



Electronic Medical Records Adoption in Community Practice: Canada's Standing and Infoway's Responsibility

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At this juncture in the eHealth journey we Canadians should feel concerned and embarrassed by how we compare to other industrialized nations in the degree to which our community-based physicians use EMRs. As the Schoen studies for the Commonwealth Fund demonstrated in 2006¹ and 2009², Canada ranks dead last among the countries examined for “Advanced Electronic Health Information Capacity” (defined as having at least 9 of 14 functions, criteria that approximate emerging standards for “meaningful use”). Furthermore, in the interval between the two studies, the proportion of Canadian primary care physicians who have achieved advanced capacity has increased from 8% to 14%, or at the glacial pace of 2% per year.

The concern about Canada's state and standing is shared by its physicians. Many recent items in Canadian medical journals have discussed the issue, the most notable being the April 6 editorial in the Canadian Medical Association Journal³. The editorial is clear on what is at stake: “An electronic health record system with access for everyone — family physicians, consultants, pharmacists, hospitals, managers and researchers — will save lives and improve health outcomes.”

So if the physician community recognizes the problem then why have doctors not embraced EMRs and exploited them to improve the quality, safety and sustainability of Canadian healthcare? There are three answers to this essential question:

- 1) The degree of personal cost to the physician
- 2) Insufficiencies in the available

electronic record offerings

- 3) Poor leadership from the jurisdictions and Infoway

The first issue, the cost to physicians, is seldom acknowledged. While most commentators focus on the fact that there are increasingly available incentives to help doctors acquire EMRs, there is almost never mention of the fact that the purchase price of hardware, software and implementation services for a medical office information system are only part of the total burden upon doctors. The time spent on evaluating products, negotiating contracts, training, modifying workflow and providing patient care more slowly than usual during the adaptation period is considerable and on an “opportunity cost” basis (using the doctor's normal rate of generating professional revenue) the value of the lost income often surpasses the financial outlay to the vendor.

Worse, after the initial surge of time demands, office-based physicians too often find that their EMR system slows them down on an ongoing basis. This means that the original time spent is not an investment that brings future payback but is instead a large initial loss that is compounded by persistently lower productivity.

The second issue, the insufficiency of current offerings, contributes to the first problem. While doctors may be partly to blame for the poor outcomes of some installations — we can be penny wise and pound foolish with expenditures of both our money and our time — the fact remains that EMR products themselves are generally of middling quality and that the necessary training, implementation

services and ongoing support are poor. Yes, vendors tout impressive features and capabilities, but the majority of EMR products simply do not integrate well into the workflow of providing care, even when users make significant efforts to adapt their workflow to optimize their system's performance.

Furthermore, even the best EMR implementations usually exist as islands. Devoid of sufficient connectivity, community practices must run documents scanners all day long to enter the continuing flow of incoming paper, paper that is almost entirely generated by other information systems that lack interfaces to community-based EMRs. Without electronic transfer of this data, which is supposed to eventually be available in EHR repositories, the cost of labour to operate an EMR is the same as with paper records, further diminishing the value proposition of present electronic record offerings.

Both of these first two issues could have been addressed if we had eHealth leadership that engaged physicians and addressed the challenges that they face in transitioning from paper to electronic records. Sadly, this has not been the case.

The provincial and territorial jurisdictions have deeply ingrained impediments to providing leadership on physician adoption of EMRs. First, their ministries/departments of health face enormous cost control pressures and our governments' relatively brief electoral cycles require a focus on short-term spending rather than long-term investment. Secondly, information systems policy and planning require specialized skills that are not commonly found within ministries/departments

of health. Third, innovation is extremely difficult for organizations that must make the avoidance of public embarrassment one of their top priorities; who in government wants to take a chance on a potential career-ending boondoggle? Finally, the relationship between jurisdictions and their doctors is generally strained due to the adversarial nature of fee negotiations and other resource allocation tensions. As a result, it is unsurprising that jurisdictions have been unable to seriously address the problems of slow adoption of advanced capability EMRs by community physicians.

However, it is far more surprising and very worrisome that Infoway, our national organization whose mandate is to accelerate the adoption of electronic records, has not been able to influence Canada's poor showing at both getting EMRs installed in physician offices and assuring that they realize their potential to improve the quality, safety and affordability of care.

To be fair to Infoway, it has had some successes thus far. As is widely recognized, Infoway has nearly completed Canada's conversion of diagnostic imaging from film to digital, saving money and making the process of capturing and interpreting images much more efficient. There is also some progress on drug and lab systems, though not as much as was projected for 2010.

In further fairness, Infoway has also been handcuffed by the jurisdictions, who are its de facto owners. Since Infoway can only invest in partnership with provinces and territories, its ability to spend the funding it has received is limited by the willingness and ability of the jurisdictions to undertake and advance projects. In fact, as of the close of fiscal 2010, Infoway still held over \$770 million and had disbursed just under \$200 million in that fiscal year⁴ despite the fact that nearly all its funds have been "committed" to specific projects. More importantly for the adoption of community EMRs, Infoway's management was explicitly prohibited by its members from interacting with medical associations until 2007.

However, though Infoway may have been dealt a bad hand in the area of engaging physicians, it has also played

that hand badly since its inception.

At Infoway's founding, those in the physician community who were aware of eHealth issues were encouraged by the prospect of a national agency that would be able to both coordinate investment to reduce duplication and to serve as a clearinghouse for best practices that could counter the tendency of jurisdictions to be isolationist in their health policy. But enthusiasm was dampened by the original business plan, which demonstrated a worrisome lack of insight into the work of providing medical care to Canadians.

Three issues stood out. First, the proposed architecture (later developed into the Infoway blueprint) did not include physician-to-physician communications. This was the case despite the fact that even a cursory business analysis of physician office information flow would have uncovered the fact that for most community physicians, incoming consultation reports or referral requests from colleagues constitute, after laboratory results, the next highest proportion of the total incoming volume of information.

Second, the plan outlined a phased development for the EHR that betrayed its lack of insight into the distinction between hospital and community-based care. It promoted the notion of the "Documentor", a viewer that would provide rapid access to investigation and treatment data. In a hospital setting such viewers may help to improve outcomes and expedite patients' discharge back to the community. In contrast, community-based continuing care relies much less on the speed with which data arrives, but does need to integrate incoming data into the context of the individual patient's longitudinal record. In other words, a community practitioner will derive no significant benefit looking up results on a separate computer network if a paper copy of the same data will arrive by fax or mail to add to the accumulated paper chart or scan into an EMR within a few days.

Third, the plan did not recognize the degree to which the natural predecessor to an individual's longitudinal EHR record is the family doctor's chart. Each year, the vast majority of Canadians who receive physician services do so in

community-based doctor's offices. As a result, a significant amount of the data that the EHR seeks to aggregate comes from doctors' office records and more importantly, the doctor's office is the most common place for EHR data to be applied to patient care. Without community EMRs to both feed the EHR repositories and to receive and leverage what is stored in them, the EHR will not succeed at meeting its objectives of holding all of the key information pertaining to an individual's health and using that information to achieve improvements in care.

Had these three failings in the founding business plan been errors that Infoway subsequently addressed, we would likely have seen far faster adoption rates. However, though Infoway's successor to its original business plan, the Vision 2015 document⁵, clearly articulated the need to integrate electronic records into primary care settings, it failed to acknowledge both the lack of benefit to EHR viewers to community physicians and the need to connect physicians to one another.

While Infoway has fallen short thus far in accelerating community-based physician EMR adoption, one could still hope that Infoway could demonstrate leadership and contribute to correcting Canada's current state. However, based on an article in the previous issue of this journal by Mr. Trevor Hodge, Infoway's Senior Vice-President of Investment Strategies and Alliances,⁶ Infoway accepts no responsibility for Canada's lamentable current EMR adoption rates and in fact believes that the major impediment to EMR adoption is physicians themselves. The four primary arguments in Mr. Hodge's article, which he directs toward claims that are often made in the eHealth arena, bear further examination.

The first claim is that there is no business case for an EHR. To his credit, Mr. Hodge cites sound data to properly refute the claim. Unfortunately, he does not also take on the related claim that there is no business case for the EMR. Had he addressed the issue of the business case for the EMR he would have had to confront two facts: 1) That because much of the benefit created by EMRs accrues to patients and payers, the business case

for Canadian society as a whole is greater than that for the physicians themselves and 2) that the business case for the EMR is significantly dependent on access to data in the EHR. This second point underlines the fact that Infoway has not only failed to appreciate community physicians' situation as a whole but that its slow development of the EHR has significantly undermined doctors' business case for EMR adoption.

The second claim that Mr. Hodge undertakes to prove false is the increasingly common observation that it is taking too long to deploy Canada's EHRs. His response is "compared to whom" and is followed by figures citing the 10-15 years that is has taken pioneering countries to develop their EHRs. Mr. Hodge appears content to reassure his readers that Canada's jurisdictions should complete their EHRs within the 10-15 year "norm", which to him means that we are not taking longer than we should to complete current projects.

Of course, what Mr. Hodge fails to state is that if pioneers beginning 20 years ago took 10-15 years to complete their EHR systems then

successor nations that began 10 years later would be expected to be able to considerably shorten that time span. More important, Mr. Hodge does not acknowledge what anyone in the Canadian eHealth field would recognize: that Infoway exists precisely to shorten the time span for adoption. In addition, if his organization is outward-looking enough to know the metrics of how other health systems have performed, it should also have been able to acquire enough knowledge about the pioneers' successes and failures to help reduce the number of years Canada is taking to reach EHR fruition. Sadly, that has clearly not been the case.

Community physicians often say that the EHR effort is not delivering clinical value quickly enough, which is the third claim to which Mr. Hodge responds, with varying degrees of success.

He first cites the great advances in diagnostic imaging, which, as acknowledged above, are highly commendable. However, Mr. Hodge appears unaware that for community physicians, the proportion of incoming clinically relevant data that

comes from imaging investigations is quite small, trailing laboratory results, medications and the aforementioned physician-to-physician exchange of referral requests and consultation reports. In addition, he does not seem to know that the PACS digital images, as opposed to the narrative reports, are of limited use because most community physicians rely on the expertise of the radiologist who reviews the image rather than on their own less-developed interpretive skills. This means that they want the reports, not the images, which continue to be transferred to them on paper. So while the digitization of images is welcome, they alone are not a driver for community EMR adoption.

In the area of drug systems and ePrescribing, Mr. Hodge provides reasonable explanations of the particular challenges in this domain and rightly cites the fact that pharmacists have far higher rates of information system use than doctors. But while he explains that the higher rates of pharmacist adoption have yielded more tangible benefit to that profession than to doctors, he fails to articulate the reason that pharmacists have far higher usage of information

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systems than doctors: their systems are far simpler, tracking only medications, and are integrated with billing systems that generate their revenues. It is safe to assume that if ePrescribing created as compelling a business case for doctors as it does for pharmacists, rates of adoption among the two groups would be quite similar.

The final area in which Mr. Hodge looks at the notion of clinical value is laboratory results. Here, he simply falls victim to Infoway's continuing misconception about the usefulness of presenting lab results as text on a computer screen. To reiterate what was explained above, speed of delivery of lab results can create clinical benefit in hospitals, where illnesses are more serious and where shortening stays is beneficial to quality and cost of care. In comparison, the more pedestrian pace of community practice means that speed of delivery is of little value. However, the longitudinal focus of community care means that it is essential that all information be integrated to permit trending and comparison.

This point is absolutely crucial. Infoway and others would have it that providing lab results on a computer screen in a GP's office provides meaningful value. However, whether the GP already has an EMR or is still using paper charts, the EHR viewer is impractical and leads to fragmentation of the accumulated patient data, which introduces safety risks.

Physicians appear to intuitively understand this. If one tells a room full of physicians about the prospect of using an EMR application alongside a second software application with laboratory results, most will reject the idea out of hand. While some commentators will attribute the rejection to doctors' tendency to be obstructionist, the more accurate explanation is that using two parallel interfaces makes physicians uneasy. To use an analogy, imagine a scenario where a commercial airplane manufacturer proposed to pilots a cockpit design that separated instrumentation into two clusters with different user interfaces as an interim measure while awaiting the development of an eventual single, unified interface. It does not take a degree in aviation engineering to know that pilots and regulators would be

shocked by the proposal and reject it outright.

And yet, this fragmented, dual interface is essentially what Mr. Hodge is promoting when he characterizes the EHR viewer as a "simple and effective tool" that will quickly provide clinical value and then wonders why community physicians have not welcomed the viewers as a first step toward or complement to an EMR. Once and for all, Infoway must recognize the severe limitations of EHR viewers and stop leveling accusations at doctors or any other clinicians with professional accountability for patient safety who do not embrace Infoway's incrementalist agenda and the resulting fragmented, partial solutions that provide little value and possibly reduce patient safety.

As troubling as the continued advocacy for EHR viewers may be, the most disconcerting of Mr. Hodge's arguments is his response to the fourth and final claim, that physicians should have been targeted earlier. While he eventually admits that this is possibly correct, he precedes that with assertions regarding business triggers for adoption that essentially lay blame for the current state on physicians. These assertions are inaccurate and unfair.

In the example of Excelleris, the B.C. system that can deliver lab results directly to EMRs, Mr. Hodge reports that it has not led to increased adoption. But despite the fact that laboratory results constitute the greatest proportion of incoming data for community-based physicians, these results alone are usually not sufficient to tip the balance for a given doctor's EMR business case. As such, Mr. Hodge is confusing necessity and sufficiency: yes, laboratory results are often a prerequisite to stimulate broad adoption but they alone are not enough.

In the case of the Alberta POSP program that provides money and change management support to physicians, Mr. Hodge correctly notes that POSP's financial incentives only moved physician adoption rates from 10% to 50%. He then goes on to suggest that part of the explanation for this disappointing achievement is the fact that solo physicians adopt EMRs at much lower rates than doctors in

larger groups. However, he does not appear to be aware of two facts that refute his views.

First, some of the highest rates of advanced capacity EMR use have been achieved in countries where incentives are directed toward health outcome measures that can only be realistically achieved with EMRs; in other words, the financial reward for meeting prevention, screening and disease management performance targets becomes the business trigger for implementing EMRs. In contrast, Canada's incentives, including POSP's, have been almost exclusively subsidies to acquire information systems, which assures only that the systems are bought and installed, not that they are implemented well enough to provide advanced capacity. Infoway should recognize that without a change from subsidy-based EMR funding to more proven incentives there is little hope that money being spent to increase EMR adoption rates will lead to advanced capacity and better health outcomes.

Second, Canada's 25% proportion of solo physicians⁷ is similar to or less than most of the countries that rank ahead of it in the Schoen studies. In other words, countries that are successful in EMR adoption may also have had greater difficulty creating a value proposition for their solo doctors than for those in group practice but they nonetheless have overcome that challenge. This means that quoting data regarding the degree to which physicians work in solo practice is an excuse, not an explanation.

This same point – the fact that physicians practice very similarly in all industrial nations – is perhaps the most important rebuttal to Mr. Hodge's article: If medical practice is so similar among these countries in other respects, why would one attribute Canada's outlier status in EMR adoption to its doctors? And particularly why when there are greater differences in the way in which nations try to implement electronic records than there are in the way in which doctors order investigations, prescribe treatments, record findings and exchange information with other points of care? The obvious answer is that if one were both honest and knowledgeable, one wouldn't.

In trying to explain Infoway's approach to date Mr. Hodge quotes from an article by Denis Protti⁸ that asserts that although there is no single reason for success in nations with high proportions of advanced capacity EMR use, government policy and financial incentives appear to play important roles. Regrettably, Mr. Hodge neglects to cite what Dr. Protti writes three paragraphs later: "What is clear in all ten countries is the recognition that significant progress towards an Electronic Health Record, with all its associated benefits, is impossible without the full participation of general practitioners."⁸

Full participation of physicians in the drive to universal electronic records is attainable and is absolutely necessary to improve the quality, safety and affordability of Canadian healthcare. However, without engaging physicians fully in the process from the outset, and treating both them and other clinicians as customers who are end users of eHealth products, there is

little prospect for success. Infoway has demonstrated repeatedly that it has not learned what it and its jurisdictional members must understand about physicians' work to be able to create policies and programs that will accelerate the much-needed adoption of EMRs in community practice. Worse, it now appears that Infoway is holding doctors accountable for its own failings. Given that Infoway's inability to advance community EMR adoption strikes at the very core of its mandate, it must make substantive changes quickly or concede that it is incapable of contributing to this vital initiative and transfer its mandate to another entity.

¹ Schoen C, Osborn R, Doty MM, et al. On the Front Lines of Care: Primary Care Doctors' Office Systems, Experiences, and Views in Seven Countries. *Health Affairs* 2006; 26:W555-571.

² Schoen C, Osborn R, Doty MM, et al. A Survey Of Primary Care Physicians In Eleven Countries,

2009: Perspectives On Care, Costs, And Experiences. *Health Affairs* 2009; 28:W1171-83

³ McGrail K et al. No More Dithering On E-Health: Let's Keep Patients Safe Instead. *CMAJ* 2010; 182(6):535

⁴ Canada Health Infoway. Auditor's Report in Infoway Annual Report 2009-10; pp 35-44

⁵ Canada Health Infoway. Vision 2015: Advancing Canada's Next Generation of Healthcare. 2007.

⁶ Hodge T. Electronic Health Records for All the Right Reasons. *Healthcare Information Management & Communications Canada* 2010; 24 (2):36-38

⁷ National Physician Survey 2007. http://www.nationalphysiciansurvey.ca/nps/2007_Survey/2007results-e.asp

⁸ Protti D. Comparison of Information Technology in General Practice in 10 Countries. *Electronic Healthcare* 2007; 5(4): 107-16.

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