



# A Look Inside

## **BHIX** Brooklyn Health Information Exchange

An overview of the HIE (health information exchange) technology, processes, and benefits of one of New York's largest RHIOs (Regional Health Information Organizations).

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**B**HIX (Brooklyn Health Information Exchange) is an RHIO aligned with the State Health Information Network of New York (SHIN-NY) that offers comprehensive services to support care coordination through an efficient and meaningful exchange of health information. The seeds for the BHIX project were planted in 2005, when the executive and clinical leaders of a consortium of hospitals, nursing homes, home health providers, and insurers in southwest Brooklyn started to discuss how they could improve patient care in their community by sharing patient data in a standardized way. At about the same time, New York State launched its HEAL NY (Healthcare Efficiency and Affordability Law for New Yorkers) program, which provided grant funds for the development of new healthcare programs and services. The consortium of health leaders in Brooklyn applied for a HEAL NY Phase 1 grant through Maimonides Medical Center (one of the leading facilities involved in the discussions) and received funding for the HIE project in 2006. In July 2007, the RHIO was incorporated as BHIX and received two additional HEAL NY grants.

“From the very beginning, BHIX has been clinician driven,” says Irene Koch, executive director of BHIX. “They are the ones that got the initiative started, and we have continued to involve clinicians across the continuum of care to tell us how best to structure the exchange of patient health information. In other words, to tell us what data is relevant, how they would like the data to be organized and presented, and how to best leverage data from different sources. This involvement ensures clinicians use and get value out of the system.”

### **UNDERLYING TECHNOLOGY**

InterSystems HealthShare serves as the core HIE technology for BHIX and integrates with an IBM Initiative electronic MPI (Master Patient Index). The two systems work together to identify and link patients who may register at different facilities with slightly different names and takes into account misspellings or typos in patient data. This process allows BHIX to link and aggregate relevant health records from patients across several healthcare institutions, which is key to promoting the value of HIE.

BHIX also works with Active Health Management to pilot a personal health record which offers clinical decision support, analytics, and nurse coaching interventions as part of its platform. These services, along with messaging and event notifications, are among the key components that will support ongoing and evolving care management programs.

### **DATA SECURITY**

To ensure patient data remains private and secure, BHIX follows federal and New York State privacy and security guidelines, as outlined by the New York eHealth Collaborative (NYeC). This statewide body has issued several policies on how HIE consent rules and patient data security must be governed. Some of the processes BHIX has implemented to comply with these policies include providing patients with granular control over which providers are granted access to their health information on a regular basis. This involves collecting patient consent forms and electronically transmitting them through ADT (Admission, Discharge, and Transfer) messages from providers' systems that are connected to



BHIX and tracking (and abiding by) this information in the HIE system. User authorization and authentication is also a critical component of data security for BHIX. This not only includes username and password verification, but also role-based access controls.

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*Irene Koch,  
Executive Director,  
BHIX*

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### PROVIDER PARTICIPATION

Adding a healthcare provider to BHIX is not necessarily a simple plug-and-play process. Each healthcare facility needs to be assessed to determine which IT and data management systems it currently has in place, how these systems currently interface, and how they can potentially be integrated with BHIX. A thorough understanding of each facility's technology roadmap is also necessary to determine which pending projects may impact BHIX. Once all this is analyzed, BHIX prioritizes which data from the provider would be easiest and most valuable to integrate into the exchange. In other words, it's typically unfeasible to add all of a provider's patient data to BHIX at once. Instead, most facilities begin by adding data from a single departmental system first (e.g. inpatient, outpatient, emergency department, etc.) and incorporating other systems at a later date. As stakeholder systems are brought online, and interoperable electronic health records are adopted and implemented, the native interoperability of that patient data increases.

### PROGRESS TO DATE

To date, six hospitals, nine federally qualified health centers (FQHCs), seven nursing homes, six care management/health service centers, five homecare agencies, and six payers are part of BHIX. These providers have fed approximately 1 million patient records into the HIE.

BHIX continuously works to expand the HIE as well. It is currently working with additional hospitals in the area to add them to the network. Furthermore, the organization is actively working with NYeC to harmonize data sharing amongst BHIX and other RHIOs in New York. This is a work in progress that involves a tremendous amount of design and governance, but the goal is to have a statewide service, which includes data and functionality

from all New York State RHIOs, in operation by the end of 2011.

While growth plans are ongoing, the benefits of BHIX have already been realized and clearly communicated by the clinicians that use the HIE. For example, reports of how BHIX was leveraged to obtain up-to-date data on an unresponsive patient that presented in a Brooklyn ER, thereby preventing an adverse drug interaction or treatment, are commonplace. However, recently the most positive feedback is coming as a result of the new clinical messaging and event notification functionality that BHIX has built and deployed.

Initially, BHIX was set up as a clinical portal that allowed authorized clinicians to share aggregated data at the point of care. The new clinical messaging and event notification features that have been added to the HIE can now proactively alert clinicians and care navigators that important, real-time patient data is available through BHIX, via a secured Clinical Message Center.

For example, if a patient with a qualifying diagnosis presents in an ER, an alert or electronic notification can immediately be sent to the care navigator's smartphone (without PHI data), notifying them to check the BHIX Clinical Message Center, where an event notification will inform them of the patient's whereabouts and condition. This allows the clinician to stay abreast and involved in the patient's treatment and allows him or her to coordinate appropriate follow-up care, all of which can help prevent a hospital readmission.

“Proactive messaging and alerts as part of our HIE will have a significant impact on providing coordination of care across institutional boundaries,” says Koch. “These features have already proven popular with our clinicians. The ability to receive notices on their Blackberrys or iPhones is something they are particularly excited about.”

BHIX has initially focused on applying this clinical messaging and event notification functionality to mental health patients within the community. These patients generally receive their care at a variety of facilities (e.g. family practitioners, mental health facilities, therapists, hospitals, nursing homes, etc.) and have a high tendency for repeat hospital admissions. BHIX has built triggers into the HIE to enroll patients with certain diagnoses and track their inpatient admissions/discharges, Emergency Department (ED) admissions/discharges, psych admissions/discharges, and patient death. When any of these events occurs, a notification is immediately sent to the appropriate clinician or care navigator so appropriate action can be taken.

“We have already generated a significant number of events by applying this notification functionality to our mental health patients,” says Koch. “This is an indication that this functionality has a great deal of potential to reduce repeat admissions, improve patient care, and reduce overall healthcare costs in our community.” □