

LESSONS LEARNED IN Healthcare Information Technology

Moving from Data Capture to an HIT Infrastructure that Supports Healthcare Transformation

The **medical industry wastes more than \$910 billion annually** on avoidable, identifiable issues like administrative inefficiency, lack of coordination, unnecessary care and provider errors. Outdated technology and non-interoperable systems contribute significantly to that total by making the exchange of patient data an unnecessarily difficult and slow process.¹



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Last year, a large self-insured employer requested a meeting with an FTI Consulting client which was in the process of implementing a clinically integrated organization. The employer, tired of ever-rising health care costs, wasn't going to wait for the health system to transform itself. The employer's CEO pulled no punches in demanding an immediate \$1M reduction in annual healthcare expenses or he would move his book of business to another healthcare organization. While the health system ultimately reached a more tenable agreement, having to accept this Faustian bargain was not something that either the employer or the health system wanted to repeat.

In a second situation the CEO of a multi-hospital health system was asked to consider managing the population of a large self insured employer at a fixed fee. The CEO did not have the information necessary to evaluate the proposal, given the lack of population management tools. He promised his leadership team that he would never again be caught in a position of not being able to evaluate and consider an opportunity to provide care to an employer in his community. In both of these cases the health system CEOs found themselves, like many of their peers around the country, struggling to transform their businesses without right tools, adequate infrastructure or the skills necessary to manage populations.

The challenge is that there are few end-to-end vendors that provide a single solution that meets these requirements. Rather, healthcare providers have had to cobble together offerings around population health, data warehouse, disease registry and care management, health information exchange and even patient engagement offerings. In this article we will define and discuss each of these areas, attempting to provide answers and direction to those looking to transform healthcare delivery.

At the federal level, the Certification Commission for Health Information Technology (CCHIT) has developed an HIT Technology Framework to support this transformation. The Primary HIT Requirements² identified by CCHIT include the following:

Information Sharing between and among clinicians, patients and other authorized entities	Data Collection and Integration from multiple clinical, financial, operational and patient-derived sources	HIT functions supporting Patient Safety	Strong Privacy and Security protections
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Transformative HIT Infrastructure

1. **Population Health**
2. **Data Warehouse**
3. **Disease Registry and Care Management**
4. **Health Information Exchange (HIE)**
5. **Patient Engagement**

1. Population Health

Population health has been defined as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group.” Population health initiatives have focused on the coordination of care delivery across a population to improve clinical and financial outcomes, through disease management, case management and demand management. To accomplish this, providers and organizations leverage patient data to analyze morbidity patterns and predict financial risk. Both clinical and financial outcomes are improved by comparing patient data against quality guidelines and identifying care gaps that providers can fill with focused patient outreach and care management.

Vendors in the population health space have dramatically increased over the past several years and include a variety of large and small companies including Aetna, Cigna, UnitedHealth, Medventive (McKesson), Phytel, Advanced Plan for Health, Valence Health, and Crimson (The Advisory Board).

LESSON LEARNED #1: In selecting a population health vendor the selection process often comes down to validating the claims made by an over-eager sales person promising that the system will integrate with the electronic health record, care management system, etc. The cautionary note is to place a heavy emphasis on due diligence to avoid a solution that is only “*integrated at the PowerPoint level.*”

LESSON LEARNED #2: Health systems often pursue one of two paths with regards to technology. The first path is known as “best of breed.” As the name infers, a ‘best of breed’ solution often provides the most robust department/functional solution. Among the downsides of this approach is both the high cost and difficulty in achieving integration with other purchased solutions. The second path is known as “end to end” whereby a single vendor (or very few) are selected based on their **demonstrated** ability to achieve interoperability.

Lastly, healthcare providers can reach out to the research firm KLAS (www.klasresearch.com), an organization much like Consumer Reports, that publishes reviews of HIT products and companies based on interviews and surveys of healthcare providers.

2. Data Warehouse

A high priority for healthcare organizations is the establishment of a data warehouse that can accept, store, normalize and integrate data from multiple clinical, operational, financial and patient derived systems.

One of the key points of decision in selecting a data warehouse approach has to do with the concept of ‘late-binding’ and ‘early binding.’ Late-binding enables users to rapidly combine disparate data very quickly for targeted analysis and is preferred in the transformation to population management because it enables users to rapidly combine disparate data very quickly for targeted analysis. Many healthcare organizations have in place data warehouses which utilize ‘early binding’ that requires data to be mapped to standard vocabularies and is limited by the both the construct and the length of time to accomplish the mapping.

Vendors in the data warehouse space include Health Catalyst (founded by former employees of Intermountain Healthcare), McKesson, Epic (Cogito), Cerner (PowerInsight), Oracle, and IBM.

LESSON LEARNED #1: The most important lesson learned is the decision to actually pursue a data warehouse. Healthcare providers that reach this conclusion have done so primarily due to the desire to own their data.

LESSON LEARNED #2: It’s important to understand the difference between ‘late-binding’ and ‘early-binding’ in the approach to selecting and implementing a data warehouse.

3. Disease Registry and Care Management

Disease registries are used to track patients with specific diseases and to ensure that they are receiving appropriate level of care. Even when disease registries are used, many times they are not integrated with the electronic health record/electronic medical record (EHR/EMR).

Vendors in the disease registry space include most of the large HIT companies (e.g., Epic, Cerner) and other firms including Crimson (The Advisory Board), MDinteractive and Remedy Informatics.

LESSON LEARNED: In selecting both a disease registry and care management solution the key is to validate the level of integration between these solutions and the electronic health record. It is especially important given the workflow of the care managers, in both accessing the patient’s record and in the documentation for other providers. The absence of integration between these systems will result in unnecessary duplication, broken workflow, and a missed opportunity to better manage both chronic conditions and effectively manage the population.

4. Health Information Exchange (HIE)

Health Information Exchange (HIE) is the mobilization of healthcare information electronically across organizations within a region, community or health system. HIE’s are established at the state level with the goal of facilitating the sharing of information in a secure, standardized and electronic format, enabling information to follow the patient, rather than being housed in one physician office or a single hospital system. HIE’s act as a health information “super highway” to help the movement of health data securely, to improve care coordination and to obtain defined clinical and financial outcomes.

Vendors in the HIE space include Medicity (Aetna), OPTUMInsight (UnitedHealth), Alere Accountable Care Solutions (formerly Wellogic), Surescripts, ICA, in addition to large HIT companies like McKesson (Relay Health), Epic, and Cerner.

LESSON LEARNED: In selecting an HIE partner it is important to validate that the HIE is able to demonstrate a superior performance level (e.g., provide real-time results), scalability, timely reporting and solid analytics, HIPAA certified security standards and low total cost of ownership.

5. Patient Engagement

Patient engagement is loosely defined as involving patients in their own personal care. Empowering patients to actively process information, decide how that information fits into their lives and act on these decisions is a key driver to improving quality of care and reducing costs.⁴

Healthcare providers utilize portals and other technologies to provide access to the patient's electronic record. This enables electronic patient-provider communications including reminders, online health risk assessments, appointment scheduling, etc. CMS' Stage 2 of the Meaningful Use incentive includes patient engagement requirements that call for physicians to "provide patients the ability to view online, download and transmit their health information within four business days of the information being available to the provider."

Vendors in the patient engagement space include Aetna, Epic, Cerner, McKesson, Phytel, Agfa HealthCare, and MedSeek.

LESSON LEARNED: Patient engagement requires that healthcare providers seek ways of engaging, empowering, and informing the patients and populations that they serve. There is no single solution to adequately address patient engagement but instead it requires a combination of current technology investments (e.g., EHR/EMR, HIE), infrastructure (e.g., care management) and processes (e.g., communication protocols) that combine to address the healthcare needs of the patients and populations served.

In Conclusion

Healthcare organizations are being challenged to adapt their healthcare delivery models to one that relies less on in-patient volumes, accepts new value-based payment models (e.g., Shared Savings, Bundled Payments, etc.) and has the infrastructure (e.g., EHR/EMR, population health, disease registry, etc.) necessary to manage populations. This transformation is forcing hospitals and physicians to align to address the new healthcare value proposition – **improve quality and reduce cost, but first do no harm**. Technology alone will not transform healthcare; however, not making these investments – or making poor investments – will hinder the ability of an organization to achieve the timely transformation necessary to remain both competitive and successful in the community it serves.

References:

1. Berwick and Hackbarth, JAMA, 2012.
2. CCHIT: A Health IT Framework for Accountable Care.
3. Greg Stoddart, PhD and David Kindig, MD, PhD, American Journal of Public Health, March 2003.
4. HealthAffairs, California Healthcare Foundation, April 2013.



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