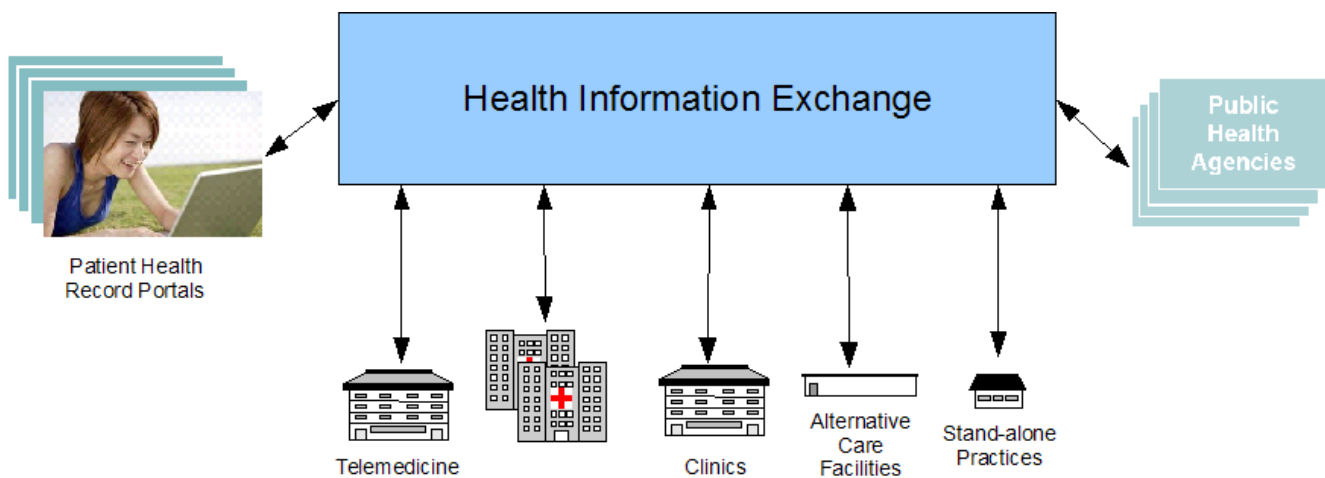




Building a Health Information Exchange for the State of Missouri

What is an HIE?

A Health Information Exchange (HIE) enables sharing of electronic health-related information among health care providers, patients, and public health agencies.



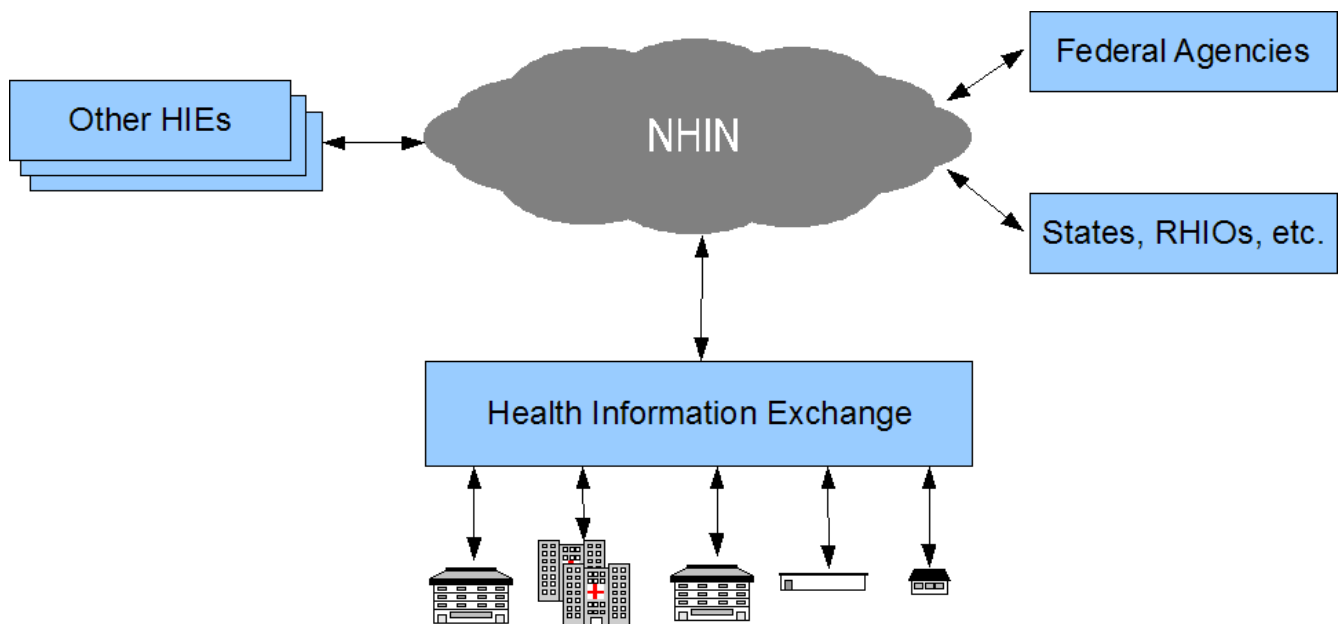
A health information exchange establishes standards and policies for sharing health information among disparate electronic health record (EHR) systems with the goal of improving patient care. An HIE must be:

- Secure – to protect sensitive patient information, in accordance with federal and state laws, and as directed by individual patients.
- Inclusive – to establish a level playing field for all participants and to apply to the broad problem of public health.
- Dependable – because it plays a mission critical role.
- Replicable – to be repeatable across regions and states with minimal incremental cost.
- Standards-based – to ensure interoperability, to avoid vendor lock-in, and to take advantage of best-of-breed solutions.
- Scalable – to accommodate growth without sacrificing dependability or performance.

A single HIE may facilitate information sharing among entities in a region. To ensure interoperability with and exchange of information across regions and states, an HIE should ultimately connect to the Nationwide Health Information Network (NHIN).

What is the NHIN?

The Federal Health Architecture (FHA), made up of representatives of over 20 Federal agencies, including the Department of Defense, Department of Veterans Affairs, Social Security Administration, Centers for Disease Control, and Indian Health Service, is sponsoring development of the Nationwide Health Information Network (NHIN). The NHIN, which is facilitated by the Office of the National Coordinator for Health Information Technology (ONC) within the Department of Health and Human Services, establishes standards for interoperability and exchange of patient records and other health information. The purpose of the NHIN is to tie together health information exchanges, integrated delivery networks, pharmacies, government health facilities and payers, labs, health care providers, private payers, and other stakeholders into a "network of networks."



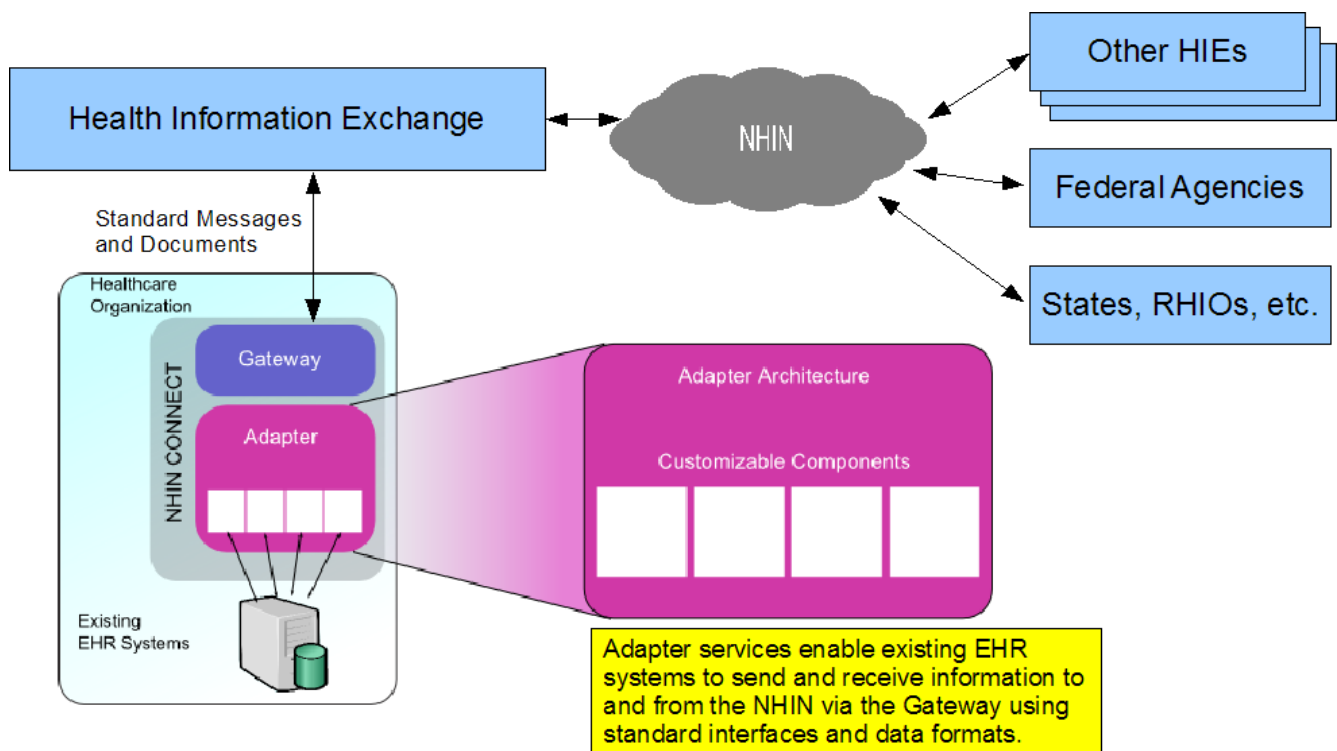
The NHIN adopts interoperability standards recognized by the Secretary of Health and Human Services, as well as public and private sector specifications, participation agreements and policies. To enable health information exchanges over the NHIN, the ONC is working to develop the necessary governance processes and legal framework for participation in the network.

What is NHIN CONNECT?

In addition to defining NHIN standards and policies, the Federal Health Architecture is also sponsoring development of NHIN CONNECT, an open source software solution that enables health care entities to connect their existing health information systems to the NHIN. Based upon service-oriented architecture (SOA) design principles and web services interfaces, NHIN CONNECT exhibits a flexible, customizable architecture that allows implementations to be hosted on different hardware and software platforms, as well as allowing services to be implemented using different programming languages.

NHIN CONNECT is divided into two layers:

- The Gateway interfaces to the NHIN, implements core NHIN services, and orchestrates the flow of messages to and from the NHIN.
- The Adapter includes several customizable components and is used to integrate with existing EHR systems through well-defined service interfaces. Built-in adapter components can be replaced by custom implementations to adapt to existing EHR systems and patient information repositories.



Building Missouri's Health Information Exchange (MOHIE)

OCI believes the NHIN CONNECT open source software can be used to build a health information exchange solution for the State of Missouri. By leveraging the substantial work that has already gone into the development of NHIN CONNECT, the resulting HIE solution will be secure, inclusive, dependable, replicable, standards-based, and scalable, and can be achieved at much lower cost than by building it from scratch or getting trapped in a proprietary solution.

As a pilot project, OCI proposes to build a prototype Missouri HIE solution based on the NHIN CONNECT software. The prototype will demonstrate many core HIE characteristics and solve many of the problems of a full HIE. The prototype will have the following capabilities:

Patient Discovery and Correlation

Each system within a HIE will have its own list of patients, and its own mechanism for identifying a patient. Identifying patients (discovery) in two different entity systems which represent the same physical person, and treating them as one (correlation) is a challenge of the HIE. In addition, correlated patient information is private information that must be protected.

Document Query

Given a patient discovered in a remote EHR, a health care provider can query for that patient's care documents. Document query requests must be routed to the appropriate entities.

Document Retrieval and Presentation

Once a patient's documents are identified, a health care provider can select one or more documents to be retrieved from a remote provider and displayed locally.

Document Notifications

In addition to document queries, entities can subscribe to new and updated documents through the Health Information Event Messaging (HIEM) capabilities. This capability eliminates the need for a health care provider to repeatedly query for documents on a patient.

Message Routing

Each entity will have a point of presence within the HIE. The HIE will manage each of these connections, so that individual entities need not maintain a list of endpoints on the network. The HIE will route messages as needed to other entities or peer HIEs.

Entity Registration

Since the message routing will be performed by the HIE, and not by individual entities, the HIE will act as the authority assigning unique identity, and exchanging security certificates with each entity within the network. This capability eliminates the burden of identifying and establishing trust with each partner entity on the network.



Data Protection

Patient private data cannot be seen unless the patient has agreed (“opted in”) to sharing the data. Patient preferences for sharing are stored in the patient's Consumer Preferences Profile (CPP).

Audit Logging

In order to manage the HIE, information about the message traffic processed by the system must be made available. Audit logging and querying capabilities provide for accountability and help ensure compliance with security policies and patient preferences.

Benefits of a Prototype HIE to Missouri

The prototype health information exchange is expected to have numerous benefits to the state of Missouri:



Demonstration of HIE

By demonstrating the concepts and operations of a HIE, the prototype will help health care providers and decision makers understand the benefits of HIE connectivity and information exchange.

Suitability of NHIN CONNECT

The prototype will help determine the suitability of NHIN CONNECT for building Missouri's HIE.

Alignment with ONC and NHIN

By basing the prototype on NHIN CONNECT, the prototype will bring Missouri's efforts into alignment and close collaboration with the activities of the ONC and NHIN.

Risk Mitigation

The HIE prototype will provide a chance to learn from the building of a HIE and integration with existing EHR systems on a smaller scale, reducing the risks for both a full HIE build-out and the numerous integrations which need to take place.

Re-use and Protecting our Investment

By basing the prototype on the existing NHIN CONNECT open source software, we are benefiting from re-use and protecting our initial investment.

