

EHR Arithmetic: Extracting Positives from Negatives. The Santa Barbara County Care Data Exchange Project

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Abstract

US regional health information organizations or health information exchanges have received widespread scrutiny because their persistent efforts often display disappointing results. This case study is based on a literature review of one of the earliest and most comprehensive health information exchange initiatives in North America, the Santa Barbara County Care Data Exchange. This project was proposed in 1998, commenced in 1999 and terminated operations on December 31, 2006. The project was ultimately unsuccessful. However, numerous lessons were learned, a greater foundation of knowledge is emerging and opportunities exist to gain further knowledge from this failed project.

Introduction

Regional health information organizations (RHIOs) or health information exchanges (HIEs) vary in definition, but the overall concept rests on the exchange of health information across organizations. In the USA, many regions or states are currently engaged in the HIE movement at some level, as we are in Canada. Unfortunately, an evaluation of US RHIOs has revealed the dispirited truth. A Harvard study that surveyed 145 RHIOs found that 25% were non-operational and only 14% were of at least modest size and were exchanging clinical data at all (Adler-Milstein et al. 2008).

One of the earliest and most comprehensive electronic health record (EHR) initiatives in North America was the Santa Barbara County Care Data Exchange (SBCCDE) RHIO. The SBCCDE was founded by Dr. David Brailer, former chairman and CEO of CareScience Inc. and former National Coordinator for Health Information Technology in the US Department of Health and Human Services. The purpose of this case study is to neutrally evaluate the processes and outcomes of the SBCCDE project and stimulate further discussion around electronic information exchange.

Healthcare organizations are on a quest to implement ways to improve the delivery of health services. Better access to relevant patient data is one path to improved service delivery. Linking various information systems and patient data requires well-planned strategies, a strong business case, sustainable funding and solid leadership. Even with the best of intentions, a sound approach and ample resources, establishing a successful EHR system can be challenging – or even unattainable – as is demonstrated in the following case review. However, what matters is that the SBCCDE project happened, that it ended and that we have learned from it (Brailer 2007).

Background

In 2000, Santa Barbara County (including the three major cities

of Santa Barbara, Santa Maria and Lompoc) had a population of 400,000 (Miller and Miller 2007). The county contains three regional areas, each with a single hospital and connected medical groups, with many diverse communities and health-care operations.

The SBCCDE RHIO was a community-wide initiative designed to improve the quality, clinical efficiency and safety of healthcare by making inter- and intra-organizational, patient-specific information more readily available at the point of care (SBCCDE 2001). The project sought to determine whether regional HIE (a) was feasible, (b) was sustainable and (c) could improve quality of care (Brailer et al. 2003). The HIE consisted of laboratory reports, radiology and diagnostic imaging, clinical notes, pharmacy data and eligibility and administrative data (Lorenzi 2003). The project was focused on refining hypotheses and giving direction to future work (Brailer et al. 2003).

The project was surrounded by immense optimism and was expected to set a national standard for EHRs. The intent was to link 1,500 providers in the Santa Barbara area with comprehensive medical information on 300,000 patients (Bass 2002).

Challenges Encountered and Lessons Learned

Despite great efforts, extensive challenges were encountered that impeded the project's advancement. Brailer (2007) has encouraged others to examine the SBCCDE project closely to seek out the positive learnings because, despite the death of this project, there are many lessons that can be learned from it.

Business Case

The California HealthCare Foundation (CHCF) post-project follow-up report (2007) states that the lack of a compelling business case was the "main, chronic underlying problem." Brailer has also reported that the business model was out of line with the value proposition (Barlas 2007).

Lessons learned

A clearly defined business case addressing issues such as quality of care and social, financial, efficiency and convenience aspects may be the most critical factor in determining the success of an EHR project. The business case serves as an overarching guide to the entire plan and acts as a key element in decision-making processes, project progress and evaluation.

Vision

It is not obvious whether the vision of the SBCCDE was unclear, or if it was ultimately too grand. The phrase "bold vision, poor execution" (Frohlich et al. 2007) seems most appropriate upon review. Simply stated, connecting the first and most comprehensive data exchange to a future national model was ambitious.

Lessons learned

A clear and realistic vision is fundamental to EHR development and progression. A vision derived from collaboration based on the compilation of stakeholders' end targets will establish a common objective that everyone can uniformly work toward. Appreciating that all people are moving toward a shared end goal will promote camaraderie and cohesiveness among stakeholders.

Project Design

The SBCCDE experiment was a "victim of ambition" pursuing the "big-bang" approach (Pulley 2007). Not only was the HIE to occur "all-at-once," so was the development of the software. The CHCF (2007) has insisted that the key lesson learned from the SBCCDE is to take an incremental approach toward implementing HIE. Karp has indicated that the weight of the project's design was the greatest cause of its downfall (Havenstein 2007).

Lessons learned

An "all-at-once" approach to project design may at first appear to be a rigorous and timely method of EHR development. However, an incremental approach strengthens the chance of success and reduces challenges by encouraging minor, step-by-step revamping. Examination at each project phase facilitates ongoing evaluation, input, direction, communication, collaboration and internal learning opportunities.

Technology

Multiple project documents suggest that technological barriers were the greatest challenge. CareScience Inc. was originally selected for the project management and technology roles, and later undertook software development and vendor roles. The developers of the SBCCDE were obsessed with using the latest technology, which resulted in an over-engineered and overly complicated product (Brailer 2007). In the beginning, the organization was optimistic about the simplicity of the technology that could be used, and believed that off-the-shelf software or adaptation of existing commercial products would be sufficient (Miller and Miller 2007). These early plans proved to be unsuccessful and costly. Over time, multiple methods of creating HIE were tried and failed. In total, the SBCCDE project built 28 interfaces to 10 different types of data in eight healthcare organizations, and the lack of uniform data standards added to both the complexity and the cost (Karp 2007).

Lessons learned

Neither the healthcare organization nor the information technology (IT) firm should underestimate the magnitude of developing or deploying an EHR. A technical framework incorporated into the business plan provides realistic guidance based on current – not purely future – potential and capabilities. This encourages improving existing knowledge in the field, rather than

attempting to sightlessly develop new technology from the ground up. Health IT consumers are aware that having their technological needs met is key, yet a consciousness of total “business success,” not merely “technological success,” is critical.

Finances

The questionable viability and lengthy delay of the project’s technical aspects created a financial burden that nobody was willing to assume. Without clear value and strategic plans, financial buy-in was lacking and economic responsibility remained vague. With hindsight, Miller and Miller (2007) have commented that participants’ perceptions were distorted by the CHCF funding. This funding encouraged them to participate, whether or not they were enthusiastic about the project. Without substantial CHCF financing, Karp (2007) has asserted that the SBCCDE (and its associated learnings) would not have taken place.

Lessons learned

Even though Canada, the USA and other countries have diverse financial models of healthcare, a value proposition must be clear to the stakeholders early in EHR plans. A comprehensive cost analysis (actual and potential) should be conducted and examined by the appropriate stakeholders to avoid the financial pitfalls that are related to unanticipated expenses.

Politics

The obvious technical and financial woes created a rift among some stakeholders of the SBCCDE. Confidence and trust in the project and each other appeared to decline, while scepticism and doubt rose. The CHCF (the funding agency) and CareScience were the two organizations that held the purse strings, the decision-making roles and the associated power. The CHCF and CareScience were the “main drivers and most eager participants of SBCCDE” (Miller and Miller 2007). In retrospect, Brailer (2007) has recognized that stakeholder diversity is key to improving healthcare project outcomes.

Lessons learned

Communication and collaboration with and between stakeholders is vital. Those involved in an EHR project need to take the time to develop relationships, define roles and responsibilities and establish a rapport. Accountability, confidence and trust are essential elements of a true partnership.

Legalities

Brailer has reported that once the technical concerns were under control, legal issues such as liability, information security and privacy began to arise (Pulley 2007). Concerns arose over issues such as who has access to data, how personal health information is used and regional differences. Liability emerged as the

key legal hurdle, and was highlighted when data providers mistakenly sent highly confidential information to the exchange (Miller and Miller 2007). The underestimated legal framework was an intensely complicated and expensive process to build.

Lessons learned

Proactively examining legal matters is the best legal defence. The involvement of an experienced legal team and committee that specialize in liability, security, privacy, access to information and confidentiality is advantageous. Encourage and invite questions from stakeholders, address concerns and be prudent.

Delays

A sense of chronic delay impacted the reputation of the stakeholders and the project. Multiple project launch announcements were made, and Greene, who served as chair of the SBCCDE during most of its existence, has admitted that – over the eight years from the project’s conception to its death – the community became cynical and these announcements were generally ignored (Fried 2007). Karp has agreed that the demise of the project can be traced to “fatigue” while waiting (Havenstein 2007). The constant delays resulted in poor momentum, decreased credibility and increased doubts (Miller and Miller, 2007).

Lessons learned

Realistic expectations should be formed from inception and throughout the project phases. Avoiding delays is not always possible – but accounting for them is.

Demonstrating Value

In order to embrace data sharing, physicians, organizations and consumers must realize the value of operating in a more complex environment. Information will not be shared until there is a reason to share it (Diamond and Shirky 2008). Many physicians reported that they could already access much of the same information online that the SBCCDE would provide (Miller and Miller 2007). Upon termination of the project, the CHCF (2007) shared that “stakeholder buy-in is not achieved through a theoretical construct, but through value delivered.” The lack of clear rewards, stake, connections and repercussions does not support a value-based model.

Lessons learned

Consumers must be well-informed of the value that they can expect. It is critical to elicit stakeholders’ requirements (including those of direct users) early in the development phase so that the project can be tailored to meet people’s needs and provide them with relevant value. In reality, EHRs are a “stacked cost” and take a long time to demonstrate financial value. One day it will cost more money to be without an EHR than to have one. For now, however, we will pay today and reap value later.

Discussion

Going forward, there are ample opportunities to enhance the chances of EHR success. As this case study illustrates, even though we may possess strong technical capabilities, multiple factors must be considered. Computerizing health records does not simply translate to positive health outcomes. When you “computerize an inefficient system, you will simply make it inefficient faster,” and we must resist any “magical thinking” that technology will fix our broken system (Diamond and Shirky 2008). Clear, people-centric business cases and visions, collaborative partnerships and the amalgamation of health, business and IT may prove to be meaningful drivers of successful EHR initiatives.

This case study continues the conversation from a recent article published in *ElectronicHealthcare* (Protti 2008). In that article, Dr. Denis Protti, a respected professor in the School of Health Information Science, University of Victoria, investigated the successes and challenges of RHIOs and invited Canadians to explore the lessons presented. He concluded by recognizing the advantage of our Canadian healthcare system, and left us with questions and thoughts around our own accomplishments. In the same issue, an American looking “north across the border” shared his view of misaligned incentives that exist within the US healthcare system (Garets 2008). He said that, as Canadians, we should be thankful for our system and our national funding source for healthcare IT (Canada Health Infoway). He felt that Canada holds a model that may have global benefit.

It is unfortunate that the SBCCDE project did not succeed. Nevertheless, the value that is emerging from the life of the project is very much an example of success. This is a call to fellow Canadians to share their experiences with the world, and an invitation to others internationally to evaluate our Canadian efforts. Hopefully, as stakeholders communicate their realizations and know-how, a body of collaborative knowledge will grow.

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