

## Chapter 4

# The Introduction and Evaluation of Mobile Devices to Improve Access to Patient Records: A Catalyst for Innovation and Collaboration

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### ABSTRACT

*Prompt and efficient access to patient records is vital in providing optimal patient care. The Cancer Agency Information System (CAIS) is the primary patient record repository for the British Columbia Cancer Agency (BCCA) but is only accessible on traditional computer workstations. The BCCA clinics have significant space limitations resulting in multiple healthcare professionals sharing each workstation. Furthermore, workstations are not available in examination rooms. A novel and cost-efficient solution is necessary to improve clinician access to CAIS. This prompted the BCCA and the Provincial Health Services Authority (PHSA) Information Management Information Technology Services (IMITS) team to embark on an innovative provincial collaboration to introduce and evaluate the impact of a mobile device to improve access to CAIS. The project consisted of 2 phases with over 90 participants from multiple clinical disciplines across BCCA sites and other PHSA facilities. Phase I evaluated the adoptability, effectiveness, and costs associated with providing access to CAIS using desktop virtualization via Citrix. Citrix is a server solution that provides remote access to clients via the Web or to dummy terminals in a network. Phase II incorporated the feedback and findings from Phase I to develop a customized mobile application. Phase II also addressed privacy and security requirements and included additional users and workflows. This is explored in this chapter.*

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## **INTRODUCTION**

The BC Cancer Agency (BCCA) provides a population-based cancer control program for the residents of British Columbia (BC) and the Yukon, two large regions in Canada, serving a population of over 4.5 million. The BCCA operates six regional cancer centres, and 56 community chemotherapy clinics. Patient health information is currently stored in a paper chart as well as an electronic clinical data repository (CAIS, Cancer Agency Information System). Although the paper chart functioned as the traditional patient record, it often does not travel as quickly as patients do as they move between cancer centres and clinics; furthermore, charts are often not up to date, compared to CAIS. In recent years, BCCA clinicians have become more reliant on CAIS, although access to the electronic record is limited to desktop computers in crowded physician work spaces; additionally, computer workstations are not available in patient encounter rooms or at the point of care. The inability to access the right information at the right time impacted clinical workflows and patient care. This chapter will discuss a successful health information technology implementation on the basis of a collaborative effort between clinicians who were empowered to drive the solution, and willing IT partners who acted as technology enablers.

## **BACKGROUND: THE IMPETUS FOR CHANGE**

The BC Cancer Agency (BCCA) provides a population-based cancer control program for the residents of British Columbia and the Yukon (Canada), serving a population of over 4.5 million. Its mandate includes prevention, screening, diagnosis, treatment, and survivorship. The BCCA operates six regional cancer centres which provide the full spectrum of cancer care, from assessment and diagnostic services, to chemotherapy, radiotherapy and supportive care delivered by provincially standardized protocols. To properly serve the population which is dispersed over a large geographic area (1.4 million square kilometers, or 550,000 square miles), the six full service centres are supported by 56 community chemotherapy clinics so patients can receive portions of their cancer treatments closer to home.

Similar to other health organizations, patient health information was historically stored in a traditional paper chart. However, due to the potential distributed nature of cancer treatment delivery in BC i.e. a patient from a smaller community may be seen in consultation in their home community cancer clinic, followed by radiotherapy at a larger cancer centre, and complete their chemotherapy at their home clinic, the paper chart may not always follow the patient's whereabouts in a timely fashion. Furthermore, updating the paper chart with reports and results is a time consuming and resource intensive manual procedure which results in charts that are out of date.

In 1992, the BCCA started to develop CAIS (Cancer Agency Information System) initially as a patient scheduling system; since then, it has become a robust and rich multi-disciplinary electronic clinical data repository (Henkleman 2003). In addition to a multi-disciplinary scheduling system, CAIS also consolidates patient demographics, clinical documentation and other reports, and laboratory data from over 40 clinical sources. Other functions include an imbedded eFilm viewer for diagnostic images, a centralized population based cancer registry and patient outcomes data for survivorship research. Thus, it is understandable that BCCA clinicians have become more reliant on CAIS, rather than the paper chart, to provide timely and current information for a patient.

Unfortunately, two major issues prevent adequate access to the electronic record. Firstly, access is limited to bulky desktop computers in over-crowded physician workspaces. These workspaces were con-

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