

Issue Date: Online,

Leveraging HIE to Improve Care Delivery

A case study demonstrates how and why one Brooklyn-based provider organization chose an HIE platform to provide better care to its underserved patient population

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Every health care provider is familiar with the balancing act required to provide optimal care delivery while simultaneously controlling costs. It's a scenario that becomes even more challenging when the majority of the patient population you serve are underinsured, uninsured or insured by a public payer. The situation is exacerbated when that same community has been historically underserved in healthcare and experiences an undue disease burden.

At the Brownville Multi-Service Family Health Center (BMS) in Brooklyn, N.Y., we are taking a major step to meet that challenge by making use of the Brooklyn Health Information Exchange (BHIX) for bidirectional transfer of critical patient information with health care providers at other locations. BHIX is one of multiple regional health care information organizations in New York that are leading the health information exchange (HIE) efforts that are the cornerstone of the Nationwide Health Information Network (NHIN). Running on the InterSystems HealthShare, Cambridge, Mass. HIE platform, the BHIX network includes hundreds of clinical end-users at multiple hospitals, nursing homes, home care agencies and health centers throughout Brooklyn and Queens, N.Y. One of the organizations connected to BHIX is Brookdale University Hospital and Medical Center and its affiliates. It's with Brookdale that BMS is working on its first automated HIE project.

As a Federally Qualified Health Center, BMS provides high-quality medical, dental and social services to a patient base that includes 27 percent of Brooklyn's entire high-need population. When necessary, we refer our patients to surrounding hospitals and providers for specialty care. For example, mothers-to-be receive prenatal, perinatal and postnatal care at BMS. However, for certain tests as well as when the time comes to deliver the baby, services are provided in part by Brookdale.

As a result, transfer of patient records, including visit history, test results, ultrasound and screening reports, patient/family history, medications and allergies, depends on ongoing exchange via fax, mail, staff or even patients who hand-carry the requisite documents between the locations. As most are aware these methods can be quite unreliable and result in poor communications among health care providers and patient frustrations. This can also lead to duplication of efforts when certain important information is required but not received, necessitating repeating of test or procedures. It can also lead to delays in care and potentially adverse outcomes. To decrease the barriers in terms of access to care that this manual process entails, BMS is moving to automated HIE.

The Road to HIE

The HIE process began more than a year ago as part of a New York state-funded Health Care Efficiency and Affordability Law for New Yorkers (HEAL NY Phase 5) grant. In order to define the scope of work for this project, a series of discussions took place with BHIX, BMS and key stakeholders about issues running the gamut from how the system would work, through potential impact on workflow, and staff and clinician training, to name just a few. Based on the grant's program requirements and organizational priorities, an internal decision was made to implement the system beginning with the OB/GYN Use Case.

The process of getting physicians to buy into the need to enter patient data into the BMS electronic health record (EHR) was a fairly minor challenge with little internal resistance. Based on best practices, BMS uses a form developed by the American Congress of Obstetricians and Gynecologists (ACOG) as the standard for providing treatment at all stages of pregnancy. Some of our physicians felt that entering ACOG-based data into the EHR was more time-consuming than writing it down, but with training, template development, and encouragement, that challenge was overcome. The OB/GYN physicians became internal champions of the HIE transition.

Ongoing communication with appropriate personnel at Brookdale has been another major emphasis. Since we are dealing with underserved patients who are impoverished and deal with a multitude of psycho-social issues that may create barriers to obtaining health care, it is imperative for both organizations to eliminate any potential barriers to care delivery and to reach total agreement on data formats. Once a patient has registered at BMS, for example, she will be linked to her records at Brookdale, so when she visits either facility, care can be better coordinated by the providers at both organizations.

HealthShare-based BHIX enables bidirectional HIE by providing a single interface for data access in the locations connected to the network. So, once the data has been entered in our respective source systems, it's brokered and aggregated by BHIX and available in any BHIX-supported locations. At BMS, we will access BHIX data via a single-click query directly through our organization's EHR. Over time, we expect patient information updates to be event-driven so that when a birth takes place at Brookdale, for example, the information can be proactively pushed to BMS clinicians rather than waiting for them to enter a query.

Better Care Delivery, Improved Outcomes, Easier Reporting

The benefits of joining BHIX and enabling automated HIE are compelling and multi-layered. First and foremost is the improvement in patient care and outcomes that is a result of lowering communication hurdles that are inevitable when dealing with multiple facilities. And, the economics surrounding this benefit are positive. Payers are increasingly interested in financially supporting programs that improve outcomes and facilitate care management models of care and may be incentivized to put resources behind such programs in the early term. Once an EHR is in place, tracking results becomes much easier.

Administering appropriate interventions and tests will help us to demonstrate and quantify decreased infant mortality, improved birth outcomes, and increase in the number of mothers getting into care at an earlier date during the pregnancy. More immediately, the BHIX network running on HealthShare can provide such information as the number of patient consents for data access, the number of data sent across the network and the level of HIE network usage—all of which are of interest to the payer community.

Finally, it's difficult to overstate the positive impact of HIE on organizational reporting. For example, a Uniform Data System report including the birth weight of every baby born to a mother who received care from BMS during 2010 had to be submitted to the U. S. Department of Health and Human Services during 1Q11. With the HIE implementation scheduled to roll out in that timeframe, BHIX will make it possible to easily retrieve that historical data—a very immediate and demonstrable benefit of HIE.

At present, an estimated one million patients are included in the BHIX enterprise master patient index. BMS currently serves a patient population of over 18,000 regular users, all of whom will potentially benefit from the HIE implementation.

Recommendations

Solutions to the technology challenges tied to HIE have been addressed through collaborative efforts among BMS, BHIX and its partner, InterSystems. There have been some issues with natively connecting the EHR to BHIX through some very new types of Web services and protocols. However, based on recent testing, these are being successfully resolved. The HealthShare platform, which is also being used for multiple breakthrough regional HIE projects in the U.S. and for a countrywide EHR initiative in Sweden, is operating smoothly. Its adherence to industry-accepted standards of the Integrating the Healthcare Enterprise consortium is expected to enable BHIX to provide fast, seamless connectivity to many other locations once the initial project with Brookdale goes live.

On the non-technology side, BMS has some suggestions that may be of practical use for health care providers taking early steps on the road to HIE:

- **Assess and Confirm Participant Commitment**—How much do the health care organizations want HIE and will they commit the resources needed to make it happen? A strong commitment to a common goal makes the process much more bearable.
- **Enable and Support Strong Project Management**—A champion who keeps all of the participants on task, ensures all participants attend meetings and does whatever is needed to get data flowing from multiple entities into a usable format is essential to HIE success. BMS brought in an outside consultant to handle project management—an approach that avoids the issues that can arise if an internal staff member isn't given the necessary authority to manage all participants. BMS was able to contract with the consultants via a financial grant and thereby integrate HIE into its strategic patient care management initiatives.
- **Obtain and Maintain Required Funding**—Obviously, there is a significant, but variable cost in time and dollars to enable HIE. If, for example, the first BMS use case had involved getting information from a radiology center via a point-to-point interface, rather than exchanging prenatal data through the HIE, the process might have initially been less costly; though more costly to scale in the long run. Having the right financial support is essential.
- **Set clear goals and objectives**—It is important that there is an agreement of what data needs to be exchanged and how that data will flow from one organization to the other. At BMS we described our ideal model of what data points need to be exchanged as well as how and when the data should flow from one organization to the other. Although we have not achieved the ideal model due to some technological challenges we intend to continue pushing to achieve this model and challenging organizations such as BHIX to help us in getting there.

And, perhaps most important, be sure to get buy-in for HIE from the clinical end-users. Clinicians must recognize the value delivered by implementing HIE and use it on a regular basis.

Next Steps

Once BMS goes live with HIE and BHIX, our initial focus will be on assessing the system's impact and benefits delivery. Then, we'll identify and prioritize the next scenarios where HIE will be of most benefit. For example, we may wish to receive notifications from BHIX when one of our patients has an emergency department (ED) visit...the more ED data that is available in real-time, the better the coordination of care for each patient. At the most basic level, anyone touching a patient's life becomes accountable for a patient's care and from the BMS perspective, the better the HIE, the better our ability to be a true accountable care organization.

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