



NDHIN

eHealth Summit - 2014

DRAFT ONC TEN YEAR ROADMAP

2017

Providers and individuals send, receive, find, use a basic set of essential health information

2020

Granular information access
Expanded sources and users of information
Improved quality and reduced cost

2024

Longitudinal information
Ubiquitous precision medicine
Reduced time from evidence to practice

Core technical standards and functions

Certification to support adoption and optimization of health IT products & services

Privacy and security protections for health information

Supportive business, clinical, cultural, and regulatory environments

Rules of engagement and governance

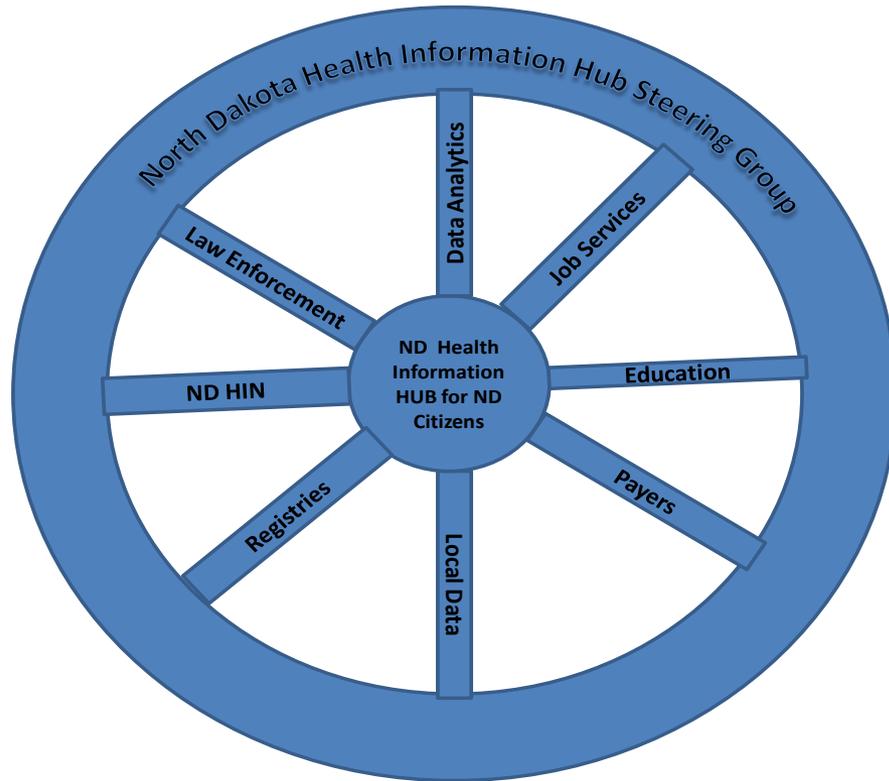


	2014-2017	2017-2020	2020-2024
Individual	<ul style="list-style-type: none"> Send, receive, find, and use electronic health information 	<ul style="list-style-type: none"> Electronically contribute to and correct their health information; access shared care plans in standardized electronic format Increased access to longitudinal health information 	<ul style="list-style-type: none"> Regularly track and share electronic information from wearable, implantable, biometric medical devices Increased access to longitudinal health information
Provider	<ul style="list-style-type: none"> Send, receive, find and use the common MU data set for all patients Receive electronic notifications when individuals are admitted to or discharged from inpatient care 	<ul style="list-style-type: none"> Increased granular access to specific health information when/where needed Automated tools that effectively use electronic clinical data from multiple sources for quality improvement and decision support across care continuum Seamless remote monitoring and care for through remote devices 	<ul style="list-style-type: none"> Increased access to longitudinal health information Care tailored precisely to each individual based on information about environment, occupation, human services, genomic data, cutting edge research evidence, etc.
Population & Public (Community and state level)	<ul style="list-style-type: none"> Information contained in the common MU data set aggregated across communities for population health and quality measurement Research community accesses aggregations of EHR data in pilots Notifications based on relevant information are shared seamlessly between EHRs and public health 	<ul style="list-style-type: none"> Clinical and administrative data normalized and aggregated across communities to support broad scale value-based payment models Research community accesses aggregations of standardized EHR data for ongoing research Public health and other clinical registries receive and make available broad suite of standardized data for use by authorized individuals 	<ul style="list-style-type: none"> Research community has access to large aggregations of standardized genomic and device data for research purposes Public health better contains outbreaks and proactively manages disasters with electronic information from many sources



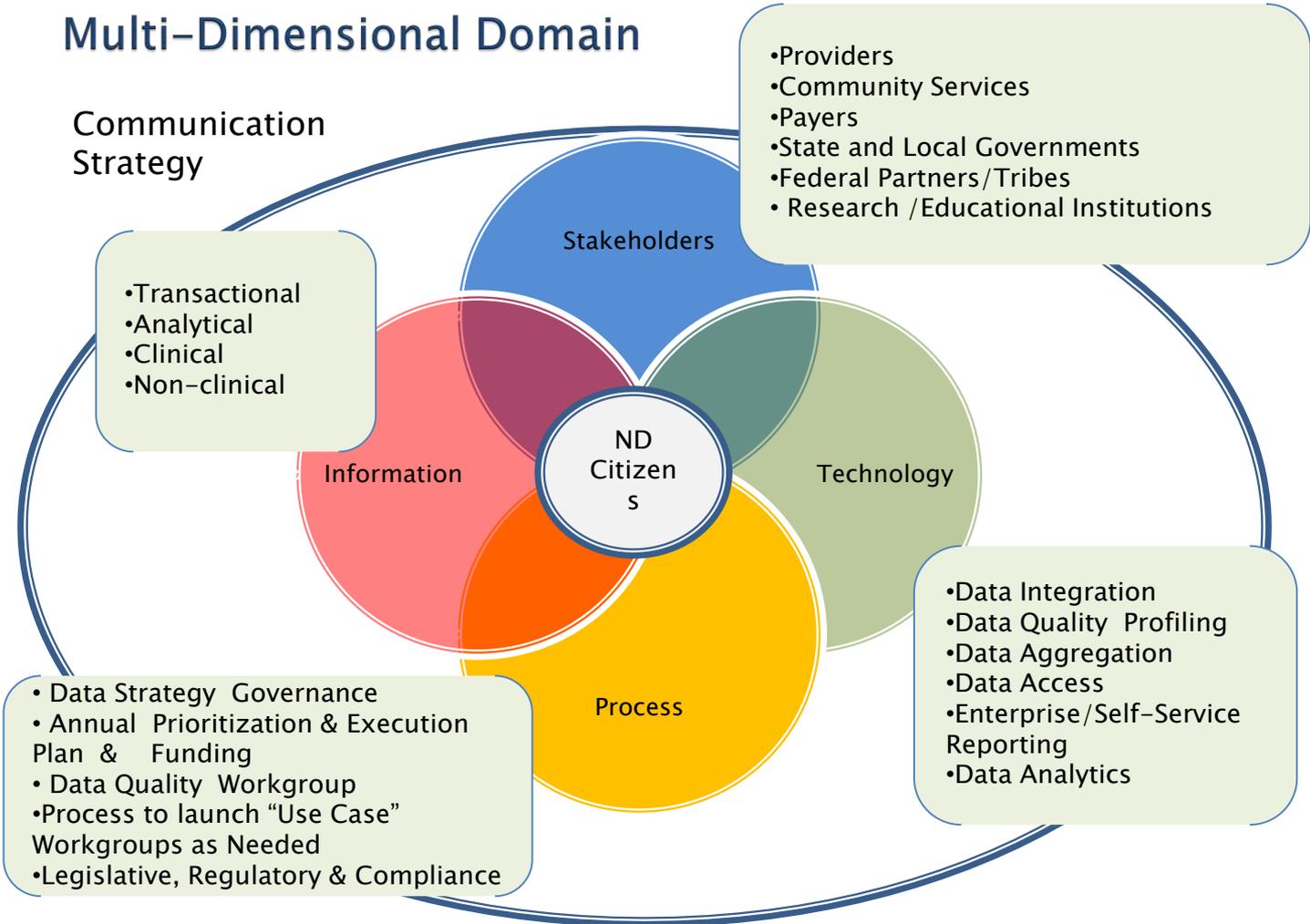
North Dakota Health Information Hub

North Dakota Health Information HUB

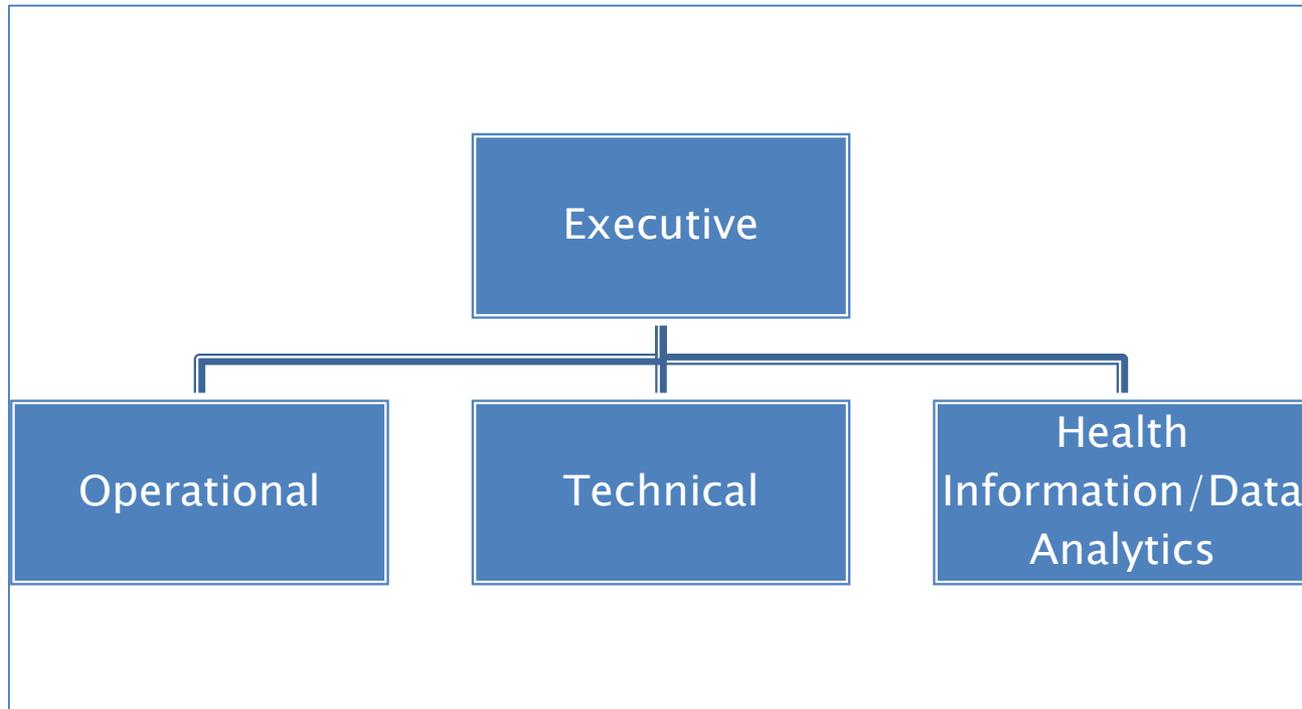


Multi-Dimensional Domain

Communication Strategy



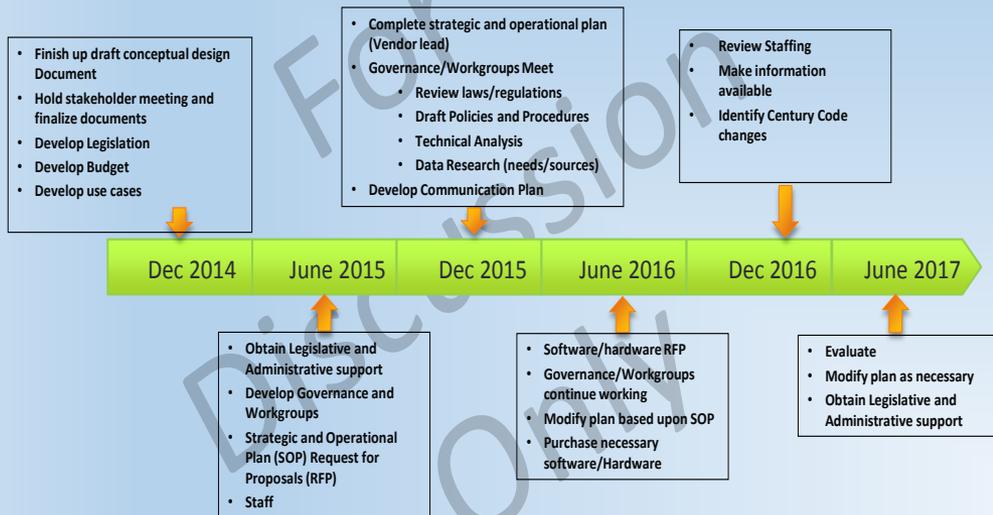
Organizational Structure



Use Case Scenarios and Key Stakeholders

	Clinicians	Public Health	Pharmacies	L TC	Law Enforcement	QIOs	State Government	Federal Partners/Tribes	School Systems	CHNA aggregated data	Laboratories	Community Clinics and Health Centers	Payers
Patient care substance abuse	X		X							X		X	
RHIO	X		X	X							X	X	
Research	X									X			
Registries (Brain injury, immunizations, controlled substances, etc.)	X	X	X	X	X	X	X	X	X	X		X	
Population Health/ Medical Home	X	X	X	X		X	X	X	X	X	X	X	X
Schools	X	X								X		X	

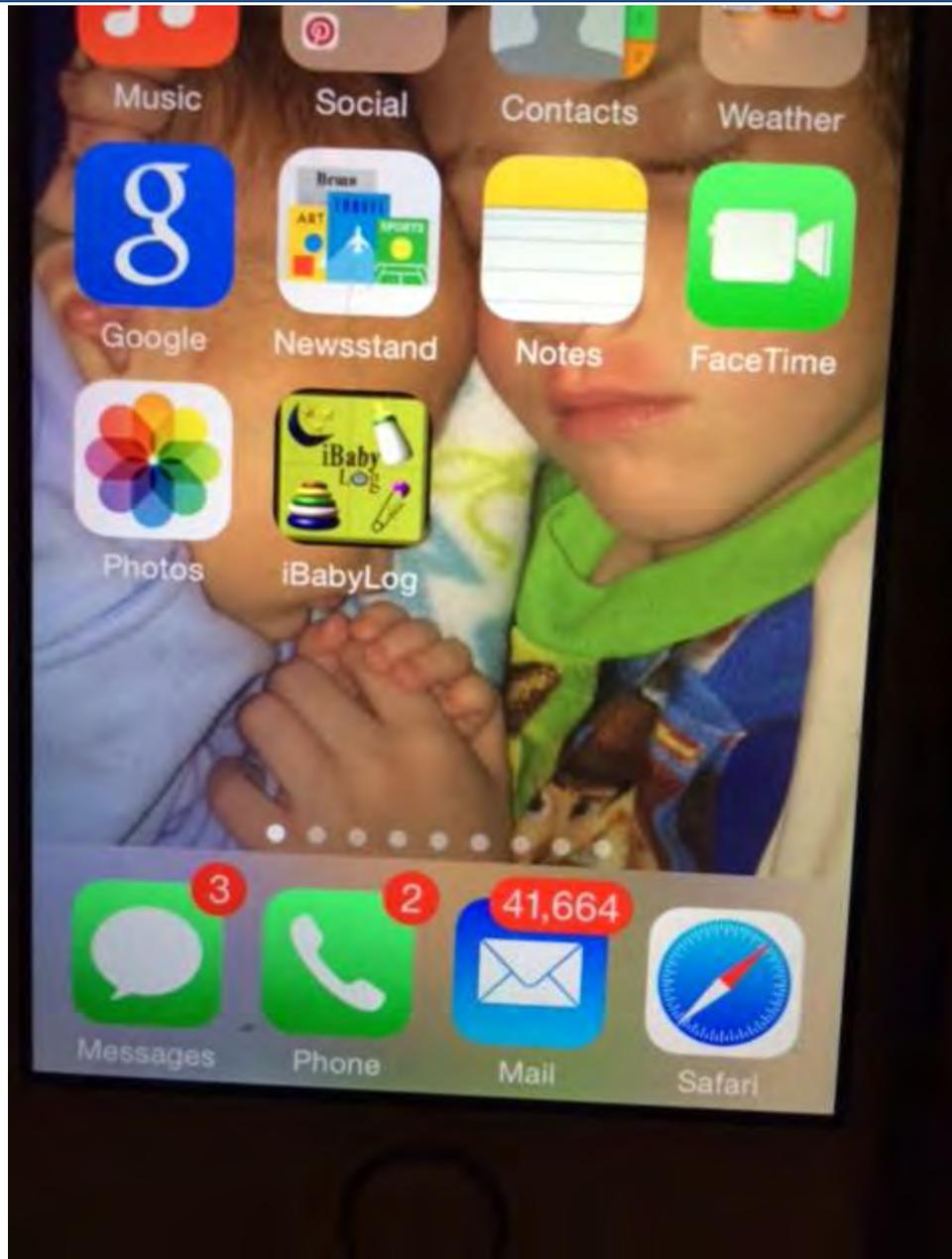
North Dakota Health Information Hub Timeline





Agenda

- ONC Roadmap
- ND Health Information Data Hub
- NDHIN Update
 - Current Stats
 - Onboarding Progress
 - HealtheWay eHealth Exchange
 - Clinical Portal Access
 - Adding/Training Users
 - Single Sign On Status
- NDHIN Image Exchange
- Direct Secure Messaging
 - DSM Web
 - 1.0 vs 2.0 Transition – Timelines
 - DSM 2.0 Forms (for current 1.0 users) – Nov 1
 - Deactivate 1.0 accounts starting Dec 1





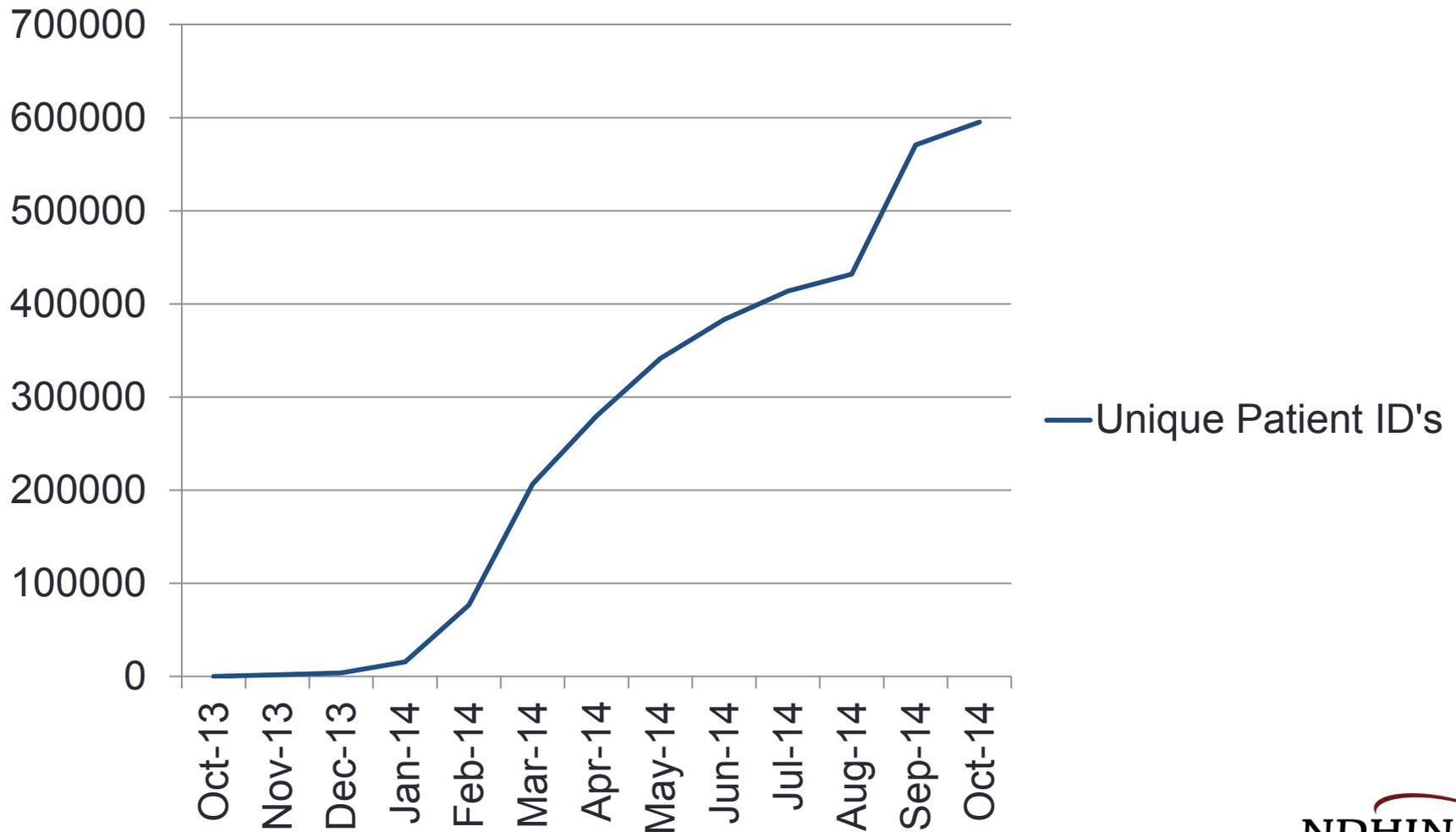
Agenda

- ONC Roadmap
- ND Health Information Data Hub
- NDHIN Update
 - Current Stats
 - Onboarding Progress
 - HealtheWay eHealth Exchange
 - Clinical Portal Access
 - Adding/Training Users
 - Single Sign On Status
- NDHIN Image Exchange
- Direct Secure Messaging
 - DSM Web
 - 1.0 vs 2.0 Transition – Timelines
 - DSM 2.0 Forms (for current 1.0 users) – Nov 1
 - Deactivate 1.0 accounts starting Dec 1

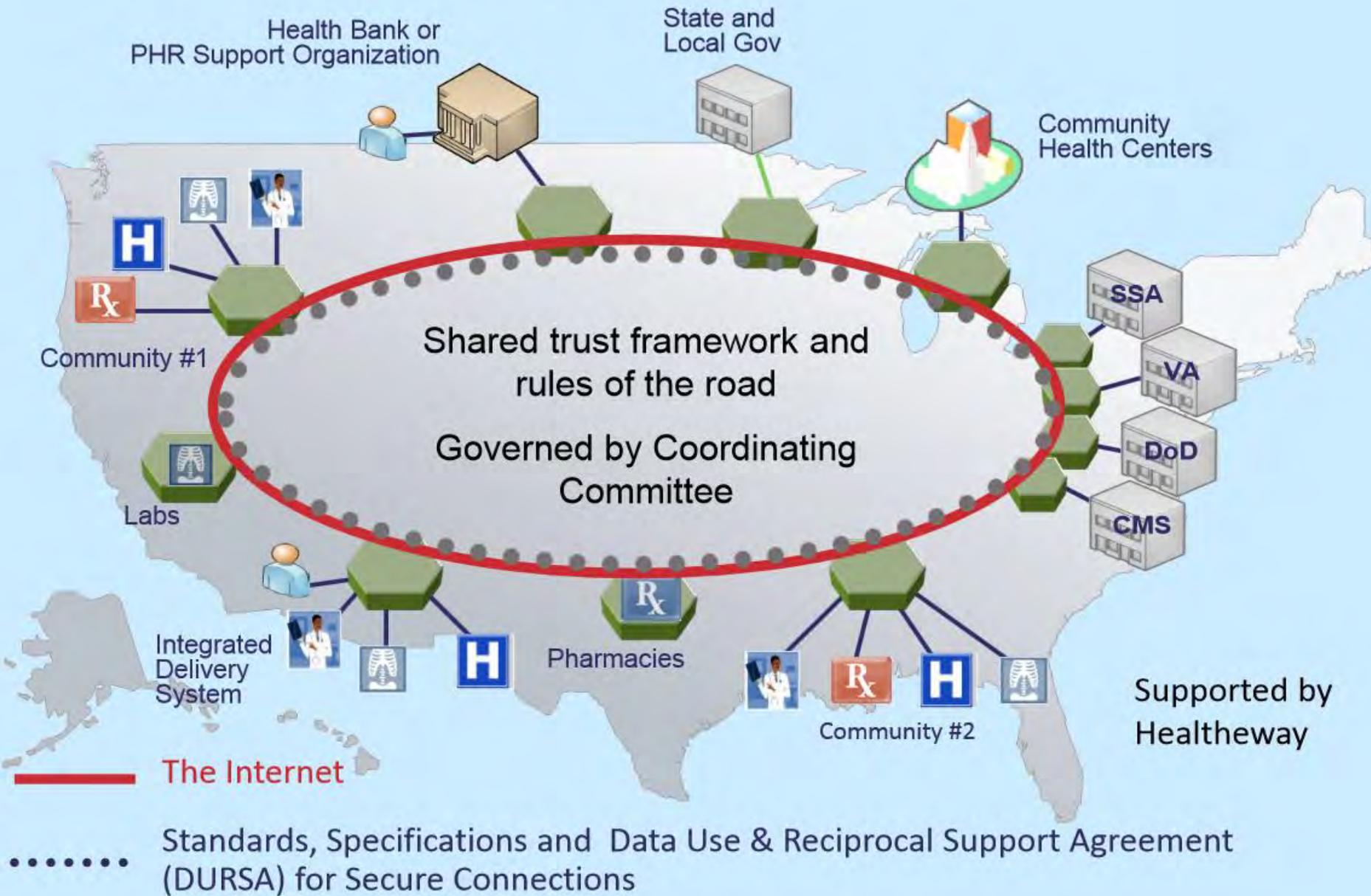


NDHIN – Production Statistics

(As of Oct 31)



eHealth Exchange



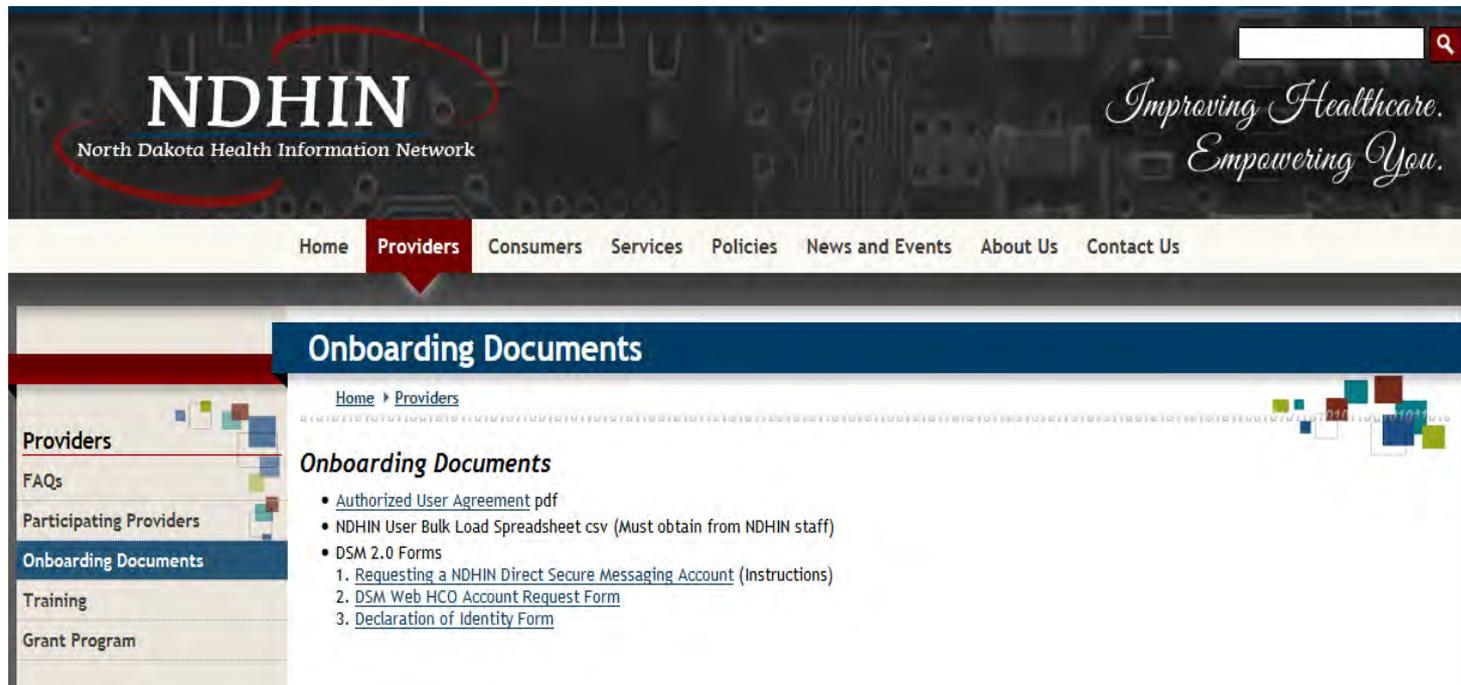


Clinical Portal Access

Patient Records Accessed		Total
	Total Access as of Last Month	3,177
	Access This Period	307
	Access This Month	242
	Total Access To Date	3,419

Clinical Portal – Requesting Access

- <http://www.ndhin.org/providers/onboarding-documents>



The screenshot displays the NDHIN (North Dakota Health Information Network) website. The header features the NDHIN logo and the tagline "Improving Healthcare. Empowering You." A navigation menu includes links for Home, Providers, Consumers, Services, Policies, News and Events, About Us, and Contact Us. The "Providers" link is highlighted. The main content area is titled "Onboarding Documents" and lists the following items:

- [Authorized User Agreement pdf](#)
- NDHIN User Bulk Load Spreadsheet csv (Must obtain from NDHIN staff)
- DSM 2.0 Forms
 1. [Requesting a NDHIN Direct Secure Messaging Account \(Instructions\)](#)
 2. [DSM Web HCO Account Request Form](#)
 3. [Declaration of Identity Form](#)

A sidebar on the left contains a menu with the following items: Providers, FAQs, Participating Providers, Onboarding Documents (highlighted), Training, and Grant Program.

NDHIN Update

- Single Sign On

Agenda

- NDHIN Update
 - Current Stats
 - Onboarding Progress
 - HealtheWay eHealth Exchange
 - Clinical Portal Access
 - Adding/Training Users
 - Single Sign On Status
- NDHIN Image Exchange
- Direct Secure Messaging
 - DSM Web
 - 1.0 vs 2.0 Transition – Timelines
 - DSM 2.0 Forms (for current 1.0 users) – Nov 1
 - Deactivate 1.0 accounts starting Dec 1



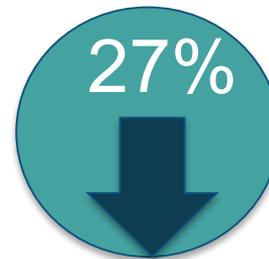
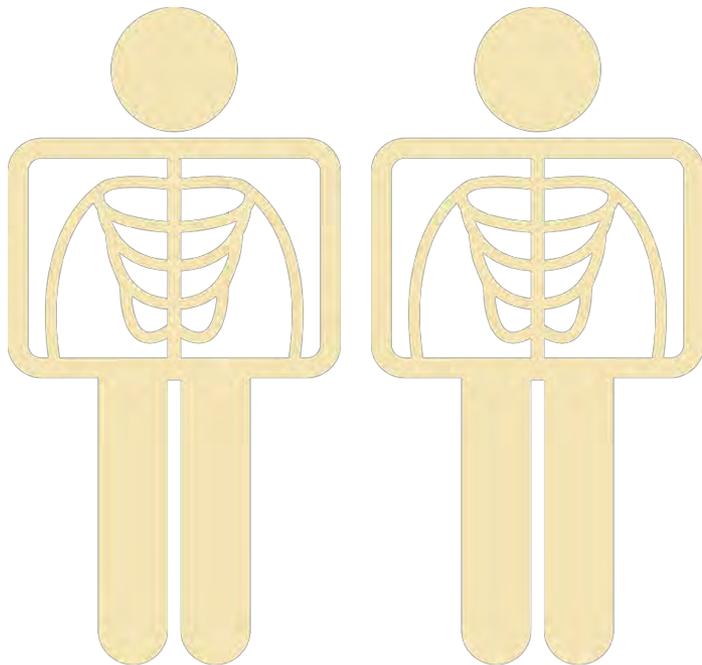
eHealth Technologies

eHealth Connect[®] Image Exchange

Presentation for:
Orion HIEs



Reduced Duplicate Radiology Testing



Accessing HIE based radiology data reduced likelihood of duplicate image testing by 27%*

* Vest JR, Kaushal R, Silver M, Hentel K, Kern LM with the HITEC Investigators. Health information exchange usage and repeat medical imaging. AcademyHealth 2013 Annual Research Meeting. Baltimore, MD. June 23-25, 2013.

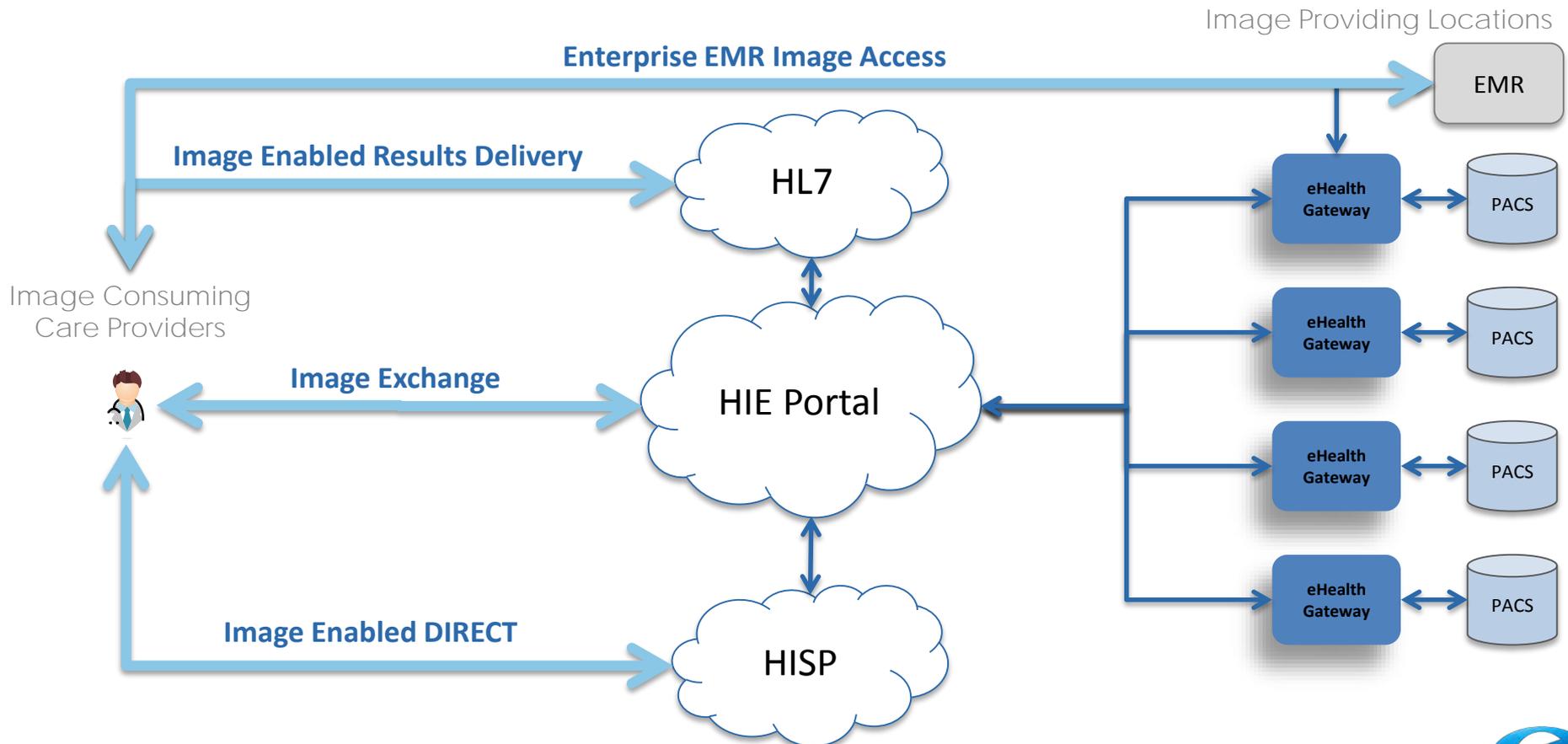
Experience Counts

- Sharing over 9M image exams annually
- Over 95 connected facilities
- Integrates to virtually every type of PACS – 100% success rate
- Already integrated with most popular HIE platforms
- All customers are referenceable
- Top ratings in most recent KLAS report on Image Exchange

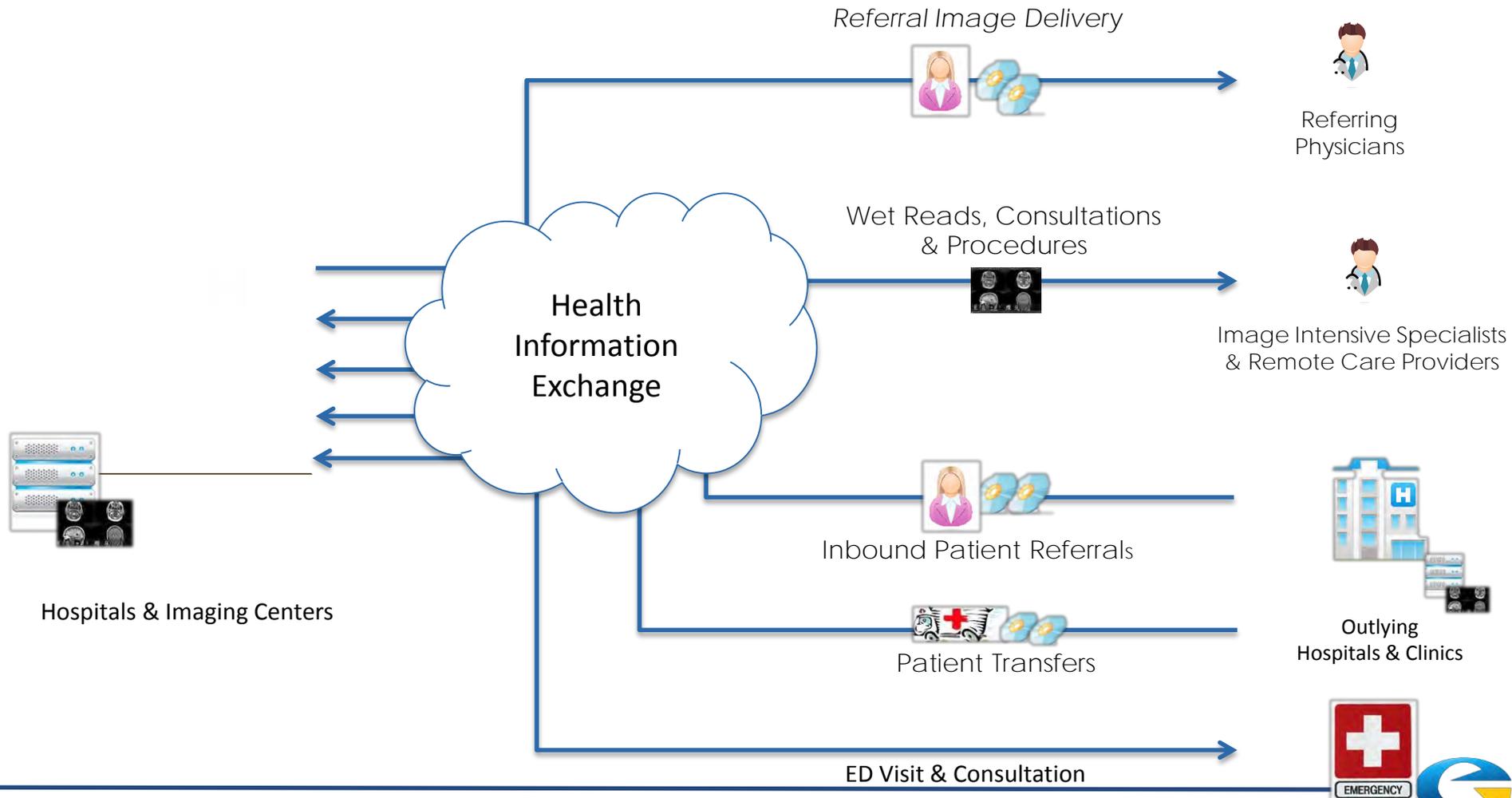


Images

A Natural Part of Existing and Future Workflows
On One Platform – eHealth Connect®



Enhanced Care Coordination: *Imaging's "Final Mile"*



Key User Features

- Image-enabled Results Reports
- HIE-wide Image Exam Worklist
- Emergent Image Access
- Transfer to PACS
- Real-time Collaboration
- Image Enabled Results Delivery (HL7, Direct Secure Messaging, IHE)



Meaningful Use

Stage 2 EP Menu Objectives – 3 of 6 measures must be met

Menu Objective	Measure
1. Imaging Results	More than 10% of imaging results are accessible through Certified EHR Technology
2. Family History	Record family health history for more than 20%
3. Syndromic Surveillance	Successful ongoing transmission of syndromic surveillance data
4. Cancer	Successful ongoing transmission of cancer case information
5. Specialized Registry	Successful ongoing transmission of data to a specialized registry
6. Progress Notes	Enter an electronic progress note for more than 30% of unique patients



Midtown Radiology Associates
123 Main Street
Springfield, MA 12345

Image Enabled Results Report

Name: BRADY, Cynthia
Patient ID: 111118
Date of Birth: 01-Jan-1990
Study: FLOURO
Facility: Midtown Radiology Associates
Physician: Dan Baker, MD
Date of Service: 06/01/2014 10:04:19

PROCEDURE: XA right elbow

REASON FOR EXAM: Female, 14 years old. Follow up.

TECHNIQUE:

IMAGES:

Click [here](#) to view the study

You will need to enter this PIN: **7439**

COMPARISON: None.

FINDINGS: There is a non-displaced fracture of the posterior malleolus of the tibia involving approximately 25% of

the tibial plafond without depression or separation (sagittal series 4 image 26). There is a small avulsion fracture of the

fibular insertion of the anterior distal tibia fibular syndesmotoc ligament (axial series 2 image 24). Normal talar dome.

Normal talus, calcaneus, navicular and cuboid tarsal bones.

Normal subtalar, talonavicular and calcaneocuboid articulations.

Normal navicular-cuneiform and intercuneiform articulations. Normal cuneiform tarsal bones.

Normal tarsometatarsal articulations and visualized metatarsi.

There is mild medial and lateral anterior subcutaneous soft tissue edema.

IMPRESSION:

Non-displaced, non-depressed posterior tibial malleolar fracture.



Architecture

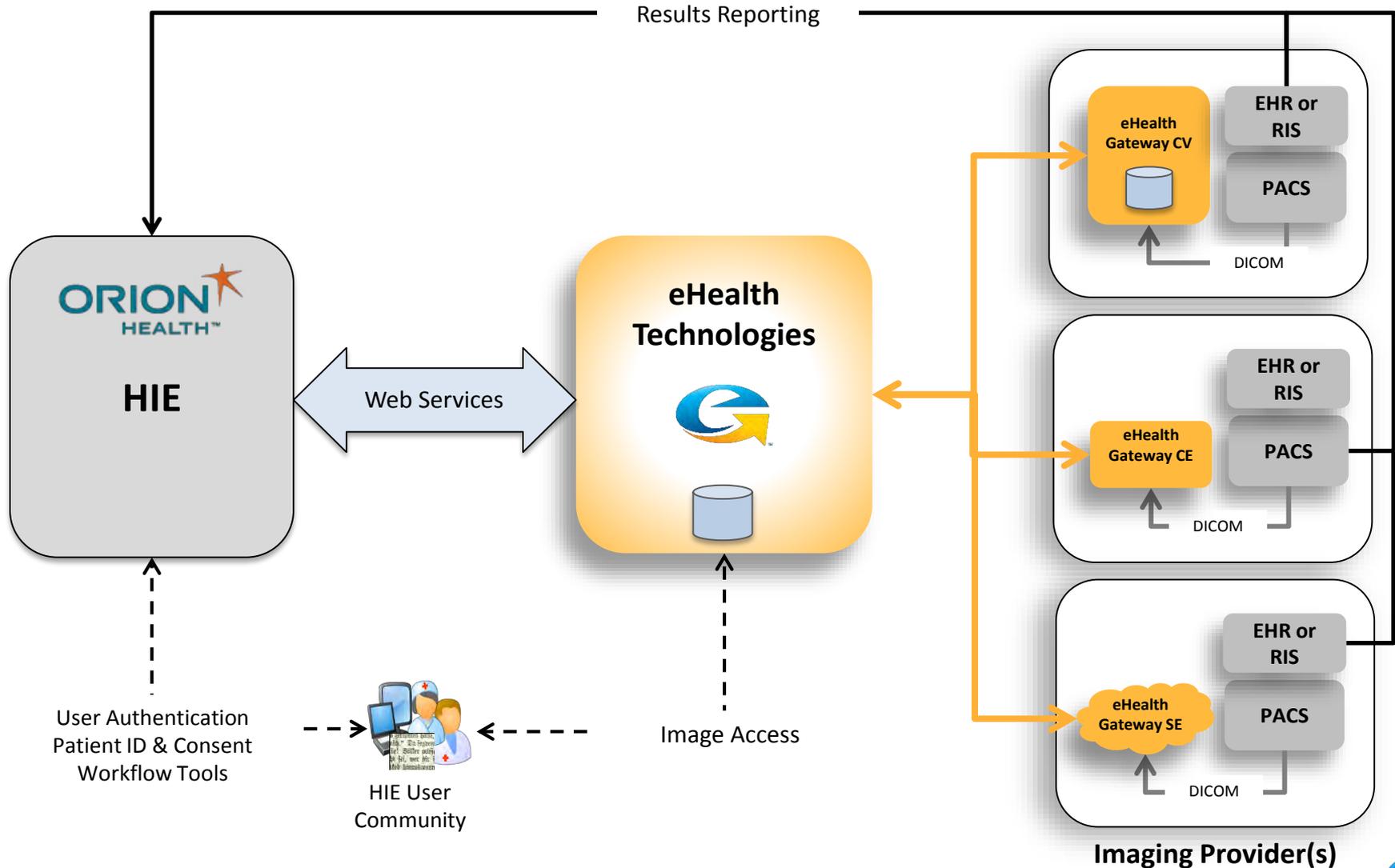
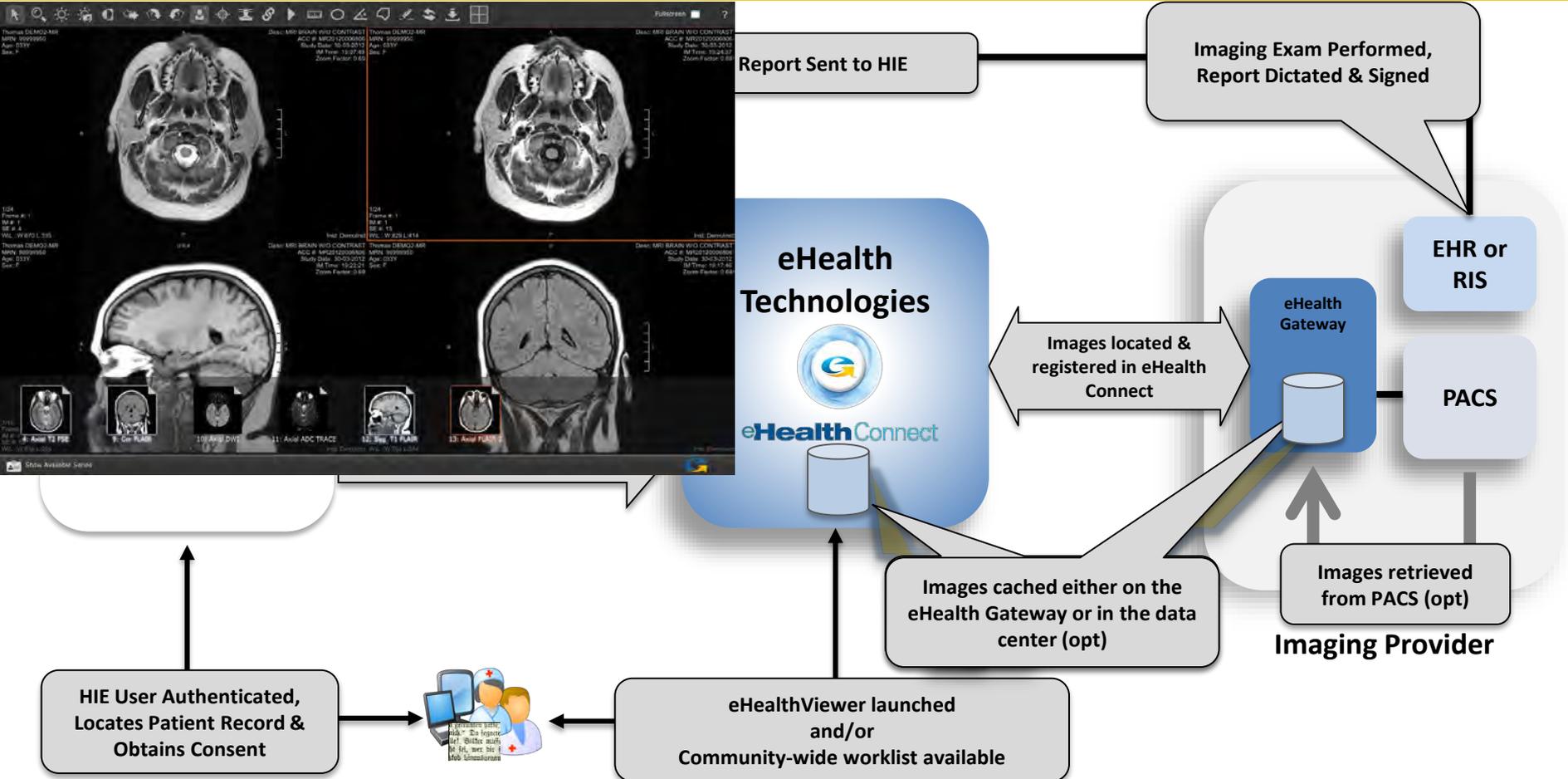
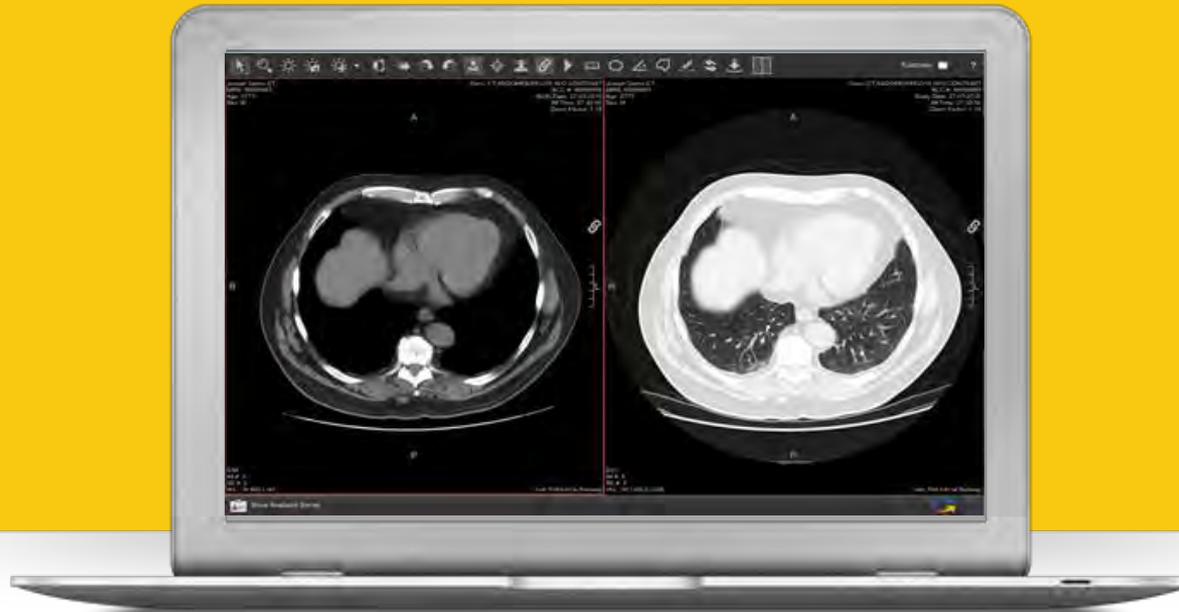


Image Exchange Workflow



HIE User Community





User Experience

eHealth Viewer® ZF

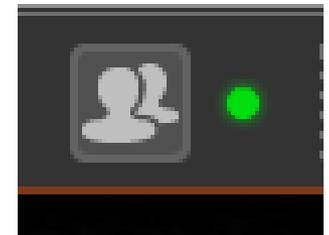
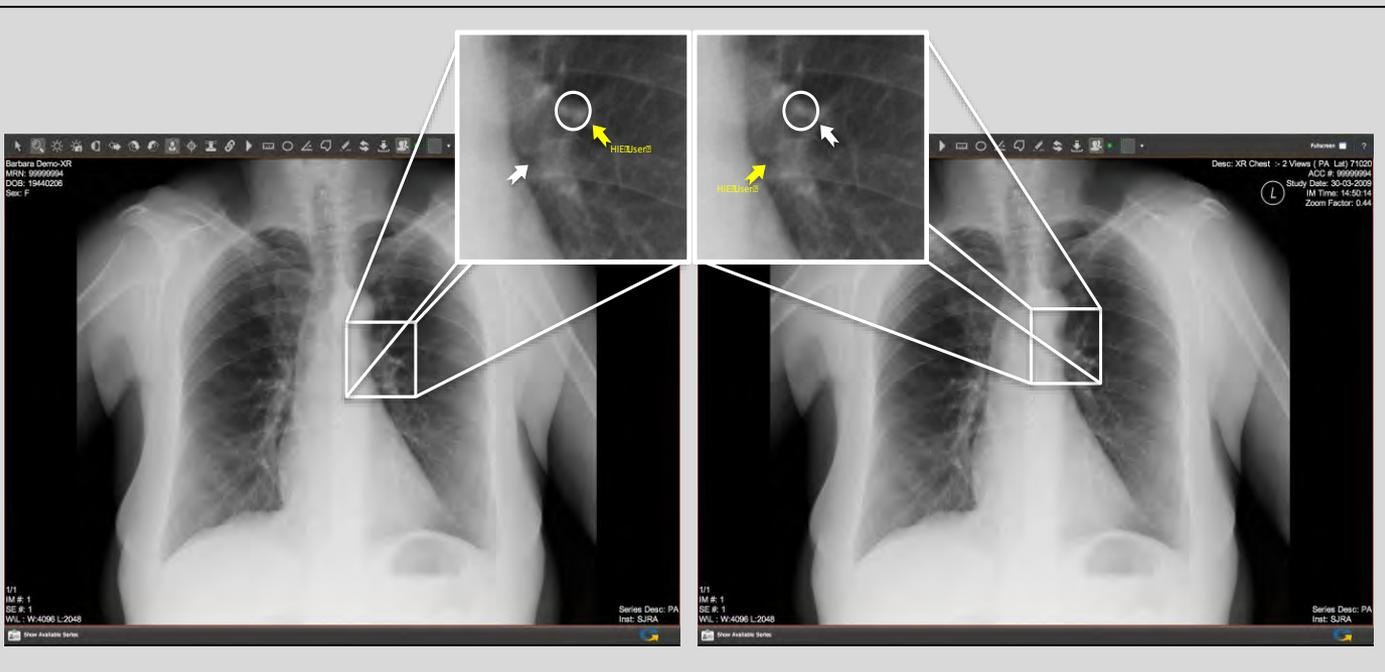
The only viewing platform for HIE that provides:

- **Full Diagnostic Quality:** FDA 510(k) Class II Medical Device
- **Secure:** No PHI is cached on the local client
- **High Performance:** Fast, smooth user experience even over slow, HTTPS connections
- **Scalable:** Support for unlimited users and concurrency
- **Built-in Collaboration:** Real-time Session sharing for consultations, 2nd opinions & grand rounds
- **Context-sensitive measurement tools:** Automatically detect the most relevant measurements to apply based on the region on the image
- **It just works:** On any browser, in any environment with no local application to install



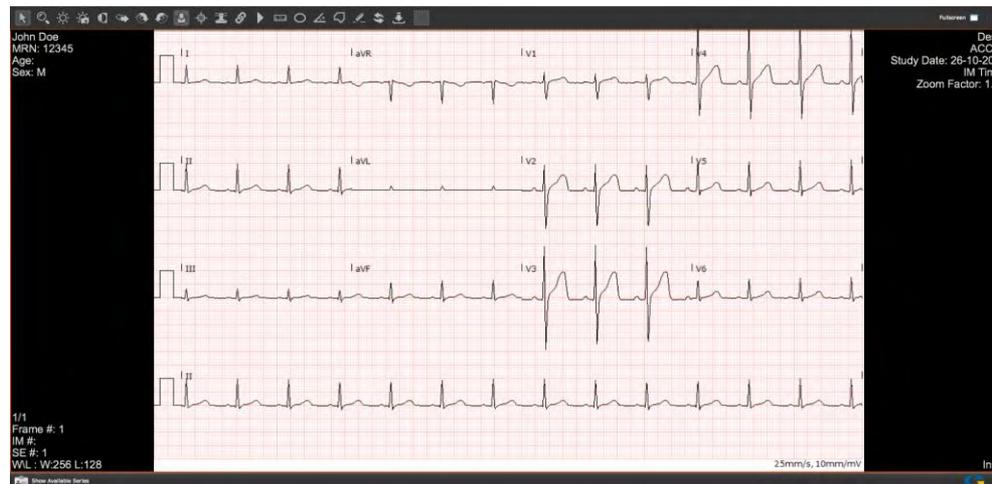
Real-Time Image Collaboration

- Immediate consultations with any caregiver in the HIE community
- One-click to initiate a collaboration session
- Full access to real-time image manipulation for all collaborators
- Standard feature is accessible for all eHealthViewer® ZF users



EKG Viewing

- Connect to most common EKG Devices
- Utilize PDF and/or normalized to DICOM EKG format
- EKG reporting can be extracted from EKG Devices and sent into EMR



Viewing Images With Rad Result

The screenshot displays a web browser window with the URL `lhd-devapp01/concerto/Concerto.htm`. The page title is "Patient Summary - Clinical Portal - Simon Leigh - (Private Browsing)". The patient information is: **CARDINAL, John Q**, DOB 12-Nov-1949 (64y), SEX M, MRN 84568-4564 (MRN) 84568-4564 (OHCP). The "Images" tab is selected and highlighted with a red box. The main content area shows a "Chest CT" scan performed on 03-Aug-2008 00:42, ordered by Dr Timothy Orange, with a status of "Final". The "Findings" section contains the following text: "Plain and contrast axial CT sections show a sharply defined thick walled mixed density lesion involving the anterior and superior lingular segments of the left upper lobe. Soft tissue and fluid attenuation values noted within the lesion. A few specks of calcific density also imaged in the wall of the lesion, and show enhancement following contrast administration. The surrounding lung parenchyma shows areas of consolidation. Mediastinal structures normal. No lymphnode enlargement seen. No pleural effusion/ pleural thickening noted." The "Report History" section shows a "Final Report from City Hospital" from 6 years ago. A "View Image" link is highlighted with a red box in the top right corner of the report area.

Document View
Showing All Mark All As Read
Group By Category Sort By Date

Patient Summary
Clinical Content (1)
Patient Snapshot
Laboratory (43)
General Lab (37)
Microbiology (5)
Pathology (1)
Radiology (8)
CAT Scan (4)
19-Jul-2009 Chest CT Dr Tim
03-Aug-2008 Chest CT Dr Tim
20-Jun-2008 Cranial CT Scan
09-Apr-2008 Abdominal-Thore
Other (4)

Chest CT (6 years ago) [View Image](#)

Print Send Send To Direct Send To EMR

Chest CT

Performed 03-Aug-2008 00:42 Order Number 20050504b
Ordering Provider: Dr Timothy Orange Status Final

Findings Final

Plain and contrast axial CT sections show a sharply defined thick walled mixed density lesion involving the anterior and superior lingular segments of the left upper lobe. Soft tissue and fluid attenuation values noted within the lesion. A few specks of calcific density also imaged in the wall of the lesion, and show enhancement following contrast administration. The surrounding lung parenchyma shows areas of consolidation. Mediastinal structures normal. No lymphnode enlargement seen. No pleural effusion/ pleural thickening noted.

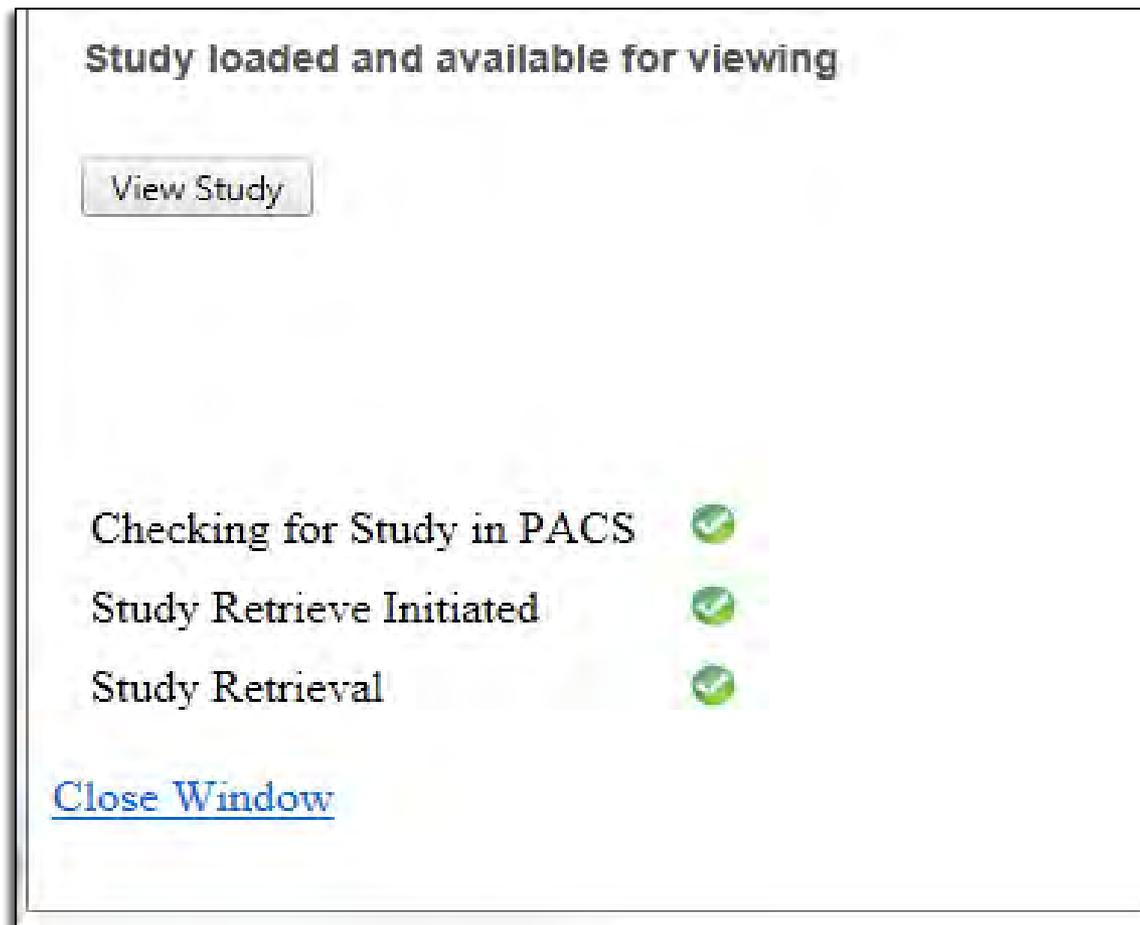
Report History

Final Report from City Hospital 6 years ago

Access History ▶



If the Image Exam is Not Already Loaded...



HIE Wide Worklist / Transfer to PACS

CARDINAL, John Q DOB 11-Nov-1949 (64y) SEX M MRN 84568-4564 (MRN) 84568-4564 (OHCP)

[Patient Summary](#) [Laboratory Results Flow Sheet](#) [Timeline](#) [Images](#)

HIE Imaging Worklist

Transfer To PACS

Loaded Studies For This Patient

 The following studies are loaded and ready for viewing

<input type="checkbox"/>	Status	MRN	Location	Study Date	Study Description	Modality	Body Part	Accession #
<input type="checkbox"/>		234567	DOMINICAN SANTA CRUZ	2013/07/09	XR CHEST TWO VIEWS	CR	CHEST	5556323
<input type="checkbox"/>		234567	DOMINICAN SANTA CRUZ	2013/07/08	HEAD CT WITHOUT CONTRAST	CT	HEAD	EMER12642
<input type="checkbox"/>		234567	DOMINICAN SANTA CRUZ	2013/05/08	SHOULDER LT	DX	UPPER EXT	5749393
<input type="checkbox"/>		234567	DOMINICAN SANTA CRUZ	2008/11/21	Head*1-Non-contrast-brain (Adult)	CT	BRAIN	003485214500001
<input type="checkbox"/>		234567	DOMINICAN SANTA CRUZ	2001/02/25	Neck x-ray, soft tissue	CR\SR	NECK	003367603200001
<input type="checkbox"/>		3455321	UNILAB	2013/06/12	MR IP PELVIS W/WO CONT	MR	PELVIS	5334232

View Studies

Available Studies For This Patient

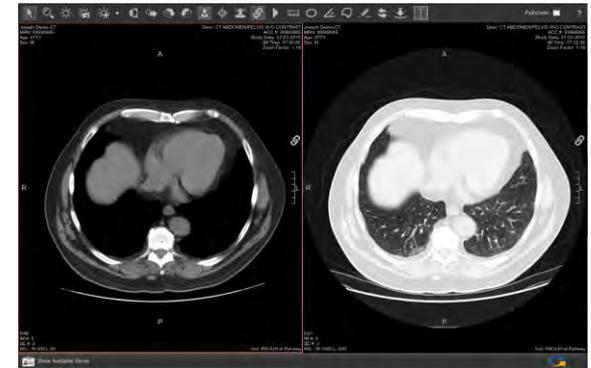
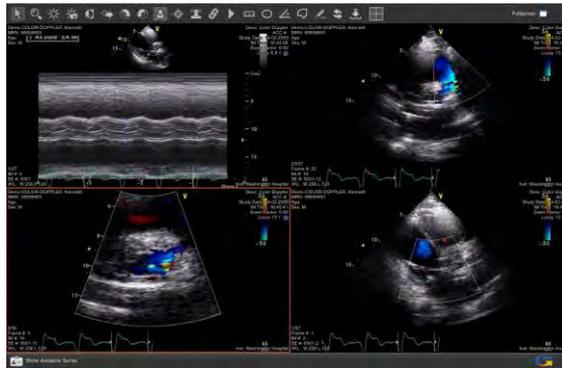
 The following studies are available in provider(s) PACS

<input type="checkbox"/>	Status	MRN	Location	Study Date	Study Description	Modality	Body Part	Accession #
No records to display.								

Load Studies



eHealthViewer® ZF



CARDINAL, John Q DOB 12-Nov-1949 (64y) SEX M MRN 84568-4564 (MRN) 84568-4564 (OHCP)

- Patient Summary
- Laboratory Results Flow Sheet
- Timeline
- Images

Document View

Showing All Mark All As Read
Group By Category Sort By Date

- Patient Summary
 - Clinical Content (1)
 - Patient Snapshot
 - Laboratory (43)
 - General Lab (37)
 - Microbiology (5)
 - Pathology (1)
 - Radiology (8)
 - CAT Scan (4)
 - 19-Jul-2009 Chest CT Dr Tim
 - 03-Aug-2008 Chest CT Dr Tim**
 - 20-Jun-2008 Cranial CT Scan
 - 09-Apr-2008 Abdominal-Thora
 - Other (4)

Chest CT (6 years ago)

Print Send Send To Direct Send To EMR View Image

Chest CT

Performed	03-Aug-2008 00:42	Order Number	20050504b
Ordering Provider	Dr Timothy Orange	Status	Final

Findings

Final

Plain and contrast axial CT sections show a sharply defined thick walled mixed density lesion involving the anterior and superior lingular segments of the left upper lobe. Soft tissue and fluid attenuation values noted within the lesion. A few specks of calcific density also imaged in the wall of the lesion, and show enhancement following contrast administration. The surrounding lung parenchyma shows areas of consolidation. Mediastinal structures normal. No lymphnode enlargement seen. No pleural effusion/ pleural thickening noted.

Report History

Final Report from City Hospital 6 years ago

Access History



CARDINAL, JOHN Q DOB 11-NOV-1949 (64y) SEX M MRN 84568-4564 (MRN) 84568-4564 (OHCP)



- Patient Summary
- Laboratory Results Flow Sheet
- Timeline
- Images**

Demo Image Worklist **Transfer To PACS**

Loaded Studies For This Patient

[i](#) The following studies are loaded and ready for viewing

<input type="checkbox"/>	Status	MRN	Location	Study Date	Study Description	Modality	Body Part	Accession #
<input type="checkbox"/>		84568-4564	DOMINICAN SANTA CRUZ	2009/07/18	Chest CT	CT	CHEST	ChestCT1h

View Studies

Available Studies For This Patient

[i](#) The following studies are available in provider(s) PACS

<input type="checkbox"/>	Status	MRN	Location	Study Date	Study Description	Modality	Body Part	Accession #
No records to display.								

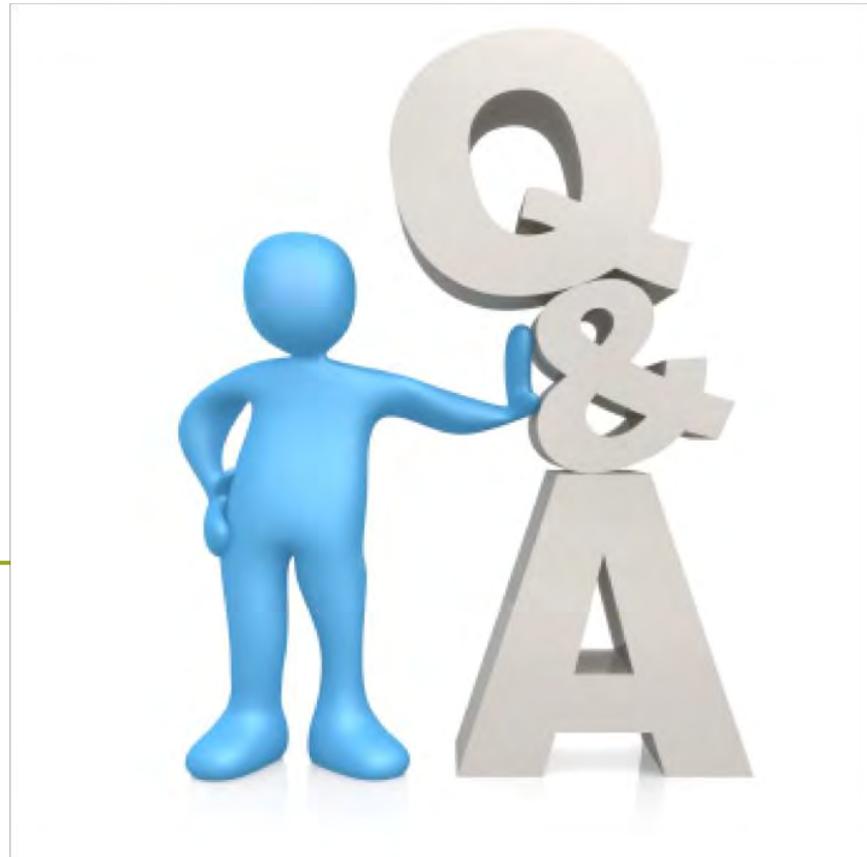
Load Studies





Agenda

- ONC Roadmap
- ND Health Information Data Hub
- NDHIN Update
 - Current Stats
 - Onboarding Progress
 - HealtheWay eHealth Exchange
 - Clinical Portal Access
 - Adding/Training Users
 - Single Sign On Status
- NDHIN Image Exchange
- Direct Secure Messaging
 - DSM Web
 - 1.0 vs 2.0 Transition – Timelines
 - DSM 2.0 Forms (for current 1.0 users) – Nov 1
 - Deactivate 1.0 accounts starting Dec 1



Chad Peterson
chapeterson@nd.gov
701-328-1955
t: @chadpeterson84