median response time is less than one day, but it has been as fast as four minutes.

Specialists responding can answer the question, request additional information or recommend a face-to-face consultation.

Incredibly, in over 40 percent of the cases in which eConsult has been used, primary care providers who intended to refer their patients for a traditional face-to-face consultation discovered it wasn't necessary.

As a result, patients avoided the whole process of waiting for care and making the trek to the specialist's office. They could often start treatments right away or, in some instances, didn't need further care at all.

"Patients avoid the wait time to see a specialist, and we're eliminating all of the anxiety that goes along with the wait," said Dr.

Erin Keely, chief of endocrinology and metabolism at the Ottawa Hospital, one of the co-founders of the BASE eConsult service.

As of November 2015, 769 family physicians and 144 nurse practitioners were set up with access to the BASE eConsult service.

Dr. Keely and her colleague, Dr. Clare Liddy, a family physician, got the Champlain BASE project off the ground in 2009 when they agreed that an online system could probably improve communication between primary care practitioners and specialists, and avoid unnecessary visits.

They approached the Local Health Integration network (LHIN), which offered to lend a hand and provided the help of a skilled IT director, Amir Afkham, and his staff. About \$100,000 in seed funding was offered by the Ottawa Hospital, and meetings with both specialists and family doctors were held to see how the system could be made most effective.

A key suggestion was that the solution — and the forms sent to specialists — should be simple and easy to use. "The doctors made it clear they didn't want a three-page form," said Dr. Keely. "So what we created was a short, four-field form with room for free text. It's very simple."

Of course, the doctors can attach any type of electronic documents, as well, such as lab test results and images.

The project began as a pilot in 2010 with primary care physicians in Winchester, Ontario, making use of the system to contact five to 10 different kinds of specialists.

The Champlain LHIN built the application using its existing Microsoft SharePoint platform hosted at Winchester District Memorial Hospital (WDMH), which had already been deployed regionally for secure web-based collaboration. It's not completely automated, as forms that are



The Ottawa-Champlain eConsult team members.

sent through by family physicians are assigned to an appropriate specialist by support staff.

"This also gives us some quality control," said Dr. Keely, noting that if a specialist doesn't respond in a timely way, the assigner can give a friendly reminder or redirect the request to another specialist.

The solution was an immediate success, and usage quickly grew through word of mouth. "In most cases, family doctors asked us to add different kinds of specialists," said Dr. Keely. The team would then

approach these specialists to see if they'd like to participate.

Dermatology receives the most eConsults followed by endocrinology and questions about thyroid problems and osteoporosis. The system now includes over 80 kinds of specialists, with more being added. Dr. Keely said experts in refugee medicine were the latest to step aboard.

The volume of eConsults has been regularly growing, too, and the project hit 10,000 e-consults in September.

Many specialists answer eConsults in-between patient appointments at their offices, or when they have gaps in their schedules. Some even use it on weekends or at night.

Dr. Keely noted she and the team were worried that turnaround time might be adversely affected as the volume of traffic increased, but that hasn't been the case. They've been able to maintain the two-day average reply time by steadily adding more specialists to the network as demand rises.

The response from family physicians and nurse practitioners has been uniformly positive. "They're thrilled with it," said Dr. Keely. "Hearing the positive feedback from primary care is so rewarding. The response you get, you never hear in any other part of your job."

Specialists have been paid through project funds from the LHIN, research studies, and most recently MOHLTC as part of a provincial pilot initiative. The rate is \$200 per hour for the consults, and specialists self-report on whether it takes less than 10 minutes, 10-15, 15-20, or over 20 minutes.

For their part, family doctors and nurse practitioners were originally not compensated for using the system, but subsequently a billing code was also established for family doctors when initiating an eConsult.

Alberta to launch province-wide plan for Diagnostic Imaging peer review

BY DIANNE DANIEL

Alberta Health Services (AHS) is putting the finishing touches on a province-wide peer review program and Marlene Stodgell-O'Grady, Director of Quality, Safety and Education, Diagnostic Imaging Services, expects to see positive results. "We've really focused our program on education, learning and improving outcomes as opposed to looking for outliers," she says, noting that AHS performs about 2.85 million exams per year.

By March 2016, all general radiology reports and CT scans performed at public sector facilities in Alberta will be available for peer review. The underlying software used is McKesson Conserus, which integrates with AHS's existing IMPAX picture archiving and communication system from Agfa HealthCare. This integration enables the reviews to be performed seamlessly within the normal daily workflow of the radiologists.

Each week, the fully integrated peer review system will randomly select stud-

ies from across the province and assign them to any one of AHS's 300 radiologists, so that "the statistical likelihood of having a report style you recognize is very low," explains Stodgell-O'Grady.

Only reports from the prior week are selected, so that reviews are performed in a timely fashion and radiologists only receive reports that are within their normal scope of practice.

The system automatically assigns the same number of reports each week and any that aren't reviewed simply fall out of the queue by week's end. For general radiology, reviewers will be provided with seven reports each week and will be asked to report on five; for CT scans, reviewers are provided with two cases and asked to report on one.

Each facility is expected to carry out its assigned peer review load, based on volumes, and it's up to each one to figure out how that will work, says Stodgell O'Grady.

"Though it is an off-the-shelf product, we have done an awful lot of customization and worked very closely with McKesson Conserus project managers to make it work the way we want it to," said

Stodgell O'Grady. "We want to make sure it's not just about finding discrepancies; it's also about acknowledging that some people do some exceptional work."

Ratings in the peer review system range from "good call, most people would have missed it" to "concur" to "disagree — should usually be caught" to "disagree — should almost always be caught." Reviewers also have the ability

viewing radiologist so they can receive feedback about why.

Stodgell O'Grady's internal staff created dashboards using Tableau, an analytics system, so that each radiologist can see his or her performance at a glance, including how many reviews they've conducted, how many reviews have been conducted on their reports, and how their personal ratings compare against the provincial average.

AHS is shying away from determining discrepancy rates at this point and focusing instead on learning. "We are very much trying to stay away from looking at the individual performance of anybody," says Stodgell O'Grady. "Instead we're looking at the over-arching trends and where we can provide feedback."

AHS is using the information in its peer review database to create an anonymous teaching file to ensure that really good cases are shared. "The reason we've been successful is we engaged the radiologists from day one and we let them tell us what works for them, what makes sense for them and how it would truly be an educational program," she says.

The program is focused on education, learning and improving outcomes, rather than looking for outliers.

to remark as to whether or not a discrepancy is clinically significant.

Any discrepancies deemed clinically significant are automatically flagged to go through an adjudication process. A secondary reviewer, who must be a member of the interpretation and reporting subcommittee, either confirms or disagrees with the diagnosis. If they disagree, the report is returned to the re-



How do you meet the challenges of Quality Management in Medical Imaging?

Bialogics' Business Intelligence and Analytics Software provides decision makers the knowledge and insight to improve Quality Management and optimize efficiency.



Accessibility – Democratize data analytics, moving data discovery capacity to the optimal point for management decision-making.

Real-time tracking of all radiology events – through full interoperability, you can have a consolidated view of all information from multiple data sources.

Visualization – Easy to understand graphical representation of in-depth business operations.

Reporting and alerting – Automate reporting to meet hospital, regional and government requirements.

Financials – Improves business metrics and enables a greater efficiency towards value based imaging and patient outcomes.

Research – Real time access to islands of data containing valuable patient outcomes information to optimize treatment and improve patient care.



www.bialogics.com info@bialogics.com

Ottawa's Dual Code provides online education to Canadian hospitals

BY DIANNE CRAIG

Ottawa-based Dual Code Inc., an eLearning company, has formed a partnership with HealthCareCAN, formerly known as the Canadian Healthcare Association, to build a nationwide, open collaboration network that enables hospitals and healthcare organizations to share eLearning content.

The Montfort Hospital, in Ottawa, has signed-on to share course content with other hospitals, and more facilities are expected to soon follow.

Dual Code makes use of Moodle, an open-source learning management system that's widely used in high schools, colleges and universities. While many companies and service providers have customized the system for secondary and post-secondary schools, Dual Code is the first in Canada to tweak it for use in healthcare.

"We've enhanced it," says Allan Zahara, director of Healthcare Solutions at Dual Code. "Hospitals and healthcare organizations have specific needs around educational compliance – such as infection control, patient safety, workplace hazards, etc.

"We've built those feature sets in Moodle to meet the needs of the Canadian healthcare sector."

Zahara said the company started customizing Moodle around 2009, focusing on recognizing particular needs of hospitals and healthcare organizations, like "tracking mandatory due dates for employees as well as renewal dates."

While the shift to learning management systems (LMS) for education has now been

made by over 60 percent of Canadian hospitals, not all LMS systems are created alike. According to Luc Richard, president and CEO of Dual Code, hospitals that run out-of-the-box solutions not designed for healthcare soon request customizations like:

- Show accurate, tamper-proof, current reports for compliance training by department
- Clinician continuing education credits: report on who did what, when, for how many credits

- Face-to-face and blended learning: manage, track and report on all hospital learning, not just online training, in one centralized system

For the past eight years, Dual Code has been building hospital features like those into its Healthcare Edition, based on an Open Collaboration business model. This enables their 100+ hospital and healthcare organization clients to use it to share and benefit from the enhancements each of them then makes to it.

While many hospitals don't have the resources to create high quality multimedia, accessible, interactive, and engaging eLearning, Dual Code maintains a team of skilled instructional designers, graphic designers, multimedia experts, eLearning developers, accessibility experts, and voice actors.

"We've partnered with 20+ organizations, including Montfort Hospital," says Zahara. "Our typical model is, we will build it together – they bring the subject matter experts." Dual Code also works with associations to develop content, which is then made available to care-givers.

For example, the company has worked with Pallium Canada, a national education community-of-practice in palliative care, to design and deliver online courses to



Dual Code's president, Luc Richard, notes that hospitals can share expertise through its web-based system.

front-line healthcare providers – primarily physicians, nurses, pharmacists, and social workers across the country.

The agreement with Montfort Hospital was conceived to enable both the hospital and Dual Code to move to the next phase of Open Collaboration – course content sharing. Many courses created by one hospital or healthcare organization and enhanced by Dual Code can be customized or used "as is" by another hospital.

Open Collaboration opens the door to allow all partners to share and also customize their course content specifically for the needs and interests of their own organizations. According to Richard, when asked to describe their overall experience with the solution, 97 percent of respondents said they were "satisfied" or "very

satisfied" and 97.5 percent said they would recommend it to others.

Asked how Dual Code clients are using their Moodle-based Healthcare Edition, Zahara said one example is hospitals collecting umbilical cord blood for the Canadian Blood Services.

"Collecting cord blood saves lives through stem cell transplants. Every hospital in Canada that collects cord blood for Canadian Blood Services uses eLearning to train and certify clinicians on how to do this properly.

"Dual Code worked with Canadian Blood Services' Cord Blood Bank to build the courses and host the Learning Management System and Learning Record Store. eLearning allowed Canadian Blood Services's Cord Blood Bank to implement a Canada-wide solution in months."

Leadership training and Communication are other important topics. Many hospitals want to train clinical staff and improve their communication skills to take on wider managerial duties, and Dual Code has partnered with Rutherford McKay Associates, a leader in the field of communications planning, strategic writing and media relations, to create online learning modules to help. "You can scale up and run many learners through the course," said Richard.

"They take it at their own speed, using individual learning paths, and they can do it for a low cost," adds Zahara, noting this avoids travel and other expenses they might otherwise incur.

The eLearning flexibility, scalability, and cost reduction advantages come in part from being able to scale up to 10,000 learners or more, so cost per learner goes way down, and there are savings from not having to pay a trainer to go from one hospital to another.

Richard said the biggest benefit of an Open Collaboration-based eLearning model for healthcare may be that, "if we do something for one hospital, every hospital benefits. They're getting something customized for the Canadian healthcare sector."

"Healthcare organizations are being asked to do more with less," says Zahara. "eLearning is a powerful tool for scaling up education and knocking down costs. And open collaboration is the concept that needs to be embraced to optimize this potential."

We know, it is
**PATIENT CARE
FIRST**

That's why we believe
in providing access to
medical images at the
bedside...

Watch us in
ACTION:

tech.i3inc.ca





Symposium Sunday - A New Look for 2016!

Symposium Sunday 2016: The Future of Clinical Interoperability in Canada

One of the exciting features for the upcoming e-Health Conference is the new collaborative approach for pre-conference Sunday!

Brought to you by COACH, Canada Health Infoway and CIHI, the new "Symposium Sunday" program has been designed to bring together the members, clients and stakeholders of the three co-host organizations, offering a unique perspective on the future of health service delivery that will make this one of the must-attend events at the 2016 e-Health Conference.

Plans are now in the works for an informative, educational and thought-provoking line-up of speakers and presentations as well as an opportunity to network. This pre-conference session will focus on such initiatives as Infoway's Clinical Interoperability Action Plan, "FHIR (Fast Healthcare Interoperability Resources, pronounced 'Fire') North," the Dr. Mo Watanabe honorary lecture, and more.

This symposium will bring together innovative perspectives that connect the FHIR philosophy with the rapidly developing APR economy. It will also focus on the evolving apps-based view on the future of health care workflow and service delivery.

Other Exciting Conference Speakers

Catherine Claiter-Larsen, Victoria, BC
Vice President and Chief Information Officer
of Vancouver Island Health Authority

John DeHart, Vancouver, BC
Health Care Entrepreneur, Co Founder of Nurse
Next Door and Live Well Exercise Clinics

Prof. Louis Hugo Francescutti, Edmonton, AB
MD, PhD, Visionary Storyteller

Neil Fraser, Toronto, ON
President, Medtronic Canada

Dr. Peter W. Vaughan, Halifax, NS
CD, MA, MD, MPH, Deputy Minister of Nova Scotia
Department of Health and Wellness

Sponsorship & Exhibition

You are making a difference. Every day your products and services are improving the patient experience and transforming the healthcare system by providing better, safer, more efficient care.

- ✓ Don't miss the opportunity to showcase your company at e-Health 2016.
- ✓ Connect with leaders from across all sectors of Canadian healthcare.
- ✓ Choose from a variety of sponsor and exhibitor options.

For any inquiries, or additional information on sponsorship & sales, please contact:

Barbara Hill [+1] 604 681 2153
eHealth2016-Sponsorship@icsevents.com

Early Bird Registration
Deadline March 7, 2016

SAVE!

Register at ehealth2016-Registration@icsevents.com
to Take Advantage of Our Early Bird Rates Today!

Conference
Hosts



Canada Health
Infoway

Inforoute
Santé
du Canada



#eHealth2016

www.e-HealthConference.com

Allscripts announces innovative partnership with Dalhousie University

Allscripts has launched a partnership with Dalhousie University, in Halifax, in which graduate students in the Health Informatics program will develop expertise in the company's Sunrise clinical information system and will even create new applications for it.

Allscripts is sharing the Sunrise solution as an Experiential Learning Program with the school, which will enable MSc students in Health Informatics to become familiar with the system. Dalhousie's Masters of Health Informatics program is a joint venture between the

Faculty of Computer Science and the Faculty of Medicine.

The web-based learning system from Allscripts consists of modules, each of which takes five to 20 minutes to complete. It includes tests for each component, and a management dashboard

showing stats – such as how many students have completed various modules and how they scored.

"They're incorporating Sunrise into the curriculum," said Jennifer MacGregor, managing director, Canada, for Allscripts, which is based in Chicago. "It's helping them learn about advanced EHRs, clinical workflows and clinical decision support to improve patient safety."

Later this year, Allscripts and Dalhousie plan to hold a developers' workshop to teach students how to develop "apps" in the Allscripts environment. This will be followed by a "hackathon" style meet-up in which students will partner with clinicians and local entrepreneurs, to create new applications using Allscripts Sunrise.

"Teams will develop solutions of real value," said MacGregor.

Allscripts Canada is also offering paid summer internships to two graduate students from the Health Informatics pro-

Later this year, Allscripts and Dalhousie plan to hold an apps workshop for developers, followed by a 'hackathon'.

gram. The students will work at Allscripts' Vancouver headquarters for 13 weeks, from May to August.

Allscripts already has a significant footprint in Atlantic Canada; most notably, it is the provider of the hospital information system at Horizon Health in New Brunswick. The region is home to the Saint John Regional Hospital, the largest acute-care centre in the province.

Meanwhile, Nova Scotia is considering the consolidation of the electronic patient records used in hospitals across the province. A consolidation would result in the establishment of a single system as part of its 'One Patient, One Record' program instead of the three different systems that are currently used.

Allscripts will be bidding on the contract. "Our goal is to supply solutions and the partnership Nova Scotia needs to provide the best healthcare possible for its residents," said MacGregor.

She noted that the partnership with Dalhousie shows the company plans to invest in the region. "It's further demonstration of our continued commitment to Atlantic Canada," she said.

In 2015, Nova Scotia merged nine district health authorities into one health authority and the IWK Health Centre in Halifax. It is expected to issue an RFP for the One Patient, One Record system this year.

For its part, Allscripts enables their clients to transform care and improve outcomes by providing advanced leading-edge solutions that offer interoperability, innovation and scalability, with key management features like analytics and population health across the continuum of care. Their solutions are used in major hospitals and regions across Canada, including the provinces of Manitoba and Saskatchewan, the Hospital for Sick Children and St. Joseph's Health Centre, both in Toronto, and Fraser Health Authority in British Columbia, to name a few.

NEW

AT CHRISTIE INNOMED

FDR D-EVO II

Be smart.

The endless pursuit of high image quality

The new D-EVO II detector, the cutting edge of the FDR D-EVO series. Fujifilm DR detector technology has evolved to be smart.

- World's first detector with antibacterial coating.
- Built-in memory - simplifies trauma acquisition and shared use.
- Virtual Grid Processing - simulates grid use for exams acquired without a grid.
- World's lightest detector - 14 x 17 weighs just 5.7 lbs.

High definition, made smarter

Improved image quality through patented ISS technology and noise reduction circuitry and a variety of functions to support imaging. Introducing FDR D-EVO II, now even smarter.

FUJIFILM
Value from Innovation

CHRISTIE
INNOMED

For more information, please contact your sales representative at 1 888 882 8898
christieinnomed.com

IT'S YOUR BUSINESS OWN IT.



YONGE PARK PLAZA

Canada's Premier Office Condominium at Yonge & York Mills

Yonge Park Plaza is Toronto's newest corporate centre at **4050 Yonge Street at York Mills**, steps to North York's thriving business corridor and downtown's Financial District. Invest in a prime location with direct subway access, multiple transit options, state-of-the-art amenities, customizable office spaces from 610 sq.ft. to 40,000+ sq.ft. and a one-of-a-kind ownership opportunity. Build your business at Yonge Park Plaza.

DIRECT SUBWAY ACCESS

MINUTES TO 401, 404, 407, DVP AND DOWNTOWN
SOARING, LIGHT-FILLED 7 STOREY ATRIUM
500,000 SQ. FT. OF CONDO OFFICES, RETAIL &
HILTON HOTEL
SUSTAINABLE GOLD LEED DESIGN



THE GUPTA GROUP
A Steve Gupta Company



Register for early access
YONGEPARKPLAZA.CA

Illustration's are artist's concept. E. & O. E.



YONGE ST. YORK MILLS RD.

eHealth Interoperability, African-Style: A Tanzanian immunization registry

BY DEREK RITZ, P.ENG., CPHIMS-CA

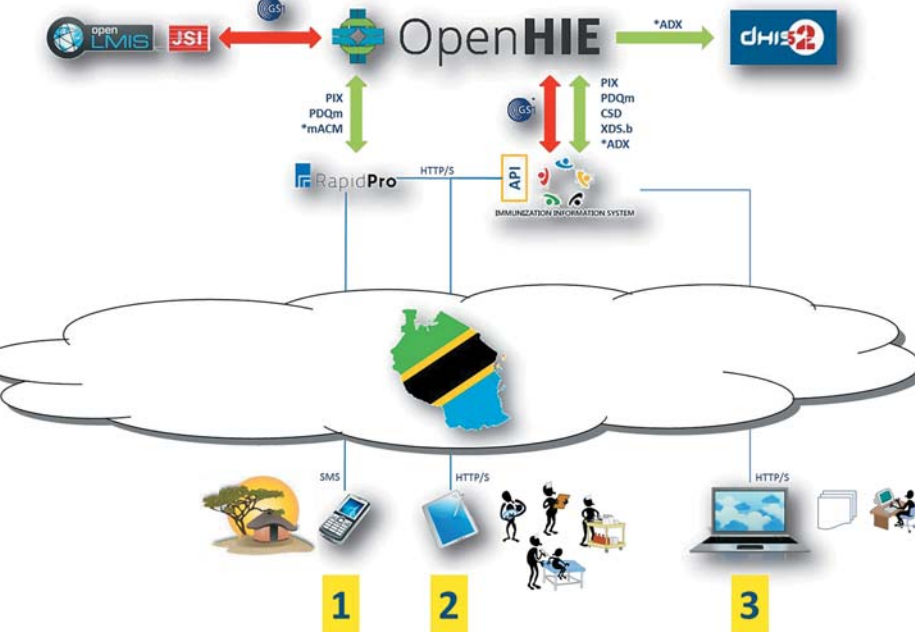
There is no single health intervention that has a bigger impact than child immunization. Bill Gates knows this. The Bill and Melinda Gates Foundation (BMGF) has invested in a multi-year, multi-country eHealth effort called the Better Immunization Data (BID) initiative. The motivation for BID is simple: better data, plus better decisions, will lead to better health outcomes.

The overall BMGF-funded initiative is managed by a Seattle-based non-profit organization called PATH; the global manager of BID is Liz Peloso. BID's first implementation of a national-scale immunization registry went live in Tanzania's Arusha region in May, 2015.

The software solution team for the Tanzanian BID implementation (BID TZ) was led by IntraHealth International (USA) in partnership with ecGroup (Canada), Mohawk College's MEDIC lab (Canada) and software start-up AIRIS Solutions (Albania).

A key motivation behind the BID TZ solution design was the imperative to avoid implementing yet another eHealth software silo. Sadly, sub-Saharan Africa is littered with well-meaning e-health implementations deployed by well-meaning donor-funded organizations that cannot and do not interoperate with each other. The situation is cynically referred to as pilotitis and it is rampant.

What was BID TZ's prescription for pilotitis? Put simply: the cure for pilotitis is to adopt e-health standards. Every element of the overall solution was configured with



standards-based interfaces that connected to an open-source health information exchange, OpenHIE (www.ohie.org).

The m/e-health puzzle pieces leveraged interoperability profiles from the standards organization, Integrating the Healthcare Enterprise (IHE, www.ihe.net) and supply chain profiles from GS1 (www.gs1.org).

There are three main BID TZ workflows executed "on the ground". First, an mHealth application was deployed using UNICEF's RapidPro platform. Village elders use the mHealth application to record births in their village via simple SMS messages. RapidPro uses these SMS messages to construct IHE transactions (PIX, patient identity exchange) that add new demographic

records into OpenHIE's client registry (the MEDIC CR product). AIRIS's immunization registry application (GIIS) syncs with the client registry every night.

Ten percent of the immunization clinics (the urban ones) are able to implement GIIS's tablet-based e-health solution.

Nurses at these clinics execute a second workflow to record online immunization transactions for the children who are vaccinated. These transactions, representing about half the overall immunization volume, update the GIIS database in real-time.

Ninety percent of Tanzania's immunization clinics are in rural areas where there is insufficient electricity or network bandwidth to support GIIS's tablet solution. These clinics use a third workflow.

Each month, a paper-based immunization register is printed for each clinic. This register lists the children in the GIIS database who are expected to present for vaccinations in the coming two-month period (including those who did not show up from the previous month).

Tanzania's no-more-silos approach is paying dividends. Other systems are being readied to leverage the OpenHIE infrastructure. For new systems that want to connect to the national interoperability layer, the process is straightforward: implement the standards-based profiles ... plug in ... and play.

Derek Ritz is the principal consultant at ecGroup Inc., a Toronto-based digital health consultancy.

Automation boosts performance

CONTINUED FROM PAGE 4

hospitals, with clinicians struggling to connect with each other and with patients.

To improve communications, Humber worked with wireless systems vendor As-

com, and integrator ThoughtWire, to create an advanced wireless phone. Designed primarily for the nursing staff, who log into one of the devices and carry it around each day, physicians are now asking for them, too, Collins said.

The Ascom phones not only take calls, but show bedside alerts and hospital alarms, and act as a nurse call system from patients. Equipped with cameras and screens, they even enable videoconferencing with patients at the bedside, using the patient's bedside terminal. If a nurse has forgotten the barcode reader, he or she can use the phone to check medications or lab samples, as it has a barcode reader built in.

Nurses can closely monitor cardiac patients from anywhere in the hospital, since the phones display cardiac rhythm strips.

Finding staff, patients and equipment in the hospital is much easier, thanks to the new real-time locating system. Small tags are attached to staff, patients and most pieces of equipment to find their position in the hospital – something that's displayed on the computer system.

"We're not tracking staff, but if we need to know where people are, we can find them," said Collins. It's very useful for finding equipment – which has a habit of going missing in hospitals. "You want to find a wheel chair?" asked Collins. "It's easy to do with the RTLS." And when a porter is needed to pick up a patient, it's more efficient to find one who is nearby, rather than at the other end of the building. "That saves time and steps," noted Collins.

The system also has a security function for staff, which can be used in cases of hostile or dangerous patients and visitors. There are buttons on the back of the tags worn by staff, which send an alert to bring security to the scene.

Hitachi Data Systems delivers the world's most innovative connected health solutions, enabling you to connect everything to everyone and transform data into meaningful, actionable insights. Together, we can reshape the future of healthcare and build safer, smarter, healthier societies. **That's Social Innovation in action.**

For more information

Visit hds.com/solutions/social-innovation or scan the QR



Care coordination tool connects patients, families and care-givers

BY GARY FOLKER

TORONTO – The province of Ontario has found a way to bridge the communication gaps between providers of primary, acute and social care for patients with chronic diseases, while simultaneously keeping patients and their families in the loop.

Through its Health Links program, which coordinates the care of patients with multiple and complex conditions, Ontario is currently piloting a solution known as the Care Coordination Tool (CCT).

Health Links was formed in 2012 to address the healthcare of the highest users of the system – the 5 percent of patients accounting for two-thirds of healthcare costs within the province. Health Links initially implemented paper-based care plans as a strategy to reduce avoidable ER visits and hospitalization.

The CCT was brought in to evolve the system digitally and is currently undergoing evaluation.

The CCT helps to create care plans that include both clinical and patient descriptions of ongoing issues, next steps to be taken, perceived patient risks and contact information for all care plan team members.

It allows authorized healthcare providers to create and update care plans and gives secure visibility to other providers for fluid and accurate coordination.

It also offers users the ability to receive notifications whenever the care plan has been altered. The CCT functions in real-time, allowing for faster communication among care providers so that better informed decisions can be made.

During a recent webinar on the new care coordination tool, Dr. Jocelyn Charles, Medical Lead, North East Toronto Health Link, explained that the CCT will change the way healthcare providers interact with patients and colleagues: “This is making us think more about proactive planning rather than reactive management.”

In one case, an elderly patient was high functioning, but living alone with several co-morbidities and declining health. The patient understood that he might pass away soon but struggled to share his final wishes with his family members, who were resistant to discuss the topic.

The patient eventually suffered a stroke and was admitted to the hospital. He lost consciousness and was unable to provide direction, leaving the family unsure of the steps to take. Since his preference was registered in the CCT, the patient was taken home, where he could pass away peacefully.

“The CCT is an enabler for [care providers] to document the plan for a patient,” explained Aasif Khakoo, Director of East Toronto Health Link. “The end result is that the patients have their care coordinated, the care team is aware of the patient’s goals and the patient and caregiver are well supported.”

The CCT solution was developed by Orion Health and is built on top of Ontario’s Integrated Assessment Record (IAR) system, which was also developed by Orion Health. IAR is the first solution in Canada to extend electronic sharing of patient assessments to the community care

sector and allows a coordinated care plan to be converted into an electronic record.

“The CCT is one of the first of its kind in Canada and is powered by a future-proofed system. The platform has the ability to expand and not only support a growing population, but also support a variety

of healthcare providers,” said Susan Anderson, Managing Director for Orion Health Canada.

Health Links is currently using the CCT for patients with multiple chronic conditions – particularly those with mental health issues, frail seniors and patients in

palliative care. At present, there are over 500 care plans in the system.

Gary Folker is the Executive Vice President for Orion Health North America. For more information, please visit www.orion-health.com

On average,
patients over the
age of 65
will have seen close to
30 care providers
throughout their
lifetime,
generating countless media files
from many venues of care.

Practice Fusion survey: Patients See 18.7 Different Doctors on Average; April 2014.

Cerner’s enterprise multimedia management platform spans the continuum of care and enables image-centric workflows utilizing our vendor neutral archive.

This can help your organization:

- support evidence-based care through a cohesive view of a patient’s health record
- lower total cost of ownership through a single multimedia repository

Cerner medical imaging is changing health care for your patients – and you. Innovating today, to view tomorrow.

  cerner.com/imagingca

Health care is too important to stay the same.™

© 2015 Cerner Corporation



PopRx launches in Canada, aims to improve drug delivery and medication adherence

Mobile application attempts to disrupt the pharmacy dispensing market.

BY DR. SUNNY MALHOTRA

Decreased patient compliance is an ongoing issue that many medical professionals struggle with when treating patients. However, with a limit on patient contact time and adherence to treatment being largely self-directed by patients, it is difficult for care teams to consistently follow up with patients to ensure they have taken their medications each day.

As a result of decreased medication adherence there are negative consequences for patient care. These include antibiotic resistance, which is a massive problem resulting from patients not following their antibiotic course.

Non-adherence also hinders medical treatment and can result in hospital readmissions, worsening conditions and eventually, death. For instance, poorly controlled diabetes is a massive health concern, as a patient's condition can rapidly deteriorate. When this occurs, there is often a re-admission to hospital along with recurrent infections, micro- and macro-vascular complications and neuropathy-associated trauma.

Health technology has multiple solutions to this problem through the use of patient portals, smartphone reminder applications and electronic monitoring that alert both the patient and caretaker to missed doses.

There are many factors that contribute to decreased patient adherence. Most commonly, patients do not understand how a treatment works or why they are on that treatment.

However, doctors often do not have the time to talk to a patient for an extended period of time to explain details of their diagnosis and treatment.

In addition, patients have their own beliefs and understanding on how treatments work. One solu-

tion to this is to increase doctor-patient communication through the use of online patient portals.

Portals have secure online messaging that allow a patient to quickly communicate with their doctor, and the doctor can respond at a suitable time. Patient portals are a useful way to ensure that patients have all their questions answered and that they understand their treatments.

Age, lifestyle and medical conditions can hinder medication adherence. Elderly patients are more

Non-adherence also hinders medical treatment and can result in hospital readmissions, worsening conditions and eventually, death.

likely to forget to take their medications and are more apt to rely on a caretaker to help them.

Younger patients are more likely to have hectic schedules or other priorities. Finally, a medical condition can appear to have resolved itself (e.g., an infection) or make the patient more likely to forget (e.g., trauma or dementia).

In these cases, smartphone applications are useful to remind patients which medications to take and when.

Toronto-based PopRx, recently seen on Next Gen Dragon's Den, has launched its op-

Dr. Sunny Malhotra is a US trained cardiologist working at AdvantageCare Physicians. He is an entrepreneur and health technology investor. He is the winner of Best in Healthcare - Notable Young Professional 2014 and the national Governor General's Caring Canadian Award 2015.



erations in Toronto and Winnipeg in an effort to disrupt the pharmacy dispensing market and improve medical adherence through its mobile application.

"There is a huge opportunity in Canada to change the status quo of drug delivery and drug adherence. We feel that we are well positioned to improve that traditional model," says Dr. Ali Esmail, a surgeon and high-tech entrepreneur.

Other helpful systems include Medisafe, which is used on Android and IOS devices and alerts the caregiver if a patient has not checked off their medication that day.

MyMeds is a secure, cloud-based website with an Android and IOS mobile application that can be used to manage medications. MyMeds also has a team of clinicians who can address any concerns a patient has with their medication and ensure that patients have completed their treatment course.

However, these electronic applications are less likely to be used by the elderly. Companies such as MedSignals, and MedReady have developed pill cases targeted for the geriatric population that can be programmed to alert the patient about which medication to take and when.

AdhereTech's patented digital pill bottle helps patients remember to take their medicine. If they miss a pill, the bottle automatically calls their phone and sends a text message as a reminder.

It also has physically visible/audible signals, if ignored, and medications are not taken. Adherence pill bottles are generally easy-to-use and can be programmed to different days and times. Health technologies such as these are important to physicians to be knowledgeable about so they can encourage their patients to use them.

REBOOTING eHEALTH

Computer-supported workflow: Dealing with the flood

BY DOMINIC COVVEY

Inundated with work! Facing the information Tsunami! Drowning in documents! Up to my butt in alligators! It seems that the 'flood' metaphor is commonplace when it comes to our thinking about healthcare work.

One of the primary objectives of implanting information systems into our healthcare environments is to enhance workflow. Workflow is the productive interaction among agents – like physicians and patients, objects – like medications and instruments, and information.

Workflow encompasses virtually everything that goes on in the process of healthcare, including the thought processes of the agents and the information processing of the

machines. The problem is that healthcare workflow involves vast amounts of human effort.

Kinds of workflows: Research into workflow reveals that limited chunks of workflow can be systematized and made relatively rigid. For example, the process of admitting a patient to Diagnostic Imaging can be highly structured and is relatively invariant. It's useful to call these limited, relatively staid components of workflow 'Micro-Workflows' and recognize that they and even their minor exceptions can be codified.

The real challenge is all the work that is done outside these Micro-Workflows. This is usually uniquely human work, dependent on things like physician preferences (like performing an examination in a certain way or using certain instruments).

But then there are patient-related considerations (patient state – conscious or unconscious – or allergies, being two examples) and environmental considerations (availability of a facility, like a specific instrument or an AWOL person or device). It turns out that workflow may change based on as many as 20 or 30 variables, including the time of day or the day of the week. Let's call these Situation-Dependent Workflows.



Dominic Covvey

The total workflow process comprises Micro-Workflows embedded

in Situation-Dependent Workflows. Here is the rub: our information systems are very good at addressing the Micro-Workflows, but they are very impaired by their architectures and applications in dealing with the Situation-Dependent Workflows.

System procurement considerations: The usual process for acquiring systems has been to do so based on their functional capabilities, i.e., what they can do. Ideally, however, we should be selecting information systems to accommodate desired and, hopefully, optimal healthcare workflows.

Systems are typically good at being setup to handle the highly structured and limited Micro-Workflows, but they may not be able to at all address the Situation-Dependent Workflows.

CONTINUED ON PAGE 19

Canadian expertise reduces healthcare inequities in Amazon region

BY LUIZ C. ESTEVES, JULIA GARTSHORE
AND KELLY HALSETH

In an article published in the March 2008 edition of *Canadian Healthcare Technology*, we noted: "The indigenous people living in the Amazon region of Brazil have a number of good reasons to be interested in telehealth ... [living] in small, often isolated villages far from healthcare facilities, their principal transportation routes are rivers, with boats often the only mode of transportation. There are no doctors or nurses in their small villages. Health agents are the first line of defense when illness strikes in a hot and humid climate."

Today, indigenous peoples in the Amazon rainforest operate their own proprietary telehealth network. A centuries-old sense of isolation melts away as they begin collection of health data, by and for their own people. True empowerment sets in when, for the first time ever, communities embark on ownership and control of their health profiles.

The Canadian presence in the Amazon: e-KSS has developed telehealth programs to respond to the needs of remote indigenous communities as part of a 10-year agreement signed with the largest Amazon indigenous federation.

The Amazon Indigenous Telehealth program is a set of culturally appropriate educational and operational activities for women's empowerment through ownership and control of health information. It includes defining the most cost-effective technologies, improving midwifery practice, optimizing patient triage and designing health surveys.

The indigenous health policy for the Amazon peoples recommends the presence of Indigenous Health Agents (IHA) for disseminating disease prevention and health promotion actions. They report to a few visiting doctors and local nurses. A high turnover rate serving the regions makes it difficult to keep an exact picture of the evolving epidemiological profile of indigenous peoples.

To bridge the gap, our program pointed to priority communities with high maternal and infant mortality rates. Each was provided with a 'telehealth pole' staffed by a locally appointed Indigenous Telehealth Agent (ITA) equipped with a computer and mobile satellite terminal.

Each community and neighbouring villages now have their health data gathered by the ITA from existing data banks kept at a centrally located 'Polo Base' and home to the local IHA and nurse. The completeness of this health data bank (Toucan Phase) and its cultural appropriateness is to be further improved as experience develops throughout the communities.

What technologies are involved? The connectivity between the urban hub and each selected remote community provides necessary mobility as a cost-effective and expandable solution to collect data from the neighbouring villages.

A partnership with the French NGO Télécoms Sans Frontières provided four Inmarsat BGAN terminals for full program deployment. The generated data is handled by Mozilla/Thunderbird open source appli-

cations through MS Word and Excel files.

While resorting to telehealth brings a new reality to so many, it is not a magic potion for easy results. The best approach seems to be prudently ramping up telehealth services as adoption and experience grow, as technology evolution is better in-

tegrated into a new paradigm, and the challenge of change management subsides in a very distinct cultural setting.

In terms of current challenges, there is an urgent need now to provide solar kits as they eliminate the use of polluting diesel generators. They also bring cost savings

and avoid repeated scheduling and arduous transportation.

Luiz C. Esteves, is Executive Director of e-KSS Inc. Julia Gartshore is Development Manager; Kelly Halseth is in Resource Development with the company.

DiscoveryTM

Ontario Centres of Excellence

MAY 9-10
MTCC | Toronto

Discover everything Canada's leading innovation-to-commercialization conference has to offer and save with our early bird registration rates!

500+ exhibitors	PRODUCT LAUNCHES	LIVE PITCH COMPETITIONS	3,100 attendees	ASK AN EXPERT
SPECIAL GUESTS	#ocediscovery join the conversation	HIGH SCHOOL COMPETITION	KEYNOTE SPEAKERS	150+ young entrepreneurs
INNOVATORS	INTERACTIVE DEMOS	300+ investors	90 experts	CAREER ZONE
126 speakers	PANEL DISCUSSIONS	COLLABORATION	NETWORKING	4 pitch competitions

Early bird special ends April 4, 2016

VISIT OUR WEBSITE
ocediscovery.com
TO REGISTER

Hosted by:



Ontario Centres of
Excellence

Where Next Happens

156 Front Street West, Suite 200, Toronto, ON M5J 2L6
t: 416.861.1092 • 1.866.759.6014 • f: 416.971.7164
www.oce-ontario.org

Follow us on: [@OCEInnovation](https://twitter.com/OCEInnovation) [f OCEInnovation](https://facebook.com/OCEInnovation)

[in ontario-centres-of-excellence](https://linkedin.com/company/ontario-centres-of-excellence) [@OCEInnovation](https://instagram.com/OCEInnovation)

Ontario Centres of Excellence is a member of
ONE
Ontario Network of Entrepreneurs



New imaging technologies, and Canadian contracts, announced at RSNA in Chicago

Over 50,000 attended the Radiological Society of North America's 101st annual meeting.

BY JERRY ZEIDENBERG

It's being called the first real implementation of a Vendor Neutral Archive in Canada. Fujifilm Medical Systems, through its new acquisition, TeraMedica, has won the contract to install a system that can store and manage all types of images and data, at the Peterborough Regional Health Centre, in Peterborough, Ont.

The solution will include components such as PACS, 3D imaging, cardiovascular (cath lab and ECG), and a mobile enterprise viewer. Christie Innomed has represented Fujifilm in Canada since 1964. (www.christieinnomed.com)

Fujifilm was publicizing the win at the recent Radiological Society of North America (RSNA) meeting, held last December in Chicago, where over 50,000 attendees congregated for continuing education in diagnostic imaging and to visit the trade show in the vast exhibition halls.

Christie Innomed and Fujifilm were also showing an innovation in flat-panel DR, with what's said to be the lightest portable detector panel on the market. Available in 14 x 17 and 17 x 17 sizes, the wireless detectors are 20 percent lighter than Fujifilm's previous panels. Moreover, the FDR-DEVO II units have an anti-bacterial coating, and their internal memory enables them to store up to 100 images before uploading.

Many DI companies wait for the RSNA conference, held each year just after the American Thanksgiving, to make major announcements about new products and technologies.

For its part, Carestream had some very interesting product introductions – most notably, a small and moveable cone-beam CT (CBCT) system for imaging extremities. The machine sits like a super-sized doughnut on the floor, but has an opening for a patient to walk through; this enables weight-bearing studies to be done, such as examinations of knees and other leg joints.

The doughnut flips up, using a motorized mechanism, so that a patient can also sit upright and have image taken of outstretched legs and arms.

"Orthopaedics is a major area of focus for our company because of the prevalence of musculoskeletal conditions among people of all ages," said James Burns, Carestream's chief technology officer for the Digital Medical Solutions business. "We are actively involved in evaluating CBCT and other types of imaging technologies that may be able to provide diagnostic information that is not readily available using existing imaging systems."

The CBCT is powered by simply plugging it into a standard wall socket, and it can be moved around a hospital as needed.

The benefit? It can take the load off high-powered CT systems that are needed for more sophisticated exams.

And at US\$210,000 to \$250,000, it can be used in outpatient clinics. "This would be much faster for the patients, since they can be imaged right there, and they don't have to be referred for an outside exam," said Burns.

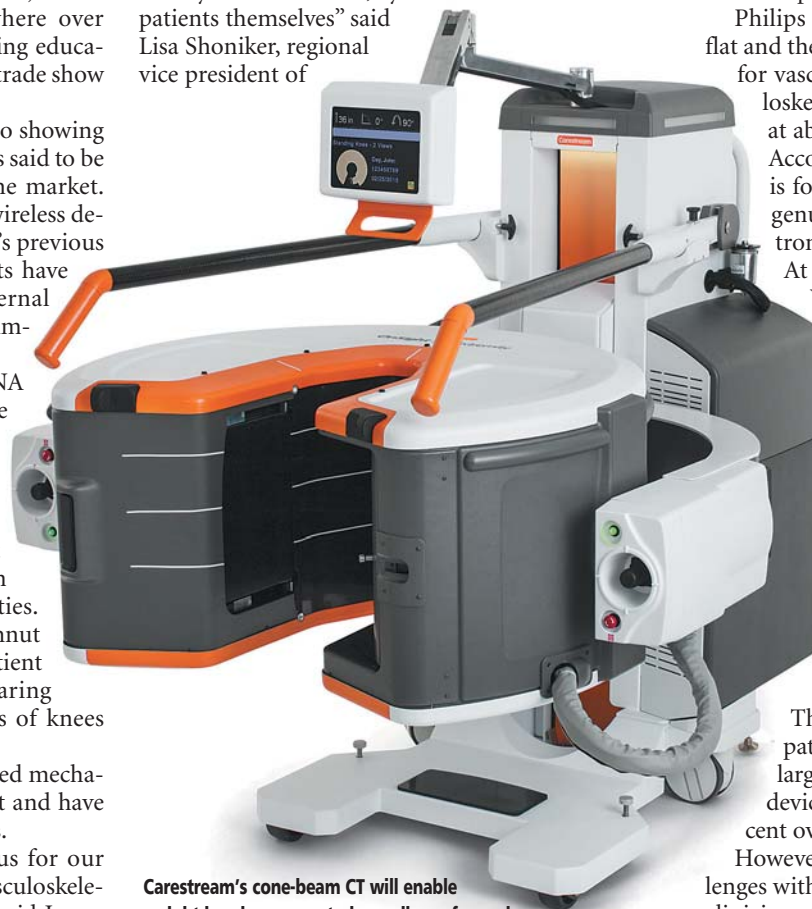
While the CBCT is currently a work-in-progress, Carestream is applying for U.S. FDA approval and Health Canada certification next year. It has already

been conducting tests at the University of Buffalo, Johns Hopkins University Hospital in Baltimore, Md., and at a site in Helsinki, Finland.

For its part, Agfa HealthCare has announced the launch of its portal designed for both patients and clinicians as part of its larger Enterprise Imaging platform. The portal consolidates access to images and data across the enterprise, using a federated model. The information remains in the various databases in which it originates, and is pulled into the portal for the user on an as-needed basis.

Various diagnostic images can be called up, pulled from multiple databases. So too can lab and pharmacy data, test results and patient encounter notes.

"It's not just for images, it can be used for a wide variety of information, by both clinical users and the patients themselves" said Lisa Shoniker, regional vice president of



Carestream's cone-beam CT will enable weight-bearing exams to be easily performed.

sales for Canada. As well, it can be used to enable patients to fill out forms, and if applicable, to upload images before arriving at hospital for appointments and tests, saving time and trouble for themselves and administrators.

"It's less stressful for patients to fill out questionnaires at home when they're relaxed," said Shoniker. "And they can do it before coming to the hospital, so if there is a problem or complication, it can be flagged before they arrive for the test or procedure."

Jason Knox, radiology product manager, noted that the portal can be used to link clinicians enterprise-wide, or even region-wide, as it connects various systems in an effortless manner. "It's an exchange solution that can be built into our larger enterprise system or stand on its own," he said. "It simplifies collaboration."

In the future, patients will be able to make or change appointments, check lab and test results, and interact with their physicians and nurses.

Agfa HealthCare had Canadian implementation news of its own at RSNA. Namely, the province of Alberta is installing a province-wide peer review solution from the company. (See our story on page 6.)

At Philips, a good deal of excitement was generated by the appearance of the Lumify ultrasound for Android devices, one of the first smartphone-based ultrasound systems with software apps downloaded from an online portal. The hardware probes are sent to users via courier, and the customers pay for it all through a monthly charge. It's currently available at an introductory price of US\$199 per month.

Physicians can test the system for a few months, and if they like how it works, continue to use it. If they don't find it useful, they can cancel and send back the probes.

Philips currently offers two Lumify probes, one flat and the other curved. The flat probe is optimized for vascular imaging, thyroid, breast and musculoskeletal imaging. The curved probe is aimed at abdominal imaging and obstetrics.

According to Philips, the power of the system is found in the probes, and a great deal of ingenuity was put into miniaturizing the electronics to achieve high performance.

At RSNA 2015, Philips also introduced ScanWise Implant, among the first MRI-guided user interfaces to simplify the scanning of patients with MR conditional implants. These include knee and hip replacements, spine implants and pacemakers.

According to Philips, the new software helps streamline exams and supports diagnostic confidence of this growing patient population. ScanWise Implant helps to improve hospital workflow and diagnostic confidence.

MRI is often used to diagnose conditions such as neurological disorders, cancer, and muscle, joint and back pain.

These conditions are most prevalent in older patient populations, and the population with large joint replacements and implanted cardiac devices is expected to increase by about 70 percent over the next five years, the company said.

However, implants can create a number of challenges with MRI exams. For example, it's difficult for clinicians to understand and scan within the safety limits defined by each implant manufacturer. These limits are not always clear or easy to implement on the MR scanner, causing patients with MR conditional implants to often be denied MRI exams. In fact, every year 300,000 patients in the U.S. are denied access to MRIs because of a cardiac implantable electronic device.

However, these patients can be scanned, if the radiographer has enough information; with ScanWise Implant, the operators input the information and the system automatically makes the needed adjustments. Philips is currently seeking approval for the solution with the U.S. FDA and with Health Canada.

Meanwhile, workstation specialist Barco was touting the virtues of its advanced workstations, such as the 12 megapixel Coronis Uniti. These systems are currently being installed in Winnipeg, as high-end stations capable of reading any type of exam – including demanding applications like breast MRI,

CONTINUED ON PAGE 19

Radiology peer review benefits patients, reinforces culture of quality

BY DIANNE DANIEL

Every day radiologists across Canada make important determinations about patient care. One person will be told they have cancer; another will breathe a sigh of relief after learning a recent scan is ‘unremarkable.’

In fact, the implication of diagnostic imaging (DI) is never lost on those who interpret the exams. “We’re sending people to chemotherapy or telling them that they can stop, based on what we can see,” said Dr. Derek Archer, Chief of Radiology at Trillium Health Partners in Mississauga, Ont.

Which is why Dr. Archer and every other professional radiologist working within Trillium Health Partners are fully supporting a formal peer review program implemented across the organization in the fall of 2014. “We were developing a culture of quality improvement across all of our hospital programs and every program was expected to implement quality measures specific to themselves,” he said. “It wasn’t just singling out radiology. It was part of an overall corporate culture.”

The goal was to implement a radiology peer review program quickly – within a year – and to use a process that would have a high likelihood of meeting design recommendations emerging from Health Quality Ontario’s (HQO’s) Expert Panel on Diagnostic Imaging, convened in December 2013 to lead the implementation of a province-wide peer review program.

Trillium Health Partners decided the best course of action was to use Coral Review, a product developed at Toronto’s University Health Network by the Joint Department of Medical Imaging (JDMI).

Coral Review is a simple, web-based tool that enables automated, random and anonymous review of previously reported DI cases. It interfaces to multiple RIS and PACS technologies, and supports several imaging modalities. More importantly, it was designed for radiologists by radiologists, incorporating processes and procedures that align with existing workflow and foster an environment of ongoing learning.

“When we looked at the other vendors who were providing solutions, we saw that they were either cumbersome or they didn’t provide exactly the solution we were looking for, and they were all very pricey,” said Leon Goonaratne, JDMI’s Director of IT. “So we decided to develop our own technology.”

A retrospective system, Coral Review provides the ability to filter reports for peer review in a timely fashion, typically within 24 hours to one week of the original report. Cases are matched to the expertise of the reviewer and in most instances, radiologists are expected to review one case per day. Since launching internally at UHN in 2013, the tool has since gained the attention of external organizations like Trillium Health Partners and the Niagara Health System.

“Peer review is not there as a punitive tool or a tool to find a bad apple,” stressed Dr. Larry White, Radiologist-in-Chief at JDMI. “It’s not going to prevent errors or discrepancies from ever happening, but the principle is that you will hopefully, through use of this tool, raise the overall

awareness and educational level of everyone participating and also avoid systematic type errors that may be occurring.”

Beyond the tool itself, the Coral Review program incorporates policies to help govern what a peer review program should look like. When health organizations part-

ner with JDMI to implement the software, they receive the support of an implementation team that shows them how to embed peer review as part of a broader quality measure, and how to engage radiologists from the start.

To date, Trillium Health Partner’s im-

plementation has been highly successful, obtaining 100 percent participation from radiologists working in five targeted modalities: CT, Nuclear Medicine, MRI, Ultrasound and Mammography.

Doris Gorthy, Manager of Imaging In-

CONTINUED ON PAGE 19



WHAT’S BLOCKING YOUR VIEW?

Nothing, with Mobile DR including FreeView technology

FreeView technology makes DR Mobile even more maneuverable! Combining full mobility and safer navigation plus Agfa HealthCare’s gold-standard MUSICA image processing, it gives you high quality imaging on the go.

Find out more, visit agfahealthcare.com

AGFA 
HealthCare

Many new developments to consider when planning DI investments

BY DR. DAVID KOFF

When people go to RSNA at the end of each year, they usually have an agenda: continuing education to refresh or acquire knowledge, presenting scientific work or lecturing, or shopping for new equipment.

As our PACS is slowly reaching the end of life and requires a major overhaul, our mission was to explore the options available on the market. Not a simple task, considering the multitude of emerging and existing technologies and products.

Besides new and advanced processing tools, numerous vendors were showcasing their Zero Footprint Viewers (ZFP), Vendor Neutral Archives (VNA) and multiology solutions integrating radiology, cardiology, pathology and non DICOM objects.

In a constrained fiscal environment, there are pressures on us. In particular, its crucial not to waste taxpayers money on frivolous expenditures. On the other hand, to produce the best results for our patients, we need to predict how radiology will unfold 10 years from now, in order to prepare ourselves for the changes to come.

At the RSNA inaugural plenary session, Dr. Ronald Arenson, the President of RSNA, compared the future of radiology to Star Trek, requiring radiologists to be bold explorers and to seek their own version of new life and new civilizations.

More specifically, he identified the growth of personalized medicine, integrated healthcare delivery, budgetary constraints, the massive expansion of data, telehealth and an aging population as the most pressing issues.

He foresees great demand for radiological services in the future, with new tools facilitating early disease detection and more effective therapies – such as metabolic and molecular imaging, High Intensity Focused Ultrasound (HIFU), Artificial Intelligence (IBM Watson), steerable catheters and quantitative imaging, among others.

Based on that vision for the future, what does this mean for our imaging informatics needs and how can we be best equipped for the years to come?

It has been clear for a while that radiology does not have an exclusive hold on medical imaging, and its not the custodian or central point in the current healthcare environment. Images are everywhere, and need to be captured and stored, DICOM or non DICOM.

Not only do we need to access and store cardiology images such as echo, ECGs, hemodynamics, etc., but pathology, ophthalmology, endoscopy, and dermatology, are also generating huge volumes of still and dynamic images.

Surgeons will soon record their operations using portable cameras. And the growing penetration of Point of Care Ultrasound (POCUS) will require these exams to be recorded and stored. With the rapid growth of Internet and social networking, all images must be readily available and distributed to healthcare professionals and patients.

So what should be the requirements of our new systems? We had a head start in this country with our DI-repositories, which we can see as the ancestors of the current concept of Vendor Neutral Archives, but which remain primarily large storage solutions.

Now that images are widely distributed outside the enterprise, it is critical to integrate these images seamlessly in the workflow of the healthcare professional; this is easily achieved when there is a single local or regional PACS, but Foreign Exam Management becomes a priority when dealing with a heterogeneous environment.

VNA used as a layer on top of existing tools or replacing the local PACS may answer this need, functioning as a standard-based broker.

Since information sharing is bound to grow in the future, any solution we implement has to be conformant to standards. DICOM is a given, of course, but the new image sharing (and not communication) network must be compliant with IHE profiles – not only XDS-I (cross enterprise



Dr. David Koff

document sharing, but also registry and repository), PIX/PDQ or ATNA. It should also include new profiles such as XCA-I (cross-community access for imaging).

Even if most health professionals do not require access to fancy post-processing tools, more and more want to access their patients images along with the imaging report; zero footprint viewers could be the solution, as they are easily deployable and they don't download anything on the client side. They function exclusively on the server.

The ever increasing speed of communication makes this possible, and even allows complex manipulations remotely, with a

capacity that we couldn't even dream of a few years ago.

Even if it doesn't fully replace the radiologist workstation, it won't take long to see the ZFP in the radiology department.

And as imaging continues to expand outside the Diagnostic Imaging department, with applications like point-of-care ultrasound and X-rays, and even JPEG photography, healthcare professionals will need to access a variety of images on a single display at the bedside. This will be required for multidisciplinary rounds, for treatment planning or in the operating room.

The expectation is that the multiology viewer will integrate all types of images, DICOM or non DICOM, colour or black and white, and restitute on increasingly high-resolution monitors.

It is becoming critical to have robust multiology workflow management solutions to distribute the work in a timely fashion across the imaging network to the best available expert.

Compensation models for radiologists will more likely shift from fee-for-service to bundled payments or allocations-based on quality metrics and performances.

When we draft our RFP, we will include all the components of a modern imaging management solution. Some vendors have the vision and offer excellent solutions, but for those who didn't see the change coming or have not been able to adapt, be forewarned: the train has left the station and it will become increasingly difficult to catch up.

David A. Koff, MD, is Professor and Chair, Department of Radiology, McMaster University and Radiologist-in-Chief, Diagnostic Imaging, Hamilton Health Sciences.

GE Healthcare's Health Cloud enables professionals to collaborate

BY JERRY ZEIDENBERG

CHICAGO – It was fitting that GE Healthcare announced its Health Cloud at the Radiological Society of North America (RSNA) meeting in December, as the first applications it has for the new system revolve around diagnostic imaging.

Not only can DI departments store and share their images and reports in the Health Cloud – thereby enabling easier access to clinicians region-wide or even internationally – but they will be able to use the cloud's incredible processing power, too.

That means DI departments constrained by limited computer resources will have no problem processing the most advanced reconstructions.

The Centricity Health Cloud will be officially launched in the second quarter of 2016. While the initial solutions available are for radiology, it will be open to all types of healthcare uses and applications.

What's more, GE Healthcare is launching an 'app store' to accompany the Health Cloud, giving healthcare providers the ability to acquire leading-

edge solutions to improve their performance and effectiveness.

"We're aiming to have just 20 percent of the apps from GE, and the other 80 percent from others," said Justin Steinman, GE Healthcare IT's chief marketing officer.

Apps on the GE Health Cloud will be delivered on a subscription basis, enabling hospitals and health systems to shift computing expense to a variable cost model.

Of course, Canadian healthcare providers are hesitant to use cloud solutions that are hosted in the United States or other foreign countries. Steinman said GE is aware of that, and has a solution.

"As soon as we have a customer in Canada, we'll set up a cloud there," he asserted. "France and other countries have the same issue, and we'll be doing the same thing in those countries."

In Canada, use of the Health Cloud may happen soon. GE Healthcare has been in conversations about this with Humber River Hospital, the new digital hospital in Toronto where GE is the managed equipment supplier.

Cloud in Canada? Use of cloud-based solutions have started to make inroads in Canada. In August 2015, London Health

Sciences and St. Joseph's Health Care, in London, transferred their Cerner-based applications and data to the Cerner cloud, along with those of nine surrounding hospitals. All eleven hospitals are now able to share apps and data.

For its part, Carestream has had great success with cloud computing around the world – it now operates 13 data centres around the world for PACS and archiving, and offers access to both physicians and authorized patients.

"We're managing 15 billion images in

IBM is now immersed in a project called Avicenna, which will analyze diagnostic images using Watson.

the cloud," said Cristine Kao, global marketing and growth operations director, and a Canadian who is working for Carestream in Chicago. "We see the cloud as our future platform."

Intelligent cloud: IBM launched the Watson Health Cloud last year at the HIMSS conference, in Chicago. It marries the artificial intelligence of the Watson supercomputer with the cloud; IBM

is also working with outside vendors like Apple to ramp up the capabilities of its cloud offering.

At RSNA, IBM offered an update on its work with Watson in healthcare. In 2015, IBM purchased diagnostic imaging company Merge for \$1 billion, and is now drawing on its expertise to give Watson the ability to interpret images as well as text.

"Watson will be able to assist radiologists," said Glenn Gale, business development executive with IBM, noting that the volume of images for diagnostic exams is soaring. A CT exam, for example, can generate 10,000 images.

"Radiologists are inundated by images – they're looking at 70,000 images a day," said Atul Agarwal, Sr. VP of R&D, health IT solutions, at Merge Healthcare. He observed that Watson won't replace radiologists, but instead, will be able to filter the images and isolate areas of interest. As Gale says, Watson may soon become the "radiologist's radiologist."

Currently, the Watson team is immersed in a project called Avicenna, which is developing the system's ability to analyze and interpret diagnostic images. The team is working with clinicians at Kaiser Permanente and Cedars-Sinai.

Imaging at RSNA

CONTINUED FROM PAGE 16

breast ultrasound, CT and ultrasound, and vascular and gynecological ultrasound.

The Coronis Uniti stations have new, intuitive features that enable radiologists to streamline their workflow and complete entire studies on a single display, increasing their reading efficiency while reducing stress, strain and fatigue.

For example, they can direct a cursor across multiple screens using the same handheld mouse. The Uniti workstations are four times as bright as any other display on the market, Barco says, giving radiologists more certainty when they're reading exams.

Siemens introduced a new MRI appli-

cation called GOBrain that enables clinically validated brain examinations in just five minutes. It was developed in collaboration with the Department of Radiology at Massachusetts General Hospital in Boston.

It's made possible, in part, by Siemens's high-channel density coils and MRI scanning software, called DotGO. The company says that essential image orientations and contrasts are acquired at the push of a button. Patient throughput is improved, and costs per scan can potentially be reduced. Siemens said that shorter scan times are better tolerated by patients, and can help reduce rescans and/or sedation, which can be time-consuming and costly.

Brain scans account for around 20 to 25 percent of all MRI examinations, Siemens asserted, and fast examinations are essen-

tial for maintaining an efficient workflow. The number of brain MRI examinations is expected to grow in 2016, with an expected 45 million neuro exams out of the 180 million MRI studies of all types expected worldwide.

In addition to its announcement about a health cloud (see our story in this issue on page 18), GE Healthcare also introduced innovations in MR.

In particular, GE Healthcare launched ViosWorks, a cardiac MRI solution that addresses several cardiac MR challenges at once – and reduces the time of a cardiac exam from 60 minutes down to just 10 minutes.

According to the company, ViosWorks delivers a three-dimensional spatial and velocity-encoded dataset at every time point during the cardiac cycle, yielding high resolution, time-resolved images of the beating heart and a measure of the speed and direction of blood flow at each location. ViosWorks captures seven dimensions of data (three in space, one in time, and three in velocity direction).

With this free-breathing scan, typically acquired in less than 10 minutes, ViosWorks can simultaneously provide key elements of a cardiac MR exam: anatomy, function and flow. This provides four advantages.

- The exam is simplified for the patient by using a single 3D free-breathing scan.
- The error-prone and time-consuming aspect of slice positioning is removed.
- Co-registered anatomic images provide the ability to assess cardiac functioning 3D and contextualize flow abnormalities, and as a result, the cardiac exam can be reduced from over 60 minutes to approximately 10 minutes or less.
- New algorithms allow large datasets unimaginable before to be evaluated in real-time via the cloud based ArterysT software.

For its part, Toshiba announced a new,

high-powered Iterative Reconstruction technology for lower dose CT imaging – a system it has dubbed FIRST. (It's short for Forward Projected model-based Iterative Reconstruction Solution.)

The system produces high-res reconstructions in three minutes, instead of what normally takes 30 minutes today, commented Arthur Voorpool, CT clinical product specialist at Toshiba of Canada Limited.

"It's a major advance," said Voorpool, adding that the images are acquired with

Siemens introduced a new MRI application called GOBrain that enables clinically validated brain exams in five minutes.

small amounts of radiation. "It's low dose at the same time."

The FIRST system is still pending FDA approval in the U.S. and Health Canada licensing.

Toshiba also showed what it's calling the industry's first seamless integration of interventional radiology (IR) and CT technology into one solution.

Called the Infinix CT, the system combines the Infinix Elite angiography system and an Aquilion ONE Vision Edition CT scanner. It allows clinicians to plan, treat and verify in a single clinical setting.

"You can do angio and CT without having to move the patient," commented John Morra, a senior clinical consultant for Toshiba of Canada Limited, Medical Systems Division.

What's more, the CT exam is fast; the Aquilion ONE VISION Edition is capable of capturing an entire organ in one rotation with 640 slices and 16 cm of true anatomical coverage, producing image quality that far exceeds CT-like imaging of the interventional lab.

Peer review reinforces culture of quality

CONTINUED FROM PAGE 17

formatics and Co-chair of Trillium Health Partner's DI Quality Subcommittee, explains that a great deal of effort took place up front to ensure the organization's overarching culture of quality would align with the software and that radiologists would

At Trillium Health, Coral Review is configured to pull reports that have been dictated within the past seven days.

only be asked to review cases within their specific area of expertise.

"There was a lot of discussion with each of the radiologists," she said, noting that the information collected was used to create rules within the software. "For instance, if a radiologist said, 'I read MRI, but I don't read MRI of the breast or shoulder,' then we wouldn't ask them to peer review those cases." At Trillium Health, Coral Review is configured to only pull reports that have been dictated within the past seven days.

Radiologists are asked to review five cases per week and can choose to receive all five first thing Monday morning or one per day.

If a major discrepancy is spotted by a reviewer, an automatic email is sent to the system administrator and a secondary review is launched.

Two additional radiologists within the same modality will then review, collaborate and make a final recommendation on the flagged report. If they agree with the major discrepancy, the report goes to Dr. Archer, who also reviews it and in turn notifies the original radiologist.

"That radiologist then knows there are four reviewers who concur," he explained, noting that an addendum is added to the report and appropriate parties are notified. The ultimate goal is improved patient care, and shortly after launching its formal peer review program, Trillium Health already has evidence to show it is making a difference.

Leslie Rowbotham, a single mother of four, arrived at Mississauga's Credit Valley Hospital emergency room complaining of abdominal pains in February 2015. Her

initial diagnosis was appendicitis and she underwent emergency surgery. A few weeks later, however, she still wasn't feeling up to par and on the advice of her family physician, returned to the hospital where a follow-up CT scan was performed.

Unbeknownst to Rowbotham, her scan was randomly selected for peer review and although it was intended to be an abdominal CT scan only, the reviewing radiologist discovered a tumour in her heart.

Her family physician was immediately notified and in a video created for Patient Safety Week 2015, Rowbotham credits the reviewing radiologist for saving her life.

"When you get a case like that, it's all worthwhile," said Dr. Archer, who believes the most important aspect of a peer review program is that it creates a culture that says "it's okay for us to look at each other's work and if we do it together as a team, the patient benefits."

Dominic Covvey

CONTINUED FROM PAGE 14

All of us have heard stories about a workstation being placed in some area, like the Emerg Department, where the device becomes a distraction or requires deviation from the use of another system and actually increases the workflow effort. This violates the very purpose of computerization.

Optimal human-workflow coupling: What we are really dealing with is the need for human-system workflow integration. Our objective is to maximize the enhancement of human workflow by having the system perform certain tasks. Where the system can do the work, including guiding the process (like registering a patient), then the system should do the work.

When only the human can perform a task, the human should do the work. And where both the human and the system can actually work together, then the human and system should interact, each carrying its portion of the load. This could be called optimal system-workflow coupling.

Workflow-based procurement: Based

on this, we should be defining optimal workflows and then choosing systems to assist us in achieving this balance between human and system activity. So, really, the procurement process becomes one of defining and characterizing, say with process maps, our workflows and then choosing a system that will maximally enable the workflow we desire.

In other words we are primarily de-

All of us have heard stories about computers becoming a distraction or even increasing the workflow effort.

signing an integrated workflow process. However, this approach to procurement is rare.

The limitations of today's systems: There is a further problem: supporting Situation-Dependent Workflows with current systems is somewhere between very difficult and impossible – and more like the latter! Why? Well, the fact is that Situation-Dependent Workflows vary based on many, sometimes hard to predict, conditions.

In the past, the strategy has been to

have the system rigidize the Situation-Dependent Workflows so that today's relatively rigid applications can support them. However that is antithetical to the realization of Situation-Dependent Workflows.

The future possibilities: Our research made us realize that we needed systems that would allow us to model human behavior rather than constraining it. The classic approach to realizing workflow support creates what some have called Black-Box Medicine.

This is where the system attempts to rigidize human workflow. But care providers reject this approach because it takes the human too far out of the equation.

During our work we came up with the slogan that may be worth understanding: "Workflow is History". This connotes that a workflow is what happened, and cannot be fully predicted or, as we called it, "prescribed".

This is the final frontier for this piece. Later we will take a deeper look at what is required, and currently not available, to allow systems to enable humans to operate as humans while the system brings to the party what the system is capable of doing – and both work cooperatively.

WHERE THERE'S HEALTHCARE THERE'S EPSON



WHERE THERE'S BUSINESS THERE'S EPSON

Every day, healthcare institutions around the world rely on Epson® Business Solutions, offering a full suite of innovative printing, imaging and electronics products backed by 40 years of industry-leading technology. From patient payment and admissions solutions, to on-demand labelling systems, Epson Business Solutions are improving accuracy and efficiency, while reducing operational risks and downtime. For more information on how Epson Business Solutions are helping healthcare facilities exceed their vision, visit epson.ca/forhealthcare

EPSON®
EXCEED YOUR VISION

EPSON is a registered trademark and EPSON Exceed Your Vision is a registered logomark of Seiko Epson Corporation. All other product and brand names are trademarks and/or registered trademarks of their respective companies. Epson disclaims any and all rights in these marks. Copyright 2015 Epson America, Inc.