MARCH 2018 INDEPENDENT PERFORMANCE EVALUATION, CANADA HEALTH INFOWAY

Executive Summary of the Final Report
March 2018

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EXECUTIVE SUMMARY

Evaluation Requirements, Scope and Approach

The requirement for an independent evaluation is laid out in Section 6.1(k) of the 2010 Funding Agreement. A first independent evaluation was completed, provided to the Minister and made public in March 2013, in compliance with the timing required in Section 6.1(k). As outlined in Infoway's Board-approved Evaluation Framework, this current evaluation is a summative one to measure Infoway's overall performance in achieving the purpose and outcomes identified in Sections 4.0 and 5.2 of the 2010 Funding Agreement.

The evaluation was conducted in accordance with recognized evaluation standards and the Government of Canada's Policy on Results and the related Treasury Board Directive on Results, both effective as of July 1, 2016. The Policy states that the evaluation needs to constitute the review of relevance and effectiveness, while the Directive states that the evaluation needs to include an assessment of relevance, effectiveness and efficiency.

The evaluation focused on the time period from December 1, 2012 to November 30, 2017, starting right after the time period covered by the March 2013 evaluation. The evaluation was confined to the funding purposes, uses and outcomes specified in the 2010 Funding Agreement.

The evaluation was informed by, built upon and leveraged previous performance evaluations as well as audit reports, studies such as benefits assessments (i.e., both broad-based and at the project level), and other documents and performance information. It was also informed by key informant interviews with Infoway Members, board members and management, jurisdictional leads, stakeholders in health sector organizations, and clinicians.

Findings, Conclusions and Observations

Relevance

Findings - Addressing and Being Responsive to a Demonstrable Need

Similar to the findings in previous evaluations of Infoway's funding agreements, there continued to be a need for a national, multi-jurisdictional approach to eHealth in Canada, and to have a pan-Canadian organization such as Infoway to develop and deliver such an approach. The need was recognized in the mandate provided to Infoway and in the formulation of the purposes and outcomes in the 2010 Funding Agreement. The 2010 Funding Agreement is a direct response to the 2009 and 2010 Budget announcements that expressed the need for EHRs and EMRs. The need and Infoway's contribution to addressing the need have been confirmed by reviews and other studies, as well as key informants such as jurisdictional Deputy Ministers and CIOs (or equivalent), and health providers and

practitioners who were interviewed. The need is also reflected in the increasing public support and expectations of Canadians regarding eHealth, including specific aspects such as EHRs, EMRs and Consumer Health Solutions that are in the 2010 Funding Agreement.

Findings - Government Priority

The purposes and outcomes in the 2010 Funding Agreement continued to help Infoway deliver on its mandate and programming in alignment with federal government priorities around eHealth. This alignment was validated in the March 2013 Performance Evaluation and it has continued over time to not only align but also to contribute to the federal government's priorities. For example, one of the two priorities in the Minister of Health's 2017 mandate letter is to "Work with provinces and territories to…advance pan-Canadian collaboration on health innovation to encourage the adoption of digital health technology to improve access, increase efficiency, and improve outcomes for patients." There is also a high degree of alignment with Infoway's own key objectives since the start of the 2010 Funding Agreement, which is also reflected in the investment strategies and programs. For example, the 2014-15 objectives included getting key information into the hands and clinicians and improving the patient experience for Canadians. The 2015-16 objectives included supporting patients and clinicians in adopting and using digital health solutions. The 2016-17 objectives included scaling patient-centred digital health solutions and continuing to leverage foundational investments (e.g., in the EHRS components and telehealth). All of these objectives were achieved.

Findings - Federal Responsibility

The 2010 Funding Agreement and its associated investment strategies and programs are aligned with the roles and responsibilities of the Federal Government, including its roles and responsibilities as a Member of Canada Health Infoway Inc. These findings are consistent with those in previous evaluations of Infoway's funding agreements, including the March 2013 Evaluation of the 2010 Funding Agreement.

The federal government has taken an active role in eHealth for many years. Most recently, this role has taken the form of being the funder of Infoway through a number of Funding Agreements including the 2010 Funding Agreement, as well as being a Member of the Corporation. The federal role regarding Canada's publicly-funded universal health care system and its adapting to new challenges, and the government's exercising of this role through partnering with provincial and territories and advancing health innovation, are confirmed in the current Minister of Health's 2017 mandate letter. The 2010 Funding Agreement and its associated investment strategies and programs fall within the scope of these roles and responsibilities in the same way as do the other Funding Agreements.

Conclusions

The program, as defined by the objectives and outcomes in the 2010 Funding Agreement, and as implemented by Infoway, continued to be responsive to a demonstrable need. The need encompassed two parts - to have a national (pan-Canadian, multi-jurisdictional) approach to eHealth in Canada, and to have a pan-Canadian organization such as Infoway to develop and deliver such an approach.

The program, as defined by the objectives and outcomes in the 2010 Funding Agreement, and as implemented by Infoway, continued to be clearly aligned with government priorities and federal responsibilities. Infoway also continued to work in collaboration with jurisdictions and other stakeholder groups.

These conclusions are consistent with those in previous evaluations of Infoway's funding agreements.

Effectiveness

Findings - Scope and Footprint of Projects / Initiatives Funded under the 2010 Funding Agreement

As of February 2018, the 2010 Funding Agreement has supported investment in 126 projects in five investment programs and across all jurisdictions. As should be expected given the maturity of the 2010 Funding Agreement, a large percentage (86%) of the projects are complete. Similarly, a large percentage (94%) of total approved funding for the projects has been expensed. Projects are complete when adoption targets are met and funding tied to adoption targets is expensed.

Findings - Progress on Immediate Outcomes - Outcomes Listed in Section 5.2 of the 2010 Funding Agreement

Electronic Health Records Solutions and 50% Availability Target by End of 2010 (FA Section 5.2.1)

As in the previous March 2013 Performance Evaluation of the 2010 Funding Agreement, the targeted investments in one Diagnostic Imaging project, in five Telehealth projects focusing on telepathology services, and in supporting Standards through funding of the Standards Collaborative are within the intended scope of reusable Health Information Building Blocks outlined in Section 5.2.1 of the funding agreement. Further, these projects, plus those funded under other funding agreements, supported meeting the 50% EHR availability goal, and subsequent increases in EHR availability.

Electronic Medical Records (EMR) Solutions (FA Section 5.2.2)

It is evident based on the data gathered and the opinions expressed through the interviews that Infoway has been very successful in supporting the implementation and use of EMRs at points of service. Initiatives to support adoption such as peer networks and benefits evaluation are important to demonstrate business value and effect cultural change in the physician and clinician communities.

EMR adoption has increased since 2013, although the basic administration and communications functions of EMRs are most used currently. Adoption incentives to promote more meaningful use of EMRs are thought by some key informants as being important.

The meaningful use of EMRs is a focus area in Infoway's new strategies, funded through Budget 2017. Meaningful use will be increased through: e-prescribing through PrescribeIT™, a multi-jurisdiction e-prescribing service; virtual care services (e.g. e-visits, e-booking of appointments); and e-referrals/e-consultations between clinicians.

Interoperable Solutions (FA Section 5.2.3)

Since the 2013 evaluation, Infoway has continued to place a strong focus on the implementation of interoperable solutions, and Integrated Points of Service. This has included specific streams within the EMR and Integration investment program, such as the Ambulatory EMR and Hospital Connect stream, the Clinical Interoperability stream and its sub-streams, and the Interoperability Enablers stream. As well, Infoway continued to build its Infoway Interoperability Solutions services, Digital Health Alliance as a successor to the Standards Collaborative, the InfoCentral collaboration platform, certification services for EMR vendors and an updated EHRS Blueprint entitled the Digital Health Blueprint. It has also included jurisdictional consumer/patient portal projects, demonstration projects for patient services, ImagineNation Challenges, the e-Booking Initiatives and Remote Patient Monitoring. Jurisdictions are at differing points in the connectivity of their various components (e.g., hospital systems to EMRs, EHRs to community doctors and remote care clinics). Some jurisdictional key informants also noted delays in eHealth projects arising from their reorganization of health authorities.

Health System Use of Data (Secondary Use of Data)

Since 2013, Infoway has continued to support Health System Use of Data (Secondary Use of Data) through the Health System Use stream of its EMR and Integration investment program. It has led work or participated in work on policy issues related to health analytics, as well as on privacy issues through its Privacy Forum and Health Information Privacy Group, and a number of white papers and other initiatives. It has also invested in demonstration projects showing how data from EHRs and EMRs can be leveraged for Health System Use (HSU) and two projects related to the specification of technical components. Key informants continued to emphasize the importance of HSU of data, even if the actual amount of use has been

limited to date, and that Infoway was helping to address barriers and challenges to greater use.

Reusable Tools/Assets to Address the Human Factor (FA Section 5.2.5)

Since 2013, Infoway has continued to actively support activities and initiatives such as the Change Management Network, a Framework and Toolkit for Managing eHealth Change, communities such as the Clinician Engagement Network (hosted on InfoCentral), and a Change Leadership Certificate Program and associated workshops (with HealthcareCAN). Infoway has supported EMR adoption through its successful Peer to Peer Program, with its Clinical Peer Network and Faculty Peer Network components. Key informants indicated that these tools and assets have provided benefits.

Pan-Canadian, Multi-Jurisdictional Approach (FA Section 5.2.6)

Infoway continues to have strong performance for the outcome - development of a pan-Canadian, multi-jurisdictional approach in the conduct of its work. Approaches appear to be working well. Infoway's leadership of, and unique contribution to, the pan-Canadian, multi-jurisdictional approach is acknowledged by key stakeholders. In the opinion of a few jurisdictional key informants, Infoway is successful when it focuses upon being the catalyzer, convenor and knowledge broker. Some others thought that Infoway might want to consider providing services to some jurisdictions in areas such as data analytics and project management, where technical resources can be scarce.

Collaboration of Recipients of Infoway Funding (FA Section 5.2.7)

This outcome appears to be well understood by Infoway and its collaborators and stakeholders, such as the jurisdictions, health care delivery organizations, practitioners and vendors. It would also appear that, through many of the initiatives outlined for previous outcomes, Infoway has worked hard and successfully at building and sustaining collaboration, and understanding and addressing barriers or issues that might affect collaboration.

Broader Results from the Achievement of Outcomes (FA Section 5.2.8)

Infoway has greatly contributed to more timely delivery of health care, increased productivity and interoperability, improved access to, and sharing of information. The 2010 Funding Agreement has led to economic stimulus and the creation of many knowledge-based jobs.

Compliance and Consistency with Other Purposes

The document review and interviews with Infoway Board members and executives suggest that Infoway has implemented the above activities and initiatives.

Therefore, we conclude that Infoway is compliant and its actions are consistent with the purposes in Sections 4.1, 4.2, 4.3, 4.4, and 4.10 through 4.14 in the 2010 Funding Agreement.

Findings - Progress on Intermediate Outcomes - Availability and Adoption/Use

EHRS Building Blocks and EHR Information

The past five years have seen significant increases in the availability and use of EHRs. Most jurisdictions are at the point where all of the foundational pieces are in place. Now the focus is upon use, especially meaningful use. Infoway estimates that, nation-wide, there are approximately 500,000 health system professionals (doctors, nurses, pharmacists, other clinicians and administrators) who could benefit from using EHRs. In 2017, there were an estimated 301,000 users of one or more EHR clinical domains across Canada. This number includes nearly 162,000 active users of two or more EHR clinical domains. That number has more than doubled in the past three years, and represents a 400 per cent increase in the past five years. However, there is still a large "untapped pool" of another 199,000 potential active users.

Under the Budget 2017 funding agreement currently in negotiation with the federal government, Infoway has set a target of achieving 400,000 EHR users and 250,000 integrated EHR users by 2022.

Drivers have been the increased completion of the foundational building blocks that are the components/domains of an EHR, increasing integration and interoperability, and EMR adoption driving demand for EHR information. Barriers have included: still missing or unfinished building blocks, integration challenges between legacy and newer systems, interoperability especially as geography increases, and funding and expertise.

EMR Solutions

There have been significant increases in the availability and use of EMRs. Enrollments in Infoway's EMR Deploy stream increased by 64% between Q3 2012 (the time of the previous performance evaluation of this funding agreement) and summer 2017. Of these, the number of clinicians meeting Clinical Value Level 1 had increased by 106%. Seats in the Ambulatory EMR/Hospital Connect stream increased by 550% during the same period. The growth in EMR use (as reported in various independent surveys and studies) appears to have grown from the mid-20% range in 2006-2007 to the mid-70% range by 2014 and 2015, and to the mid-80% range in 2017.

Integrated Points of Service, including Consumer Health Solutions

There is growing broad public support for eHealth and increasingly higher public expectations related to consumer health solutions. Access more than doubled in the two years from 2014 to 2016. However, in 2016, over three times more Canadians would have liked to have access. Consumer Health Solutions is a focus area in Infoway's new strategies, funded through Budget 2017 and will help patients to access their own health records and receive health services electronically.

Data for Health System Use

There is tremendous support for, and interest in, HSU of data, even if the actual amount of use has been limited to date. Infoway's focus has continued to be on helping to address barriers and challenges to greater use. Its work on policy and privacy issues, demonstration projects and technical specifications is recognized by stakeholders.

Findings - Progress on Ultimate Outcomes - Benefits related to Access, Quality and Productivity

Infoway has been a leader in benefits evaluation, at the project level where it is a requirement of many projects, and at the higher jurisdictional and pan-Canadian levels. Infoway has worked with stakeholders to develop and evolve a Benefits Evaluation Framework that has been used for many years to standardize benefits evaluations. The evaluations show benefits in access, quality and productivity, within investment programs (with certain programs such as Registries and Infostructure being outside the scope of this framework).

In addition, to previous pan-Canadian benefits evaluations for investment programs such as Diagnostic Imaging, Drug Information Systems and Telehealth, Infoway more recently completed pan-Canadian benefits evaluations of EMR use in community-based care (2013), remote patient monitoring (2014) and EMR use in ambulatory care (2016).

The EMR use in community-based care study found significant health system level benefits (when monetized) related to reduced numbers of duplicate tests and adverse drug events (a cumulative benefit of $585 million from 2006-2012), as well as benefits in workflows in community-based practices related to such things as chart pulls and laboratory and diagnostic test management (a cumulative benefit of $800 million from 2006-2012).

The EMR use in ambulatory settings study found benefits from reductions in duplicate testing, such as laboratory tests and diagnostic imaging tests, as well as chart management process improvements. The total 2015 benefit was estimated to be approximately $178 million.

The remote patient monitoring study found evidence, from a literature review, of patient access, quality of care and productivity benefits for chronic diseases patients. The four remote patient monitoring programs considered as case studies showed: opportunities to increase the number of patients monitored and managed (thereby increasing access to health services); improvements in self-management; decreases in health system utilization; and, the potential for significant cost savings.

Conclusions

Infoway delivered strong performance in terms of its effective progress on all of the outcomes in the 2010 Funding Agreement (the immediate outcomes in the logic model). Significant and important progress was made from 2013 to 2017 on availability and adoption (the intermediate outcomes in the logic model) in several key areas - EHRs, EMRs, and Interoperable Solutions including Consumer Health Solutions. The growth in availability and use was especially notable for EMRs, which represented over 80% of the total funding in the 2010 Funding Agreement. Health System Use of data was still at "earlier days" in its development.

Benefits in access, quality and productivity (the ultimate outcomes in the logic model) have been realized. Pan-Canadian benefits evaluation studies have been done for key aspects of the 2010 Funding Agreement - EMRs, Ambulatory EMRs, Remote Patient Monitoring, Diagnostic Imaging and Telehealth. All show important annual and cumulative benefits. These benefits can be expected to grow in the future as adoption increases.

In the 2016 Performance Evaluation of the 2003 Funding Agreement, the evaluation team made the following conclusion related to benefits evaluations:

> Not all benefits have been or can be monetized in the benefits evaluation studies to date. Even some of the benefits that have been monetized depend upon changes being made, such as modifications to clinician fee schedules, to actually realize the potential benefits. So while the benefits information is very useful, it does not yet provide a complete picture of the net benefits and costs (both development and sustaining) of an eHealth initiative. Therefore, for decision-makers, there is not yet a complete picture of how their eHealth investments will "bend the cost curve" for the health system. Secondary use of data and health analytics will help provide an evidence base for policy directions and decisions regarding health priorities.

While progress has continued on benefits evaluations, it would seem that the same conclusion for the most part continues to apply today.

Efficiency

Findings - Cost-Sharing Investment Model

The application of the cost-sharing investment model is consistent with the Purposes in the 2010 Funding Agreement. The model makes a strong contribution to efficient resource utilization. It has helped to demonstrate federal leadership, catalyze action, level the playing field, and ensure project stakeholders have "skin in the game".

Findings - Gated Funding Approach

The application of the gated funding approach is consistent with the Purposes in the 2010 Funding Agreement. The approach makes a strong contribution to the efficient production of outputs and by supporting accountability for project outcomes (e.g., adoption and use) provides a direct linkage to the effectiveness of the investments.

Conclusions

Infoway's cost-sharing investment model and gated funding approach have supported efficiency, as well as resource leveraging and accountability for outcomes (e.g., adoption and use).

Observations

The findings and conclusions from this performance evaluation of the 2010 Funding Agreement are positive. The 2010 Funding Agreement and Infoway's execution of it, in partnership with provincial and territorial jurisdictions and other stakeholders, have had very high impact. Health Canada and the federal government have received a strong return on investment through the 2010 Funding Agreement. The achievements related to the 2010 Funding Agreement also laid the foundation for further achievements and return on investment from initiatives related to more meaningful use of EMRs, scaling and spreading Consumer Health Solutions, and more widespread Health System Use of data.

Given the positive nature of the findings and conclusions, the evaluation team does not make any recommendations. However, the evaluation team would like to provide one observation, which was also made in the March 2013 and March 2016 performance evaluations. The observation relates to benefits evaluation, and is intended to ensure that the "loop is closed" between business cases arguing for investments and actual results achieved from investments.

Observation: The expectations by stakeholders of benefits realization and substantiation continue to be stronger as time progresses. Infoway needs to continue its strong efforts in the area of benefits evaluation,

not only to show return on investment for its own funding agreements, but also to provide evidence for the value of the investments being made by jurisdictions and other stakeholders. This applies at both the project and program levels. Consideration should be given as to the best frequency for updating or refreshing previous benefits evaluations, including looking at the results of specific project evaluations again some years later to see if longer term outcomes and associated net benefits have been realized.