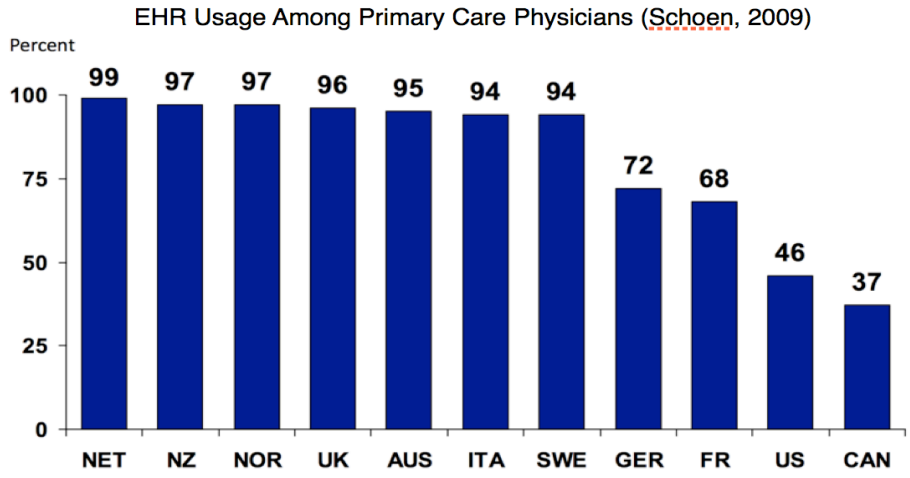
The Canada Health Infoway

A review of its objectives, accomplishments, and failures.

Canada is a nation where universal health care is a hallmark of our national identity and upon which we take great pride. In fact, in a recent nationwide poll, Canadians voted for Tommy Douglas, the father of the current socialized healthcare system, as the greatest Canadian of all time. (CBC, 2010) So why is it that in a country where so much emphasis and national pride is placed upon the healthcare system, that this same system ranks amongst the worst in comparison to other industrialized nations when it comes to the realm of electronic health infrastructure? The adoption of electronic health records (EHR) alone ranks among the worst within industrialized nations, with only an abysmal 37% of primary care physicians using the technology. (Schoen, 2009)



Not only is there a paucity of EHR adoption, but when it comes to EHR functionality, we also rank among the worst in almost every category, and sometimes lagging other nations by very wide margins; only 18% of Canadian physicians report routinely using electronic order entry for

labs, only 20% when it comes to using prompts and alerts for drug interactions, and only 30% using electronic entry of clinical notes. And when it comes to electronic drug prescriptions, we rank dead last at 27%. (Schoen, 2009)

EHR Functionality (Schoen 2009)

Percent reporting ROUTINE:	AUS	CAN	FR	GER	ITA	NET	NZ	NOR	SWE	UK	US
Electronic ordering of laboratory tests	86	18	40	62	91	6	64	45	81	35	38
Electronic access to patients' test results	93	41	36	80	50	76	92	94	91	89	59
Electronic prescribing of medication	93	27	57	60	90	98	94	41	93	89	40
Electronic alerts/ prompts about a potential problem with drug dose/interaction	92	20	43	24	74	95	90	10	58	93	37
Electronic entry of clinical notes	92	30	60	59	82	96	96	81	89	97	42

Knowing that there are clear benefits to having a good electronic health infrastructure, and that Canadians lag severely behind in this domain, the question we must next ask ourselves is what is the nation doing to address this major deficit? The answer in great part is the Canada Health Infoway (CHI). In the following pages, I will be describing the organization's objectives, what it has achieved so far, and what are its shortcomings.

Part I. What is the Canada Health Infoway?

In effect, the CHI is the product of earlier economic analyses in the 1990s that indicated an economic benefit in establishing a national electronic health record system (Corcoran, 2011). The idea for an organization such as CHI first began with a task force in 1991, and then was

further formalized in 1997 in agreements between the federal and provincial levels. In 2001, the organization was formally established with the aim of accelerating the development and adoption of a nation-wide network of electronic health records. Although recognized as an independent & non-profit organization, the organization's funding comes from Health Canada at the federal level, with an investment of 2.1 billion dollars over the past decade alone. The CHI distributes its funding into 12 different investment programs, which are then used in partnership with provinces and territories to invest in over 370 projects nationwide (CHI 2013).

The CHI summarizes its mandate as one in which it aims to "improve access to health information for better care", and has identified four specific ongoing objectives for 2013-2014. These objectives consist in exploring new ways to improve the patient experience, investing in innovation, building electronic health records for Canadians, and getting key information to the point of care (Scott 2012).

Part II. What has the Canada Health Infoway accomplished?

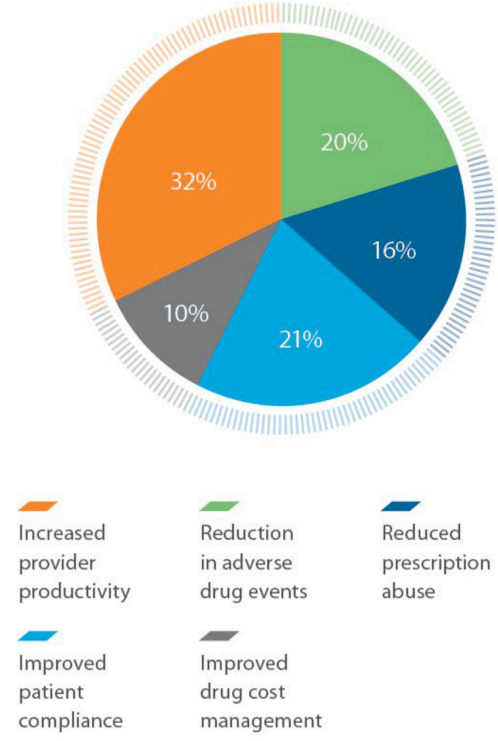
So, knowing the CHI's mandate and funding, the next thing we must explore is, well, what are the organization's achievements to date? Overall, there are 3 major areas in particular in which positive strides forward have been made: diagnostic imaging systems, drug information systems, & telehealth medicine.

Firstly, although electronically viewing & sharing radiographic images is a cardinal feature of medical practice today & is sometimes taken for granted, it has been a fairly recent improvement

in many centers in Canada. Personally, I remember that as recent as 2008 there were several major tertiary care centers in which I practiced where viewing diagnostic imaging still consisted of going down to the radiology department to get films. If the films weren't there since they had been lent to another physician, well you were left with 2 options: come back later, or repeat the imaging. Thankfully, the CHI has played a significant role in implementing diagnostic imaging systems, with access having increased to a total of 43,000 users nationwide in March 2011 in comparison to only 20,000 in March 2005. (CHI-Benefits 2013) In addition, savings are projected to be potentially as much as 3.6 billion dollars over the next 20 years as a result of the decrease in unnecessary repeat imaging. (Corcoran 2011)

Secondly, the CHI has been involved in furthering investments in second generation drug information systems (DIS), including electronic prescriptions, which as we had already identified is as a significant Canadian shortcoming. In fact, as of March 2010, there has been an estimated 436 million dollars in productivity benefits due to improvements in this sector. It needs to be noted that over half of that amount is due to improvements in patient safety, while the remainder has resulted mainly from improvements in productivity, both at the physician level and with pharmacists. This same report indicated annual benefits in the magnitude of almost 64 million dollars

Breakdown of Generation 2 DIS Benefits to March 2010 (CHI 2013)

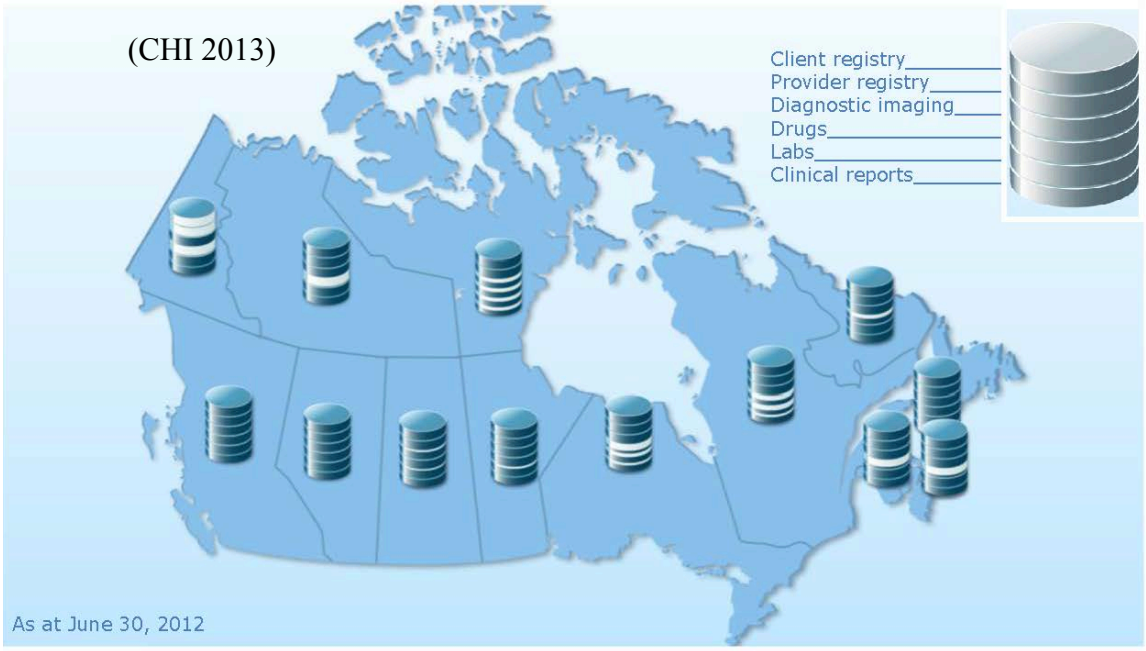


from reductions in adverse drug events (Deloitte 2010). It is not surprising therefore that uptake of these new systems of electronic prescriptions has more than tripled over this period from 2005 to 2011, at which time the number of users nationwide was estimated to be over 30,000 healthcare professionals. Estimates show that savings could amount to 1 billion dollars in savings per year if and when second generation drug information systems are implemented nationwide. (Deloitte 2010)

Thirdly, investments in telehealth medicine have resulted in one of the largest networks for telehealth in the world, with the presence of 5710 sites across 1175 communities nationwide in 2010. (Gartner 2011) This is of significant benefit particularly to people in remote rural areas of this vast nation, who otherwise would either not have timely access to specialist services, or otherwise would need to travel significant distances to receive appropriate medical care. Having incorporated this technology into my practice, I've been amazed by the appreciation from patients who avoided long wait times, as well as the time and financial benefits of saving hours of commuting. In fact, it is estimated that the current telehealth infrastructure has saved over 70 million per year in personal travel costs to patients, as well as over 20 million annually in hospital services, in addition to the environmental benefits related to decreased emissions as a result of less travel. (Gartner 2011)

And then, we may ask ourselves, what of the development and deployment of a nationwide network of EHRs, which is one of the main objectives of the CHI? Well, to being with, as of December 2008, Canada Health Infoway had already invested roughly 1.5 billion dollars in 275 EHR projects nationwide (Webster 2012). The CIH notes that what it considers to be a fully

functional EHR requires six core database types to first be established. These include a client registry, provider registry, diagnostic imaging, drugs, labs, and clinical reports. Unfortunately, most provinces have not yet attained this goal as of June 2012, but are well on their way, with 9 provinces already having at least 4 of the 6 core databases established (CHI Progress 2013). However, interestingly, for the few provinces who have achieved this goal, there is no official comment from the Canada Health Infoway on why they have yet to implement a functional EHR.



Part III. Criticisms of the Canada Health Infoway:

It is important to note that despite positive steps forward, the Canada Health Infoway has nevertheless come under strong criticism in recent years. The major argument against the organization and its shortcomings is that like most government funded programs, it is inefficient and a waste of taxpayer dollars. In fact, some have argued that the amount spent by federal and provincial governments to date far exceeds the 2 billion price tag advertised by the Canada

Health Infoway, and with lackluster results for all that spending (Corcoran 2011). An example commonly cited is the 150 million dollar investment in a chronic disease registry in the province of Ontario which has yet to be functional, and may never well be. In fact, in the province of Ontario alone, auditors recently revealed almost 1 billion dollars spent on health information networks that remain largely unused and impractical (Webster 2012). Critics also wonder why CHI has invested hundreds of millions in developing systems that are inferior in quality to readily available commercial products, such as the failed private healthcare email system developed in Ontario (CMAJ 2011). In fact, the organization has come under such scrutiny regarding use of its funds that it was subjected to an independent audit in 2009; the results of the report where overall quite positive, with no evidence of misuse of the organization's funds, although there were acknowledgements made that CHI had missed its target objectives in most major areas (CMAJ 2011).

Among the criticism of the Canada Health Infoway, some have also raised concerns that many of the organizations economic projections may in fact be inherently biased and exaggerated. For example, in terms of the drug information systems, despite the CHI having argued that such systems would result in roughly 1 billion in annual savings to taxpayers, a recent CMAJ article concluded that there is little evidence to support e-prescriptions having any of the benefits in efficiency, dispensing, and error reduction stated by the CHI. In addition, it must be noted that the 1 billion dollar amount was put out there in the first place in a study by Deloitte, who was hired by CHI in the first place and hence potentially subject to bias (Corcoran 2011). There have been other examples of inflated figures used by the CHI in order to receive increases in federal

funding, including falsely reporting in 2010 that 38% of physicians were using EHR at that time, while later admitting that the number was closer to 22% (CMAJ 2011).

The other major criticism of the CHI is the manner in which it is going about accomplishing its goals, with arguments focusing on the central problem being the lack of a shared vision and an inherently flawed game plan. Overall, there seems to be some consensus among critics that one of the major flaws of the CHI is that it has focused on building these massive databases instead of focusing on meaningful use among healthcare professionals (CMAJ 2012) “In Canada, we're thinking of the EHR first, without setting a clear vision of the redesigned processes we want. We don't have a unique vision that could be supported by technology - we're hoping technology will get things done almost by magic," says Wayne Gudbranson, CEO of The Branham Group, a technology research firm based in the nation’s capital. (Lombardi 2008).

CHI has also been incapable of keeping up with technological trends, let alone being a leader in any kind of innovation. Critics arguing for more of a bottom-up approach emphasize that more work needs to be done with physician & patient engagement. Unfortunately, despite having been allocated 500 million in funding by the federal government for exactly that, more than 30% of these same funds were instead diverted away to other projects. “Improved health incomes come from eHealth when health providers and patients are placed at the center. But Infoway has always placed its own information systems at the center of its vision,” argues Dr. Michael Graven, a physician and software designer in Halifax, Nova Scotia (CMAJ 2011).

In conclusion, the CHI is an organization that has done much in the past decade to help advance health information technology in Canada. Needless to say the investment needed to achieve its lofty goals is a massive one, and criticisms of its use of resources can sometimes be harsh. The public sector is historically known to be somewhat prone to wastefulness and inefficiency, and although not completely immune, this organization has shown a better track record than most. To achieve its objectives however it will take time, and greater patience from the public.

Among its shortcomings, I personally believe that the CHI has to do a better job with outreach and physician engagement. Out of my own personal interest, I conducted an informal survey of 100 of my colleagues, asking them if they had ever heard of the Canada Health Infoway, and if so, what exactly did they knew about the organization. To my amazement only 12% acknowledged having heard of the CHI, and in most cases only due to a recent add campaign on television.

In a nation that ranks among the worst in health information technology, we have much work to be done, and can use all the help we can get. I wonder however if our government-led e-health experience will take the same route as the one recently abandoned in the UK, or will it instead succeed in its objectives and further our collective national pride in our beloved socialized healthcare system.

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