

Health Information Exchange Strategic Planning Guide



Specifying Requirements, Evaluating Technologies, and Selecting Partners

Making Your HIE Vision a Reality

Health information exchanges (HIEs), also known as Shared Care Records, regional health exchanges, or health data utilities, improve the quality, speed, and economics of healthcare by allowing healthcare providers, patients, health insurers (payers), and others to easily and securely share electronic health data across disparate systems.

HIEs can help an extended community improve care coordination and continuity, reduce errors and inefficiencies, and improve diagnoses, treatments, and patient outcomes. But implementing an HIE—reliably and seamlessly exchanging vast amounts of diverse data across dissimilar systems at scale—is no easy matter. Interoperability barriers and performance constraints can impair HIE initiatives, hinder adoption, and lead to unforeseen project delays and cost overruns.

Choosing the right technology platform and the right technology partner can make all the difference. This guide provides recommendations for defining, planning, and executing an HIE initiative. It can help you specify functional requirements, evaluate technology providers, avoid surprises, and optimize results.

Defining Potential Services

HIEs provide a wide array of healthcare data delivery, retrieval, and discovery services for providers, patients, health insurers, and public health agencies. When planning an HIE, start by developing a prioritized list of the services you intend to support (or may potentially support) over time. Table 1 lists common HIE services and their functions advantage in the marketplace.

Service	Function
Data query and retrieval	Allows clinicians and other healthcare professionals to locate, access, and view patient records from multiple sources
Notification	Alerts clinicians and other care providers when patients are admitted, transferred, or discharged from facilities
Public health reporting	For forwarding disease and immunization data to government agencies for surveillance and adverse-event tracking
Analytics	For analyzing large datasets (clinical data, claims data, social determinants of health data, etc.), identifying trends, and uncovering insights
Automated messaging and information transfer	For transmitting lab orders, referrals, test results, and other information
Consumer access	Allows individuals and their designees to access their care records online
Care coordination	Enables extended, multi-disciplinary care teams to efficiently communicate and collaborate
Research data collection	Anonymized data cohorts to support observational and other clinical research and learning initiatives
Government program coordination	Infrastructure to support and coordinate with public benefit and health programs and initiatives

Table 1: Common HIE Services

Identifying Key Functional Requirements

Interconnecting and exchanging data across diverse healthcare and related systems poses a variety of technical challenges. Different systems often support different data formats, standards, and protocols. When planning an HIE you must identify efficient and scalable ways to integrate and harmonize data from diverse systems. When investigating technology platforms look for solutions that support extensive data aggregation, unification, and management capabilities such as:

- **Interoperability and data exchange functionality** to connect dissimilar systems, normalize data, and facilitate information sharing
- **A master person index** to uniquely identify and correctly create, match, and manage information for individuals within a healthcare enterprise or across a community, including personal identifiers from social care systems
- **A unified, longitudinal health record** that provides a consolidated, comprehensive view of patient data from disparate systems and sources
- **A universal data store** such as a clinical data repository to gather and replicate patient data from multiple sources
- **Provider data management** functionality to create and maintain a complete, up-to-date list of providers, practices, and provider networks and their respective practice or facility information and service offerings
- **Consent management** tools to track patient authorizations for data share and facilitate care coordination

Choosing a Software Approach (Best-of-Breed or Integrated)

Once you've defined the services you plan to support and identified key functional requirements you can start evaluating potential technology options. First, you'll need to decide if you want to pursue a best-of-breed software strategy or an integrated software strategy. Some software vendors offer specialized products that address specific HIE functional areas. Other vendors offer fully integrated solutions that address a wide range of HIE requirements.

Best-of-breed products are highly customized and offer unique features and capabilities that might not be available in a fully integrated solution. But a best-of-breed approach can be prohibitively expensive and complicated to manage on an ongoing basis. With a best-of-breed strategy, you have to integrate and validate a collection of independent software components. You have to engage and manage multiple vendors. And you must evaluate, procure, deploy, administer, and support each software component individually while ensuring continued interoperability—a resource-intensive, time-consuming proposition.

Pre-integrated solutions can be deployed much more quickly and cost-effectively, with fewer resources. An integrated approach also streamlines product procurement, unifies vendor management, and simplifies ongoing product administration and support.

Evaluating Technology Providers & Solutions

Once you've chosen a software approach, you can start investigating potential technology providers. You need to factor a wide range of considerations into your decision, including:

- **Functionality:** Does the provider's solution support all your planned services and functional requirements? Does it support a wide range of healthcare data standards, protocols, and formats (HL7[®] FHIR[®], HL7[®] V2, CDA[®], etc.)? Does it support the full variety of data types (text, image, audio, video, etc.)?
- **Scalability:** Can the solution efficiently scale to support increases in workloads? Increases in users, partners, and data-provider connections? Increases in patient records and data volume? Increases in volume of record-exchanges, queries, and other transactions?
- **Extensibility:** Can you easily extend the solution to support new business opportunities, functions, and use cases when they arise? New types of partners and data (community organizations, government programs, long-term care facilities, etc.)? New services and missions (public health and data analytics, non-medical care coordination, behavioral health, health equity, etc.)? New transaction types and interfaces?
- **Architecture:** Can the solution support a range of architectures to match your ecosystem – centralized, federated, or hybrid?
- **Vendor:** Does the technology provider have a proven track record successfully implementing large-scale HIEs? Do they specialize in managing healthcare data? Do they provide comprehensive healthcare data management solutions, frameworks, and development platforms? Do they have a large customer base? Are they well-funded and stable?
- **Product support and updates:** Does the technology provider offer global, 24x7 technical support? Do they routinely issue software updates? Are they responsive to data model changes and evolving regulatory requirements?
- **Deployment:** Does the technology provider support a variety of deployment models including on-premises, public cloud, and private cloud options? Do they offer the solution as a remotely hosted service? As a managed service?

Specifying HIE Rules, Policies, and Operational Strategies

When planning an HIE you also need to consider issues unrelated to technology such as how the initiative will be financed and operated, and how you will build consensus and obtain legislative approval. Non-technical considerations include:

- **Operational model.** Who will maintain and support the HIE? An internal team? An outside vendor or managed service provider? Some combination of internal and external resources?
- **Business model.** How will the HIE be financed? Through government funding? A public-private partnership? Membership fees? A hybrid model? Does the funding model support long-term stability and growth?
- **Provider participation rules.** Will healthcare providers be required to participate by law? Only certain types or sizes of providers?
- **Patient opt-in/opt-out policies.** Will patients be enrolled automatically and have the right to opt-out? Will patients be required to provide explicit consent prior to enrollment? Will opt-in/out be at a person level or at the level of specific data or sensitive record types? How will this be architected and enacted in your business process?
- **Authorized use regulations.** Will you restrict the use of HIE data to specific purposes (treatment, public health reporting, care quality improvement, etc.)? Are there regulatory requirements for specific populations such as pediatrics?
- **Stakeholder engagement.** How will you get buy-in from providers, health insurers, consumer advocates, and other agencies?
- **Deployment strategy.** Will you take a phased approach for go-live, introducing exchange of a limited set of core data elements to deliver a quick win while you develop other functionality, or prioritize delivering more extensive data, functionality, and service on day one?
- **Public awareness.** How will you educate constituents on potential benefits like improving health outcomes, addressing healthcare inequities, and reducing care costs?

Be sure to share your non-technical plans with potential technology partners. Your decisions may impact the design, configuration, and pricing of the HIE platform.

Partner with InterSystems for Success

InterSystems is a global leader in healthcare data technology and standards-based interoperability. We have the products, experience, and expertise to help you overcome the most complex healthcare data integration and interoperability challenges—quickly, efficiently, and cost-effectively. We support a wide range of global and national healthcare information protocols and standards, and continuously evolve our products to keep pace with change.

Many of the largest and most successful HIEs in the world rely on InterSystems solutions and expertise, including:

- **Healthix**, the largest public HIE in the US, uses InterSystems solutions to gather and maintain a unified health record for more than 21 million individuals, to share data with more than 2000 healthcare organizations, to connect more than 9,000 sites, and to send more than 7 million clinical event alerts per year. InterSystems technology lets Healthix maintain all patient data in a single, consistent format, regardless of source.
- **Manifest MedEx**, the biggest nonprofit health data network in California, employs InterSystems technology as the foundation for its statewide HIE. The massive network serves 38 million Californians and 17 health plans - over 90% of the population - connecting more than 140 hospitals, 3,000 healthcare organizations, and 38 million Californians. Delivered as a remotely hosted and managed service, the InterSystems offering ensures high availability and scalability for the HIE, while freeing up Manifest MedEx technical resources to focus on innovation instead of underlying technology.
- **NABIDH**, the Dubai Health Authority (DHA) secure platform for healthcare data exchange between public and private entities, relies on InterSystems technology to provide access to integrated care for more than three million citizens in the United Arab Emirate of Dubai. With more than 14 million unified medical records, NABIDH connects over 65 thousand clinicians and 73 connected electronic medical records across nearly two thousand facilities. NABIDH is also coordinating with Riayati, another InterSystems powered health data platform in UAE, to deliver an evidence-based gold standard for public health, well-being initiatives, and disease surveillance.
- **Hixny**, a leading public HIE serving more than 5 million individuals and 6,900 clinical users in 28 eastern counties north of New York City leveraged InterSystems solutions to develop a SMART on FHIR application to streamline clinical workflows for social service referrals. The innovative application displays a patient's social and medical history side-by-side whenever a clinician views a patient record. The app saves time and improves care quality by allowing clinicians to assess social determinants of health and make referrals directly from their familiar clinical applications and workflows.
- The State of North Carolina uses InterSystems technology to streamline interoperability for its designated statewide HIE. **NC HealthConnex** improves care quality and patient safety, facilitates better care transitions, and reduces overall healthcare costs by making pertinent medical data for more than 12 million patients available to more than 7000 healthcare facilities across the state. The HIE gives authorized providers near real-time access to treatment summaries, medication lists, lab results, diagnoses, and other critical patient information, helping them make timelier and better-informed decisions.

Next Steps

To learn how InterSystems can help make your HIE vision a reality, [contact us](#) today.

InterSystems Powering Health IT Since 1978

- 1 Billion+ health records managed worldwide, including:
 - ◆ 2/3 of US population
 - ◆ 58% of US hospital beds
- 13 US-based public HIE deployments, comprising:
 - ◆ 156+ Million patients
 - ◆ 6000+ Connections
- Global presence:
 - ◆ 39 Offices
 - ◆ 28 Countries

