Chapter 15
Barriers to Successful Health Information Exchange Systems in Canada and the USA:
A Systematic Review

Basmah Almoaber
King Khalid University, Saudi Arabia & University of Ottawa, Canada

Daniel Amyot
University of Ottawa, Canada

ABSTRACT

Background: Despite the potential benefits of health information exchange (HIE) and the two decades of efforts from the Canadian and the American governments to promote health exchange projects, failures far outnumber successes. Objective: To better understand the barriers influencing the adoption and implementation of inter-organization HIE systems in Canada and the USA. Method: A systematic literature review was conducted to examine English-language studies that identified barriers to HIE in Canada and the USA between 1995 and 2016. Electronic databases, backward searching and expert consultations were used. Results: 31 articles have been included. There is a dearth of publications reported on the HIE barriers in Canada. A total of 33 barriers have been identified. Conclusion: There are noticeable differences in the barriers reported in these countries. Privacy concerns and a lack of stakeholder buy-in are recurring barriers over time in the USA. Low adoption of electronic medical records is the main barrier in Canada.

INTRODUCTION

Patients normally receive care from multiple providers for many reasons including the mobility and availability of specialty care providers (Eden et al., 2016; Gottlieb et al., 2005). Unfortunately, as different providers often maintain separate medical records, a patient's medical record can be fragmented and incomplete in any one given location (Grossman et al., 2006). This fragmentation negatively impacts

the patients and the providers. For example, physicians have limited information to make timely clinical decisions, resulting in an increased use of administrative resources to locate the missing information, which may in turn lead to delays in care and redundant procedures such as duplication of laboratory tests and medications (Foldy, 2007). Therefore, to improve healthcare quality and efficiency, healthcare organizations should share data electronically to allow physicians access to patient clinical data across sites of care to better support their decision-making process.

Health information exchange (HIE) is the electronic sharing of clinical information among healthcare organizations to facilitate care coordination and transitions across settings (Grossman, Kushner, & November, 2008). The main goal of HIE is to deliver the right information to the right person at the right time. Generally, HIE is based on the premise that timely access to health information should improve healthcare efficiency, reduce medical errors, decrease costs, and increase patient satisfaction (Hincapie et al., 2011). Furthermore, data exchange also has benefits other than direct patient care, such as supporting quality improvement, public health, and clinical research (Grossman et al., 2008).

In Canada, the Canada Health Infoway (Canada Health Infoway, 2016) works with the provinces and territories to accelerate the development, adoption, and use of digital health solutions across the country. One of its adopted strategies is to develop interoperable electronic health records (iEHR), which are secure, integrated views of a person's medical records from all systems in the network (Interoperable EHR, 2016). The purpose of iEHR is to provide a comprehensive view of a patient's medical history that is available to authorized health providers and individuals anywhere, anytime. The main goal is to connect patient health records in each province and connect the entire country by unifying the architecture and standards in every jurisdiction.

In the USA, under the 2009 Health Information Technology for Economic and Clinical Health (HI-TECH) Act, the plan is to adopt health information technology in order to build a nationwide information infrastructure. The aim is to start by setting policies to achieve widespread use of electronic health records (EHR) which, as a result, will later facilitate the exchange of data. Then, under the same act, incentive programs, commonly called the Meaningful Use programs, have been initiated to encourage healthcare organizations and providers to participate in HIE. The government in this program provides financial incentives for the adoption of EHRs that conform to nationwide standards and where providers meet certain performance thresholds (Department of Health & Human Services, 2010). Regional Health Information Organizations (RHIOs), which are generally not-for-profit regional organizations created to bring together provider organizations and initiate health data exchange, are one of the known efforts in the USA to support HIE.

Despite the potential benefits to patients, practitioners, and hospitals, and despite the two decades of efforts from both the Canadian and the American sides to promote HIE, failures far outnumber successes. For instance, according to the 2014 National Physician Survey in Canada, 78.8% of family physicians do not share data with other organizations (National Physician Survey, 2014). In the USA in 2013, only 30% of hospitals were participating in HIEs (Adler-Milstein, Bates, & Jha, 2013).

The objective of this review is to study the barriers that affect the implementation and adoption of HIE in different healthcare models in order to learn from previous efforts and increase the probability of successful HIE in the future.

This systematic review targets studies that reported on barriers to successful HIE systems in Canada and the USA to answer the following research questions:

RQ1: What are the barriers that have an influence on the success of HIE systems in each country?

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