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Implementing e-Health through CHI: A Very Canadian Solution to a Very Canadian Problem

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Abstract

Canada Health Infoway (CHI) was established as an arms-length body by the federal government in 2001 to provide funding to provinces for the development of interoperable e-health systems. CHI was established in response to a number of reports calling on the government to act to make use of technological advances to improve health care quality and provide more rigorous data. In addition to these explicit goals, through establishing CHI the federal government also sought to avoid potential criticism if the implementation of e-health failed, increase its own popularity ahead of the 2000 election and subtly redistribute wealth between the provinces.

The paper suggests that the major influence behind the policy to establish CHI came from Canadian institutions and the fact that the federal government was hamstrung by the Canadian Constitution and *Canada Health Act*. Evaluation of the reform shows that progress has been made by CHI in implementing e-health solutions, but that Canada still lags behind other comparable health systems in the use of technologies. SWOT analysis of the CHI implementation highlights the criticism that CHI could stifle provincial innovation but recognizes that it also offers the opportunity for best practice dissemination across Canada and ensures that ring-fenced funding is available for e-health implementation across the provinces.

In conclusion, the paper suggests that, because of constitutional constraints, the federal government was limited in options to implement e-health and that CHI represents a fair compromise.

L'inforoute Santé du Canada (c'est-à-dire Canada Health Infoway, CHI) a été créée en 2001 par le gouvernement fédéral comme un organisme indépendant chargé de financer le développement de systèmes de santé numériques interopérables dans les provinces. Le CHI a été mis en place pour répondre à de nombreux rapports appelant le gouvernement à utiliser les avancées technologiques pour améliorer la qualité des soins et produire des données plus fiables. Outre ces objectifs spécifiques, le gouvernement fédéral a cherché en créant CHI à éviter les critiques potentielles en cas d'échec de la Télésanté ainsi qu'à améliorer sa popularité avant les élections de 2000 en redistribuant subtilement les richesses entre les provinces.

Cet article suggère que l'influence principale derrière le choix politique de créer CHI est le fruit des institutions canadiennes : le gouvernement n'avait pas vraiment d'autre choix compte tenu de la constitution canadienne et de la Loi canadienne sur la santé. L'évaluation de la réforme montre que, si des progrès ont été accomplis grâce à CHI par la mise en place de solutions de soins en ligne, le Canada accuse toujours un retard dans l'utilisation de ces technologies par rapport à des systèmes de santé comparables. L'analyse FFOM (SWOT) de la mise en place de CHI souligne que ce dispositif gêne le développement de l'innovation dans

les provinces, mais reconnaît aussi qu'il offre des opportunités de mieux diffuser les pratiques au sein du Canada et garantit que des fonds suffisants sont alloués au développement de la Télésanté par les provinces.

En conclusion, cet article suggère qu'étant données les contraintes institutionnelles, les choix du gouvernement fédéral pour la mise en place de la Télésanté étaient limités et, qu'à ce titre, CHI représente un bon compromis.

Key Messages

- The Canadian Constitution and *Canada Health Act* left the federal government little power to ensure equitable access to e-health technologies across all provinces; establishing Canada Health Infoway was a compromise but it was the best option available to them.
- Canada Health Infoway has been successful in increasing uptake of e-health technologies across the country but Canada still lags behind other comparable health systems in terms of technological adoption.

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- *La constitution ainsi que la Loi sur la santé du Canada ne donnent que peu de pouvoir au gouvernement fédéral pour garantir un accès équitable aux technologies électroniques appliquées à la santé pour toutes les provinces; créer l'Autoroute d'Information sur la Santé du Canada (CHI) représentait certes un compromis mais sans doute le meilleur possible au vu des circonstances.*
 - *CHI a réussi à augmenter le recours aux technologies électroniques en santé dans tout le pays, mais le Canada reste à la traîne de nombreux systèmes de santé comparables pour ce qui est de l'adoption de ces technologies.*

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1 INTRODUCTION

This paper analyzes the Canadian federal government's policy to introduce, implement and fund interoperable e-health systems across all provinces by establishing Canada Health Infoway (CHI). 'E-health' refers to a wide range of information technology (IT) advances in the delivery of health care including, but not limited to, Electronic Health Records (EHRs), diagnostic imaging systems and telemedicine. CHI has responsibility for funding and implementing e-health in nine 'strategic investment areas'.

2 HISTORY AND CONTEXT

Over the course of the 1990s several government reports recommended increasing the use of IT within Canadian health care, taking advantage of its potential to improve services and provide rigorous data (National Forum on Health 1997; Canada Information Highway Advisory Council 1996). Eventually a consensus was reached that a 'National Information Highway' should be built (Advisory Council on Health Infostructure (ACHI) 1999), linking existing federal and provincial IT infrastructure.

The vision of this 'highway' was to improve access to, and quality of, health services, make integration easier and allow patients and clinicians easy access to information. Within their report ACHI referred to this 'highway' as 'Canada Health Infoway'. A year after the ACHI report, the federal government and first ministers agreed to provide \$500m of initial funding to support work in establishing CHI.

3 POLICY GOALS

In establishing CHI, the federal government hoped to increase the uptake of high quality, interoperable e-health technology in the provinces thereby delivering a higher quality, safer and more efficient health service with the ability to collect, analyze and respond to population level health data. The government also hoped to ensure funding was equally available to all provinces; possibly helping to achieve an unstated 'wealth redistribution' aim.

In establishing CHI, the federal government may also have sought a number of implicit aims, including improving public opinion ahead of the 2000 election, and reducing overall health costs by enabling more community-management of patients. Additionally, by establishing CHI at arms-length, the government possibly hoped to divert any criticism back to the provinces if e-health implementation was deemed to have failed.

4 KEY INFLUENCES

John Kingdon (1995) suggests that there are three means by which an issue can move on to, and up, a government's agenda: the problem stream, the proposal stream and the

political stream. Kingdon argues that these streams usually ‘flow’ through government independently of each other, but when they converge the issue gains traction and ‘policy entrepreneurs’ are left to wait for a ‘window of opportunity’ within which to take action.

4.1 Problem

The more serious the perceived problems associated with a policy proposal are, the more likely it is to come on to the government’s agenda. Establishing CHI dealt with two major problems: health care quality and funding. Federal funding for health care had decreased over many years, culminating in the 1995 Canada Health and Social Transfer which forced provinces to take drastic cost-cutting measures, including decreasing numbers of hospital beds. Canadian citizens felt the quality of health services had fallen; they blamed the federal government, lost confidence in Prime Minister (PM) Jean Chrétien and wanted more information and influence.

Also, despite the potential benefits of e-health, the federal government had no way to ensure that provinces would implement solutions. Simply providing funding would not guarantee that patients across the country benefited equally from advances.

4.2 Proposal

The more feasible a policy proposal is, the more likely it is to come on to the agenda. In this case, establishing CHI was viewed as the most feasible option for a number of reasons. First, as CHI would control spending and decide which projects received funding, future costs could be foreseen and the federal government could control them. CHI membership would also incorporate the provinces, therefore it would be easier to ensure Pan-Canadian buy-in, but because provinces submitted their own applications to CHI, they maintained their constitutional responsibility over health decisions.

4.3 Political

Careful timing, and the right political climate, can also make it more likely that a proposal will come on to the government’s agenda; in this case the timing of the 2000 election was crucial. In the run up to polling, health care (particularly funding and quality) became the key battleground over which the election was fought (Whitehorn 2001). By identifying funding for e-health in 2000, PM Chrétien’s government convinced the electorate of their commitment to public health care and won a third term in office, giving them a mandate for change.

For e-health, Kingdon’s three streams converged in 2000 and a window of opportunity arose when opposition to PM Chrétien’s health policy took centre stage in the election campaign (political). Advances in technology meant that e-health offered an ideal opportunity to improve service and increase efficiency (problem), with the promise of central funding sparking provincial interest in finding a pan-Canadian solution (proposal).

When making the decision to establish the CHI to implement Canada's e-health strategy a number of factors influenced the federal government. As in the majority of political analyses, these can be distilled into ideas, interests and institutions. In this case, institutions were the main influence although there were also some noteworthy ideas and interests. The overriding ideas behind CHI were that e-health improved efficiency and quality, and that innovative solutions could come from within the provinces but they must be monitored to ensure value for money. Subjective and objective interests in CHI included IT companies, patients, the public and clinicians who would use the e-health solutions.

Whilst interests and ideas shaped the decision to establish CHI, the overriding influence was institutions. The Canadian Constitution of 1867 gave provinces the majority of responsibility for health care provision and left the federal government with minimal influence over health care decisions. As the provinces developed they grew accustomed to making their own spending decisions and monitoring their own success; any attempt by the federal government to dictate provincial e-health strategy would have been strongly resisted. The only realistic solution was to manage funding through an arms-length body.

In addition to this, the *Canada Health Act* of 1984 states that provinces must ensure 'medically necessary' health care is available to all citizens: e-health was obviously not included. By the letter of the law, the provinces could refuse to invest in e-health, leaving little recourse for the federal government. By establishing CHI, the federal government could provide funding and monitor from a distance, ensuring that progress was being made, rather than dictating to provinces.

5 REFORM DETAILS

CHI was established in 2001 with a vision to deliver a healthier Canada 'through innovative e-health solutions' (Canada Health Infoway 2013, 1) by strategically investing federal funds into provincial e-health plans. Provinces submitted applications for funding, demonstrating how their proposals followed the CHI Blueprint (i.e., patient-centricity and replicability), and CHI approved worthy proposals. CHI funded a proportion of set-up costs (depending on the nature of the project) and then collaborated with the province to track implementation progress and ensure adherence to specifications.

CHI was established as an arms-length body and its corporate members included representatives from each province/territory, as well as the federal Ministry of Health. CHI's funding was, however, entirely federal and, although its governance arrangements encouraged accountability and collaboration, its level of autonomy was unclear.

Instead of taking an indirect approach (i.e., regulating e-health suppliers or providing information/guidance to the provinces), the federal government opted to use a hybrid instrument to realize e-health benefits. Forming CHI was indirect in that funds were provided to provinces to spend, and they were given some autonomy, but it was also direct and coercive in that the government itself had entered the market, laying out strict criteria for the

provinces.

Ensuring that CHI was a separate, arms-length entity, may have made CHI more difficult for the federal government to manage, but it did foster provincial trust and enabled them to work more effectively. In addition, it also blurred CHI's lines of accountability, meaning any criticism of their work was likely to be deflected away from the federal government.

In acting swiftly upon the ACHI recommendations and establishing CHI nationally without any significant opposition, rather than through gradual, province-by-province implementation, the federal government took a 'big bang' approach to its e-health strategy. CHI distributed government funding for e-health as soon as it was available, without a trial period or pilot and, as there had previously been no significant federal funding for e-health, no real consultation either. At the time, provinces were happy for any additional federal health funding that they could get, regardless of the mechanism.

6 EVALUATION

CHI remains in place today and still provides significant funding and support for e-health advancement; since its creation in 2000 and up to March 2013, CHI had invested \$2.1 billion in 380 individual projects (Canada Health Infoway 2013). This is an average of approximately \$160 million per year, or less than 0.1% of total annual health care expenditures in Canada.

An initial aim of CHI was to ensure that 50% of Canadians had an interoperable Electronic Health Record (EHR) in place by 2009; by 2010 only 22% was achieved, with the target eventually delivered by 2011 (Allin et al. 2011). Poor levels of clinical uptake slowed progress; research has suggested that this lack of interest may have been due to CHI's failure to pay sufficient attention to the needs of clinicians (Rozenblum et al. 2011). Regardless of the reasons, and CHI's efforts, Canada still lags behind comparable health systems in e-health uptake.

In 2009, the Commonwealth fund reported on an international survey of over 10,000 primary care physicians which demonstrated the size of the task still facing CHI (The Commonwealth Fund 2009). The survey found that, for instance, Canadian physicians came 10th out of 11 developed health economies in terms of the proportion that routinely requested lab tests electronically (just 18% of Canadian respondents suggested that they routinely used the technology; only the Netherlands fared worse with 6%). Similarly, Canada came 10th out of the 11 countries in terms of the proportion of physicians routinely accessing test results electronically (41%); only France performed more poorly (36%).

Another CHI aim was to provide and use rigorous data; research into the views of Canadian policy and opinion leaders shows that this aim has only been partially achieved (Zimlichman et al. 2012): Whilst experts consulted in the research think that the implementation of e-health systems has improved safety by allowing clinicians to share patient data, use e-prescribing to prevent drug errors and ensure adherence to treatment regimes

through electronic drug management, they also stated that the public health benefits such as disease monitoring and vaccination uptake have been much less easy to observe.

The terms of the Canadian Constitution and Canada Health Act left no room for the federal government to dictate e-health strategy to the provinces, but they were still accountable to the public for the poor performance of the health system. In truth, PM Chrétien acted as decisively as he could and used spending power (his only real lever) in an imaginative way, appearing to cede control to the provinces whilst still having the final say over their actions. Whilst CHI's effectiveness in bringing about change can certainly be questioned, it is difficult to imagine what else could have been done by the federal government to force e-health implementation.

7 STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

In order to further evaluate the successes and failures of the federal government's policy to establish CHI and to identify some potential future directions and pitfalls for the organization, a SWOT analysis, conducted from the perspective of an external observer, is presented below (Table 1).

Table 1: CHI SWOT Analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Maintained federal government influence over e-health whilst appearing to offer provincial autonomy. • Ensured that protected funding was available to support e-health • Enabled equitable distribution of funding across provinces • Enabled national targets to be implemented 	<ul style="list-style-type: none"> • Stifled local innovation with central control • Disregarded views of local stakeholders by setting central criteria • Lack of 'buy-in' from local stakeholders (e.g., clinicians) • Fails to offer incentives for improvements in patient care through technological adoption
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Could be used to disseminate best practice throughout the provinces 	<ul style="list-style-type: none"> • Lack of funding for upkeep of systems • Difficulty in ensuring continued technological advancement within provinces

OPPORTUNITIES (CONT'D)	THREATS (CONT'D)
<ul style="list-style-type: none"> • Could act as a bulk purchaser of software and systems, delivering increased value for money and economies of scale • Could involve clinicians and patients at a local level to help develop an overall e-health strategy • Could investigate financial incentives for physicians and organizations who improve patient outcomes through e-health adoption 	<ul style="list-style-type: none"> • Provincial autonomy and local innovation could stifle potential for national interoperability

8 CONCLUSION

Now, nearly 15 years after the establishment of CHI, the time is right to consider the lessons that have been learned and the future direction of e-health in Canada. If CHI has taught the federal government anything it will be that the offer of central funding does not necessarily equate to action in the provinces. Successful implementation of e-health solutions relies on the delivery of systems that work for end-users; CHI must work closely with clinicians and managers to ensure that they deliver clinical and financial benefits. A focus on local interoperability, ahead of delivering the federal government's aim of nationally connected systems, would also be a positive step for CHI and may improve uptake at a provincial level.

As funding becomes tighter and governments expect e-health solutions to contribute increasingly to efficiency, CHI could have a big part to play in ensuring the sustainability of publicly funded health care in Canada. It must first, however, ensure that it secures stakeholder buy-in at a local level.

Establishing CHI, as an arms-length body, was by no means an ideal approach but, given the restrictions of the Canadian Constitution and the *Canada Health Act*, it represented a fair compromise on the part of the federal government. Establishing CHI allowed them to redistribute funding and use spending power to ensure that its objectives were met whilst still ensuring provincial autonomy: it was a very Canadian solution to a very Canadian problem.

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