

## Thayer County Health Services | Hebron, Neb.



Project: Health Information Exchange for rural, highly mobile patient population in Southeastern Nebraska.

**Problem or challenge background:** Thayer County Health Services (TCHS) comprises a 19-bed critical access hospital and clinic in Hebron, Neb., with five satellite clinics. TCHS serves a population of 1,700, and their patients are a very mobile group. Recently, when TCHS counted its open patient records, there were records for 32,000 people, demonstrating that the system also is treating patients from areas outside of the county. Our challenge was to provide secure access to a patient's health information electronically—both within our system and from other care organizations—by adopting NHIN standards. A secure HIE also would help TCHS reduce costs by eliminating duplicate procedures such as tests, scans and X-rays and allow them to better serve patients by providing access to up-to-date medical records so physicians, nurses and pharmacists can accurately diagnose and make treatment decisions based on the latest data.

TCHS is an early adopter of NHIN-based technologies, and is definitely the smallest organization doing so.

### ●Technologies/systems used:

CONNECT, [Nationwide Health Information Network](#) (NHIN)-based open source interoperability software built through collaboration of 26 federal agencies and the CONNECT open-source community.

- [HMS electronic health record](#) (EHR) system
- [Mirth](#) Meaningful Use Exchange (Mirth MUX)

**Methods:** TCHS applied for and received a federal Rural Health Flex Grant of \$1.5 million, which enabled TCHS to set up an HIE for southeastern Nebraska that would serve as the backbone for connectivity in the region. TCHS used the funds to implement an EHR system and build the interoperability to allow for secure data sharing among organizations.

TCHS decided to pursue the NHIN for nationwide interoperability versus simply looking at the state level. With their EHR vendor, HMS, they built an HL7 admission/discharge/transfer (ADT) feed into the data repository, which then connects to the NHIN.

In implementing a NHIN backbone for the southeastern Nebraska HIE, TCHS is providing members with maximum flexibility in the technologies they use for interoperability. As long as what they're using includes NHIN standards and specifications, it will be interoperable with the HIE.

After NHIN standards were selected as the mechanism for nationwide exchange, TCHS began working with Mirth to implement the NHIN interoperability strategy.

CONNECT software uses NHIN standards and governance to ensure the HIE is compatible with other exchanges.

In September 2009, TCHS finalized a contract with Mirth to build the NHIN interoperability. By the end of second week, Mirth MUX was already interfaced with TCHS' EHR system. By the end of September, Mirth and TCHS were setting up inbound and outbound requests to the NHIN via CONNECT.

**Results:** Thayer County Health Services has seen medication errors drop from 48 per quarter to 6 per quarter. They also have increased the level of [medication reconciliation](#) through e-prescribing from a range of 12 percent to 33 percent, to 75 percent to 100 percent today. This enabled them to achieve cost savings and reduce the likelihood they'll overlook an allergy or prescribe drugs that interact poorly.

This project has been a key part of TCHS' efforts to achieve HIMSS Stage 7 EMR Adoption.

**Conclusions:** By achieving near 100 percent e-prescribing, medication errors have dropped from 48 true medication errors per quarter to between six and nine real errors and near-misses. The system also tracks the timeliness of medications administration, so even if a nurse delivers a medicine a minute late, it appears as an error. By providing a more accurate medical record for patients, doctors and nurses are better able to help patients more effectively.

In addition to better treatment within the TCHS system, as the network of NHIN-based exchanges grows throughout the country, when patients travel, their records can follow them.

**What makes this a particularly innovative health IT project?** Most organizations that implement the NHIN and CONNECT are large, nationally recognized care organizations throughout the country. Thayer County has shown that a little hospital in rural Nebraska can do it, too.