Introduction to IHE

Connected Healthcare

INTERSYSTEMS
Introduction

• Matthew Spielman
  • Product Specialist, HealthShare Product Management
  • IHE and CDA Interoperability
At the end of this session you should be able to answer:

- What is IHE?
- What are IHE Profiles?
- What do the PDQ, PIX, and XDS.b Profiles address?
- How do vendors support and test IHE Profiles?
What is IHE?

• Integrating the Healthcare Enterprise
• Specifications released by IHE are called “Profiles”
• Governance is divided into workgroups called “Domains”.
• Each Domain has an area of responsibility such as Infrastructure, Dentistry, Radiology, etc.
• Domains release Profiles specific to their area.
IHE Profiles

- IHE profiles address specific use cases.
- The IHE profile specifies certain components
  - Actors – An information system performing a role within the profile
  - Transactions – An event occurring between two actors.
  - Messages – The actual communication occurring between actors.
Important IHE Profiles

• Infrastructure Communication
  • PDQv3 – Patient Demographics Query for HL7 Version 3
  • PIXv3 – Patient Identifier Cross-Referencing for HL7 Version 3
  • XDS.b – Cross-Enterprise Document Sharing

• IHE also has many other profiles for both communication and documents.
• Use Case: Query for a patient using demographics.

• Probabilistic search.

• Returns a list of potential matches with match scoring from the patient index.
PDQv3

• **Actors**
  - Patient Demographics Consumer
    - The system sending the search request
  - Patient Demographics Supplier
    - The system receiving and responding to the search request.

• **Transactions**
  - Patient Demographics Query
**PDQv3**

- **Messages**
  - Patient Registry Find Candidates Query
  - Patient Registry Find Candidates Query Response
- Use Case: Manage patient identities across multiple systems.
- Master Patient Index (MPI) correlates IDs from multiple systems under a single MPI Identifier (MPIID).
- Create, update, and search for patient records within a MPI.
- Deterministic Search – Supply an ID, receive one and only one matching response.
Actors

- Patient Identity Source
  - Sends new and updated demographics to the MPI.

- Patient Identifier Cross-Reference Consumer
  - Queries the MPI for MPIID of a specific patient.

- Patient Identifier Cross-Reference Manager
  - The Master Patient Index (MPI).
  - Uses proprietary rules to manage and associate identifiers supplied by Patient Identity Sources.
  - Processes and responds to transactions from the Consumer and Source actors.
PIXv3

- Transactions
  - Patient Identity Feed HL7 V3
  - PIXV3 Query
  - PIXV3 Update Notification
• **Messages (Patient Identity Feed)**
  - Patient Registry Record Added
  - Patient Registry Record Revised
  - Patient RegistryDuplicates Resolved
• Messages (PIXv3 Query)
  • Patient Registry Get Identifiers Query
  • Patient Registry Get Identifiers Query Response
• Messages (PIXv3 Notification Update)*
  • Patient Registry Record Revised

* Note: This is a push transaction from the Cross Reference Manager
• Use Case: Managing documents within an infrastructure such as a HIE.

• Uses a permanent infrastructure called an XDS Affinity Domain.

• Relies on several other profiles (PIX, PDQ, ATNA)
- **Actors**
  - Cross Referencing Identity Manager (PIX/PDQ)
    - Tracks all patients registered within the Affinity Domain
  - Document Registry
    - Records information for each document available within the Affinity Domain, like a library’s card catalog.
  - Document Repository
    - Stores the documents referenced in the registry.
  - Document Source
    - A system which creates documents and stores them in a repository.
  - Document Consumer
    - A system which queries the registry and retrieves documents from the repository.
  - Audit Repository
    - IHE ATNA Profile. All events in the Affinity Domain must be audited.
• Transactions
  • Registry Stored Query
    • Query the Document Registry for a list of a patient’s documents.
  • Retrieve Document Set
    • Download specific documents from a Document Repository.
  • Provide and Register Document Set
    • Upload a new document to a Document Repository.
  • Register Document Set
    • Store information about a new document in the Document Registry.
Vendors Implementing Profiles

- Can implement any number of defined profiles.
- Can choose which actors to implement.
- Test their profile support at IHE Connect-a-thons
Connect-a-thon

- An event sponsored by IHE
- Healthcare software/equipment vendors and institutions work together for 5 days to test interoperability
- Opportunity to test against “real” vendor systems outside of an implementation context
- Held every year across the world
- 2013: Chicago, Istanbul, and possibly others
- Software can pass or fail tests for profiles but they are NOT “certified”
HealthShare supports multiple IHE profiles.

- Go to http://intersystems.com/healthshare/ihe for the HealthShare Integration Statement which lists all of our supported profiles.

Can work with vendor products supporting complementing actors in IHE profiles.

- Go to http://product-registry.ihe.net/PR/home.seam to locate the Integration Statements for other vendors.
How are Profiles Implemented in HS?

- Not acted upon directly from HealthShare
- HealthShare has internal equivalents of IHE messages
- HealthShare transforms IHE messages to/from internal messages using ObjectScript and XSLT code.
Demonstration

- Patient search using PDQ
- Message is created as a HS.Message.PatientSearchRequest object.
- Request is transformed via XSLT to a PDQv3 message.
- Response message is transformed back into a HS.Message.PatientSearchResponse object.