

# HIMSS Electronic Health Record Vendors Association

## Lessons Learned on IHE Open Source

Participating in IHE from a small vendor perspective

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# Discussion Points

- Perspective
- Background
- Phases of participation in IHE
  - Profile/Specification Review
  - Design
  - Programming
  - Mesa Testing
  - Connectathon
  - IHE Showcase
- About OHF
- Additional Considerations

# Perspective

- Small vendor
- IHE background and information
- Open source solutions
- First time implementer

# Background

- Small vendor first time participant:

Practice Partner was a small EHR vendor serving mainly small to medium ambulatory practices. One engineer was assigned to IHE with approximately 8 weeks (not full time) to invest. Practice Partner is now part of McKesson.

- IHE

It is about collaboration, sharing, quality of care

“IHE is an initiative by healthcare professionals and industry to improve the way computer systems in healthcare share information.” [*IHE.net*]

- Open Source

Open source is a collaborative effort to produce high quality, reliable, and flexible software

# Profile/Specification Review

- Review the IHE profiles
- Determine which profiles to participate in
  - Choose which systems you wish to include, and determine the best fit.
    - Many types of systems including EHR-S (ambulatory, inpatient, etc.), Imaging, Infrastructure, etc.
  - Review any dependant profiles (e.g. PIX requires ATNA and CT).
  - Look at upcoming HITSP recommendations.
  - Determine what you may be able to reasonable be able to implement, and maybe slightly more.
- Review the standards that the profiles are based upon.
- Notice that these specifications may be extended or constrained by an IHE profile
- Use any additional resources that IHE may provide
  - Quick Start Guide
  - Websites
  - IHE staff and workgroups

# Design

- Componentized
- Make sure that components can be broken out and tested individually.
  - MESA and even Connectathon testing will necessitate that certain functionality be tested separate from everything else.
- Flexible
- Configurability. Be able to make changes quickly.
  - Often times testing requires certain behaviors that need to be changed quickly. They do not necessarily reflect a real world situation (e.g. a system identifier needing to be changed)

# Programming

- Programming often goes in parallel with MESA testing, and even at the Connectathon
- Changes will be required. Expect it.
  - MESA testing often shows errors and requirements that you may have missed during initial design\programming.
  - Connectathon will even reveal some changes that may be necessary when it gets down to details.

# Use of IHE MESA Test Tools

- Review the tests as soon as possible
  - Look at all of the tests for your selected profiles.
  - Determine if any design/programming changes will be necessary
  - Some tests may require you to have completed other tests
- Review often
  - Tests are often changed, added, or dropped.
  - Some tests may require other systems to upload files for you to process.
- Perform tests as early as possible.
  - The earlier you perform the tests, the earlier you can identify issues and increase the likelihood you can meet all of the requirements of the profile.
- Perform additional tests
  - It would not hurt to perform optional tests, after required tests are completed. The point is to prepare for connectathon. Test well.
- Review tests for profiles you may considering implementing in future years.
- Don't be afraid to ask questions

# Connectathon

- Pay attention
  - Many announcements get made, very important to keep informed.
- Be Patient
  - Remember, everyone else is also testing.
    - These often times are systems that are, at least in part, in alpha phase of testing.
  - Newer profiles or requirements may still have kinks to be worked out.
- Work closely with testing partners
  - In order for your system to pass certain tests, your testing partners will need to pass their parts as well.
- Assist others
  - While you are testing, it is helpful if you to assist others in their testing when prudent. They may be able to assist you later. Part of the point of IHE is collaboration.

# HIMSS Showcase

- You have successfully done the work, now it is time to show the world.
- Things should be as they were at the Connectathon. They even suggest that you bring in the same systems (computers).
- Can be somewhat slow paced depending on your roles and chosen profiles, especially for first time implementers.
- The scenarios are subject to change
- Some people may approach you though they are not part of a scenario, be prepared and flexible.

# About OHF

## Open Healthcare Framework

- Open source solution for infrastructure aspects of IHE profiles
  - Deals in large part with communication aspects
    - How to get information to and from.
  - Assists in security aspects
- Provides tools to convey certain types of information.
- Many of the base and longer term (final text) IHE profiles are either implemented or supported.

# More about OHF

- What it offers

- A common framework that can be utilized mainly for the communication aspects of IHE profiles
- Generation of some message types (e.g. HL7 v2.5 ADT messages), based on information provided.
- Administrative, security, and audit tasks (e.g. ATNA)

- What it does not offer

- Information utilization (How it gets into your system, and how it is used.)
- Information extraction (What triggers the extraction as well as how it gets out of your system)
  - Some message types can be generated using OHF functionality (HL7 v 2.5 ADT messages) and some cannot (CDA R2).
- User interface

# Is OHF right for you

- Basic Considerations

- Will it provide what you need?
- Will it be usable and deployable beyond IHE?
- Will it work with your current development processes?

- Technology

- Java based

- If your system does not support Java, you can interact with OHF through a bridge that uses Web Services. The bridge does not support as much functionality as the base OHF.

- Licensing

- Uses Eclipse Public License

# Considerations for IHE participation

- Network security
  - May need to get IT staff to make certain considerations in order to test
    - Opening up ports
    - Allowing certain functionality that would not normally be part of network policy (e.g. Time synchronization)
- Open Source
  - Licensing
  - Lack of direct control of development cycle
  - Technological concerns
- Additional testing resources
  - Test beds and virtual Connectathon

# CDA/CCD/XPHR

- Parsing and utilization of these documents is not supported by OHF
- With OHF XPHR (precursor to CCD), document is relatively easy to receive, and they provide a style sheet for viewing
  - Able to import the whole document as an HTML document and display to a provider.
- With a bit of extra work it is possible to import the data into some discrete elements of the patients chart
  - We extracted allergies, medications, diagnosis and problems.
  - This took approximately 2 weeks of development and testing, with a base code line that could already accept html documents.
  - Able to receive documents from CapMed, NextGen, Eclipsys and other systems.

# Conclusion

- A first timer can participate in IHE despite a number of initial obstacles including:
  - Unfamiliarity with IHE profiles
  - Unfamiliarity with some of the standards such as CDA
  - A lack of resources and time
- With some work and the assistance of OHF the following were possible:
  - Implemented ATNA, CT, XDS, XDS-SD, XDS-MS, PIX, XHPR
  - Interoperated with infrastructure systems including IBM, Quadramed, Initiate, and others
  - Interoperated with clinical systems including, Eclipsys, CapMed, Kodak, and others

# Questions?

# For More Information

Integrating Healthcare Enterprise – IHE

<http://www.ihe.net>

Open Healthcare Framework

<http://www.eclipse.org/ohf/>

Healthcare Information Technology Standards Panel – HITSP

<http://www.hitsp.org>



# Making a Difference

**Unprecedented Collaboration to Accelerate EHR Adoption**

- + Delivering interoperable EHRs**
  - + Harmonizing standards**
- + Supporting EHR certification**
- + Education and outreach**