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Sanofi has produced an iPhone-based diabetes management system called STARsystem, and a blood-glucose meter that connects directly to the phone. Patients are able to quickly view and analyze blood sugar levels; they can also transmit results to caregivers.

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Last year, IBM's powerful Watson computer triumphed on the Jeopardy quiz show. Now, it is deploying business intelligence and analytics to support physicians with clinical decision-making. We look at what's in the works.

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The University Health Network, in Toronto, has developed self-care kiosks that help kidney disease patients when they're visiting the hospital. Patients can perform assessments, document their issues, and alert team members.

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PACS, with voice recognition, speeds patient flow
The recently expanded Montfort Hospital, a 300-bed, bilingual hospital in Ottawa, has found the use of voice-recognition in its diagnostic imaging reporting system is resulting in faster, more efficient care. Pictured above are team members: (l to r) Richard Heroux; manager, medical imaging; Sylvie Fast; Dr Fabiano Tancer, chief radiologist; Chantal McRury; Ashley Gagné; Benoit Duval. See story on page 12.

VitalHub solution expands from Mount Sinai Hospital

BY JERRY ZEIDENBERG

Toronto – A lot has happened at VitalHub since the company was spawned at Mount Sinai Hospital in 2009. The spin-off was among the first to provide access to a hospital's clinical systems through the Apple iPhone, a device that has become wildly popular among doctors and nurses.

The start-up company has now set up shop at a high-tech incubator, the Digital Media Zone at Ryerson University, where it is led by a new CEO, Lisa Crossley. A PhD in chemical engineering, Crossley is a three-time CEO and has raised over $30 million in angel and venture financing from investors in the U.S. and Canada for her companies.

Since joining VitalHub in October 2011, she has proceeded to attract over $1.6 million to the company, providing it with the working capital needed to support its current Canadian deployments and to begin to penetrate the US market.

The VitalHub system is now available on iPads, a device that's favoured by physicians.

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VitalHub mobile solution spin-off expands from Mount Sinai Hospital

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because of the larger screen size, and an Android version is under way.

And in addition to users at Mount Sinai Hospital, a pilot project involving 50 clinicians is now in progress at London Health Sciences, in London, Ont. Another pilot was started in February with the BC Cancer Agency and the BC Provincial Health Services Authority that also involves Apple and IBM. A go-live is planned for June, and if all goes well, the system will be rolled-out throughout the province of British Columbia.

"BC looked at other solutions, but none of the others was satisfactory," said Crossley. "They decided on VitalHub, in part because of the speed of our system."

She noted that speed of access to computerized data is a critical factor. "Physicians won't stare at their hand waiting for data for more than two seconds," she said, explaining they're just too busy. However, VitalHub impresses them with its almost instantaneous delivery of information. "It's our secret sauce," she quipped.

In addition, VitalHub makes use of a "virtual" architecture for accessing information. Instead of consolidating information from different data silos in a large repository, which some mobile access systems do, VitalHub accesses information from the various departmental and corporate servers in real-time, on an as-needed basis. It can also write information back to the servers, so that files and charts are instantly updated.

This makes it much easier to implement, as no additional data centres are needed. That in turn brings down the cost.

On the topic of cost, Crossley noted that VitalHub is charging just $25,000 for its server configuration, which ties into the existing servers and repositories of customers. It usually sits on the hardware that's already owned by the end-user.

After that, there is a subscription fee of $20 per user per month. "That's like a small cell phone plan," said Crossley. "It includes support, training and upgrades."

There are two major reasons why organizations are opting for mobile information systems like VitalHub, said Crossley.

First, they have invested tens of millions of dollars in computerized information systems, only to find that, for the most part, clinicians aren't using them. She asserted that most electronic health record systems have only a 30 percent usage rate, which is a great disappointment to hospital management.

While the information contained in the systems is extremely useful, it simply takes physicians and nurses too long to get it. "Doctors may have to log into 10 different systems to get at the information they need," said Crossley. "There are still silos of information that require multiple log-ins, and doctors hate having to waste time searching for the patient information they need. They don't go into medicine to spend three hours each day waiting for or working on computers."

By contrast, VitalHub offers single sign-on and access to all systems. "We're like an octopus. We sit on top of all of the silos, and our tentacles reach into them." As a result, there is easy access to the information that physicians and nurses need, she said.

That in turn means clinicians can access patient information right at the bedside, and they can also update the records in real-time. There is no need for doctors to run away searching for a workstation. No need for residents to carry reams of patient printouts to the bedside. And no need for nurses to make handwritten notes of vital signs, only to key them into a workstation an hour later— it can all be done immediately using an iPhone or iPad.

In many cases, real-time access to patient information can make a difference in outcomes, as well. If it takes an hour to obtain information, data may be outdated or missing critical test results by the time the clinician receives it. Far better to have the real-time access to the databases, said Crossley.

Due to the quick access that VitalHub provides on mobile devices, utilization of the computerized information systems in hospitals soars, said Crossley. That also translates into better outcomes for patients, because of the availability of information.

That value proposition is also powering VitalHub's entry into the U.S. hospital marketplace, where the company is on the verge of making its first sale. At the time of writing, VitalHub was very close to landing a contract with a 28-bed hospital in Pennsylvania with facilities in several states.

And while VitalHub was originally focused on connecting to Cerner environments—Mount Sinai Hospital, London Health Sciences and PHSA in BC— all run on Cerner information systems—Crossley said that VitalHub can be easily tailored to run on other systems.

Indeed, the U.S. multi-hospital organization that's about to adopt VitalHub is running four different EHRs— McKesson, Cerner, Meditech and GE Centricity. VitalHub has been shown to work with them all, she said.

Interestingly, the company has produced an additional application called VitalStation, which displays information from multiple sources on a large screen for nursing stations. It gives nurses the status of patients, test results, discharge readiness, and other factors from multiple sources. It's in use at one nursing station at Mount Sinai and is likely to be rolled out to many others.

In terms of device usage, Crossley commented that physicians are quickly gravitating to the iPad, because the large size of the screen enables them to view more data all at once, and it provides better...
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News iPhone-based diabetes management system launched by Sanofi

BY NEIL ZEIDENBERG

Toronto – Pharmaceutical giant Sanofi has launched a new smartphone-based diabetes management system called STARSystem (www.starsystem.sanofi.ca), and a unique blood-glucose meter (iBGStar) that connects directly to an iPhone.

“This will revolutionize the way diabetes is treated in Canada,” said Hugh O’Neill, president and CEO of Sanofi Canada. “It will help people with a complex disease live like people, not just patients.”

iBGStar is said to be the first blood-glucose monitor in Canada that seamlessly connects to an iPhone or iPad touch, allowing users to view and analyze their results in real-time and access the STARSystem – a support platform that provides people living with diabetes access to personalized education, health coaching, and a plan for optimizing their health—all at their own convenience.

Moreover, a user-friendly Diabetes Manager App tracks blood-glucose, carbohydrate intake and insulin dose for on-the-go monitoring, and with a few swipes of an iPhone and permission from their healthcare provider, diabetes patients can e-mail the data directly to their physician.

For those without an iPhone or iPad touch, there’s iBGStar – a compact, discrete blood glucose monitor with a large backlit, easy-to-read display; a large memory capacity that holds up to 1,865 tests for instant review; and the ability to add mealtime tags to view pre- and post-mealtime averages and other personalized features. Both iBGStar and BGStar come free of charge with the purchase of 100 iBGStar test strips.

Optimal treatment for diabetes includes not only blood glucose monitoring and insulin injections, but changes to a person’s lifestyle. This means exercising regularly, eating a healthier diet and setting goals, and developing a plan to help individuals achieve them. STARSystem offers accurate and credible diabetes information, entirely developed with leading Canadian diabetes experts. Unlike many internet websites, it’s both timely and reliable.

“The goal of diabetes management is so we can enjoy life today and well beyond our senior years,” said pharmacist and certified diabetes educator, Susie Jin. “It requires healthy living, a positive attitude, and a strong support system of resources. Help can come in many ways. It’s about how you learn, where you go for information, who can help motivate you—and of course—blood-glucose monitoring to help you help yourself!”

STARSystem is the only diabetes management system that comes with free health coaching sessions (90-minutes of one-on-one coaching by phone, and 6-months of unlimited online support), a proven positive influence for people living with diabetes.

Health coaching is about clinical teams interacting with patients, setting goals and developing ways to reach them. It’s unique to each individual — what works for one person won’t necessarily work for another. So figuring out ways to motivate an individual to adapt healthy behaviors can be challenging.

“We work closely with doctors,” said Dr. Durhan Wong-Rieger, president and CEO of the Institute for Optimizing Health Outcomes (IOHO) – an organization that believes optimal health can only be achieved when people are empowered to take charge of their own health. “You can give patients information about how to manage their condition, but they won’t necessarily use it. We help doctors find ways to motivate patients to better manage their disease.”

One in four Canadians today live with diabetes, and 80–90% of them have no support system. STARSystem helps to empower them by providing tailored support and advice on five key areas:

• Monitoring (The Right Way);
• Managing (Ensuring each day is optimized);
• Eating (Better Nutrition);
• Moving (Exercise everyday); and
• Feeling (Emotional Well-being).

“Through STARSystem, each user gets a personalized assessment that directs them to tailored resources and provides a custom achievable curriculum that guides them towards reaching their wellness goals,” said O’Neill. “A personalized dashboard even helps track a person’s progress along the way. It’s like having a diabetes support team right in your pocket.”

New approach to diabetes uses technology and coaching

BY NEIL ZEIDENBERG

Almost one in four Canadians lives with diabetes, a disease with severe complications and enormous treatment costs. In 2010, costs were about $12 billion to the healthcare system, and without an intervention, it’s expected to rise even further.

For the past two years, Dr. Paul Ritvo, a professor of Health Science at Toronto’s York University, Black Creek Community Health Centre, and NexJ Systems Inc., (www.nexj.com), a leading provider of customer relationship management (CRM) solutions, have collaborated on development of the ‘Mobile Health and Chronic Disease Project.’

The project involves using a BlackBerry containing specialized Health Coach software to provide full-time medical guidance, and remote monitoring of biometric information to 22 individuals with type-2 diabetes. “Our intent was to code the relationship between diet, exercise and biometric information and how it relates to how you feel,” said Bill Tatham, president of NexJ Systems.

Type-2 diabetes was chosen because it’s a group that consumes the largest portion of healthcare resources, and patients don’t necessarily use the available resources. In the right way. In order to turn excess care into appropriate care, the type-2 diabetic has to make a better effort to control diet and exercise, and start taking responsibility for his or her own health.

“Our main goal was to have the A1C hemoglobin measure in patients reduced to levels where there’s no complication or severe illness in future. In other words, we want to maintain type-2 diabetes at a health level where there’d be improved quality of life, and reduced costs in terms of future complications,” said Dr. Ritvo.

Test subjects were residents of the Jane-Finch Community – an area of Toronto with many new immigrants, visible minorities and a high incidence of type-2 diabetes. “Studies have shown that people at the lower end of socio-economic status have greater difficulty accessing primary care with the frequency and consistency necessary to reach optimal type-2 diabetes management,” said Dr. Ritvo.

Adding to the challenge, none of the participants was tech-savvy, and English wasn’t their first language. So NexJ created simple-to-use graphical interfaces and taught users what each symbol means.

This wasn’t a clinical trial, it was a developmental approach where we used a continual quality improvement model to refine the software that would make the biggest difference with this population,” said Dr. Ritvo. In the end, no participants had difficulty negotiating the software.

The key outcome of the pilot study was...
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Toronto’s UHN rolls out self-care kiosks for chronic kidney disease

TORONTO – Last year, the University Health Network’s Division of Nephrology launched MyKidneyCare centre, a web-based, self-management station for patients that focuses on educating patients about chronic kidney disease. It enables patients to monitor their CKD progress, and encourages them to set learning goals.

The system also provides a tool to facilitate patient collaboration with their clinicians.

The application was first piloted in the waiting rooms of three ambulatory nephrology clinics as touch-screen self-assessment kiosks. With continuous feedback from patients and clinicians, the project team has redesigned and enhanced the application and extended its use to nearly 10 clinics and all pre-dialysis patients at the Toronto General Hospital.

The MyKidneyCare centre kiosk is available in English, Chinese and Italian to serve various populations that the clinic sees. Patients use the kiosk to perform self-assessments using the Edmonton symptom assessment scale (ESAS) tool to track their CKD symptoms, to document their health issues and concerns, to identify team members they want to see and to select learning topics of interest.

When using the kiosk, patients are asked if they want to see, as part of their visit, a dietitian, pharmacist, social worker, physiotherapist, or a kidney foundation peer support coordinator, in addition to the doctor and nurse.

The kiosk also alerts clinicians to the state of their health by answering questions about eating and diet, medications, work, school and family, and their wellness, in general.

They can flip through educational screens that tell them more about kidney functions, blood and urine tests, diseases related to kidney problems, medications, blood pressure and sugar control. What’s more, they can always answer that they’re not ready to learn more at the time of their visits.

Clinicians can view the patients’ responses in their clinic rooms from their computer terminals. When the patients arrive in the clinic assessment rooms, a summary of the patient’s self-assessment report is made available.

Clinicians also have the opportunity to view a trend of response from previous visits, which allows them to monitor and track the progress made by patients. At the end of the visit, patients are given a printout that summarizes the encounter, and serves as an easy-to-consumption reminder of their learning needs and the ‘take-home’ messages from each clinician.

The MyKidneyCare centre kiosk is designed to increase the patients’ involvement in their own treatment. It helps patients identify their individual health needs and also facilitates the process of collaborating with clinicians during their visits.

With take home messages, patients and caregivers have the opportunity to stay engaged and actively participate in treatment plans outside the healthcare setting, which is vital in chronic disease management. Chronic kidney disease is a complex condition which requires contact with multiple clinicians, follow up at home and active participation in care.

To date, the kiosk has over 400 registered patients across the 10 ambulatory nephrology clinics. A preliminary user-satisfaction survey indicates that both patients and staff felt that the kiosk added value to the quality of the visits and enhanced patient-provider relationships. And although the majority of the kiosk users were aged 61 to 70 years old, 75 percent did not feel the kiosk was difficult to use.

Some examples of patient experiences of the kiosk are included in the following survey feedback:

“Having the option of who you want to see and what you want to learn. It is informative.”

“It listed a number of options about what information you wanted, you could choose more than one option and it’s an efficient way to get answers.”

“Listing all my symptoms gives them a better idea of how to treat you properly.”

“It can help the doctor understand my situation quicker.”

A national survey of Canadian nephrology programs indicates MyKidneyCare centre is the first of its kind in Canada for CKD patients. To increase adoption and accessibility, the My Kidney Care centre application will be expanded to be used on other mobile media devices, such as tablets and smartphones and other chronic disease states. Given the increasing burden of chronic disease management today, adoption of patient-centric and easy to use IT solutions which support patient self-management are integral to optimize healthcare delivery for these patients.

Those who are interested in learning more about MyKidneyCare may contact Dr. Judith Miller, Director, Division of Nephrology at University Health Network, judith.miller@uhn.ca, or Stephanie Ong, Project Lead, stephanie.ong@uhn.ca.

New approach to diabetes uses technology and coaching

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a significant reduction in blood glucose levels, as evidenced by HbA1c blood test results, when compared to levels at the beginning of the study. This reduction indicated that health coaching enabled by mobile health can induce behavioral change to improve health.

So how does it work? Participants use a BlackBerry to take pictures of all their meals. Twenty-minutes later, the BlackBerry vibrates and asks a series of awareness questions. Each is iconic, so users choose the icon which best matches the answers. For example, ‘Have you eaten your food in the right place?’ Choose between happy and sad faces. And ‘What’s your energy level right now?’ They choose from pictures of battery levels.

At this point, through the cloud, the Health Coach can see the pictures and answers and begins to coach. “It tells them if their meal was of average portion size or larger, and how nutritional it was and offers guidance. There’s no logging required, they simply take pictures. It’s one-on-one personal support and establishes a relationship with the participant — a key to sustaining behavior change,” said Tatham.

It’s an effective tool because Health Coach is always there, educating and encouraging diabetics to make better choices and follow a healthy lifestyle. That improves compliance, and lowers healthcare costs. This thinking applies to all chronic disease, which is why Health Coach can also be adapted to treating hypertension, and COPD (chronic obstructive pulmonary disease).

Results from the study showed a significant decrease in monthly average glucose levels and an ability to reduce medication levels on participants. It means patients began to understand the relationship between diet, exercise and biometric information and became self-managing of their diabetes.

“We feel like the approach with this software was successful in attaining blood-glucose control, and we’re now funded by the Public Health Agency of Canada to conduct a clinical trial,” said Dr. Ritvo. “It’s an appropriate step since we feel we’ve maximized the software, and our comprehensive treatment approach. Now we can show everyone else it’s a viable approach.”

For its part, Nexx is a leading provider of cloud-based software, delivering solutions to the financial services, insurance and healthcare industries. It was founded in 2003 by the former management team of Janna Systems. In 2011, Nexx was named the sixth-fastest growing tech company in North America by Deloitte.
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Five Ontario hospitals choose PatientKeeper for mobile info access

BY SHELDON GORDON

F
ive hospitals in southwestern Ontario which share a common IT infrastructure are acquiring PatientKeeper software to link MDs and their mobile devices to the hospitals’ electronic medical records.

“It’s taking us to a new level,” says Andrew Williams, chief executive officer of the Huron Perth Healthcare Alliance (HPHA), which includes hospitals in Clinton, St. Marys, Seaforth and Stratford, Ontario (The fifth institution is the Alexandra Marine & General Hospital).

PatientKeeper is a “physician overlay” that sits on top of (and integrates with) back-end hospital or clinic information systems. At Huron Perth Healthcare Alliance, the back-end system is Meditech, but PatientKeeper advertises itself as “back-end agnostic”; it can integrate with whatever system a hospital uses.

PatientKeeper extracts information from hospitals’ various information systems by using “PatientKeeper Bridge,” which stores data in a secure, consolidated repository for fast physician access.

PatientKeeper has three components: Physician Portal, a web-based environment; Mobile Clinical Results, to link with smartphones or tablets; and Patient Notewriter, which enables electronic documentation that MDs can integrate into their current workflow. Boston-based PatientKeeper Inc. says its software is currently in use by 44,000 physicians and other healthcare professionals in North American and British hospitals.

The hospitals expect to begin implementation of PatientKeeper in mid- fall and complete the installation over a period of four months. “Our objective is that all 150 physicians who have admitting privileges at our hospitals will have access,” says Williams.

“We have a group of physicians who have really embraced computer technology over the last few years, and have been working with us to identify ways in which they can have real time access to hospital patient data,” he says. The mobile devices used by Huron Perth’s MDs are a mix of smartphones and iPads. “We’ll be able to provide our physicians with apps for all major mobile devices that will allow the connection to take place,” says Williams.

Neither Williams nor Dr. Don Burt, Chief Medical Officer at PatientKeeper Inc., would reveal the pricing of the PatientKeeper software, though Burt claims it is “a fraction of the cost of the alternatives.” Huron Perth evaluated the products of five vendors, says Williams, “and the resounding consensus was that PatientKeeper was the way for us to go.”

The key issue that Huron Perth’s MDs had identified was the need for easier access to the hospitals’ information systems. “The integration of the data is very good and the system works very well, but from a navigation point of view, you have to go ‘in and out’ to get different types of information on your patient,” says Williams. “They wanted one screen that they could go to that would provide all the information they need to provide clinical direction.”

PatientKeeper is intended to provide a full, real-time snapshot of the patient and what they need. The system transmits all necessary patient data, including lab results, microbiology, radiology, medication lists, allergies, vital signs and any clinical notes available on the patient.

PatientKeeper’s platform allows for the addition of advanced clinical workflow applications, including computerized physician order entry (CPOE), medication reconciliation, and e-signature, enabling MDs to review and act on information from a single work environment.

While the primary benefit for MDs will be access to hospital records while they’re in their offices, PatientKeeper will also help them within the hospital environment by eliminating the ‘in and out’ requirement. “So this will speed up significantly their ability to provide care when they are in the hospital,” says Williams.

The roll-out will proceed full throttle, without being preceded by a pilot project. “Based on everything that we’ve seen, in the demonstrations and the RFP process, I can’t see there being any limitations on the system,” says Williams. “It’s taking us to such a new level I suspect the response will be phenomenally positive.”

Karen Davis, the CEO of Alexandra Marine & General Hospital, did not respond to requests for an interview, but said in a news release that physicians in her community are really excited to be involved in this initiative, as it will mean access in “real time” to patient information.

PatientKeeper’s Burt emphasizes two major aspects of the software. One is that it “allows MDs not to be tethered to a workstation or a chart.” The second is that, because the software is an overlay to existing hospital IT infrastructure, there’s no need to incur the expense of replacing the existing HIS. Mobile devices, he says, have evolved to the point where they can house sufficient information which a clinician can use “to write a note or order things for patients from wherever they are.”

PatientKeeper has had a 90 percent increase in physician use of mobile devices in the past year. The software, often branded under different names, has more than 44,000 daily-clinical users. “Over the first 10 years of the company,” says Burt, “the use of mobile devices crept along, but now we’re doubling that number of users in less than a year.”

But it’s not only the growth in the memory of mobile devices that accounts for the explosion in their use. “Hospitals for a long time have had a lot of electronic information, but the data in these back-end electronic systems has never been in a single place so that a physician could go and find what they need,” says Burt.

The hospital information systems perform functions such as inventory management, but were never designed as clinical workflow tools.

We allow those hospitals to leverage the investment they’ve already made in those back-end systems over decades,” says Burt. “Instead of replacing and replacing them, we provide a simple overlay on top of those systems, allowing clinicians to be very efficient and very safe in the way they take care of patients.”

Mount Sinai spins off VitalHub solution

CONTINUED FROM PAGE 2

The software and interface in the VitalHub are also attractive to users. After signing in, a physician will see his or her patient watchlist, which alerts them to problems that must be dealt with as high priorities. After clicking on the record of a particular patient, a patient dashboard appears, showing all of the relevant data, culled from multiple databases. Click on the various components, and you will continuously drill deeper into the latest results and historical information.

All of this can be customized, “ICU wants to see information in a certain way, and oncology wants it in another way,” said Crossley, who noted this can be further configured for individual doctors and nurses.

The interface is both easy to use and understand. “We can train users in five minutes,” said Crossley. “We’ve done demonstrations where we’ve showed it to doctors and they’ve wanted to start using it in their hospitals immediately. We had to tell them the data and charts were just for demonstration purposes until their hospital purchased our server. But they saw the benefits right away.”
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Smartphones in Canadian hospitals: Here are 10 predictions for 2012

BY CHRIS HEIM

2012 will be a transformational year for smartphones in healthcare. 2009-2011 focused on smartphone adoption, everywhere from teenagers to senior citizens. Of course millions of healthcare professionals now carry smartphones, as well. 2012 will be very different. It will mark the beginning of an era in which hospitals really figure out how to take these devices beyond their use as individual reference tools and turn them into technology that is truly interconnected throughout the enterprise.

1. Hospitals will start doing even smarter things with smartphones. Smartphones have evolved into a core element of a hospital’s communications network. Doctors already use them in meaningful ways, such as to access EMR systems and a host of amazing medical apps. The early cries of “pager replacement” have been replaced with the realization that a smartphone is so much more. Medical staff want a highly useful, portable tool that redefines how they work and access information. Receiving time-sensitive messages is only a small part of this.

A few examples of how a smartphone can be integrated with the right applications to provide a bounty of new capabilities:

- Encrypted critical messaging: A smartphone can provide secure, traceable messaging with an application designed to relay time-critical messages such as consult requests, code calls, and lab results. Delivery confirmations, a full audit trail, and a separate inbox to keep messages away from other text and non-work communications sweeten the deal.

- Directory lookup and messaging: Integrating a smartphone to a hospital’s directory gives staff the ability to communicate with anyone in the network, regardless of the recipient’s mobile device type.

- On-call scheduling and messaging: Linking to the Web-based on-call schedules of caregivers means always finding the right person or role (e.g., the on-call cardiologist), even at 3 a.m.

- Preference mapping: Tying into systems that let physicians determine how they should be contacted based on the time of day means people actually get a hold of one another on their smartphones more often, speeding care.

- Clinical systems: Integration with monitoring systems like nurse call, patient monitoring, and more means that when the machine audibly goes beep, the right person gets a smartphone message of the change in status at the same time.

2. An incident involving compromised protected health information (PHI) on a smartphone will cause headlines and fines. In December 2011, a Ponomer Institute study found a shocking 32 percent increase in the frequency of data breaches in hospitals surveyed, with an average of four breaches. Surprisingly, only half of those surveyed took measures to secure the protected health information found on mobile devices, which are in use at 81 percent of organizations. The study reports that these organizations estimate an average cost of $2.2 million per data breach related to this negligence.

Access to protected health information is an important topic when it comes to using smartphones in healthcare. There is really a two-fold problem when it comes to sensitive information and mobile devices. The transmission of messages must be done securely via encryption, and the information contained in the messages must remain safe once on the smartphone in case the device itself is lost or stolen. Features like encrypted messaging, password-protected inboxes, and the ability to remotely wipe a device remotely of sensitive data are key.

3. The proliferation of different mobile communications protocols used by hospitals have tried to support a narrow set of smartphones. Unfortunately, IT teams are at the whims of doctor preferences, and the latest new smartphone will always need to be incorporated. Additionally, independent physicians with practical rights at the hospital have to be considered.

Smartphones aside, there are many other types of devices in hospitals today, and they all need to get the right messages. Tablets, in-building Wi-Fi phones, voice badges, pagers, desk phones, and more – every role seems to have a different type of device for receiving messages. The fact is many different types of devices is common in healthcare, and it’s only going to get worse.

4. Traceability becomes a requirement, not a luxury. Even when pagers were the de facto standard in mobile communications, there was always a problem with message traceability and knowing if and when an important notification was received. But everyone knew it and accepted that this was the case, because there wasn’t a good solution.

The accusations of “he said, she said” ran rampant when, for example, someone in the operator group launched a Code Blue and Dr. X said he didn’t receive it or he was not on call that evening. There have been lawsuits on this very topic because lives have been lost. Now the game has changed, and messaging traceability is possible whether an electronic communication goes to a smartphone, pager, Wi-Fi phone or something else. Delivery notices have made their appearance.

5. Pagers RIP? Nope. The prediction of the death of pagers will be proved wrong. Everyone keeps predicting the death of pagers and paging, but they are still around. There are many communication devices in use today for everyday information sharing. But when it comes to disasters, cellular and even Wi-Fi networks can become clogged with traffic and shut down. In these times, wide-area paging has proven itself as a solution in terms of keeping communications flowing. This was the case during 9/11, Hurricane Katrina, and the Minnesota bridge collapse.

We predict 2012 will be the year hospitals realize there’s still a need for this trusty pal in unexpected disaster situations. Pagers are like an insurance policy; and a pretty inexpensive one too. They may not be the right device for a portion of a hospital’s staff for many years to come. But those physicians who have moved from pagers to smartphones probably won’t be going back.

6. Specialized communication hardware devices will fail to gain traction. Across the gamut of available communication devices, we start with pagers, which are cheap, reliable, and durable. Much of the wireless market will stay with them. Others will move to the other part of the spectrum for smartphones and tablets. In the middle there will be very little room for specialized devices beyond the long-trusted stables like Wi-Fi phones.

The recent emergence of specialized hardware solutions that attempt to offer, say, 110 percent of what a pager offers will ultimately prove to be a flash in the pan. While intriguing, our research indicates hospitals will scrap this idea and continue to gravitate toward messaging to smartphones, which let them do 220 percent (or more!) of what a pager can do. And guess what? They already have the smartphone. Who wants to buy yet another specialized device just to message? Staff are certainly not going to want to add this to their list of things to carry around when the smartphone is already their go-to device. This is no different than having a pager, and there are ongoing repair costs to consider.

7. Web out, apps in. The first generation of smartphone users saw a barrage of “solutions” on their phones and tablets that just needed a browser to run. This was easy to deploy, but users are sick of it and adoption lagged. Clinical users know a good app when they use it. Good apps make communication and data entry easier, not just mobile. This speaks to having the right form factor and touch screen capability. Savvy 2012 users will demand that mobile healthcare solutions are truly mobile apps—not just browser-based varieties not optimized for these smartphone and tablets.

8. Hospitals raise the “Now What?!” question with tablets. It’s no secret that tablets are amazing and have been purchased by many a physician. Hospitals are working on integrating them into their communications and work processes, with varying results. In 2012, we expect mobile tablets will be sold as though designed exclusively for communications in healthcare. Mobile healthcare initiatives will continue to struggle with best practices on using tablets for critical communication in particular. People are still impressed, but the highly compelling use cases might be a ways out. This could be the period of turmoil before tablets find their mojo and regain mindshare.

CONTINUED ON PAGE 12
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A SMARTER WAY FORWARD.
PACS with embedded VR enhances care, in French and in English

OTTAWA — Since its founding in 1953, Hôpital Montfort, the only hospital in Ontario which provides all of its services in both official languages, has endeavored to put its patients’ needs first. In recent years, an Agfa Impax PACS and Impax Reporting with speech recognition in both languages, has enabled it to provide enhanced care and improved response times for patients, in both French and English.

In 1997, the hospital faced its toughest challenge, when the Ontario government decided to close the hospital completely as part of a provincial cost-cutting campaign. The facility, along with the local community, rallied to contest the closure, and succeeded in persuading the government to keep Hôpital Montfort open.

In 2005, the Ontario government awarded Montfort over $171 million for a major expansion project, which has now been completed. “We essentially doubled the size of the hospital,” says Dr. Fabiano Taucer, chief of diagnostic imaging at Montfort. “Now, the hospital offers 300 beds, and has 750 employees and 300 doctors.”

With the larger facility size came increased expectations. “When we received funding for our expansion, we were asked to predict our anticipated volumes,” explains Dr. Taucer, “and with the expansion complete, we now need to reach those predicted volumes. Our hospital and our department must actively work towards achieving those goals and targets.”

For Hôpital Montfort, and for Dr. Taucer, the Impax solution, incorporating Impax Reporting with speech recognition, plays a significant role in meeting the hospital’s objectives. “Impax has allowed us to significantly decrease our turnaround time,” says Dr. Taucer. “That’s a huge gain in efficiency. Now, the patient comes in, is directed to the modality, the study is immediately available to the radiologist, who can instantly read it, dictate a report with voice recognition, and with the click of a button, it is available system-wide, to the emergency doctors and to the inpatient doctors. There’s no need for any transcription.”

Before Impax, the diagnostic imaging department performed 200 to 250 examinations per day. Now, the department handles 350 to 300 exams per day, equivalent to 300 to 450 patients. There are 11 radiologists, approximately 60 technologists, and about another 20 support staff.

The hospital has a history with Agfa HealthCare that goes back more than two decades. The partnership started with X-ray film, and expanded into digital in 1996 with the installation of the hospital’s first Impax. Initially supporting just CT and ultrasound, the solution was upgraded in 2009 to Impax 6, featuring digital dictation, and now includes all hospital modalities: digital radiography, digital mammography, bone densitometry, sonography, CT, MR and nuclear medicine. “We went virtually overnight from having transcriptionists type our reports to having voice recognition,” says Dr. Taucer.

In selecting the speech recognition technology, a key point for Dr. Taucer and the hospital was Agfa HealthCare’s ability to offer digital dictation in both French and English. As a francophone teaching hospital, supporting French-speaking patients, medical professionals, and students, this aspect was crucial for Montfort. “We need to be able to produce our reports in both official languages and this system can fully support that,” says Dr. Taucer.

Another important factor was integration. “This voice recognition system is completely integrated with Impax. It is not a separate system. This is very important because integration tends to be the most challenging part of working with computers.” The information management capabilities of Impax long. Some of the problems associated with not having this strategy mapped out have been covered in this paper, such as a lack of security and message traceability, especially if texting is common.

2012 will be the year the CIO, CMIO, and others have to outline a strategy on mobile devices and enforce it. This strategy will need to include plans for supporting and messaging to the many different devices in use as mentioned previously.

9. Hospitals will deliver comprehensive mobile strategies. The concept of creating a documented mobile strategy has been on the rainy day list for hospitals for far too

Smartphones: 10 predictions for 2012

CONTINUED FROM PAGE 10

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Chris Heim is the president of Amcom Software, a subsidiary of USA Mobility, Inc. The company connects people to each other and to the data they need. Amcom Software’s unified communications platforms include solutions for contact centers, emergency management, mobile event notification, and messaging. For more information, see www.amcomsoftware.com/
The innovation leader in CT brings you SAFIRE (Sinogram Affirmed Iterative Reconstruction) to reduce software radiation exposure in your patients by up to 60%*. SAFIRE is a new generation of image reconstruction software that lets you use raw data for improved images and better diagnostic results. Thanks to a reconstruction speed of up to 20 images per second, SAFIRE can be routinely applied in clinical practice. Let your clinic and your patients take advantage of Siemens improvements in CT imaging.

* In clinical practice, the use of SAFIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software. Noise, CT numbers, homogeneity, low-contrast resolution and high-contrast resolution were assessed in a Gammex 438 phantom. Low-dose data reconstructed with SAFIRE showed the same image quality compared to full dose data based on this test. Data on file.

www.siemens.ca/safire
Analytics being fine-tuned to give support to physicians and patients

BY JEFF BETTS

In February 2011, a computer called Watson competed in the TV quiz show "Jeopardy!" with human world champions on broad knowledge domains like history, geography, sports, literature, etc. Watson won by first understanding the question, and then searching and analyzing about 200 million pages of text (about 7 million books) to find correct answers, all in about 3 seconds.

Some of the first commercial applications of Watson technology will be to support clinical decision-making in healthcare, specifically providing decision-support to doctors making diagnoses. Watson will help physicians identify treatment options that balance the interactions of various drugs and narrow selection from among a large group of treatment choices, driving more effective treatment plans.

Besides being able to read, Watson is also able to learn; using machine learning algorithms, Watson can improve its own performance by adjusting its answering strategy based on expert feedback. This "train-ability" will ensure continuous improvement of Watson's evidence quality, the more it is used.

An area where tailored evidence is critical is in the treatment of HIV. Through genetic mutation, HIV virus sub-types are constantly evolving drug resistance; the drug cocktails that work for one strain of HIV are ineffective for others. How can doctors predict which combination of drugs will be most effective against a patient's specific virus type?

EuResist is an international project designed to address this challenge, by developing a computerized system that recommends optimal treatment based on the patient's clinical and genomic data. The EuResist project provides Internet-based prediction of clinical response to antiretroviral treatment, by combining and analyzing viral genotype data with treatment response data collected in clinical practice.

The EuResist database holds evidence from over 50,000 cases, while a physician in a busy HIV clinic may treat only 200 cases a year. Mining evidence from thousands of patients creates a more accurate treatment prediction system, leading to more effective treatments and better outcomes.

A similar but often under-exploited source of comparative effectiveness evidence is the set of pre-diagnosed patient records already existing in electronic medical record systems. What if we could expose and exploit patterns from this institutional memory and use it to fortify a physician's decision-making capacity at the point of care?

In fact, that's already happening. A U.S.-based healthcare delivery organization has created the Advanced Analytics for Information Management (AAIM) system to analyze and compare images and outputs of EKGs, echocardiograms, angiograms, together with all historical facts on cardiac patients from the hospital Electronic Health Record (blood pressure, medications, other diagnoses, etc.), to find ‘patients like me' among thousands of previous patients. AAIM then offers diagnostic and treatment suggestions to the cardiologist based on the outcomes of those previous similar patients.

With AAIM's new approach, millions of patient records can be searched and a cohort of similar cases can be assembled on-the-fly. This shortens the time from introduction of new treatments to the collection of evidence, and the presentation of that evidence to practitioners 'on-demand'. Essentially, AAIM creates real-time comparative effectiveness evidence for each specific patient, considering their unique conditions. It proves disease-specific similarity in raw modality data can reveal similarity in patient diagnosis, and hence treatments and outcomes.

Another example can be found at Beijing University People's Hospital, where doctors are working to better integrate evidence...
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New forms of budgeting require an implementation strategy

BY RICHARD IRVING, PHD

In my last column I discussed the dysfunctional effects of budget models. The next part of the discussion pertains to budget success factors. Two key success factors are related to the budget systems you choose and the performance metrics you apply.

Once your organization has chosen a budget model (e.g., formula based, incremental, activity-based), it must devise a budget implementation system, which is the organizational process by which the budget is developed and first used. For any budget model to be successful you must have a budgeting system that is comprehensive, transparent and credible.

Usually, establishing a budget system requires extensive two-way communication throughout the organization, a clear set of principles and a transparent process. The budget principles are normally set through a process of discussion at senior levels informed by input from all key stakeholders. Draft principles are often sent for review and comment before reaching their final form.

Many organizations use a budget system of interlocking budget committees to review budget proposals at all levels, with an overall budget advisory committee composed of senior executives representing all areas of the organization that advises the president or CEO.

It appears the key to success is to first have a clear set of guiding principles, which are communicated clearly to all levels of the organization. Often this is accomplished by the CEO meeting as many stakeholders as possible in small groups and discussing the budget principles in an open forum.

This approach increases the probability that a majority of organizational members buy into these principles. Extensive discussion, communication and listening must take place through town halls, open forums and formal meetings. Unless this step is successful, the budget process will be even more fraught with misunderstandings and conflicts than is normal. Once the principles are defined, agreed to and communicated, the actual budget process can proceed.

The success of the budget process is also dependent on the organization’s ability to devise clear, credible, stable and measurable performance metrics to ensure the appropriate behaviors are rewarded, funded, and inappropriate behaviors are not. This process is also iterative. The first approximations will probably not be entirely satisfactory and ongoing monitoring and changes will be necessary.

From the literature, it appears that establishing consensus on a set of principles will take anywhere from two to six months, depending on the size of the organization and the level of coherent culture that currently exists.

Establishing organizational understanding and buy-in of the principles will take, at minimum, two-to-four months. Establishing an acceptable budget system can take three to eight months, and implementing the new budget may take anywhere from two to five years, since many organizational units may require time to adjust to the new realities.

At the very least, it will likely take three years to design and implement a new budget model and system with appropriate metrics. My guess is that it will take five years before a new approach is fully implemented, even if the process goes well.

While there is some disagreement in the literature about models and processes, there is considerable agreement that without a good budget implementation system, reliable and appropriate metrics coupled with a high level of organizational buy-in, a new budget process will usually fail. I’d be interested in hearing your opinions about these issues. If you have comments or thoughts on this column you can reach me at rirving@schulich.yorku.ca.

Audit trails are indispensable tools for health information security

BY JO SURICH

The release of “The Financial Impact of Breached Protected Health Information” by the American National Standards Institute (ANSI) and others early in March must serve as another warning bell for anyone accountable for the protection of personal health information. Taken in the context of the nearly 20 million records that were breached during the year, and the finding that almost half of all breaches involve people from inside an institution, it is clear that aggressive action is required.

Reported breaches in Canada are much lower, likely because we require much less disclosure than the United States. In the U.S., the government has taken several steps to encourage healthcare providers to improve the security of their information technology systems. In addition to requiring public disclosure of breaches - the U.S. has added an incentive in the form of the proverbial “wall of shame” - every breach of more than 500 records is publicly posted.

Medical Privacy Breaches Rising, an article by Roger Collier in the March 10, 2012 edition of the Canadian Medical Association Journal (CMAJ), provides some insight into the situation in Canada.

Failure to protect personal health information has the effect of undermining the confidence of patients in the system as a whole. In turn, that can lead to circumstances in which information critical to the health of the public generally is withheld from caregivers. The CMAJ article reported that a recent online survey of 2,002 Canadian patients indicated that 43.2% have withheld or would withhold information from their healthcare provider because of privacy concerns, while 36.6% of Canadian patients have or would postpone care over privacy concerns, and 42.9% would seek care outside their communities for the same reason.

Taken to its extreme, the problem of breaches can have the effect of forcing the abandonment of the entire electronic health enterprise. The end result of that would be a dismal failure to provide for the use of reliable information in the improvement of health services to the public. All of this is a significant problem.

The ANSI paper quotes from the 2011 annual meeting of the U.S. Office of the National Coordinator for Health IT. This advice is equally relevant in Canada:

- Check that risk assessments are up to date;
- Make sure senior managers are supportive of risk mitigation strategies;
- Review existing compliance programs as well as staff training;
- Ensure vigilant implementation of privacy and security policies and procedures, as well as tough sanctions for violating them;
- Conduct frequent internal compliance audits;
- Develop a plan for prompt response to breach incidents.

In addition to all these management steps, we need to recognize that it’s hard to stop the natural curiosity of people inside an institution regarding famous persons that might have been admitted. Recent events in...
How we have been affected by the commoditization of healthcare IT

By Michael H. Nusbaum

I’ve been around this business for a long time, and one of the obvious advantages of longevity is having the luxury of observing major system-wide changes over many years. Don’t get me wrong… change is a good thing, especially when it positively impacts the health of the population or supports the healthcare system in becoming more effective and efficient. Having said this, it’s interesting to observe the nature of change, and how it affects all of us that are stakeholders in healthcare.

Naturally, we are always experiencing some level of change… don’t we call that “health reform”? Or maybe that is the new current space and time along the change continuum is particularly deep, in that we are seeing a major shift in the way we do business. Healthcare pressures have never been more acute – just think of the funding shortages, lack of qualified staff in all disciplines, increased use of managed services resulting from the aging population, and a host of other issues that are communicated to us regularly by politicians and the media. Governments and industry are re-tooling to address these pressures, resulting in the introduction of new governance and management models, new funding models, and a host of new methods of delivering the goods and services that are necessary to manage the system. And yet, new technologies are emerging to help us become better at what we do.

The “New” IM/IT Models: Our young colleagues, fresh out of university, might not realize what a dramatic shift we have seen over the past five years in how we plan, implement and utilize Information Management & Technology (IM/IT). Most notable has been the significant shift in the delivery of IM/IT, moving from a ‘service model’ to a ‘commodity model’. The shift has been slowly creeping into our system, and I’m not sure many of us have realized that this was going on, at least until quite recently. So, for fun, let’s take a snapshot of where we are today, in the context of the journey that got us here.

Mergers and Acquisitions: As corporations world-wide have been grouping together into mega-conglomerates, so too has healthcare IM/IT. Once merely a technology service supporting healthcare delivery programs, IM/IT now includes all aspects of the collection, management, analysis and dissemination of information, and is pervasive throughout the system. Technology services have merged with health records, telephony, security, environmental services, multimedia services, paging and communication services, decision support, and a host of others.

In fact, IM/IT has been scoped by some to represent anything that involves the collection, storage and display of data! This can become overwhelming when you consider that, under this definition, IM/IT is integral to just about every function and piece of equipment that we utilize in healthcare delivery – from smart hospital beds to implantable monitoring devices, and everything in between. Should IM/IT’s scope be so broad as to indirectly be seriously influencing all of the healthcare services that we provide at the coal face?

Big Decisions, Big Systems, Big Gaps: Recent trends have suggested that large, integrated delivery organizations (like Health Authorities, LHINs, etc.) require large, integrated IM/IT architectures. Gone are the days of “best of breed”. Today an organization partners with a large vendor over a long period of time, and builds-out enterprise systems to cover the very large application domains.

This has reduced the marketplace to about four or five major vendors, each offering systems that support the full continuum of care across the enterprise.

These are very big decisions, often costing an enterprise hundreds of millions of dollars, and lasting for five to 20 years. The lines between vendor and purchaser start to blur, as applications are rolled out according to what the vendor can offer, often not meeting key requirements in different corners of the organization. While there is some validity in the axiom, “the whole is greater than the sum of the parts”, the reality is that often significant gaps between requirements and solution necessitates mitigation and compromise. Meaningful engagement of healthcare stakeholders remains a major challenge for IM/IT.

Oncorading, Onboarding and Off-shoring: With big systems come complex implementation and operations needs. For example, supporting a 30,000-user environment requires specialized skills, and in an environment of consolidation, these skills are difficult to recruit into the organization.

Enter the outsourcing service providers, who specialize in managing complex technology environments. This trend has been common in the US for over 20 years, but has recently seen an increase in Canada. Again, this involves long-term (10+ years), with contracts costing very large sums of money.

Onboarding is also becoming popular, whereby one enterprise provides a “shared service” to another enterprise. This particular model tends to “level” any cultural differences between organizations, as a single IM/IT solution can’t easily service differing strategic or operational needs. However, IM/IT often gets blamed for the resulting “forced change” that usually accompanies onboarding.

Stakeholder engagement remains an issue in both outsourcing and onboarding environments. The vendors typically see IM/IT as their client, and their service model is often at the expense of the needs of ‘users’. Offshoring (services provided from outside of Canada) adds a host of other issues, typically related to the imposition of external economic or political constraints (such as the US Patriot Act, which allows the government to view and use personal/patient information however they deem necessary to protect “national security”).

Analytics being fine-tuned to give support

Continued from page 14

Our Challenge: Economic necessity has driven IM/IT to deploy innovative models for delivering service. The challenge is, however, that the users of IM/IT services are seeing an erosion of what used to be a ‘customer service’ approach to service delivery. Users feel much less empowered than they were just a few years ago, and IM/IT is increasingly being seen as promoting ‘technology-driven healthcare service’ where selection of a technology solution appears to dictate workflow, service levels, and management scope.

Is this truly our desired state? I would argue that, in an environment where job satisfaction is generally waning, our profession should be looking for ways to improve relations while engaging and empowering stakeholders, with the ultimate goal of improved health of the population and more efficient and effective provision of healthcare services.

Michael Nusbaum, BA(Hons), MHA, FHIMSS, is a Victoria-based healthcare consultant, in private practice for over 25 years. He has led many management and technology initiatives across Canada and in the US, and participates actively on the international stage supporting healthcare standards and interoperability.

Jeff Beets is Business Development Manager, Life Sciences, for IBM Canada.

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**Analytics being fine-tuned to give support**

CONTINUED FROM PAGE 14

into clinical workflow. Clinical guidelines for treatment of chronic disease have been organized into quality processes called clinical pathways; the objective of a pathway is to reduce variation, and therefore error, in applying evidence at the point of care.

The Beijing project combines a standard-bases, Electronic Health Record with clinical workflow tools that actually manage the lifecycle of clinical guidelines and pathways, including modeling, simulation, deployment, monitoring, evaluation and validation.

Because guidelines are electronically integrated into the care process, they can be easily updated as new evidence emerges, and their use can be measured and compared to outcomes, thus creating even more evidence to guide future care.
Wireless systems are transforming healthcare through fast access to data

New applications include disease tracking and speeding supplies to outbreaks of infection.

BY ANDY SHAW

A re mobile healthcare technologies at long last ready for the real world? Certainly, there was an impressive array of Canadian and American expert presenters at the ‘8th Annual Mobile Healthcare Summit’, held earlier this year in Toronto. And they testified that, yes, after decades of dreamy pilot projects, mobile technology can and is now doing real, day-in-day-out, productivity-boosting, cost-saving healthcare work.

The Mobile Summit’s two-day program promised to lay out evidence that untethered devices can indeed:
- enhance care delivery
- optimize workflow
- minimize medical errors
- cut costs
- control privacy and security risks
- improve planning, and
- strengthen infrastructure.

An impressive list, no doubt. But after so many years of mobile technology not winning many battle stars on all those fronts, you could forgive some Summit attendees for remaining skeptical.

"Frankly, I came to this conference to find out if mobile healthcare is still pretty much a myth, or if there is now some real magic in it," volunteered Dan Coghlan, the vice-president of finance and information management for Providence Care, a specialized provider of mental health and geriatric care in Kingston, Ont.

Conference chair and keynote speaker, Dr. John Mattison of California-based Kaiser Permanente, immediately pointed out some magical applications of wireless technology. As Kaiser Permanente’s chief medical information officer and also its assistant medical director, Dr. Mattison has been developing and implementing for two decades now innovative mobile technology solutions for America’s largest health management organization (HMO) and the nearly nine million health plan members the HMO looks after.

Perhaps most widely known as the founder of HL7 clinical document architecture, the international standard for medical data interchange, Dr. Mattison has been instrumental in developing the likes of a text messaging system and a smartphone app so KP members can book appointments on the fly. Most recently, he’s been co-ordinating a countrywide project to introduce iPads into Kaiser’s patient and out-patient workflows.

"The mobile opportunity has opened the door for some of the most disruptive healthcare technologies of our time," said Dr. Mattison in his opening remarks. "For example, at Kaiser Permanente we’ve taken steps to connect doctors and their patients directly with each other via email. So starting this morning as I speak, for instance, there will be approximately 25,000 doctor-patient email exchanges before this day is out. Those kinds of exchanges at Kaiser Permanente are taking off like wildfire."

Dr. Mattison proffered some other remarkable numbers that got the Summit off to an optimistic start. In the next five years, he said, another one billion more people will have internet access, swelling the ranks of the 2.2 billion folks estimated by Internet World Stats to have access now. Many, if not most, will be using mobile smartphones as their tool of entry.

That could well be good news for Dr. Patricia Michael, the executive director of the United Nations Foundation’s globe-girdling mobile health organization called mHealth Alliance, headquartered in Washington, D.C. At the Toronto Summit, Dr. Michael was quick to the dash when introduced — all the more adoringly so since she was visibly pregnant.

"Patricia for the past 15 years has been helping women and children, among others in Africa, the Middle East, Asia and in developing countries all over the world, for much of the time using eHealth and mHealth technologies," said Dr. Mattison in his introduction.

Dr. Michael graciously began her presentation with a compliment to her hosts: "It’s an honour to be here because Canada has been a lighthouse for us in terms of using technology. In the work we do, we reg..."
said Michael. “More recently, cell phones are being used to track the cholera outbreak in Haiti.”

On a more global scale of tracking, is an initiative called RapidSMS.

“RapidSMS has made disease tracking data transmission much of it over mobile technology not only more accurate but exponentially faster. What used to take up to three months to collect data from a paper-based system can now be done in two minutes, or 64,800 times quicker.

Magical you might say.

There’s something majestic, if not magical, about another text-based system supported by Michael and the mHealth Alliance called “SMS for Life”.

“It is a supply chain management system and medical supply chains are a big problem in developing countries,” said Michael. “I had a personal experience when I was working with a clinic in Uganda. A severely dehydrated child came in who really only needed a five-cent rehydration treatment.

However, the clinic had stocked out of the treatment and so the child had to be transported to another clinic for what amounted to a $150 dollar treatment.”

Currently SMS for Life is striving to save some of the 660,000 people worldwide who die from malaria.

In its initial 21-week pilot program, Michael reported that SMS for Life reduced malarial drug stock-outs from 26 percent down to a near-zero 0.8 percent. The application is now being applied to other supplies, including diagnostic tests and blood supplies in sub-Saharan countries where there’s little telecommunication except by cell phone.

The African sub-Saharan is a long way both geographically, culturally, and healthcare-wise from the Toronto suburb of North York, where Sandy Sagger goes to work every day as director of information technology and clinical informatics for North York General Hospital.

And yet both have a problem in common with much of the rest of the world — medication errors. As Mr. Sagger told his audience at the Mobile Health Summit, the three-site, 613-bed North York General Hospital chose to tackle medical errors with the help of Motorola Solutions. They are using a wireless LAN network linking a plethora of point-of-care mobile devices including medication carts, laptops, cell phones, and other handheld devices on which caregivers can submit data. “They are all part of an initiative we began rolling out in 2008 called “eCare”, which includes an advanced electronic medical record; standardized, evidence-based care, clinical decision support, and safe prescribing and medication administration, all aimed at improving patient outcomes.”

The effort has won North York General a HIMSS (Healthcare Information and Management Systems Society) Stage 6 ranking for its EMR readiness, making North York just one of three Canadian hospitals to gain that exalted level. That achievement is built on two powerful point-of-care applications that rely on mobile devices: one computerizes physician entry of orders and the other is a barcode-based, medication admin system. Together they serve to significantly reduce medication errors.

Sagger explained that the system positively identifies a patient before any medication is administered, catching a potential error before it becomes one: “In its first year of operation, after the go-live at North York, our eCare solution helped catch and rectify more than 1,300 instances in which patients could have been given the wrong medication.

But if there is now such magic in wireless and mobile technologies, they don’t come without risk. That was made clear early by Dr. Khaled El Emam, PhD. Dr. Khaled wears many hats, including that of an associate professor at the University of Ottawa’s Faculty of Medicine, and of the Canada Research Chair at the Children’s Hospital of Eastern Ontario (CHEO). But partly from earlier work at Germany’s renowned Fraunhofer.

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Delivering in-home care using mobile solutions increases accuracy

BY SCOTT R. HERRMANN

In the March edition of Canadian Healthcare Technology, I focused on telephony or IVR (Integrated Voice Response) technology to increase accountability of field staff in home care. Telephony allows an agency to gain better data for time and attendance purposes, as well as care plan deliveries during a visit.

This month I am focusing on mobile technology at the point of care, which provides real-time automation of schedules, care plans, time and attendance, GPS (Global Positioning System) location information, and many other benefits to a home care agency.

Mobile technology at the point of care follows along the lines of the IVR solution by keeping a focus on eliminating the field staff paperwork processes, but it can do so much more! With a mobile/cellular home care application, agencies can:

• Automate care plans;
• Collect vital signs;
• Create and read notes about the current or a previous visit;
• See client details (allergies, diagnosis, contact info, etc.); and even
• Collect the timesheet data discussed previously.

Mobile devices can also enhance the care for the client/patient by being able to take pictures of wounds or the patient. The paperless visit data is easily transmitted and shared in real-time so that the patient gets the best possible care, and the staff caring for the patient has the latest current information about the patient’s condition. A mobile care application allows agencies to dramatically reduce paper and manual process costs while increasing patient care, ultimately leading to better outcomes.

The mobile approach does have a larger upfront cost to agencies, but the results have proven that over a short period of time an agency will gain many unforeseen benefits, either a hard dollar return on their investment or at a minimum, cost recovery.

Unforeseen benefits include automating schedules from the clinical system, and eliminating the back and forth phone calls in the office when schedule changes occur. The agency now has the newfound ability to fill assignments faster, as well as respond to urgent needs and requests of the clients quicker, due to the location features in the mobile service.

Just like IVR, accurate data for payroll means fewer billing errors. Operational efficiency gains help to deliver the care required better than you can with paper, phone calls, and manual processing of the data. GPS also provides accurate data for mileage and travel time reimbursements, meaning a reduction in operational costs.

Here’s how the mobile application works: with a mobile device, there is no need to make a call from the client’s home. Accountability of when and where the visit happened by the staff member is gained via the GPS in the cellular device and using the device’s clock for the visit start and stop times.

Care plans, vital signs and notes are all captured on the device and sent instantly to the agency. Compliance of the tasks completed is mandatory, so nothing can be forgotten, which means audits are no longer an issue. Every task is completed for every visit.

The records are automatically downloaded to your clinical system, so there is never a need to find the paperwork associated with a single visit in a filing cabinet during an audit. An easy-to-use mobile application allows caregivers to check off items from a care plan with just a touch or click. That dramatically increases field staff productivity and achieves 100 percent compliance on the visit itself.

Try that with paper!

The real-time information contained on
As staff members bring their own devices, there are mistakes to avoid

BY ROGER YANG

ately, healthcare technology professionals have been feeling the pressure from staff members who want to access the organization's data by using their own mobile devices—the so-called Bring Your Own Device (BYOD) phenomenon. BYOD is a great idea. The question is, how do you implement a safe, secure BYOD policy in an effective way? Here are five mistakes that should be addressed before allowing employee-owned devices into your organization:

1. Not ensuring employee buy-in for your BYOD policy: According to David Schned, director of infrastructure technology for London Health Sciences Centre and St. Joseph's Healthcare London, employee buy-in is the most critical piece for BYOD. While employees want to use the devices in ways that will help patient care or administrative workflow, there can be problems and misunderstanding when things don't go as planned. “It is crucial that all expectations are outlined in your BYOD policy,” said Schned. “Staff members need to understand the security implications. For example, if they lose their device, even if they own it, they should realize that all data will be wiped from it. Security has to come first.”

2. Failing to provide sufficient support: Support requests will go up as more consumer devices enter your network. Assumptions are sometimes made that if the device isn’t owned by your organization, then it isn’t your problem.

3. Shifting expenses onto staff: If a device is going to be used as a work tool, then it is important that your organization offers to offset the cost, fostering goodwill and staff buy-in. If one of your employees paid for a device entirely out of his own pocket, he will be less willing to install any security protocols on it, and may end up resenting your BYOD policy. Not to mention, he will not necessarily heed your guidelines on which devices are allowed in your organization.

For mobile usage, the incremental expense of an employee's personal use of a device is minimal compared with the productivity gained. However, budgets may dictate limited reimbursement of mobile costs. A well-crafted BYOD policy will outline the expectations surrounding expenses, ensuring that employees know the financial details upfront. If possible, stipends can be offered to offset the cost of mobile usage.

4. Failing to create distinct user groups: If you have a policy of giving employees a stipend of $50 per month, mobile users who are downloading huge amounts of patient data (and potentially incurring large data usage fees) may feel like they are getting the short end of the stick.

As part of your BYOD policy, user groups should be created; subsidies can be paid based on factors that are key to your organization. A simple two-tier approach may work well depending on your corporate structure and how much data users are accessing. In this model, power users may be given more compensation than light users.

5. Specific devices: If you don’t provide a list of approved devices, mobile support challenges can overwhelm your IT staff. You may also create hard feelings when a staff member purchases a new mobile device only to find out that they can't bring it to work.

Choose a manageable number of devices that you can support, and that will also offer your staff variety. iPads and other tablets are favorites among physicians, and iPhones, BlackBerrys and Androids are sure to make an appearance. Narrow your BYOD policy down to just a couple of models. You want to give your staff choice, but not too much. Choice shouldn’t undermine your ability to support and secure mobile devices.

Roger Yang is the CEO of Avena Critical Wireless, a provider of mobile management, security and expense management solutions.
Audit trails are indispensable tools for security

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Halifax, where an employee was found to have accessed records over several years without authority, speak to this issue.

Training helps if it raises significant awareness. In turn, training will not stop a malicious insider from accessing records that yield information valuable to them, including credit card numbers, health conditions, and so on. We also know that firewalls, IDS and other things at the gateway will not prevent such access.

Most of us recognize the need to ensure that internal systems allow access only to persons whose business it is to have access to information. Systems already are able to prevent most of such breaches, but clearly not all of them.

Similarly all the rules in the world about encryption of laptops and data devices are largely interesting in their failure to work – since they are a frequent source of breaches, including the potential disclosure of 450 records at the Vancouver Coastal Health Authority through an unencrypted USB device that was carried away by a resident and lost.

All systems, at one point or another are subject to external audits which should identify the practices that have led to or can lead to breaches. Passing an audit means that at a particular point in time, processes, procedures, and systems met the requirements as detailed in law or regulation.

This does not ensure that in the times that follow an audit things will carry on without exposing personal health information to potential breaches. The healthcare system uses an extensive array of systems and devices, produced by a wide range of manufacturers, each with its own proprietary approach to managing security and access.

Part of the solution is to employ overarching, agnostic technology that uses standard protocols such as FIPS.

The health care system uses a wide range of systems, each with its own proprietary approach to security, and DICOM to collect basic information regarding access to systems and files. Properly implemented, such technology will ensure that all events are properly logged and that these logs are unchangeable and accessible.

The existence of this kind of logging can then communicate to insiders that the ‘friendly’ training is accompanied by a stick that knows what accesses have occurred. The solution really requires general knowledge that accessing restricted data is not acceptable, that systems exist to ensure that someone will know, and that the data are archived in the event of the event is ever needed.

The keys to making this all work for a health provider have to include the following:

• Collection of all connection data, including user, patient and physician names, facility sites.
• Retention of data in encrypted and signed logs that are archivable.
• Real-time alerting for privacy managers.
• The ability to produce a record of access for the patient in an economical fashion. By making this list of records that a patient’s data routinely available we can get the light of day on the systems in place to protect PHI.

Transparency, backed by solid systems ensures ongoing public support for the electronic health record. The fact that the data are reliable, encrypted, unchangeable means they can help defend us in court, in the event of a suit.

In Surich lives in Victoria where he is President of PresNet Healthcare. Active in the technology business for more than 25 years, he served as CEO for the Province of BC.

Mobile devices are keeping caregivers on top of the current schedules and are helping to reduce treatment errors.

Saint Elizabeth, “Grabbing a picture of the code with a mobile app, users gain immediate access to the ‘Donate Now’ page on our web site. This initiative allows us to capitalize on state-of-the-art mobile technology, real-time giving, and encourages donations to our Foundation.”

Knowing where caregivers are, allows faster changes to schedules and speeds up the delivery of urgent care to the clients. Mobile also provides a safety factor for staff that cannot be done with paper.

While we are the first step of mobile, think of the second step, when they decide to telephony or move forward and use mobile for your field staff, you will gain many, maybe all of the benefits I have mentioned. These benefits lead to containing costs, and better, accountable delivery of your home care services.

Scott R. Herrmann is Director of Mobile Solutions for Procura. For more information, sec www.go.procura.com
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