

Kentucky Health Information Exchange Improves Care Coordination and Advances Meaningful Use

Kentucky's Health Information Exchange is a secure, interoperable electronic network that supports statewide exchange of patient health information among healthcare providers.

The [Kentucky Health Information Exchange](#) (KHIE) is a health information system that provides interoperability between physicians, hospitals, and laboratories throughout the state. The KHIE system is HIPAA compliant and meets all nationally recognized standards for security and privacy. The flexibility of KHIE's infrastructure makes it easy for providers to engage in health information exchange (HIE) and achieve Meaningful Use (MU), regardless of what health records system they use. Ultimately, KHIE strives to improve care coordination and overall health outcomes while facilitating the adoption, integration, and MU of electronic health records (EHRs).

Steps Taken

- In 2005, the Kentucky Senate passed [Bill 2](#) to create a secure, interoperable statewide electronic health network to be housed in the Cabinet for Health and Family Services (CHFS). This legislation authorized the University of Kentucky and University of Louisville to jointly establish and operate the [Health Care Infrastructure Authority](#), which provides leadership in the redesign of the healthcare delivery system using information technology. In 2010, the governor appointed the [KHIE Coordinating Council](#) (KYHIECC) to advise and assist the [Governor's Office of Electronic Health Information Exchange](#) (GOEHI) in advancing statewide health information exchange.
- Because KHIE is based in CHFS, Kentucky brought social service programs, Medicaid, and other internal staff onboard in KHIE's development. The Kentucky Department for Public Health (KDPH) designated KHIE as its common data hub, strengthening KHIE's purpose and centralizing data. Medicaid seeded KHIE with four years of claims data.
- In 2007 Kentucky's Department of Medicaid Services (DMS) received a \$4.9 million Medicaid Transformation Grant, which enabled CHFS to select a vendor to develop KHIE's core functionality, with six pilot hospitals and one clinic signing the KHIE participation agreement. On April 1, 2010, the first KHIE pilot went live, and GOEHI submitted a strategic and operational plan to the Office of the National Coordinator for Health Information Technology (ONC) for approval later that year.
- ONC's [State HIE Cooperative Agreement Program](#), a Health Information Technology for Economic and Clinical Health (HITECH) Act initiative jointly funded by CMS, and the American Recovery and Reinvestment Act provided \$9.75 million in funding for KHIE's statewide rollout.
- In 2011, the state's public health laboratory became one of the first agencies to contribute to KHIE. KHIE also began serving as a conduit for providers to send data to CDC's [National Syndromic Surveillance Program BioSense Platform](#). Eligible providers who demonstrated MU received incentive payments.

- KHIE has 762 signed participant agreements, representing 3,077 locations statewide.
- Ninety percent of the state's acute care hospitals are live on KHIE.
- There are 1,087 live connections on KHIE sharing data.

- Kentucky received a \$2 million [State Innovation Models \(SIM\) Initiative Model Design Round Two](#) award to develop a state healthcare innovation plan on the state's strategy for healthcare delivery and payment reform. KHIE is a centerpiece of this plan, as described in the [SIM grant application](#).
- Kentucky passed a disease reporting [regulation](#) mandating that labs submit reports for selected diseases to KDPH electronically through KHIE, starting in October 2016. KHIE will act as data intermediary to route the electronic laboratory reporting data to the [National Electronic Disease Surveillance System](#) (NEDSS) housed within KDPH.
- As part of facilitating Transitions of Care for MU Stage 2, KHIE gained new functionality as a [DirectTrust](#)-accredited health information service provider, allowing providers to electronically receive and send secure and encrypted patient health information to outside organizations.¹
- Kentucky's 2015 [Medicaid Health Information Technology Plan](#) requires the Northern Kentucky University College of Informatics to conduct a programmatic assessment of the ONC State HIE Cooperative Agreement with KHIE. This ongoing evaluation analyzes HIE activity, progress, sustainability, and targeted initiatives that use KHIE's infrastructure (e.g., a behavioral health sub-grant, state Emergency Department Quality Care Workgroup, and quality).

Results

- KHIE's technical infrastructure meets national interoperability standards and supports bidirectional functionality with all Kentucky regional health information organizations, the nationwide HIE, and other national networks. It also provides connection to both state and private lab data, cancer registries, EHR vendors, and syndromic surveillance.
- Core components of KHIE include: a master patient/person index with data collected from participating providers and Medicaid, a record locator service, provider/user authentication, logging audits and alerts, services supporting electronic prescribing, patient demographics, laboratory and imaging reports, past medical diagnoses, dates of services and procedures, hospital stays, a statewide immunization registry, and a provider portal with secure messaging capabilities.²

KHIE Metrics of Participation

- KHIE reports that as of [September 2015](#):
 - There are 762 signed participant agreements, representing 3,077 locations statewide.
 - There are 1,087 provider locations submitting live data and actively exchanging information.
 - There are currently 384 locations live with [Direct Secure Messaging](#), with additional providers in the work queue.
 - Ninety percent of acute care hospitals are live; the remaining 10 percent are in the queue.
 - Over 250,000 patient queries per week on average.
- As of October 2015, over \$200 million has been paid to Medicaid providers and \$334.2 million to Medicare providers through the [EHR Incentive Program](#).³

¹ KHIE. "Direct Secure Clinical Messaging." 2014. Available at <http://khie.ky.gov/nr/Documents/Direct%20Secure%20Messaging%20101%20-%208-1-14.pdf>. Accessed 10-25-2015.

² KHIE. "KHIE Fact Sheet: September 2015." 2015. Available at <http://khie.ky.gov/nr/Documents/KHIE%20Fact%20Sheet%20-%20September%202015.pdf>. Accessed 10-25-2015.

³ KHIE. *The KHIE Connection*. 2015. 2: Issue 8. Available at http://khie.ky.gov/nr/Documents/KHIE%20Newsletter_issue9vol2%20July2015FINAL.pdf. Accessed 10-25-2015.

Current Usages

- KHIE enables healthcare providers to support preventive health and disease management.
- KHIE is actively onboarding providers to meet MU requirements for public health reporting of immunizations, syndromic surveillance, reportable labs, and cancer reporting.
- KHIE streams reports for most national notifiable diseases, including tuberculosis, to NEDSS. Plans are underway for KHIE to be used to track chronic cases of Hepatitis C, a priority state health concern, starting in October 2016.
- [ER Supportive Multidisciplinary Alternatives and Responsible Treatment](#) (ER SMART) is an initiative that aims to reduce super-utilizers of emergency departments (>10 visits a year), and is currently in 16 locations across the state. KHIE supports ER SMART by providing [clinical alert notifications](#) to improve care coordination and chronic disease management.
- KHIE has started onboarding correctional facilities across the state as part of improving inmate healthcare and coordinating care across the healthcare delivery system. One detention center is live; 13 other facilities are in the work queue.
- CHFS is working on developing a citizens' portal to address consumer engagement needs.

Lessons Learned

- HIE is a powerful tool to improve the population health, quality of care, and healthcare safety. Kentucky has established that as a public good, HIE should supersede technical, business, and bureaucratic barriers to improve population health.
- KHIE's development process took advantage of superagency structure. States that house public health and Medicaid under the same agency can adopt this strategy to develop a HIE.
- The value of information increases with use, and the value of one set of information increases when linked with other information. State HIEs should seek to link as many health record and social service databases as possible and aim for total provider participation. In addition to public health reporting, state HIEs should enhance consumer health engagement through the creation of a patient portal. Patient access to personal health records can strengthen consumer support for the HIE and potentially empower patients to be more active in their own healthcare.
- The MU initiative should be leveraged as an incentive for providers to participate. As criteria to determine MU expands beyond Stage 1, functionality should be added to support providers in further achieving MU requirements.
- Ongoing challenges remain due to the many non-interoperable EHR vendors that providers use. In Kentucky, many EHR systems are not yet ready to process the Continuity of Care Document (standard of patient data transfer) that makes a unified database of patient records possible. States should prioritize resolving interoperability issues to advance HIE development.
- The ultimate vision is to develop a statewide population health database with query capability to better address state health concerns and improve outcomes.

For more information:

Megan Miller
Director, Health Transformation
Association of State and Territorial Health Officials
Email: mmiller@astho.org

State Story



Polly Mullins-Bentley
Deputy Executive Director,
Kentucky Office of Health Benefit & Health
Information Exchange
Email: Polly.Mullins-Bentley@ky.gov

Kraig Humbaugh, M.D., MPH.
Senior Deputy Commissioner and Director,
Epidemiology and Health Planning,
Kentucky Department for Public Health
Phone: (502) 564-3418
Email: Kraig.Humbaugh@ky.gov