Why EMR standards matter  11  CMA and Medicine 2.0: Conference coverage  8
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telushealth.com
2 Building a better future – electronically
3 EMR use rates soaring in Canada
4 Health IT still on CMA agenda
5 Incubating innovation: there’s an app(etite) for that

MEDICINE 2.0
8 Medical apps: current status
10 Canadian physician use of Twitter increasing
11 Standards: a call to action
15 Taking it to the Tweets
Building a better future – ELECTRONICALLY

Louis Hugo Francescutti

IN MY INAUGURAL ADDRESS AS PRESIDENT OF THE CANADIAN MEDICAL Association in August I told delegates to the General Council meeting in Calgary that there has never been a greater opportunity than now for medicine and our profession to shine.

It is time to show our pride in our profession and in the work we do. Being a physician is one of the greatest honours society can bestow on an individual, and we should not waste this privilege.

In the world of e-health this means showing the innovative spirit that has always coursed through our veins. The desire and ability to improve on what currently exists and provide better care to patients defines us as doctors. Nowhere is this better demonstrated than with health information technology and the growing use of electronic medical records (EMRs) to provide care in a more efficient and effective manner.

Canada’s doctors have long been viewed in some circles as closet Luddites because our adoption of EMRs nationwide has lagged behind many other nations — no matter that the reasons for this have little to do with physician preference but much to do with the failure to provide us with the rationale and incentive to use EMRs effectively.

Well folks, those times are changing with astonishing speed. Statistics just released from the National Physician Survey show a huge leap in the number of physicians using EMRs for charting and patient care in the past three years (see article page 3). Not only that, but the survey findings confirm that the majority believe EMRs are enhancing the care they are providing.

The capacity for the new means of electronic communication to deliver better care in manifest ways has become clear to many innovative Canadian physicians. They are using virtual networks and meetings such as Hacking Health to connect with like-minded individuals in a variety of professions to develop and bring to market mobile apps, web-based tools and other gizmos and gadgets that have the potential to help engaged patients improve and maintain their own health.

To be clear — if the end product is intended to improve the health of Canadians or the medical care they provide — then indeed a physician should be part of the team. As one colleague in this issue of Future Practice notes, having the empathy to understand what the patient wants and needs is the part of that unique value the medical profession brings to society.

In the health care debates in the last couple of decades, Canadian doctors have kept their heads down and gotten on with what they do best, which is provide the best possible care to individual patients. I want to see CMA members come out of their shell and provide the leadership necessary to transform the Canadian health care system.

Our residents and medical students, especially, expect far more in terms of what we have been delivering on. As a truly wired generation they will unleash the full potential of the technology available.

I challenge them to take us to task and help ensure Canadian doctors make the fullest use of the electronic tools available to them and push the boundaries of what e-health can do.
EMR use rates SOARING in Canada

Pat Rich

USE OF ELECTRONIC MEDICAL RECORDS (EMRS) BY CANADIAN physicians to deliver clinical care has soared in the last three years, according to new data from the National Physician Survey (NPS).

This is very good news for advocates of EMR use who until now have had to deal with comparative international data showing how poorly Canada is doing in terms of EMR adoption. It is also a vindication of the programs implemented by many provinces to encourage physicians to implement EMRs in their practices.

Figures from this year’s NPS, with responses from almost 10,000 physicians, show 61.8% report using electronic records to enter and retrieve clinical patient notes detailing care of their patients. This is a significant jump from the 38.9% who positively answered the same question in the 2010 version of the survey.

While the numbers are highest for provinces such as Ontario and Alberta, where well-established programs have funded physician EMR implementation, the use of electronic records in patient care has also increased in provinces such as Newfoundland and Labrador where no such formal program is in place (see chart above).

And the news gets better. Responses to another question asked in this year’s NPS show the majority of respondents (56.4%) feel the quality of the patient care they provide has become better or much better since the implementation of an EMR. In addition, 42.2% said the productivity of their practice has improved since EMR implementation, while another 31.3% said there has been no change.
But while the meeting focused on end-of-life care and health human resources, HIT resolutions touching on both these topics — as well as others — were adopted by delegates, clearly showing that the infrastructure support provided by technology continues to enter into the association’s deliberations.

Perhaps the most significant HIT resolution passed calls for CMA to “strongly advocate” for ongoing government spending to support the interoperability and connectivity of e-health systems.

This emphasis on interoperability and connectivity is key to the CMA’s position on electronic medical record adoption in Canada, and the resolution supports ongoing advocacy work in this area as part of the organization’s health care transformation initiative.

In their rationale, Ontario doctors Rick Tytus and Scott Wooder noted that “the CMA and provincial/territorial medical associations (PTMAs) support the appropriate use of IT by physicians in providing safe and high-quality care to their patients.”

“Our collective interest in the digitization of the health care system stems from our ongoing advocacy around quality, safety and continuity of patient care, and public policy that contributes to the health of Canadians.”

Tytus, who is chair of OntarioMD, told the meeting that “changing times” require the use of technology. He noted that while electronic medical record (EMR) implementation across Canada ranges from 20%-85%, depending on the jurisdiction, having an EMR “is just the beginning.”

What is really needed, said Tytus, is connectivity that allows doctors to electronically connect with hospitals, laboratories “and each other.”

Health information technology, while just a small fraction of the wide-ranging discussion on end-of-life care and the physician role, was mentioned as delegates voted to adopt a related resolution. That resolution stated the CMA would advocate for including the ability to have advance care directives as part of any digital charting software.

Dr. Shireen Mansouri, from the Northwest Territories, mover of the resolution, noted that having such functionality integrated into the EMR would enable practitioners to identify a patient’s most recent advance directive. She also said electronic prompts lead to a higher completion rate of advance directives.

With discussion of advance care directives often being “haphazard and not systematic,” Mansouri said putting the electronic infrastructure in place would help ensure that patients choices are properly recorded and acted upon.

Another resolution adopted at the meeting said CMA will explore the idea of a complementary patient-controlled electronic health record.

Dr. Eric Cadesky, a Vancouver family physician who brought the motion forward, told council that in an “increasingly fragmented system” where medical tests and information are often duplicated or physicians have incomplete information about their patients, development of a “parallel chart” maintained by the patient could be of value.

He stressed such a record would not be another EMR or electronic health record (EHR), but something the patient would control and be able to update in real time and maintain on a mobile phone.

Dr. Merrilee Fullerton, a family physician from Ottawa, raised at the meeting the presence of mobile applications for health and the need for an accreditation process for such apps. Her resolution that the CMA would advocate for the development of an accreditation process for mobile applications was adopted unanimously by delegates.

Another wide-ranging resolution passed by delegates says the CMA will develop a policy statement on the impact emerging technologies are having on health human resource planning.
“INNOVATOR” IS NOT ONE OF the seven CanMeds competencies defined in the framework for medical education.

“Scholar” probably comes closest among the existing competencies in discussing innovation. Its enabling statement about “contributing to the development, dissemination, and translation of new knowledge and practices” acknowledges that physicians have long excelled as innovators and modern medicine is built largely on their work.

But times are changing. When this existing competency becomes integrated with proposed plans to embed e-health into the revised CanMeds framework (2015) and uses e-health activities to “provide a modern outlook on what it means to use technology” a more formal acknowledgment of the role of physician as a modern innovator may become clear.

In the interim, this lack of theoretical framework is not stopping many Canadian medical students, residents and practising physicians from thriving in the e-health environment and developing new software, medical applications and electronic medical record (EMR) enhancements to improve patient care.

As Dr. Alejandro Jadad, Canada Research Chair in eHealth Innovation at the University Health Network in Toronto, noted in a television interview, technology allows physicians to reimagine their role in the current “health care system on steroids.”

Pat Rich

INCUBATING INNOVATION: there’s an app(etite) for that
Nourishing innovative tendencies in Canada are new supporting environments such as the Hacking Health movement which brings together doctors and software developers, graphic designers and others to develop new tools such as mobile apps for patient care.

“Physicians form the core of Hacking Health’s model,” says Shreya Tekriwal, a volunteer organizer with the movement. “They are usually the ones who know which problems exist in the industry, and how they can be fixed. Health professionals bring hard and practical problems to the table, which challenge and motivate designers and hackers in the room.”

She notes: “Without the physicians, it would be difficult to understand and scope out a problem, let alone build it — given the intricacies of various medical issues.”

The first “hackathon” was held in Montreal in February 2012, with 250 participants. Other events have been held in — or planned for — Toronto, Vancouver and Edmonton, and interest is now being expressed in the United States and other countries.

Hacking Health was founded by Dr. Jeeshan Chowdhury, an MD/PhD (Rhodes Scholar) at the University of Alberta and Oxford University. Co-founders are Dominic Savoie, a software developer and co-founder of Enlight Health, and Luc Sirois, vice-president of consumer eHealth at Nightingale Informatix Corporation. Major sponsors are the Centre for Global eHealth Innovation, the University Health Network, MaRS Innovation, Nightingale and the Business Development Bank of Canada.

The Centre for Global eHealth Innovation, founded by Jadad in 2001, is considered an incubator of innovation, as is evident in its stated aim of building “state-of-the-art infrastructure to gather a critical mass of innovators willing and able to reimagine and reinvent the health system.”

Dr. Steven Grover, director of McGill University’s Comprehensive Health Improvement Program (CHIP) and professor in the departments of medicine and of epidemiology and biostatistics, points to the fact that the Canadian Institutes of Health Research is now holding an e-catalyst competition to provide research dollars to fund e-health solutions.

Grover is an innovator of long standing, having worked on algorithms to define cardiovascular health risk two decades ago. He subsequently evolved these into an online health assessment tool (MyHealthCheckUp.com) which is currently being rolled out for the Canadian navy.

“Any physician who feels whatever he is doing today is not good enough and (that) there is room for improvement has to be interested in the scalability and the low cost and the accessibility,” as well as personalization, of the Web, he said in an interview. “I think the digital stuff that’s happening is of great interest ... because we realize this is going to transform health care in one way or another.”

But he added: “I don’t think it’s going to happen tomorrow, because these things are much more complicated than people would like to believe.” Grover also expressed concern about the burgeoning world of medical apps for mobile devices to help people develop healthy living habits.

“While they have been neat little gimmicks, they didn’t have the heft to really engage people for any serious amounts of time and make serious changes on a large scale. Human behaviour is a little more complicated than an app you pay 99 cents for.”

“There’s no question that evidence-based digital health solutions will not work unless the medical profession and other health professionals are involved in it.”

Jadad and Grover note that IT has helped fuel physician innovation by making it easier to connect with colleagues and other collaborators on a global basis.

One Canadian physician who can be described as a success in medical apps is Dr. Josh Landy, a Toronto-based critical care physician whose medical image-sharing tool called Figure 1 was the number 1 free health care app downloaded in the US within two weeks of launch last May.
"Physicians have been innovating and building knowledge on top of the old knowledge for hundreds of years," he says, noting there’s a "magnetic association" between coming up with new solutions to interesting problems and the type of people who are going into medicine.

Landy admits the business and development sides of app development were "brave new worlds to me." He attributes the success of Figure 1 to partnering with others who had skills and knowledge he was lacking.

Asked to advise other physicians who believe they have a good innovation to improve care, Landy urged them to go for it. "If you’re the only one with your idea, then your colleagues are poorer from not having heard it. Ask around and find people who could be a suitable partner for you, and get your ideas made." He cautioned "don’t sit on it for too long."

Dr. Eric Cadesky, a Vancouver family physician and participant in the new medical information video venture Medeo (modelled on Vimeo), says there can be challenges for doctors in innovation because "often the systems we are trained in and the systems we work in have protocols, and there is not a lot of room for innovation."

And physicians may not have time to work on new ideas, he noted. "They may see things that need changing, but because of other obligations and duties that they have they may not have the time."

On the flip side, physicians are used to embracing technology and are often early adopters of new technologies in their personal lives. In addition, he said the natural empathy of most physicians prompts them to put the user first when thinking of new technological advances.

Cadesky also talked about how new technologies permit networking and allow people with different skill sets and knowledge to share what they are working on without necessarily having a specific goal in mind.

"People are very open to those sorts of conversations," he said. It’s a "very exciting time for teams with mutual interests and complementary skills to be working together."

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**Practical lessons on app development:**

**PHYSICIAN PERSPECTIVE**

*LET OTHER PROFESSIONALS DO THEIR JOBS WHEN DEVELOPING a mobile application in health care: don’t try to do it all yourself.*

That was a key lesson that Spanish orthopedic surgeon Dr. Gonzalo Mora imparted to the Medicine 2.0 audience during a frank presentation titled "From the medical idea to the app: The big mistakes I could have avoided before I launched my medical app." The presentation was a valuable primer for physician innovators thinking of entering the mobile app field.

Earlier, Mora had given a poster presentation on the project launched at his clinic that involves recording lectures given in the orthopedic department and making them available to residents via a mobile app. Tracing the planning, development and marketing of this app, Mora’s followup lecture focused on lessons learned.

"The first thing I learned is that an app project is not like the standard medical research project," because of how the project needs to be mapped out.

In planning an app, Mora said, the key is to define what you are going to develop and then set this down fully and clearly in a prototype. For any hope of success, your new application should respond to current trends in technology use and be fully supported by market research.

App development requires a team, Mora said, and it’s important to have members who are fully committed to the project. "You need to… hire slow and fire quick." The team involved in Mora’s project included two surgeons, three developers and a graphic designer.

The resources required — both monetary and in terms of time — need to be accurately assessed. "I’m sorry, but nothing is free," he noted.

"Once you have your team, revisit your idea and establish clear goals and expectations for your app with a roadmap and milestones of what you want to achieve. Everything should be on paper before you begin coding."

When it comes to app development, Mora cautioned physicians not to try to learn code and do the development themselves. "Let the professionals do their jobs and give them room for creativity."

He added: "Be ready to make mistakes, because you will, and be ready to manage delays."

As a doctor, Mora said it was hard to accept that the first version of the app was not perfect and that repeated testing of a product is necessary before it can be marketed. Listening to the users and making appropriate changes is also important.

He noted it’s wise to market your app based on a pre-launch, launch and post-launch strategy, but warned would-be developers not to "expect everybody to be passionate about your app." And be sure to support your early adopters.
**MEDICINE 2.0**

**MEDICAL APPS: CURRENT STATUS**

The Clearsight Scope Adapter was one of many apps featured at Medicine 2.0

Pat Rich

**DEVELOPING AND PROPERLY EVALUATING MOBILE APPLICATIONS (APPS)**

for health care was arguably the central theme at this year’s Medicine 2.0 conference held in London, UK.

With 520 delegates, the meeting has expanded significantly since the first conference, held in Toronto in 2008. One major development has been huge growth in the use of mobile devices for delivering health care. It has been so dramatic that two years ago organizers incorporated mobile apps into the title, which this year read: “Medicine 2.0 — 6th World Congress on Social Media, Mobile Apps, Internet/Web 2.0.”

Underpinning the many practical demonstrations of new medical apps at the meeting were broader considerations of the burgeoning medical app marketplace and concerns about assessing quality and safety of these tools.

These issues were the subject of two panel discussions that coincided with the long-awaited final guidelines from the US Food and Drug Administration (FDA) on mobile applications in health.

Kristina Curtis, from the Institute of Digital Healthcare, University of Warwick, Coventry, UK, painted a fairly gloomy picture in assessing current evidence about the efficacy of health promotion apps. She noted that even the largest distributors of medical apps — iTunes and Google Store — to date have not been assessing the quality of content before making the apps available, although this may be changing.

Echoing comments made in the opening plenary session by Susan Michie from University College London, Curtis said it’s essential that the principles and theory of behavioural change underpin development of apps aimed at modifying health behaviours.

“Health apps have a huge potential,” she said, because of their wide reach and availability to tailor messages and gather data.

But early research involving content analysis of stop-smoking, weight loss, pain management, and fitness apps shows few adhere to well-established principles for modifying behaviour. Many fail to involve health professionals or include research to support the content provided.

“The majority of apps on the market ignored the role of behavioural science,” Curtis concluded.
Tom Lewis, medical student at the University of Warwick and an editor at iMedicalApps.com, discussed how the website assesses apps. The website, launched in 2009, is one of the only independent clinician sites currently providing comprehensive reviews of medical apps.

"It is quite important that there be somebody in this space telling clinicians what to look out for, both good and bad."

In his presentation, Lewis argued that enthusiasm and hype about medical apps and ‘m-health’ is probably peaking now, so we should anticipate seeing reports and studies questioning their accuracy and safety as we enter “the trough of disillusionment.”

Jeremy Wyatt, lead chair in e-health research at Yorkshire Centre for Health Informatics, Leeds, UK, discussed various criteria that could be used to assess medical or health promotion apps. While he applauded the FDA for producing guidelines in this area, he described them as being “rather simple-minded” in the way they classified the tools.

According to Wyatt, there’s a need to move away from the regulatory approach to one that works with developers to help them produce useful products, using quality-based criteria. “Outcomes are the bottom line,” he said, and the question of whether the product actually changes health behaviour.

The panel discussion on research in m-health was marked by a polemic against the value of randomized controlled trial (RCT) in this field by Joseph Cafazzo, a biomedical engineer and lead for the Centre for Global eHealth Innovation at the University Health Network, Toronto.

“I do play this game,” Cafazzo said, noting he performs RCTs for new medical apps. But he said pilot projects conducted with new mobile apps are more useful because they can be performed more quickly and usually yield the same results as the RCTs.

Cafazzo said he hates RCTs because conducting such research usually costs about three times as much as development of the app itself. He also argued RCTs are designed for new drugs but not for mobile apps — which are more dynamic and whose benefits rely more on interface with the individual user.

“They (RCTs) take years to do and by the time they are completed your app is obsolete,” he added.

While it is important to ensure apps are safe, Cafazzo stated patients using these new applications are much more concerned about the ability to use them sooner than from the results of well-controlled trials.

Cafazzo’s colleague at the centre, Dr. Gunther Eysenbach, who is founding editor of the Journal for Medical Internet Research (JMIR), said RCTs are not a requirement for publication in his journal. But he stressed JMIR — which publishes many papers on m-health — does require the research to be well-structured and properly conducted.

He said there needs to be a balance between publishing research in a timely manner and using rigorous methods.

“I want to see more ‘think small’ types of trials,” said Eysenbach, who admits he is not keen on RCTs of medical apps that show an app to be effective or better than competing apps but doesn’t explain why.

Eysenbach said the goals of research in this area should be to help steer end users, both physicians and patients, to apps that work — but also to investigate general principles underlying the efficacy of m-health interventions.

Dr. Joel Topf, a Detroit nephrologist and medical app developer, used his panel presentation as an opportunity to argue for mobile tools to help patients with diabetes monitor their blood pressure (BP) in a timely fashion.

He said the importance of proper blood pressure control is often not properly communicated to patients because of the emphasis on blood sugar. Topf discussed how using mobile devices to improve BP control can range from simply having patients use their mobile phone to photograph and transmit ambulatory BP readings to apps that can help them better titrate their BP medications.

Asked how close physicians are to being able to prescribe medical apps, Topf said it is already happening.

In the same panel discussion, participants also referred to the need to accurately assess the financial requirements of adopting and sustaining new mobile devices in health care settings. This could encompass the number of devices required, ability of the devices to interact with other systems and security and authentication requirements.

Dr. Satish Misra, an internal medicine resident at Johns Hopkins School of Medicine, Baltimore, Md., who is also an editor at the iMedicalApps.com assessment site, said iMedicalApps matches the amount of research required for an app with the risk associated with its use.

"Different levels of risk and health claims warrant different levels of assessment from the clinician perspective."

Dr. Gunther Eysenbach

Misra said while individual physicians are already recommending and prescribing apps, the field is evolving such that health organizations and systems will also soon be developing and prescribing their own apps to patients.

This year’s Medicine 2.0 conference saw many new mobile apps from around the world, in development or already being marketed, demonstrated. An outstanding example of this was an application from researchers at the University of Ottawa that allows an iPhone to be attached to a flexible nasal laryngoscope for easy display and transmission of scans.

Developed by pediatric otolaryngologist Dr. Matthew Bromwich, the Clearsight Scope Adapter is already being used by medical residents in Ottawa. At the conference, medical resident Dr. Jeffson Chung declared the scope has huge potential for use by primary care physicians, especially in remote settings.
This analysis was given at the Medicine 2.0 conference by Drs. Naheed Dosani and Stephen Pomedli, palliative medicine and community medicine fellows at the University of Toronto, in a well-attended poster presentation.

The research findings mirror what happened at the conference itself, where physicians were four of the five most active people posting tweets during the meeting. As is becoming the norm where hashtags such as #med2 are used to identify conferences, other Canadian and US physicians participated in the London debates even though they were not actually there.

In their introduction, the researchers said Twitter has emerged as the dominant social media platform for health and health care in Canada. It supports increasingly rich interactions among health providers (including practising professionals, clinic groups, hospitals and other organizations and associations, patients and the public).

Noting the challenges of assessing Twitter use by the entire physician population in Canada, Dosani and Pomedli chose to focus on 411 physicians who followed and were followed by the @CMA_DOCS account. The primary Twitter account for the CMA, @CMA_DOCS had 11,752 followers at the time the research was conducted.

The analysis showed 47% identified themselves as family physicians, and 68% were from Ontario. However, this cohort included physicians from all types of medicine, regions of the country and career stage.

An analysis of the 193,192 tweets sent by these physicians for a one-year period (July 2012–August 2013) showed a steady and consistent increase in the number of tweets sent. Dosani and Pomedli noted these tweets and interactions were wide-ranging in topic and not limited to health and health care.

“Based on increasing frequency of Twitter use among this cohort, there is a need for increasing awareness and acceptance of, and academic approaches to, social media use among clinicians,” the researchers concluded.

A more comprehensive assessment of Twitter use by Canadian physicians will soon be available, as social media use will be among the questions asked in the 2014 National Physician Survey. In addition, early next year the CMA is re-surveying its e-Panel users to assess social media use (first examined in 2010).
Standards — generally referred to as health informatics (HI) standards — enable health information systems such as EMRs to collect health data and seamlessly exchange it to support all parts of the health care system.

Using HI standards makes it easier for patients to get from their providers consistent information that is easy to understand — electronically through portals, emails and other digital routes. This information can be reused, so that patients don’t have to repeat the same details at every encounter. Such standards also allow comparisons between patients within a practice, as well as comparisons across practices, and facilitate chronic disease management as well as a population health approach to primary care.

Focus on EMR adoption and use
Canada has now achieved (or is rapidly moving toward) achievement of a critical mass of EMR physician users — 56% according to the latest Commonwealth Fund report, with adoption rates over 90% in certain geographic areas (e.g., BC Northern Health Authority) and as low as 20% in others.

Many physicians have come to see the value of EMRs for reducing the work related to handling paper records (retrieval, filing, storage, searching, copying) and for their ability to record and access patient information more easily and quickly. Vendors have also created templates for various types of reports that physicians use routinely, and enhanced user interfaces, making it easier for physicians to view and organize information on their screens as well as capture information more consistently under the right headings in their e-records.

What is missing is a significant increase in the availability and use of advanced EMR functionality. Some longtime Canadian EMR physician adopters have referred to their EMRs as “Stone Age,” while vendors respond that they are just providing what their clients ask for.

Neither physicians nor vendors are really at fault for this situation. Most physician EMR users do not truly understand or appreciate what they need from their EMRs to improve practice effectiveness, efficiency and productivity or how to express those needs to vendors in a way that results in the necessary changes.

Apple’s Steve Jobs once famously dismissed an offer of a market analysis, saying people did not know what they wanted until it was invented. Physicians know their EMRs are lacking but HI standards are not seen as part of the solution. What physicians presently document in their EMRs — and how they do it — doesn’t enable the best use of that information for tracking chronic disease, using the data for other purposes such as referrals, or sharing across the care continuum in a way that preserves the meaning of the information and allows every provider to understand it in the same way when reviewing it.

For most physicians, HI standards are far from top-of-mind, and the same can be said of the professional organizations that represent them. This is because the focus has been squarely on adoption and use of EMRs. This, coupled with lack of physician and EMR vendor knowledge about HI standards, has
resulted in vendors automating the form, content and associated processing of paper records, perpetuating their deficiencies and creating electronic systems that are insufficient to meet emerging user needs.

Further, EMR systems in Canada have largely evolved as “add-ons” to existing billing and scheduling systems that are focused on the administrative side of health care practices. In the UK, the EMR was viewed as a clinical, rather than an administrative tool from the outset. As a result, the UK has one of the highest adoption/use rates for EMRs internationally (close to 100%); GPs in the UK and other European countries have been entering coded data (data represented by standard terms from a recognized clinical terminology or entered using local terms mapped in the background to clinical terminology standard terms) from early on. Problem list data is linked to lab data and medication data. The US started from the same place as Canada, but in looking at the UK realized the need to drive clinical use of the EMR to achieve improvements in health care delivery and utilization. This spawned the Meaningful Use agenda.

While IT support for EMRs has focused on deployment and use, no attention has been given to HI standards. At the national level, Canada Health Infoway’s primary mandate has been to implement large, shared EHRs — regional or provincial databases. However, in recent years Infoway has placed increasing priority on use of EMRs and the role of HI standards in achieving EMRs that have advanced functionality to support clinical decision-making and interoperability.

Where to next?
Larry Weed developed the Problem-Oriented Medical Record (POMR), and an electronic version of it, more than 40 years ago. But it is not in evidence in Canadian EMRs, and physician practices can’t effectively create a POMR of the type that Weed developed and continues to promote.

As health care costs continue to mount, there’s an urgent need to capture data in a structured way to support clinical decision-making. We then need intelligent systems to integrate this data in a holistic way, so that the interdependent relationships of items on the problem list are recognized and considered when determining the true nature of the patient’s problems and formulating treatment plans. This requires EMRs capable of intelligent integration of problems with lab, medication and other relevant record data as well as with online knowledge resources.

As physicians and their patients become ever more tech-savvy, they expect technology to make their health care interactions easier and more productive, with information flowing in multiple directions across the health care system. Many are downloading and using their own health care apps on mobile devices. New graduates are coming in with higher expectations of what EMR systems can offer and primed with more technical skills and knowledge than their early adopter colleagues.

The complexity of care has increased, particularly the management of chronic disease in patients who are living much longer. Clinical decision support has become increasingly more important in daily practice.

Looking at the overall picture, it’s time to raise the bar and move away from the current generation of EMR “file cabinets.” More time and effort should not be expended on implementing “basic” EMRs. Physicians and vendors need to step into the HI standards world but be better informed before they do, so that the business case for adopting standards is clear and there is a level of understanding sufficient to implement standards. As one physician commented, “We don’t want to move from the Stone Age to the Bronze Age.”

Through fairly extensive stakeholder consultation with clinicians, HI standards experts and other IT specialists, Canada Health Infoway has identified the standards necessary. These standards generally align with standards being used globally to support sharing data between and across different e-record systems (messaging standards) and consistent capture of record data (clinical terminology standards).

The essential clinical data that physicians capture when documenting symptoms, diagnoses and other problems — as well as lab results, medications and other treatments and interventions — needs to be standardized. This has to be done using standard terms from a clinical terminology such as SNOMED CT (Systematized Nomenclature of Medicine Clinical Terms), the most comprehensive, multilingual clinical health care terminology in the world. Such terminology can run in the foreground or background of advanced EMR systems (i.e., the physician can search for and pick the appropriate SNOMED CT term to represent the information to be captured in the record). “Mapping” to the appropriate SNOMED CT term(s) happens automatically after the physician enters his/her data using the usual terms, with the physician selecting/confirming the term that best suits needs from those provided.

For the vast majority of physicians, increasing awareness and understanding of HI standards is the first step toward adoption and use. There are many avenues to do this, many of which could offer opportunities for continuing education credits. (see sidebar)

At this point, HI standards adoption is not a high priority for physicians. However, a number of documents published by various physician organizations over the past decade (e.g., Getting IT Right — Patient-Centred Information Technology (BCMA 2004), Primary Care Toolkit (CFPC 2007)) show a good high-level understanding of what is wanted and needed for advanced-functioning, interoperable EMR systems — compatibility and integration for effective health IT systems communications, incorporation and use of clinical decision support tools, common EMR standards including data coding using approved clinical terminologies.
What is needed now is leadership, with national and provincial medical associations collaborating with standards organizations like Infoway to clearly articulate a value proposition for physicians to adopt and use HI standards. This should include consideration of performance-based incentives or disincentives, alternative funding models that support the use of HI standards, reports to physicians capturing coded data that will better facilitate improved care delivery, support for change management, as well as workflow and process analysis, with a view to greater consistency in carrying out common practice activities supported by enhanced EMR systems. In the absence of leadership and a valid value proposition, even “informed” physicians may not be willing to invest the time, money and effort to adopt and use HI standards or standards-enabled EMRs.

Provinces are already evaluating the application of “meaningful use” measures in order to track and report on patients with chronic disease as well as preventive care measures, as governments strive to extract value from scarce health care funds. Rather than being subject to government-imposed requirements regarding use of HI standards, physicians need to be at the forefront, influencing and shaping meaningful use agendas nationally and provincially.

The good news is that the relevance of HI standards to achieving the level of information-sharing and optimization of EMR systems that physicians are seeking is starting to become clearer and more widely recognized, but there are still too few physicians at these tables.

Conclusion

Health Information standards are the “elephant in the room” that must be dealt with on an urgent basis. Otherwise, money invested in the Canadian health care system will continue to be allocated improperly, with little improvement to show for it.

The CMA and other key provincial and national physician organizations can make a difference by raising their own awareness and understanding of the importance of HI standards and that of the physicians they represent and supporting and facilitating physician engagement in HI standards initiatives.

Dr. Marion Lyver is a family physician and expert on IT standardization issues.

IMPROVING EMRS TO INCREASE PRODUCTIVITY

During a sponsored physician forum held in Toronto in June 2011, concurrent with the e-Health 2011 Conference, those in attendance commented that extraordinary effort is required to make physicians more productive, and typically that effort is not invested. There is little real “automation” of workflow by electronic medical records (EMRs).

OVERVIEW

Clinical service steps have been digitized but still require manual intervention by the clinician or staff. In general, physicians do not have the support staff to conduct workflow and process analyses.

NEEDED

Those physicians called for various improvements they believed could increase physician productivity:

- EMR systems that facilitate finding clinical information appropriate to the clinical context (e.g., consult notes are often long and detailed, making it hard to find a clear reply to the clinical question that prompted the referral)
- EMR adoption programs that focus on outcomes (i.e., meaningful use) as opposed to base deployment of EMRs
- EMR functionality that automates workflow and supports evaluation of office productivity
- EMR functionality that includes data analysis and business intelligence capability to provide feedback to physicians on ways they might improve their practice
- IT support services that help physician practices become more productive
- Enhanced EMR functionality and integration with other systems to support coordination of care

EXAMPLES INCLUDED

- Deliver externally generated reports (labs, DI, discharge, progress notes) directly to EMRs
- Simplify access to the distributed data on patients (single sign-on rather than multiple sign-ons and multiple user interfaces; ability to create various types of summary clinical views)
- Reduce appointment no-shows and make patients better prepared for appointments (reminders for tests or pre-work)
- Give patients better information to manage themselves outside the health care system (e.g., data, alerts)
- Facilitate more efficient engagement and communications between patients and physicians and physician-to-physician (e.g., secure messaging, e-consults)
- Improve EMR user interfaces to gain efficiencies (e.g., pick lists, voice recognition for dictation)

Virtually all the suggestions for improved productivity spoke to the need for advanced EMR functionality and/or access to more comprehensive, easy-to-find and relevant patient data.
BECOMING MORE INVOLVED IN THE STANDARDS WORLD

A good starting point for physicians to learn about health informatics (HI) standards is the Canadian EMR Adoption and Maturity Model, published in mid-2013 and based on models developed by OntarioMD and other physician EMR programs in Canada. This model shows the progression that physicians should follow to have increasingly advanced EMR capabilities.

COACH — Canada’s Health Informatics Association, provincial EMR programs and peer-to-peer networks and leaders can provide access to and information on this model.

A deeper dive into HI in general can be obtained through the HI Bootcamp provided by the National Institutes of Health Informatics (NIHI), also presented online.

The main source for education on HI standards at the national level is through programs, workshops and other training sessions offered by Canada Health Infoway’s education/training group. Many excellent options are available, from the basic level to more advanced offerings.

- Those with baseline knowledge of HI standards may consider joining one of Infoway’s standards collaborative (SC) working groups (SCWG) whose mandate is adoption, adaption or development of HI standards. The SCWG deals with many standards topics including electronic record documentation, lab data, medication data, DI reports and public health data, and as a working group that deals broadly with clinical terminology (data) standards. Participation in SCWG, as well as their leadership and voting, is voluntary but may contribute to independent study for continuing education credits.

- Becoming a general member of Infoway’s Standards Collaborative is free and provides a monthly e-newsletter to keep abreast of news, resources and upcoming engagement opportunities for physicians. These include complimentary education offerings, participation in the SC Membership Directory (to connect and network with other members of the e-health community), access to information about HI standards like SNOMED CT and more.

- Becoming a premium member of the Standards Collaborative offers low-cost access to the SCWG forums, as well as links to tracking boards for CDA (clinical document architecture and coding) initiatives, SNOMED CT and related e-health initiatives in Canada.

- The SC holds an annual fall conference — the Partnership Conference — in different locations across the country, informative for clinicians wanting to learn more about adoption/use of HI standards and success stories.

Registration costs are reasonable, and premium members are eligible for discounted rates.

- Becoming a member of COACH provides access to other medical and clinical informatics experts in the health IT/e-health industry who can offer advice, share experiences, answer questions and provide opportunities for discussion via LinkedIn, Facebook and Twitter.

- Connecting with physicians and others who are standards experts who can speak on HI standards at meetings, conferences, provide workshops in person or online, or at sponsored CME events; this provides the chance to bring HI standards into venues where physicians are already meeting.

- Participate in local initiatives or the pan-Canadian initiative being led by Infoway, targeted to create structured and coded clinical documents and reports (e.g., referrals, consult notes, discharge summaries based on the HL7 Clinical Document Architecture (CDA) standard). This project supports an incremental way to move forward, starting with text-only documents and moving to documents with some coded data — using local coding systems or an internationally recognized and used clinical terminology like SNOMED CT — before moving to fully coded documents.

- Family physicians and specialists can request information about joining the EMR working group led by Dr. John Hughes under the auspices of the College of Family Physicians Canada. This working group is a national committee of clinicians, informaticians and standards experts whose mission is to ensure the clinical competency of Canadian EMRs “to support good data, improved practice, and appropriate interoperability that supports the exchange of clinical content between systems in support of clinicians for patient care.”
TAKING IT TO THE TWEETS:
Social media for social justice

Jesleen Rana
Naheed Dosani
Peter Phua

ONE CAUSE, ONE WEEK: 13.5 MILLION UNIQUE TWITTER USERS,
83,441 Facebook users and 30 countries connected.

Those are the impressive numbers racked up earlier this year by a grassroots social media campaign protesting the federal government’s decision to cut funding for landed refugee claimants in Canada. It demonstrates just how effective these tools can be for advocacy in health care.

Prior to June 30, 2012, refugee claimants and accepted refugees who were not eligible for provincial health insurance plans were covered by the Interim Federal Health Program. This program provided these individuals, who are often vulnerable and fleeing persecution, with basic health coverage similar to what those who are living on social assistance can receive. The June 2012 cuts implemented by the federal government stated that refugee claimants from designated countries of origin (countries deemed non-refugee producing) were no longer eligible for coverage unless considered a public health emergency. The implementation of the cuts has created different classifications of refugees with variable coverage, causing mass confusion among health care practitioners.

This has meant that refugee claimants living within Canada’s borders are now being denied insulin for their diabetes, vaccinations for children, puffers for asthmatics, prenatal care for pregnant women and hundreds of other health interventions. Not only has this policy change been described as inhumane, it has resulted in increased costs for provinces as hospitals have had to pick up the cost of emergency visits for refugee claimants. In Toronto alone, the University Health Network (UHN) has covered up to $800,000 in emergency visits for these uninsured individuals.
Opposition to the government decision prompted outrage from many physicians and other health care providers. A National Day of Action to protest the cuts was held on June 18, 2012, and physicians formed the Doctors for Refugee Health Care organization. Despite these and other activities, the federal government has remained intransigent.

As a result, in 2013 organizers decided to harness the "provider-to-public" reach of social media to disseminate accurate information about the cuts and pressure the government as a lead-up to a second National Day of Action.

Through email blasts, timed press releases in major Canadian media outlets, retweets on Twitter and ‘Likes’ and ‘Shares’ on Facebook, the momentum in just one week soared — well before the event occurred. Within days, the campaign had collected hundreds of pictures from five continents.

Analysis of Twitter and Facebook data revealed 13.5 million unique Twitter users were reached in more than 30 countries and over 83,000 Facebook users were reached in a week. Our message (#IFHJune17) was tweeted 248,700 times, and through viral propagation was delivered to Twitter social streams 501.4 million times (i.e. impressions).

The reach of this grassroots campaign was truly unprecedented. It brought the issue of refugee health cuts in Canada to the forefront of national media outlet coverage, including news mention in CBC, CTV and the Globe & Mail. Event participants transcended the health care sector and united individuals from various disciplines including the humanities, engineering, law and politics.

The number of cities involved in the National Day of Action increased from 10 cities in 2012 to 17 this year. International attention was harnessed, as indicated by the abundance of photos posted and online support we received via Facebook and Twitter. The issue garnered so much attention that it was brought up in the House of Commons by politicians from various parties.

Refugee health cuts are not the only health care issue in Canada of concern to providers, patients and the public. One of the most powerful uses of social media is its potential for the viral propagation of awareness, and the way it can be optimized for health care information delivery. By using advanced analytic tools as surrogate measures of public engagement, we have seen the potential impact of a well-orchestrated grassroots social media campaign.

We look forward to further studying how campaigns like these can impact public perception and awareness about relevant health care issues.

We acknowledge Drs. Nasreen Ramji, Noor Ramji, Sheila Lakhoo and Stephen Pomedli for their support and guidance in the writing of this article.

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CAMPAIGN ELEMENTS HAVE INCLUDED:

- using the Twitter account @Docs4RefugeeHC to promote event hashtags #IFHJune17 and #refugeehealth
- creating a central Facebook page with links to Canadian Doctors for Refugee Health Care groups in cities across the country
- launching a Facebook picture campaign in which individuals held the campaign poster in front of identifiable landmarks in their cities
- developing an e-information handbook outlining the cuts, implications and motivations to reverse the cuts which was emailed to core contacts across Canada, who then forwarded this content to their contacts — launching a viral email chain
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