Promoting the Best Care for our Patients: Rapidly Advancing Imaging Interoperability Capabilities
The gap in healthcare!

INTEROPERABILITY!!!
Objectives

- Why Imaging Interoperability?
- How are images and reports currently shared?
- What are some of the emerging solutions to sharing images?
- Standards, Standards, Standards…..
- ONC- Shared Nationwide Roadmap
- The RSNA Image Share Validation Program
  - A partnership with The Sequoia Project
Image sharing - Why?

- Benefit of historical exam during interpretation
- Rapidly growing cost of healthcare especially growing utilization of imaging
  - Overutilization - Inappropriate Utilization
  - Prevent duplicate exam because a recent exam is inaccessible
- Radiation exposure - reduction
- Quality
  - Expedites clinical care through easy availability of imaging examination
Inappropriate Utilization

Up to 20% of imaging exams may be inappropriate

- Defensive Medicine – Liability concern
  - Tort Reform
- Patient Demand
- Financial Incentives
  - Self referral
- Pressures to minimize overall cost of an episode of care
- Physician lack of knowledge
- Duplicate exams
  - Results not easily available
  - Patient lack of understanding of exams already performed
  - Fragmented care – no coordination of care
Image Sharing vs. Image Exchange

**View Only (sharing)**
- File format can vary
- EMR - easier
  - Enterprise viewers
- Lighter process

**Exchange**
- DICOM payload
- Requires PACS or PACS viewer
- Greater workflow requirements
  - Import and Reconciliation
- Greater power to deliver care
  - Easier for comparisons, surgery, long term longitudinal imaging record
Network based Clinical Sharing - Exchange

**Methods**

- Local Healthcare Enterprise
  - EMR for most data
  - Radiology
  - Other Images-“..ologies”-----????? (VNA)
- Within an Extended Enterprise-Integrated Delivery Network (IDN)
- Within a Vendor network
- HIE
  - Proprietary
  - DICOM
  - XDS
- Peer to Peer
  - NHIN Direct
  - Social Networking
    - Providers
    - Patients
- PHR- Patient directed on demand

**Stakeholders**

- Patients
- Provider groups- Professional Associations
- IHE
- Government
  - ONC
  - State Health Departments and HIEs
- National Associations
  - The Sequoia Project (eHealth Exchange-Carequality)
  - CommonWell Health Alliance
  - Concert (IHE USA & IWG-Interoperability Workgroup)
- Vendors- cross many of these
Clinical Sharing- barriers

- Consent
  - Opt in
  - Opt out

- Rise of large Healthcare Enterprises
  - IDN- Integrated Delivery networks- sometimes reluctant to share content

- Vendors- a desire to have all exchange through themselves

- Disagreement regarding standards
  - JASON report
  - PCAST
  - RestFul
  - Web Services
Challenges to exchange

- Who pays for an exchange infrastructure
- What is the persistence of the information in the exchange
- Are images different from other forms of healthcare data
- Easy secure access is good for the patient
  - Does it endanger the provider? - is this an impediment?
  - Economic adjustments and evolution are likely to occur
    - Balance of cost control vs. Quality
    - Reduction in Radiation exposure
  - Not all patients agree
Useful IT tools - Standards are Fundamental building blocks

- Ontology- RADLEX, SNOMED-CT
- DICOM
- HL7 (FHIR-Fast Healthcare Interoperability Resources)
- IHE-Integrating the Healthcare Enterprise
  - Organizes the existing standards into practical efficient workflows

- Expose Information in a Computable format
IHE-XDS
(Cross-Enterprise Document Sharing)

Patient Identity Source

Document Registry

Registry Stored Query [ITI-18] ←

↑ Register Document Set – b [ITI-42]

Document Consumer

Document Source

Provide&Register Document Set – b [ITI-41] →

Document Repository

Retrieve Document Set [ITI-43] ←

Patient Identity Feed [ITI-8]
Patient Identity Feed HL7 v3 [ITI-44] ↓

Integrated Document Source/Repository
XDS-I.b
IT-Infrastructure (ITI) Profiles

- XDS, XDS-I Cross Enterprise Document Sharing
- XCA, XCA-I Cross Community Access
- XDR, XDR-I Cross-Enterprise Document Reliable Interchange
  - Document sharing in the absence of a registry and repository
- XDM Cross-enterprise Document Media Interchange
- XUA Cross Enterprise User Assertion Integration Profile
- XDS-SD Cross-Enterprise Sharing of Scanned Documents
- BPPC Basic Patient Privacy Consents
- ATNA Audit Trail and Node Authentication
- XCF Cross-Community Fetch
- XCPD Cross-Community Patient Discovery
- XDW Cross-Enterprise Document Workflow
- MHD Mobile Health Documents

IHE Integrating the Healthcare Enterprise
Interoperability Profiles - Radiology specific

- **PDI** Portable Documents for Imaging
- **IRWF** Import Reconciliation Workflow
- **TCE** Teaching File and Clinical Trial Export
- **IOCM** Imaging Object Change Management
- **BIR** Basic Image Review
- **MIMA** Multiple Image Manager/Archive
- **IID** Invoke Image Display
- **MHD-I** Mobile Access to Health Documents – Imaging
- **MMRT** Management of Radiology Report Template
- **WIC** Web based Image Capture
FHIR® – Fast Healthcare Interoperability Resources (hl7.org/fhir)

- A strong focus on implementation – fast and easy to implement (multiple developers have had simple interfaces working in a single day)
- Multiple implementation libraries, many examples available to kick-start development
- Specification is free for use with no restrictions
- Interoperability out-of-the-box – base resources can be used as is, but can also be adapted for local requirements
- Evolutionary development path from HL7 Version 2 and CDA – standards can co-exist and leverage each other
- Strong foundation in Web standards – XML, JSON, HTTP, Atom, OAuth, etc.
- Support for RESTful architectures and also seamless exchange of information using messages or documents
- Concise and easily understood specifications
- A Human-readable wire format for ease of use by developers
- Solid ontology-based analysis with a rigorous formal mapping for correctness

http://hl7.org/implement/standards/fhir/summary.html
Health Document Exchange Options
Flexible Infrastructure

Document Sources

XDS
Publish

XDR
Send to Existing Reliable Messaging System

XDM
Write Interchange Media Including Email

Document Consumers/Recipients

XCA
Query/Retrieve

Other INFRASTRUCTURE

Courtesy of Don Dennison

IHE Changing the Way Healthcare CONNECTS
Mobile Access to Health Documents (MHD)

- The IHE MHD profile and the HL7 FHIR activities are working together to revise and enhance the transactions profiled here. For details on HL7 FHIR, see [http://hl7.org/fhir](http://hl7.org/fhir).

- A simple HTTP interface to an XDS like environment. It defines transactions to:
  a) submit a submission sets, folders, new documents, and document metadata from the mobile device to a document receiver,
  b) Find submission sets matching query parameters,
  c) find document entries containing metadata based on query parameters,
  d) retrieve a copy of a specific document.
How to move large DICOM exams efficiently?

- DICOM historically is not a communication protocol; not a web protocol
- Every Image contains metadata
  - Redundant thousands of times

- Solutions
  - Segregate the pixel data from the metadata
  - Web Services
  - move to RESTful services
DICOM Transport

Connect using IP, port, and AE title
DICOMweb Transport

Connect over HTTP(S) using URL
DICOM **Transport**: Pros and Cons

- Used ubiquitously in medical imaging
- Unwieldy for the non-DICOM developer
- Use of the DICOM standard is rare outside of diagnostic imaging
- Transport via the public Internet is challenging (usually over VPN)
- Advancements in networking / security standards are not readily available
DICOMweb™ Components

Also related...

- **Approved**: Server Options (sup 170): Capability discovery
- **In Ballot**: UPS-RS (sup 171): Unified Procedure Step
QIDO-RS - Query

What studies do you have for John Doe?

http://server.com/studies/?00100010=DOE^JOHN

<table>
<thead>
<tr>
<th>Study</th>
<th>Date</th>
<th>Link</th>
</tr>
</thead>
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WADO-RS - Retrieve

Show me images for the Abdomen CT

http://server.com/studies/1.2.3/series/4.5.6/instances/7.8.9

GET /studies/{StUID} Retrieve an individual study
GET /studies/{StUID}/series/{SeUID} Retrieve an individual series
GET /studies/{StUID}/series/{SeUID}/instances/{InUID} Retrieve an individual instance
GET /studies/{StUID}/series/{SeUID}/instances/{InUID}/frames/{FrameList} Retrieve individual frames
GET /studies/{StUID}/metadata Retrieve study meta-data
GET {BulkDataURL} Retrieve bulk data items
STOW-RS - Store

Store this image

http://server.com/studies

POST /studies/{StUID}/
Stores a set of instances

POST /studies/
Stores a set of instances
NIBIB/RSNA Image Sharing Project

A **Standards** Based Solution

- Consumer controls the flow of information – Patient Engagement
  - Diminishes the need for BAAs between enterprises
    - Imaging Site to Clearinghouse
    - Clearinghouse to PHR

- Bootstrap an IHE based network
  - IHE generally has not focused on consumer driven solutions but rather on institutional and enterprise workflow
  - Primary emphasis is Consumer Control through PHRs
  - Can be extended to other forms of sharing
    - HIE

- Security and Confidentiality are drivers
- Replacement / Alternative to CD

- 5 Academic Institutions
- Develop a solution for all Radiology Sites
- Establish a clearinghouse
- Engage PHRs
Image Clearinghouse: Patient Identity Management and Access Security

Patient controls information transfer by authorizing a physician to directly access a specific set of images in the PHR.
Image Sharing/Elements of Solution

- **Edge Server**
  - Register a patient
  - Listens to a Radiology Information System (RIS) - looking for a complete exam
  - Retrieves Image set from PACS and Report from RIS
  - Send both to clearinghouse
    - PHI hidden; an RSNA ID and 2nd factor security token are used to identify the patient

- **Clearinghouse (XDS-I) – functions as a secure router**
  - Transiently hold encrypted patient data

- **PHR**
  - Consumer controls upload and future access
    - Must have RSNA ID available and know answer to 2nd factor question
  - Develop web based viewers
  - Download full DICOM data set

- **Misc Consumers**
Search for Patients

Simple Search  Advanced Search

MRN  Patient Name  Search
### Search for Patients

#### Simple Search

<table>
<thead>
<tr>
<th>Name</th>
<th>MRN</th>
<th>Sex</th>
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<tr>
<td>TEST, TEST</td>
<td>78787878</td>
<td>F</td>
<td>December 2, 1997</td>
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**Search by patient name or medical record number**

- **Search Bar**: 78787878
- **Search Button**: Search

---

**Simple Search**

<table>
<thead>
<tr>
<th>Advanced Search</th>
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</table>

**Search by patient name or medical record number**

- **Search Bar**: 78787878
- **Search Button**: Search

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**Advanced Search**

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<td>78787878</td>
<td>F</td>
<td>December 2, 1997</td>
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**Search by patient name or medical record number**

- **Search Bar**: 78787878
- **Search Button**: Search
# Exams for TEST, TEST

<table>
<thead>
<tr>
<th>Accession #</th>
<th>Exam Desc</th>
<th>Most Recent Change</th>
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<tbody>
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## Shopping Cart

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<tbody>
<tr>
<td>6913522</td>
<td>RAD ONC CT</td>
<td>Fri, 24 Jul 2015 23:05:48 -0700</td>
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</table>

- [Remove From Cart](#)
<table>
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<tr>
<td>6913522</td>
<td>RAD ONC CT</td>
<td>Fri, 24 Jul 2015 23:05:48 -0700</td>
</tr>
</tbody>
</table>

**Send Cart**

- Delay to allow care provider to communicate with patient.
- Send as soon as final report available.
- Send now, even if no final report available.

- **Routine**
- **When final report available**
- **Immediately**

Buttons:
- Empty Cart
- Send Cart

Remove From Cart
Cart Queued for Sending

**Patient Name:** TEST, TEST

**Access Code:** 3swkw-afafm-f9t3r-5mxj4h

**Date of Birth:** 1997-12-02

Print
## Audit Trail

Filter by patient name, medical record number, or accession number

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<th>Job ID</th>
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<th>Status Code</th>
<th>Status Message</th>
<th>Last Transaction</th>
<th>Submitted By</th>
<th>Immediate Send?</th>
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</table>
Send Cart

This patient already has an account. Would you like to use the patient’s previous access code and email address (john.doe@example.com)?

Yes No

By choosing this option each exam will be subject to a delay period before it is sent. This gives the doctor a chance to speak with the patient before he or she gets the results.

Routine

By choosing this option each exam will be sent as soon as its final report is available. This means the doctor may not have a chance to speak with the patient before he or she gets the results.

When final report available

By choosing this option each exam will be sent immediately. Even if there is no final report available.

Immediately
Image Share Gives You Control of Your Medical Images

Thanks for agreeing to try Image Share, a network that lets you take control of your medical imaging results. Image Share was developed by the Radiological Society of North America (RSNA) and its partners with funding from the National Institute of Biomedical Imaging and Bioengineering.

There are three simple steps to using Image Share:

1. Staff will send your imaging records to a secure online data repository called the Image Clearinghouse so you can access them. **Note that the records may not be available in the Clearinghouse for up to 3 days to allow your care team to communicate with you about the results.**

2. You need to create an account on one of the participating image-enabled personal health record (PHR) systems:
   - **DICOM Grid:** http://imageshare.dicomgrid.com
   - **itMD:** http://share.itMD.net/claim
   - **lifeIMAGE:** https://cloud.lifeimage.com/rsna/phr

   Each of these sites provides simple instructions to creating an account and use it to get your imaging results. Be sure to record your PHR account information and keep it secure, as you do with all your valuable online information.

3. You use your PHR account to access and take control of your imaging results. You will need two pieces of information to access your information:
   - **Date of Birth**
   - **Access Code:** 3kueo-upipc-ozb58-y31uq

   Enter the information and retrieve the images and reports. You can then use your PHR account to share information with others you trust, including care providers. With your permission they can view the images and the report anywhere Internet access is available.


To retrieve your images please go to: https://cloud.lifeimage.com/rsna/phr
For assistance please contact helpdesk@imsharing.org or call 1-855-IM-SHARING (467-4274) to speak with a customer service representative.
<table>
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<tr>
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<th>Type</th>
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<tbody>
<tr>
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<td>Images</td>
<td>Diagnostic Imaging Report</td>
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<td>2011-05-11 14:28</td>
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</tr>
<tr>
<td>2011-05-11 09:40</td>
<td>Images</td>
<td>Diagnostic Imaging Report</td>
</tr>
</tbody>
</table>
Report

MR RIGHT KNEE:  CLINICAL INDICATION: Tear of medial meniscus. TECHNIQUE: Axial, sagittal and coronal sequences were performed. OBSERVATIONS: The lateral meniscus is unremarkable. Medial meniscus demonstrates some degenerative signals which do not touch the inferior articular surface of knee joint, for example series 4, images 5-6. However, on brimage 7, a small, globular focus abuts the inferior articular surface near the free edge; this is compatible with a tear. Quadriceps tendon and patellar tendon are intact. Anterior cruciate ligament and posterior cruciate ligament are intact. Medial collateral ligament and fibular collateral ligaments are intact. As far as can be seen, the articular cartilage is unremarkable. Moderate amount of suprapatellar fluid is identified. IMPRESSION: DEGENERATIVE CHANGES AND TEAR, POSTERIOR HORN OF MEDIAL MENISCUS; MODERATE AMOUNT OF SUPRAPATELLAR FLUID. COMMENT: THERE IS SUGGESTION OF A MEDIAL PATELLAR PLICA.
Patient PHR view
Patient and Dr. PHR view
Patient account permits sharing
<table>
<thead>
<tr>
<th>Patient</th>
<th>Study</th>
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<th>Uploaded</th>
<th>Actions</th>
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### Study Storage Details

- STORAGE_HOST: storelpp04.dicomgrid.com
- STORAGE_NS: f7a2698f-a758-44e4-9d82-690b8e19edf7
- STUDY_UID: 1.2.840.113745.101999.117766.41946.4341.16853801
- PHI_NS: f7a2698f-a758-44e4-9d82-690b8e19edf7
- STUDY_UUID: 22680999-5e0c-4750-ad5d-3c0e2408e142
Image Share Network Usage

- 11 radiology centers currently enrolling patients in the network
- Up to 20 more sites scheduled directly through RSNA
- Vendors are implementing the RSNA Image Share Edge application through their own Edge appliances (several hundred sites)
- Oct 31, 2015
  - Exams – 88,891
  - Images- 19,556,020 (assume 220 images/exam)
  - Patients- 21,517
  - 6073 of those patients have created personal health record accounts and accessed their images
Summary - Patient & Provider Satisfaction

Obtaining access to my medical images proceeded without difficulty

Satisfaction with Image-Access is higher with the Internet than with CDs.
Summary - Patient & Provider Satisfaction

- The elderly were well represented among the early adopters of the RSNA Image Share Network (ISN)
- Ease of access to medical images was rated higher with the RSNA ISN
- A patient directed, Internet based, interoperable system to exchange medical images is feasible and meets patient expectations regarding access, timeliness and privacy
Connecting Health and Care for the Nation
A Shared Nationwide Interoperability Roadmap

FINAL Version 1.0
The goals are:

- **2015-2017**: Send, receive, find and use priority data domains to improve health care quality and outcomes.
- **2018-2020**: Expand data sources and users in the interoperable health IT ecosystem to improve health and lower costs.
- **2021-2024**: Achieve nationwide interoperability to enable a learning health system, with the person at the center of a system that can continuously improve care, public health, and science through real-time data access.
A learning health system enabled by nationwide interoperability, that supports all stakeholders, especially individuals and providers.
G. An Industry-wide Testing and Certification Infrastructure

A variety of health IT testing tools and resources must be broadly available to stakeholders to support technology from development through deployment. Testing and certification programs must provide health IT users with reasonable assurance that health IT is interoperable.

Certification

Certification programs, including but not limited to ONC’s, should be established and based on health IT users’ need for assurance about the performance of certain health IT products and services. To advance interoperability, certification programs should include a sufficient level of testing rigor around core interoperability functions, such that stakeholders derive a tangible benefit from the certification. The addition of transparent surveillance processes can protect purchasers of certified products and services as well as keep them up-to-date regarding poor performing or non-compliant products.
Standards Development Organizations and Implementation Guidance

Standards Development Organizations (SDOs) act as convening bodies for the stakeholder communities that collaboratively develop, curate and maintain standards and information models including those mentioned above. These organizations include, but are not limited to: Health Level 7 (HL7), the National Council for Prescription Drug Plans (NCPDP), Integrating the Health care Enterprise (IHE), Clinical Data Interchange Standards Consortium (CDISC), Regenstrief Institute, International Health Terminology Standards Development Organisation (IHTSDO) and International Organization for Standardization (ISO). In addition to publishing standards, these organizations also create profiles or implementation guides that provide additional implementation instruction and examples for developers. For instance, the HL7 2.5.1 messaging standard is a content standard for which several different implementation guides have been created to address specific purposes ranging from laboratory result receipt to immunization submission.
Another commonly used transport technique today is web services. Documentation or profiles from Integrating the Healthcare Enterprise (IHE) often use Simple Object Access Protocol (SOAP)-based web services to support transport for queries, as well as services like public health reporting. The eHealth Exchange also uses SOAP-based web services in its implementation. This approach is also currently deployed by many EHR developers as it allows XML-based, system-to-system transactions to be constructed easily. Another type of web service approach includes RESTful implementations, which are growing in interest as they are leveraged by HL7’s Fast Healthcare Interoperability Resources (FHIR) project.

Web services based on SOAP and RESTful approaches for more automated transactions, including query/response and some publish/subscribe transactions, will also be important standards in this suite. Where technology developers have SOAP-based implementations that work well, they should continue to leverage those investments, while exploring RESTful transport approaches that may scale more easily and nimbly over time.
Near-Term Success
An increase in the proportion of individuals, office-based physicians, hospitals and behavioral health, long-term care and post-acute care providers that:

- Send, receive, find and use electronic health information;
- Have electronic health information available from outside sources and make electronic health information available to outside sources; and
- Use electronic health information to inform decision-making.

Long-Term Success
An increase in the proportion of individuals and entities across the broader ecosystem that:

- Send, receive, find and use electronic health information;
- Have electronic health information available from outside sources and make electronic health information available to outside sources; and
- Use electronic health information to inform decision-making.

Resulting in:

- Positive impacts on outcomes sensitive to interoperability (i.e., better health, lower cost and improved processes enabled by interoperability).
RSNA Image Share Validation Program

A Partnership with THE SEQUOIA PROJECT

http://sequoiaproject.org/resources/rsna-image-share-validation-program/
RSNA Image Share Validation Program

- Fills a national Standards Gap
  - International Conformity Assessment
- IHE profiles provide the basis
- Modular
  - XDS-I
    - Document Source and Document Consumer
    - Registry and Repository
  - XCA-I
  - RSNA Image Share PHR
The Sequoia Project

Trusted Convener of Industry & Government to Address Health IT Interoperability
The Sequoia Project is the trusted, independent convener of industry and government.

Works to address the challenges of secure, interoperable nationwide health information exchange (HIE).
The Sequoia Project
Initiatives

The Sequoia Project’s independent initiatives each have their own:

- Mission
- Governance
- Membership
- Structure

The Sequoia Project is an ideal home for projects that require a collaborative environment where multiple parties with differing perspectives can work together.

Courtesy of Mariann Yeager, MBA
CEO, www.sequoiaproject.org
Current Sequoia Project Initiatives

The **eHealth Exchange** is the largest and fastest growing health data sharing network in the US.

Carequality is building consensus on a national-level interoperability framework to inter-connect networks.

Courtesy of Mariann Yeager, MBA, CEO, www.sequoiaproject.org
Rapidly growing network for securely sharing health information over the Internet

Shared Governance and Trust Agreement

Common Standards, Specifications & Policies

Courtesy of Mariann Yeager, MBA
CEO, www.sequoiaproject.org
eHealth Exchange Objectives

- Establish multi-use framework for information exchange
  - Across communities
  - Between private sector and government
- Agree upon a common set of policies to engender trust
- Standardize interfaces
- Test once: exchange with many

Courtesy of Mariann Yeager, MBA
CEO, www.sequoiaproject.org
## Impact of a Nationwide Interoperability Model

<table>
<thead>
<tr>
<th>Impact</th>
<th>How Nationwide Interoperability is Enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduce Costs</strong></td>
<td>Using common standards, legal agreements and governance reduces legal expenses and custom interfaces</td>
</tr>
<tr>
<td><strong>Improve Clinical and Business Decisions</strong></td>
<td>Test once and exchange with many healthcare providers, pharmacies and payers require to improve clinical decision making, patient safety and process improvements</td>
</tr>
<tr>
<td><strong>Exchange with Government Agencies</strong></td>
<td>Standards based, nationwide approach that enables data sharing across the private sector and with the federal government</td>
</tr>
<tr>
<td><strong>Adapt to the Future</strong></td>
<td>Multi-purpose interoperability approach has the ability to evolve and incorporate new use cases, standards, etc.</td>
</tr>
</tbody>
</table>

Courtesy of Mariann Yeager, MBA
CEO, www.sequoiaproject.org
Health IT systems complete rigorous set of tests to validate:

- Conformance to underlying standards and specifications
- Systems are free from known interoperability issues - transport, security, transactions and content (if not MU certified)
- Configured and operate securely (negative security tests)

Courtesy of Mariann Yeager, MBA
CEO, www.sequoiaproject.org
Lesson Learned from 6 Years of Production

Testing is essential to enable interoperable data sharing at national-level scale

- Multi-level testing
  - Profile-level testing
  - Product testing and 3rd party validation of interoperability
  - Production-level testing to assure production configuration interoperates

- Automated, self-service approach
- Tightly constrained tests
- Focus on known interoperability issues and security
- Testing eco-system with feedback loop into tightly constrained implementation specifications

Courtesy of Mariann Yeager, MBA
CEO, www.sequoiaproject.org
eHealth Exchange Architectural Layers

Profiles
Employing exchange patterns to enable clinical data enabled workflows
- Care Summary Exchange
- Quality / Admin Data Push
- SSA Disability Claims Eligibility

Information Exchange
Employing lower-level layers to enable basic message exchange patterns
- Patient Discovery
- Query for Documents
- Retrieve Documents
- Patient Consent
- Push
- Publish / Subscribe

Discovery, Message Security and Privacy
Message security, privacy, and interoperable healthcare data exchange
- Web Services Discovery (UDDI)
- Message Platform
- Authorization Framework

Operational Infrastructure
Runtime systems supporting the eHealth Exchange
- Security Infrastructure (Managed PKI)
- Web Services Discovery (UDDI)
eHealth Exchange Architectural Layers

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- **Care Summary Exchange**
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- **Web Services Discovery (UDDI)**
- **Message Platform**
- **Authorization Framework**

- **Security Infrastructure (Managed PKI)**
- **Web Services Discovery (UDDI)**

- **IHE XCPD**
- **IHE XCA**
- **IHE XCA**
- **IHE BPPC**
- **IHE XDR/XDM**
- **IHE XUA**
- **IHE ATNA**
- **C32 IHE PCC Content**
RSNA Image Share Validation Program

- Fills a national Standards Gap
  - International Conformity Assessment
- IHE profiles provide the basis
- Modular
  - XDS-I
    - Document Source and Document Consumer
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  - XCA-I
  - RSNA Image Share PHR
Who Should Participate:

- Providers of imaging systems such as Reporting Systems, RIS and PACS that wish to enable those systems to connect to networks for sharing images with providers and patients
- Providers of health information exchange systems that wish to enhance their systems to exchange medical images and reports
Participant Fees

- $10,000 for the first testing bundle
- $2,000 for each additional testing bundle
- Maximum of $16,000 per participant for each testing cycle
- The validation mark will remain current for two years.

- 50% Discount for First Test Cycle!
Program Timeline

- Dec. 1, 2015 – Image Share Validation Program Announced
- Jan. 4, 2016 – Registration for Pilot Testing Program Opens and Detailed Test Plans Published
- Mar. 1, 2016 – Valid Testing Sessions Begin
- Sept. 30, 2016 – Pilot Validation Testing Sessions Completed
- July 29, 2016 – Enrollment of all interested vendors; ongoing testing
Opportunities Abound for Interoperable Exchange

- Leverage the growing connectivity footprint in the US and expand to include image exchange
- Inform development of PHR profile that will be deployed nationwide and reflect requirements for image exchange
- Be part of growing movement to broaden connectivity to support care management and population health
http://sequoiaproject.org/resources/rsna-image-share-validation-program

http://www.rsna.org/image_share.aspx