

## HIE Technology Business Requirements – Explanations of terms

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### Overview

In the technology infrastructure of the Health Information Exchange (HIE), there are two groupings we must consider in our design and the approach to HIE priorities. There are the technology components themselves, the services that will make up the architecture and service offerings of the Exchange. The second piece is the Data Types. This document intends to describe the potential functionality or uses of the technical components without suggesting a specific vendor or architecture. The Data Types review intends to describe what data would be found in each data type grouping. These groupings are for project scoping and priority of interest at this point in the HIE Planning process. If a specific Service Component or Data Set is identified as high interest during phase 1 discussions, the next phase of work will peel the next layer of detail and a straw man example of what the HIE might offer.

### **Major Service Components**

1. HUB – something to connect to and connect existing Community networks
2. Data standards
3. Security and Privacy policies
4. Secure messaging
5. Directory Services
6. Data Transformation services
7. Data Repository
8. Record Locator Services/ Master Person Index
9. HIE Administration
10. Out of Scope

## Explanation of technical service components

1. A Hub is the central network layer where all trading partners meet (virtually or physically depending on the selection of technology). Historically this was done with dedicated connections, frame relay, ISDN, Sonet protocols that could support a shared Wide Area Network of defined trading partners. Today most Hubs are virtual using the Internet and secure exchange of SSL certificates to create HTTPS or SSL VPN connections that are secure and allow exchange of data files with a greater number of trading partners via a single secure connection.
  - a. Connectivity – what options are supported
  - b. Security – certificate exchange management
  - c. User authentication management
  - d. Store and forward or pass through options defined
  
2. Data Standards are an essential element that defines the format of the content to be traded so that the trading partners spend less time trying to deal with different content formats from each trading partner. The difficulty with most standards is that they supply an umbrella with a lot of flexibility about individual content that needs elaboration to make sure trading partners understand each other. The Federal plans allow for a transition to final standards over the next 5 years – what is the regional standard during the transition period?
  - a. X12 HIPAA transactions
  - b. NCPDP transactions
  - c. LOINC
  - d. SNOWMED CT
  - e. CCD and CDA Templates
  - f. HL7 2.5.1
  
3. Security and Privacy Policies set the ground rules for the participating sites and what security measures and privacy are expected of each individual and organization joining the community.
  - a. Basic security policy defines security rules for the exchange
    - i. User vetting – identity management
    - ii. Organization registration and vetting
    - iii. Single and multi-factor user authentication requirements defined
    - iv. Certificate requirements and management

4. Secure Messaging is a server based approach to protect sensitive data when sent beyond the corporate borders and provides compliance with industry regulations such as HIPAA.
  - a. Secure messaging can be the “sneaker network” for low tech exchange of patient records between small entities with no technical staff to manage connections to a HUB.
  - b. Can facilitate exchange of messages during certification to join the HUB.
  
5. Directory Services come under a few different flavors in a statewide offering.
  - a. Technical Directory Services: A simple directory service called a naming service, maps the names of network resources to their respective network addresses. With the name service type of directory, a user doesn't have to remember the physical address of a network resource; providing a name will locate the resource. Each resource on the network is considered an object on the directory server. Information about a particular resource is stored as attributes of that object. Information within objects can be made secure so that only users with the available permissions are able to access it. More sophisticated directories are designed with namespaces as Subscribers, Services, Devices, Entitlements, Preferences, Content and so on. This design process is highly related to identity management.
  - b. Federated directories – trusted enterprises federate and manage their users as trusted within the community.
  - c. Provider Directory: A listing of all practitioners and some of their attributes (name, NPI number, specialty, practice type) and relationships (organizations work for, payers contracted with, provider network participant). This network has a User Interface to allow identification of the entity organization to send records to in order to deliver them to an individual practitioner in a specific work setting.
  
6. Data Mapping and Translation Services – while data exchange will require all data to follow standards, even standard messages can have considerable variation based on end-organization implementations and systems. Data mapping and translation services convert data to the required format dictated as the common data map.
  - a. Many networks today give the participating organization the option to map to the standard implementation and certify their format or pay for translation services.
  - b. The same is true for organizations who receive the standard format but need it mapped and translated for their business or clinical systems to consume the data.
  
7. Data Repository – storage of clinical records or results for temporary or permanent access
  - a. Temporary storage for patient records that are less than 12 months old

- b. Transient storage – a copy of records being exchanged and copied to a temporary storage for 30-60 days in case they are re-requested by the same or other trading partners
  - c. Health Record Bank – a database where a patient can store their Electronic Health Record or Personal Health Record for secure access based on permissions to others in healthcare or family members.
  - d. Syndromic or population databases to support population, public health and other large data set studies.
8. Record Locator Service/ Master Person Index – patient record matching tools
- a. Most large enterprises have Master Person Index to map the same patient across multiple systems. When that same patient record is shared with organizations outside the enterprise, the new enterprise has to map that user to their master person index and determine if this is a match for an existing record or a unique/new record. If an enterprise requests a record and supplies identifiers and asks that a response use a specific identifier, the record mapping complexity can be minimized. In the normal exchange of data, the enterprise often receives data and has to “figure it out” without the benefit of good patient identifiers.
  - b. Record Locator Service allows an enterprise to ask a central source the known location of records on a specific patient. Enterprises register their data to the record locator service in a variety of ways to simplify the community-wide search for related records.
9. Health Information Exchange Administration – the day to day operation of the HIE services.
- a. Global project management and service administration over the HIE infrastructure
  - b. Certification of new trading partners joining the HIE
  - c. Auditing on various services of the HIE
  - d. Monitoring for performance
  - e. Reporting services
    - i. Monitoring reports
    - ii. Auditing reports
    - iii. Transaction tracking
    - iv. Analytics reports based on use
    - v. Billing reports
  - f. Billing for services
  - g. Management of policies
  - h. Project management
  - i. Enhancements – defined and sourced
  - j. Business development – identify and contract new services

- k. Outreach and adoption – promote services and deploy marketing campaigns to drive adoption
  - l. Customer Support – relying partners and individual users require 1<sup>st</sup> tier support and depending on the services managed by the HIE Administrator, support may include additional levels.
  - m. Service Level Agreements – set the expectations for service with each certifying relying partner.
10. Out of Scope
- a. Applications
  - b. Data viewers

## Data Types

This section is an explanation of what we are “lumping” into a description of data types in order to have a discussion and prioritize interest in certain data sets that could be traded in the Health Information Exchange. This is not an all inclusive list and some items may be split apart once we explore the next layer of detail in an area of interest.

### Data Types List:

1. Encounter/episode documentation
2. Lab results
3. Pharmacy data
4. Radiology Images
5. Orders
6. Immunizations
7. Allergies and Problem Lists
8. Unstructured messages
9. Admission, Discharge and Transfer notices
10. Discharge Summaries
11. Eligibility and Benefits information

Explanation of what is in a data Type:

1. Encounter/Episode documentation is the chart content (EMR, HIS, etc) that details a diagnostic or treatment in a number of settings, clinic visits, procedures or an episode of care. This could be shared from a primary care provider to a consulting specialist or facility about to provide care for a patient. It could also be the documentation sent back to the referring provider on the visit, procedure, treatment and planned follow up for coordination of care management. This group would also contain Radiology Results reporting from imaging studies or treatments.
2. Lab results are the reported lab values and testing standard with norms and out of range reports. It is not orders for tests. It may include requests for results.
3. Pharmacy Data is usually a set of transactions that are standardized to support e-Prescribing. These include the:
  - a. request for eligibility to match a patient record and a Benefits response to clarify formulary requirements for the patient. (x12 format)
  - b. request/response for medication history in an NCPDP format.
  - c. request for drug formulary information based on the patient's coverage information (this is a file that can be pre-populated and updated at any time separate from a patient specific transaction).
  - d. While the national clearinghouse RxHUB/SureScripts makes the full data set available at no charge if used in an e-Prescribing application, you can certify and use just the Medication history component at a transaction fee for use for other uses such as Medication Reconciliation.
4. Radiology Images has been separated from reports on imaging results since the two use very different delivery requirements. Images are large data sets with some special requirements that lead us to address them as a separate data set.
5. Orders is a request for something to be approved or a service to be provided (lab, radiology, diagnostics, treatment, procedure, scheduling, referral, admission, etc). This is moving the standardized data not a specific application to give structure to this process. This covers a variety of different needs and would encompass multiple data standards.
6. Immunizations are a Federal requirement by 2011 and are of interest to schools, parents and public health. This data set includes the ability to get known immunization history from a state data source and to input patient history as new immunizations are administered to patients. This is the request response on an individual patient, this is not population studies.

7. Allergies and Problem Lists while not always seen as grouped together, we've "lumped" these two as background on the patient. This data set could be expanded to include other demographic information on the patient that would be summary in nature and separate from the encounter/episode information.
8. Unstructured Messages is a safety valve to allow trading partners who are currently trading non-standard messages to continue to do so during some transition period. This data set is offered as a way to measure how many are trading unstructured or proprietary structured messages and would move them to the HIE. This would also cover things like secure email where the content has a format but the data in the message is not structured and codified.
9. Admission, Discharge and Transfer Notices is not listed in any of the Federal requirements but is a data set that has been discussed in a number of forums over the last few years. The advantage of an ADT notice is to alert care givers who are providing care that a patient has moved or transitioned to another care location. It can also be valuable to the patient's family if consumed by a PHR and the patient's insurer who is monitoring high cost days and transitions of care.
10. Discharge Summary is the summary plan for the patient as they transition from one care location to another. This information is generally of interest to the referring and consulting practices, any facility or service mentioned in the summary that will provide follow up care, the family maintaining a PHR to facilitate follow up care, etc. This is not the episode/encounter this is the transition plan and discharge problem list, medication reconciliation report and outline of next steps for care.
11. Eligibility and Benefits is an x12 transaction set that clarifies that the patient has coverage and what benefit limits they may have for a specific service or procedure. While this is not a clinical data set, there is general recognition that it is important to know before treatment if there are coverage requirements or limitations. There is also a general recognition that while HIE should focus on clinical transactions, it may require a minimum volume of transactions to justify the common infrastructure and the eligibility and benefit transactions could help fund a variety of the technical components.