Digital Health Services and Digital Identity in Alberta

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Abstract. The Government of Alberta continues to improve delivery of healthcare by allowing Albertans to access their health information online. Alberta is the only province in Canada with provincial electronic health records for all its citizens. These records are currently made available to medical practitioners, but Alberta Health believes that providing Albertans access to their health records will transform the delivery of healthcare in Alberta. It is important to have a high level of assurance that the health records are provided to the correct Albertan. Alberta Health requires a way for Albertans to obtain a digital identity with a high level of identity assurance prior to releasing health records via the Personal Health Portal. Service Alberta developed the MyAlberta Digital ID program to provide a digital identity verification service. The Ministry of Health is leveraging MyAlberta Digital ID to enable Albertans to access their personal health records through the Personal Health Portal. The Government of Alberta is advancing its vision of patient-centred healthcare by enabling Albertans to access a trusted source for health information and their electronic health records using a secure digital identity.

Keywords. Digital Transformation, Government, Health, Digital Identity

1. Introduction

Digital technology is changing the way the Government of Alberta (GoA) provides services to Albertans who want easy access to services and information at any time, from anywhere and on any device. The challenge is to provide services and information in a way that is convenient, quick and secure. The GoA is making advances by providing its citizens with access to health information and services via the internet. Alberta has implemented technology to integrate patient data into a provincial electronic health record that improves healthcare delivery and patient safety.

Today, the GoA offers medical practitioners secure access to provincial Electronic Health Records (EHR) of Albertans through Alberta Netcare. Alberta Netcare provides an easy way to view patient health data collected from healthcare locations across Alberta. Alberta Health believes citizens should have access to their personal health records because providing citizens with their medical information empowers them to proactively manage their health in between visits to healthcare professionals.

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2. Discussion – Digital Services and Healthcare in Alberta

Increasingly, Albertans want mobile access to trusted consumer health information on demand. In 2008, the GoA responded to this growing demand by developing a vision for a single, secure platform for Albertans to access their provincial health records. This vision promotes patient-centered care by encouraging Albertans to be active participants in their healthcare. To realize this vision the GoA is providing Albertans with the resources and tools they need to make better decisions about their health and wellbeing. Patient-centered care enables citizens to self-monitor and easily share data with clinicians. The ultimate goal is to transform care delivery by improving eHealth literacy, data quality and enabling Albertans to engage in the development and delivery of a shared care plan.

In order for the GoA to provide digital access to personal medical information, it must first ensure that the information is available in digital format. Alberta Netcare achieved a major milestone in 2008 when an EHR was created for every Albertan. EHRs are used in clinical environments to maintain information that supports the physician-patient relationship and automates administrative procedures within the clinic. The EHR consists of medication records, lab test results, diagnostic imaging, transcribed reports and hospital discharge summaries. This information is collected from locations across the health system and presented as a single patient record at the point of care. Electronic medical record systems have been shown to save time, from more efficient administrative processes to faster turnover for lab results updates, all of which can contribute to faster diagnoses. Integration between contributing systems and the EHR also reduces the number of steps and intermediaries required to contact other EHR users or update patient records. All of this makes for improved communication between patients, clinics, hospitals, labs and pharmacies.

2.1. Alberta Netcare

Providing a secure way to access recent lab tests and image results reduces the need for re-ordering tests, reduces costs for health centers and saves Albertans from having to repeat tests and imaging procedures. Alberta Netcare also contains drug and allergy alerts that inform health professionals if a medication they are considering giving a patient will have an adverse reaction with allergies or another medication that the patient is already taking. Most importantly, the clinical reports made available through Alberta Netcare help provide critical health information during emergency situations, when a patient may be unable to communicate for themselves. The following statistics demonstrate the impact that Alberta Netcare has had on the modernization and digital transformation of healthcare in Alberta, as of September 15, 2016:

- Over 90% of all clinical tests, medication dispenses, diagnostic images, are available via Netcare.
- Approximately 7.2 million screens of information in 2.5 million patient records are accessed monthly via the Netcare portal.
- Since March 2006, when the Alberta Netcare Portal was launched, more than 366.5 million screens of information in 133.6 million patient records were accessed by Alberta health professionals.
- Alberta Netcare has over 51,000 active healthcare users including physicians, pharmacists, nurses, allied health and other healthcare professionals.

2.2. Personal Health Portal

Alberta Netcare has been under development since 1999 and has steadily added functions and clinical data through the years. In 2009, Alberta Health announced that it was developing the Personal Health Portal (PHP). The PHP is an integral component of the GoA's future vision for healthcare in Alberta and provides Albertans with trusted health information, secure online health services and access to their EHR. Albertans can also add information about their health to their record to create a more comprehensive health record than currently exists. The PHP enables learning opportunities and increases eHealth literacy among Albertans who track their own health trends and take timely action to get the treatment they need.

The PHP was developed using Microsoft HealthVault, which was designed for individuals to gather, store, use and share health information online. A third party was contracted to provide enhanced interfaces to HealthVault to improve the user interface and the user experience. Future releases of the PHP will provide citizens transcribed reports, hospital discharge reports, lab test results and records of physician visits. The PHP will improve the patient experience by providing Albertans with the information and tools they need to make evidence-based decisions about their health and wellness.

2.3. The Identity Challenge

Identity management is a common and complex problem for governments designing digital programs and services. Provinces and territories play a critical role in providing foundational identity services for Canadians. Due to the sensitive nature of personal health information, governments need a secure way for citizens to prove who they are online before they are permitted access to online health services. Government is responsible for protecting the personal information it collects when providing services to citizens; so, the online identity of citizens must be verified to ensure services are delivered to the right person. The challenge is to verify a citizen's identity in a cost-effective way, with minimal disruption to the citizen. Requiring citizens to verify their identity in-person is inconvenient and cost prohibitive. Service Alberta recognized this problem and developed an enterprise solution that provides a convenient, simplified approach for citizens to create a verified digital identity.

2.3.1. MyAlberta Digital ID and MyAlberta Verify

The GoA made the strategic decision to develop an enterprise solution that provides an easy and secure way for citizens to access the growing number of government programs available online. MyAlberta Digital ID enables the GoA to provide Albertans with a username and password, so they can access government services online. A MyAlberta Digital ID account lets Albertans use a single login to identify themselves, much like a driver's licence or ID card does in person. Any ministry that uses the identity platform is assured that a user's identity is validated by MyAlberta Digital ID before they are granted access to online services.

The ability to provide services to citizens that exchange sensitive information online rests on the level of certainty the service provider has that the presented identity belongs to the individual. This is better known as identity assurance. MyAlberta Digital ID adheres to the identity assurance requirements defined by the Pan-Canadian Identity Assurance Trust Framework, which serves as a model for federating standard identity

management practices throughout Canada. Identity assurance is determined by the combination of the strength of the identification and registration process a citizen undergoes and the strength of the credential they supply when validating their online session. Identification establishes who you are and authentication proves that you are who you say you are. My Alberta Digital ID can provide different assurance levels for services that require different levels of surety that identity declarations are true.

MyAlberta Digital ID's new service, MyAlberta Verify, will enable a higher level of identity assurance by leveraging the mature in-person verification processes used to create and issue Alberta Driver's Licences and Identification cards. MyAlberta Verify will allow the GoA to digitally confirm and verify the identity of citizens. Alberta's identity establishment processes have been chosen as the starting point for reaching consensus on the standards for the public-sector version of the pan-Canadian Trust Framework. Services requiring a higher level of identity assurance such as digital access to personal healthcare records, ordering driver's abstracts and financial assistance programs will become available once MyAlberta Verify is released.

3. Result – The Future of Digital Services and Healthcare in Alberta

With the release of MyAlberta Verify and the PHP Albertans will be in the unique position to create a verified digital identity and access their personal health information.

3.1. MyAlberta Digital ID and MyAlberta Verify

MyAlberta Digital ID and MyAlberta Verify demonstrate Alberta's commitment to the digital transformation of government services. MyAlberta Digital ID allows ministries to modernize online service delivery by making it easy for citizens to login using their MyAlberta credential. Having a single platform for online identity management enables government to provide citizens with a familiar and consistent experience no matter what online program or service they need. Providing a single point of registration for access to various services means citizens can conveniently and securely enroll or apply without having to supply the same identity and contact information each time. It is convenient for citizens to login once to access all government services online, just as logging in to Google provides access to Gmail, YouTube, Drive and more.

The program contributes to the simplification of identity assurance and authentication practices by partnering with other ministries and levels of government to increase the number of services available once users login to their MyAlberta Digital ID account. The GoA is actively working with stakeholders at municipal, provincial and federal levels of government to maximize the number of services offered through the MyAlberta Digital ID program. A technical proof of concept has been successfully completed with a municipality and a federal department, which is the first step toward enabling Albertans to use their MyAlberta Digital ID seamlessly across jurisdictions.

Citizens who verify their digital identity using MyAlberta Verify will be able to access even more services online because the GoA will have the capability to deliver digital services that require identity verification processes. As more services become available, citizens may be able to apply for benefits online, access their education transcripts, or update their address information online without visiting a front counter. Future releases may enable users to view a "citizen dashboard" that lets them interact with government for personalized services and information. As more ministries

integrate their programs with the government-wide initiative, the GoA will be able to deliver services in a more efficient manner. Consequently, more resources can be directed toward increasing service-level standards and improving the quality of interactions that Albertans have with the GoA.

3.2. Personal Health Portal

The PHP is critical to the GoA's efforts to provide trusted health information and secure health services online. By enabling individuals to access their personal health records, Albertans will be able to participate in their own health regime across the continuum of care. Providing Albertans with more health information enables learning opportunities to improve eHealth literacy and promises to improve system-wide health outcomes in Alberta. While improving the accessibility of health services is convenient for everyone, it can also significantly improve the quality of care received by rural constituents and individuals with limited mobility. The PHP supports the public by empowering them to take a more educated and proactive role in managing their health and wellness. This approach provides benefits for patients and families who can create and view a comprehensive personal health record (see Figure 1).
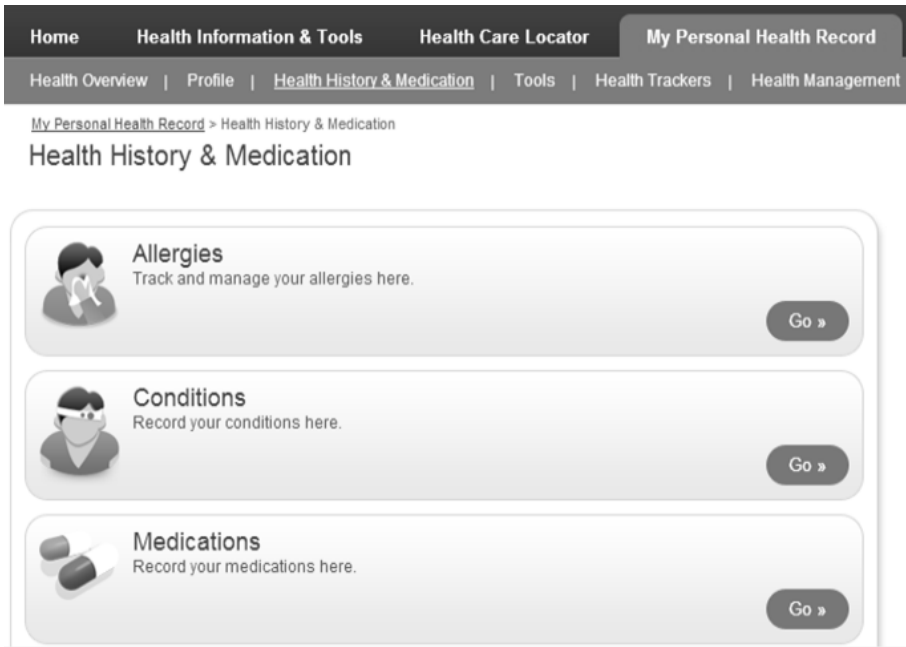

Figure 1. Screenshot of the "Health History and Medication" page on MyHealth.Alberta.ca.

The benefits evaluation framework for the PHP has multiple methods to assess its successes from early adoption to later adoption. The framework is applied after each iterative deployment to assess system quality (functionality, performance and security), information quality (content and availability) and service quality (responsiveness). Over time, the benefits evaluation framework will include discussion groups with patients and providers to analyze clinical behaviour, system use and user satisfaction.

Ultimately, net benefits are assessed for quality (patient safety and health outcomes), accessibility (ability of users to access services and participation rates) and productivity (efficiency, care coordination and net cost).

Future releases of the PHP will enable citizens to track and assess their health on a regular basis using health analytics. Albertans will be able to upload information from their personal monitoring devices such as steps taken, blood pressure and blood glucose levels directly into their personal health record. As the PHP adds new functionality, citizens will have an easier time keeping track of vaccinations, therapeutic exercises, or the status of appointments. Alberta Health will be implementing e-Prescriptions to replace paper prescriptions, enabling more timely and accurate prescription transactions. Alberta Health continues to improve its eReferral program, which aims to enhance the communication and coordination of patient transition and referral processes in Alberta. eReferral has already improved hip and knee, breast cancer and lung cancer referral services. The project continues to assess new opportunities and recommend how to optimize referral services and scheduling, based on patient condition and specialist availability. The eReferral service enables medical professionals to quickly access information such as the status and documentation of referrals.

4. Conclusion

To realize the GoA's vision of a patient-centred healthcare model, Alberta Health had to digitize provincial health records. Netcare has successfully improved the quality and accessibility of health records, enabling clinicians to make faster, better informed decisions. Providing citizens with secure access to the same information through the PHP presented a new challenge because the GoA needs to have confidence in the identity of citizens who are accessing services online. MyAlberta Digital ID and MyAlberta Verify will solve the identity challenge and help ensure citizens have quality interactions with healthcare professionals. Implementing an online, personal and confidential health portal will improve Albertans' knowledge of the health system, healthy practices and their personal health history. The PHP will give Albertans more control over their healthcare information and services, but several challenges remain such as determining how to deal with minors, identifying how to set permissions for guardians and promoting eHealth literacy among Albertans.

Digital technology is changing the way the GoA executes core functions. MyAlberta Digital ID, MyAlberta Verify, Netcare and the PHP demonstrate the progress Alberta has made toward enabling the digital transformation of healthcare delivery. There is significant potential in Alberta to realize social benefits by providing health information and personal health records to citizens. Patient-centred healthcare delivery helps enable Albertans become more educated, aware and involved in managing and maintaining their own health. The PHP and MyAlberta Verify will ensure that public demand for simple and secure access to health information and services is met.