OneHealthPort

WASHINGTON STATE
STATEWIDE HIE HUB

USE CASES - IMPLEMENTATION PRIMER
HEALTHCARE COMMUNITY PARTICIPANTS

October 4, 2010

Author: Sue Merk, OneHealthPort

Virtual HIE Design

This document outlines what the HIE HUB is being asked to do for the healthcare community of Washington State. This is the practical view of how healthcare trading partners will interact with the HIE and the scope of services they will be able to access. This is the design phase which solicits feedback on the design concepts and vendor validation of capabilities to deliver the outlined services.

As a part of the HIE foundation, pricing, contracts, Policies and Standards are being designed that define the framework for trading confidential data and transactions. This document elaborates the services the HIE would offer or the "What" and "How" of securely trading electronic messages with a variety of trading partners using standards and a central trading infrastructure. The list and examples provided are the basic use cases that have been developed through discussions with the Washington State healthcare community. Many additional transactions are possible over time, this is the starter set to assist with initial adoption and use and to assist practitioner organizations wishing to participate in Meaningful Use programs.

The following companies profiles will help illustrate various participants and how they interact with each other through the HIE HUB and its services:

Dr. Kant – is a small practice that does not have an EMR and uses web browser or can send/receive a fax. Has minimal IT support and will do most trading manually

Dr. Able – has a qualified EMR and is able to transmit CCD and x12 transactions from practice management system (PMS) via FTP. IT support is through a service provider but is professional grade

My Neighborhood Pharmacy - is a pharmacy that is doing NCPDP transactions with a pharmacy switch to all PBMs for real time prescription verification and filling. The pharmacy receives most new and refill information from prescribers via fax and phone but is capable of handling electronic transactions. MNP fills over 500 prescriptions a day.

Northwest Lab - is a large medical lab that contracts with many providers for lab services. Lab orders and test results make up the bi-directional traffic for this provider organization. HL7 transactions are the primary method of delivering results. Orders are taken via a web application, xml or HL7 feeds from practice systems. Northwest Lab has a substantial IT infrastructure that is stretched to maintain and build custom interfaces to various practice systems.

Images Anywhere - is a radiology center with multiple locations that has a sophisticated infrastructure for managing orders, reports and image distribution to practitioners. Orders are via a browser application or xml interfaces, reports are via HL7 and images are Dicom.

General Hospital – is a large multi-facility healthcare organization with a substantial IT infrastructure. They use HL7 for most outbound transactions and x12 for business transactions via FTP

My Health Plan – is a large regional health plan who prefers x12 transactions for the HIPAA set, has their own clearinghouse, prefers to consume web services for all non x12 transactions, is not used to dealing with HL7 transactions but is very familiar with XML.

Public Agency – is a state agency that is responsible for monitoring the public health and the potential for events that can be acted upon if patterns are identified quickly. Requires inspection of mass messages and de-identification of data before HL7 or xml messages are shared with the Public Agency. Re-identification of the data is used to alert practices of a pattern that may require attention.

Note: The numbering in parenthesis refers to the RFP question and is for reference purposes only.

1. (2.1.3) The HIE HUB provides a built in **self-managed registration process** for participating organizations to "sign-up", declare what they are ready to send and receive from others and maintain their technical profile over time.

    a. Dr. Kant registers to use a browser tool since there are no clinical systems to send and receive messages. Dr. Kant creates a profile of what the practice is able to send. Dr. Kant selects the trading partners from the Directory that normally send lab, radiology, referrals and prescriptions to the practice.

    b. Dr. Able registers and identifies the Electronic Medical Record (EMR) and Practice Management System (PMS) the practice uses and the version of HL7 the systems are ready to deliver to the HIE. Dr. Able selects a number of trading partners the practice routinely trades electronic data with. Dr. Able's systems will use a File Transport Protocol (FTP) to send and receive all messages.

    c. All participants with sophisticated IT infrastructure register and define their systems and the types of transactions they are ready to send and receive. They define one or more message protocols for how they want to deliver and pick up messages from the HIE. They also select trading partners they know they want to start trading with right away.

    d. Dr. Able's practice replaces their PMS six months after joining the HIE and returns to registration to update the practice profile. The profile update clarifies any change in the data sets, message protocols, data transformation or other system variables.

2. (2.1.3) Once registered the new trading partner on the HIE must **test the transactions** they plan to send to trading partners to certify they meet the community standards. By testing and correcting missing data, the community has cleaner messages from all participants. The new Trading Partner must be certified before they can begin trading a specific transaction. Examples of the testing process include: (tests highlighted in yellow are for **stage 1 Meaningful Use** transactions)

    a. Dr. Kant tests the following when starting use of the browser solution:

    - Sending transcription files
    - Receiving lab results
    - Receiving HL7 messages from practices and hospitals
    - Receiving imaging reports from radiology
    - Sending custom reports to anyone with hosted custom forms (see DLI example 4d)

    b. Dr. Able tests the following transactions when they are ready for use in the practice:

    - sending a batch of eligibility requests (x12 270) to payers from the PMS
    - sending a HL7 CCD on a test patient to verify the formatting and completeness of the test record
    - sending a prescription from the EMR to the HUB
    - sending an order (lab or radiology) to the HUB from the EMR

- sending a batch of claims via the HUB to be split to clearinghouses and apply any community rules
- sending an HL7 message to DLI (see 4d)
- sending a child immunization claim for multi-part use (complex routing rules see 6c)
- receiving a lab result from Northwest Lab to see that their system can handle the format and is ready to accept messages (does not require certification but allows the trading partner to make sure they are ready before messages start flowing to their systems).
- receiving a test HL7 from the HUB to ensure the mapping meets Dr. Able's system requirements
- receiving a test prescription refill request – NCPDP format converted to what the EMR requires

c. My Neighborhood Pharmacy tests the following transactions when ready for use:

- Sending an NCPDP refill request to a practice
- Sending an NCPDP Medication History transaction to a practice
- Sending a request for Medication History to a source (Surescripts or others)
- Receiving an NCPDP prescription from a practice
- Receiving an HL7 message from a practice on a patient being monitored
- Receiving a lab result copy from a lab

d. Northwest Lab tests the following transactions when they are ready for use:

- Sending a batch of eligibility requests (x12 270)
- Sending an HL7 lab result
- Receiving an HL7 lab order
- Receiving a batch of eligibility response (x12 271)
- Test routing rules for delivering message to multiple practices (cc messages)

e. Images Anywhere tests the following transactions when they are ready for use:

- Sending eligibility batch requests (x12 270)
- Sending results reports to practices (HL7)
- Sending links to Dicom images to practices
- Receiving orders for imaging services
- Receiving eligibility batch response (x12 271)
- Test routing rules for "cc" copied reports

f. General Hospital tests the following transactions when they are ready for use by the hospital:

- sending ADT transactions to the HUB to verify format and content
- sending batches of eligibility requests to payers from the Hospital Information System (HIS)

- sending Lab Results to the HUB
- sending HL7 messages from the HIS about an inpatient or outpatient visit
- sending batches or claims (x12 837i and 837p)
- send a request for Medication History on a new admission
- receiving batch results (x12 271) on eligibility and benefits from payers
- receiving requests for ADT transactions from payers and providers
- receiving requests for HL7 messages on a patient

g. My Health Plan tests the following transactions when they are ready for use:

- Receiving requests for eligibility and benefits (x12 270)
- Sending individual or batch eligibility and benefits (x 12 271) responses
- Receiving ADT transactions from hospitals – care management and track hospital days
- Receiving HL7 messages for use in Care Management or Prior Authorization
- Receive claims status requests (x12 835)
- Send claim status (x12 835)
- Receive claims batch (x 12 837)
- Receive custom reporting (DLI example see 4d)

h. Public Agency tests the following when ready for use:

- Receive HL7 messages from practices for registry and reportable conditions
- Receive de-identified data based on syndromic surveillance rules
- Send alerts to practices about public health events

3. (2.7.12) **Protocol translation** allows the sender to use one method of sharing data such as uploading a file using File Transport Protocol (FTP) while another trading partner receives or sends their data to the HUB using a totally different protocol such as web services to actively send and receive in more real time fashion. The role of the HUB is to allow "any-to-any" translation so the sender and the receiver don't have to use the same message protocol to trade messages. The HUB as a utility is the translator. Examples of protocol translation include:

a. Dr. Able's office routes a CCR to Dr. Kant for a referred patient. Dr. Able's EMR FTP's the file to the HIE HUB. Dr. Able also needs to route a copy to My Health Plan for review. My Health Plan wants the data via web a web service. The HUB:

- accepts the FTP file from Dr. Able
- formats it for My Health Plan as a web service
- formats it for Dr. Kant as a browser message

4. (2.7.12) **Data Mapping and translation** allows the sender to use one data format and the recipient to receive another. This is about the message content format and where data is found in the message. This is often driven by versions of software and where data is found or not handled. Mapping and translation are the responsibility of the sender to meet the community standard. The HIE HUB offers a mapping and translation service that may be priced based on use since many organizations are capable of managing their own mapping and translation. If this service is used from the HIE HUB, the trading partner has tools they can use or pay for others to assist them in mapping and translating to or from the HIE standard to the Trading Partner system needs on messages between the trading partner and the HUB. The HUB requires all participants to meet a standard before sending messages to trading partners; this service assists in meeting the standard and re-mapping from the standard back to the internal systems if needed.

    a. Dr. Able sends Dr. Kant a message on a patient he is referring. Dr. Able's EMR sends an HL7 record on the patient. Dr. Kant sees the message in a web browser. The HIE HUB mapped the data to a format the web application can display for Dr. Kant's use.

    b. Dr. Able is submitting an older version of HL7 messages to the HUB and the HUB has worked with Dr. Able to map the data to meet the current HIE Standard for compliance with the HUB. Each of the trading partners will receive the standard message and not have to deal with custom mapping for each trading partner.

    c. Dr. Able receives HL7 messages from General Hospital that are mapped and translated to meet Dr. Able's system needs so mapping and translation is not needed for each different trading partner at Dr. Able's end of the HIE connection. The HIE HUB knows Dr. Able's format requirements based on testing and certification.

    d. The Dept of Labor and Industries has a non-standard form used to collect qualifying information on L&I claims. DLI builds the form requirements on the HUB including mapping from the HIE standard HL7 message. Dr. Able's HL7 sends an HL7 message to the HUB for delivery to DLI. The HUB reformats to the required custom format for DLI and delivers the message. Mapping of the content and formatting is managed at the HUB.

    e. Dr. Able has been submitting claims batches using 4010. Dr. Able begins submitting 5010 batches. The HIE HUB recognizes this is not a certified format for Dr. Able and sends an error to Dr. Able requiring that the new format be tested and certified before it can be traded. Dr. Able can send one format or both formats if both are certified. Dr. Able can also use the HIE HUB to assist in data mapping/translation between formats if all the data elements are in the data set.

5. (2.1.4) THE HIE will provide full **transaction visibility and audit logging** and access to this information by trading partners or the HIE operator when assisting a trading partner.

    a. Dr. Kant is setup and receiving transactions from their Lab provider. They would like to be able to check on the delivery of a lab result that the lab says was sent. The HIE provides a web application to look at a transaction Dr. Kant is sending or receiving and determine where it is in the system and its status.

    b. Dr. Able wants to use their connection to deliver batches of claims to My Health Plan. The visibility tools allow tracking the batch of claims to make sure they are delivered and problem solving any questions about claims sent and delivered to various trading partners. The batch can be tracked as a whole or as the parts if the batch was split for delivery to different partners.

c. General Hospital sends nightly ADT batches to six different health plans via the HIE HUB, My Health Plan is not receiving their ADT transactions (via a web service) every other night. The visibility tools allow My Health Plan and General Hospital to look at the tracing of the ADT batches and determine the location of the every other night delivery issue.

d. My Health Plan receives nightly eligibility batch requests from Dr. Able's PMS and replies for each transaction. My Health Plan can use visibility and audit functions from the HIE to track the batch file and its individual responses to verify batch handling is working for all responses or to trouble shoot individual batch problems.

6. (2.7.7) Ability to **split or copy transactions based on trading partner defined routing rules and audit all recipients**

a. Dr. Able wants to send a CCD record to a referring provider and copy Images Anywhere who will be providing imaging services before a surgical procedure. Dr. Able would like to know that both provider organizations received the CCD before the patient arrived. Each message copy is tracked with full audit and visibility.

b. Images Anywhere would like to route a copy of the imaging results report to Dr. Able as the referring physician and copy Dr. Kant as the surgeon (referred to physician) who will be performing a procedure on the patient. Images Anywhere can develop a routing rule that tells the HUB to send a copy based on copy information provided in the message. Each message copy is tracked and audited.

c. Dr. Able utilizes Washington Vaccination Association supplied immunizations for insured children. When they administer an immunization they

- submit a claim to the payer via the HIE and use a pre-set routing rule based on the Immunization administration service code and the age of the patient
- If the routing rule finds the service code and qualifiers it triggers a copy of that claim to be created and only the immunization serum line is split off to a second claim that is routed to the Washington Vaccine Associations processor.
- A third message should be created to notify the Child Profile Immunization registry of the encounter and required reporting detail if the provider does not report via an EMR.
- A fourth report would send a copy of the Payer acknowledgement to the Washington Vaccine Association to track overall immunization use across all commercial and public payers

7. (2.7.8) The HIE HUB has the ability to **globally set rules for repository population** – registries, syndromic surveillance and other community assets or programs

a. Route a copy of all documents from participating practices to the Beacon project based on specific events defined to monitor for diabetic patients captured for the Diabetes Care Management project. This rule is invoked based on the practitioner saying they agree to participate and the patient record meeting the required "content" (the project defines the content

set to flag records for the repository). In this case the purpose of the copy is the alert the repository the patient record is being shared with another provider and the latest data is also copied to the Beacon repository. This does not go into the practitioner system to get the record but waits for an opportunity to copy the repository anytime the patient record is being shared.

b. Ability to transform the message copy to de-indentify data before sending the copy to a specified data repository. The Dept of health has syndromic surveillance responsibilities to help protect the population health for Washington State residents and guests. Based on a defined criteria or CPT code, a copy of any record from any sender would be de-identified and sent to DOH.

c. Population of a Master Person Index (MPI) or Record Locator Service (RLS) can be accomplished by copying an ADT (admission/discharge/transfer) record segment from a hospital HL7 message based on a global rule accepted by the hospital. Similarly any HIE trading partner could offer patient identifiers to the MPI or RLS using Patient Identifier Cross-Referencing (PIX) messages. Both the MPI and RLS are repositories with patient identifiers. The RLS also stores pointers to trading partners with information about the specific patient identified.