Gemini Pilot Project: Imaging for Cancer Care

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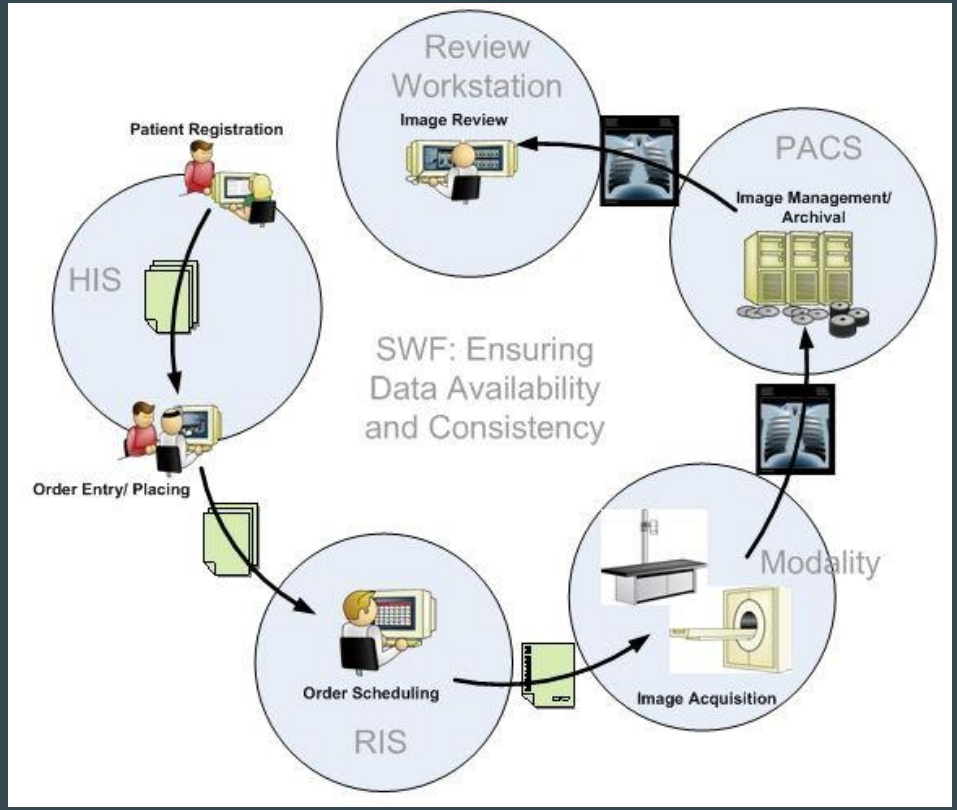
Learning Objectives

- Understand the motivation and goals of the Gemini Imaging for Cancer Care Pilot Project
- Identify emerging standards that support improvements in care technologies
- Become aware of opportunities for engagement in driving these innovations

Prologue: IHE Radiology Scheduled Workflow

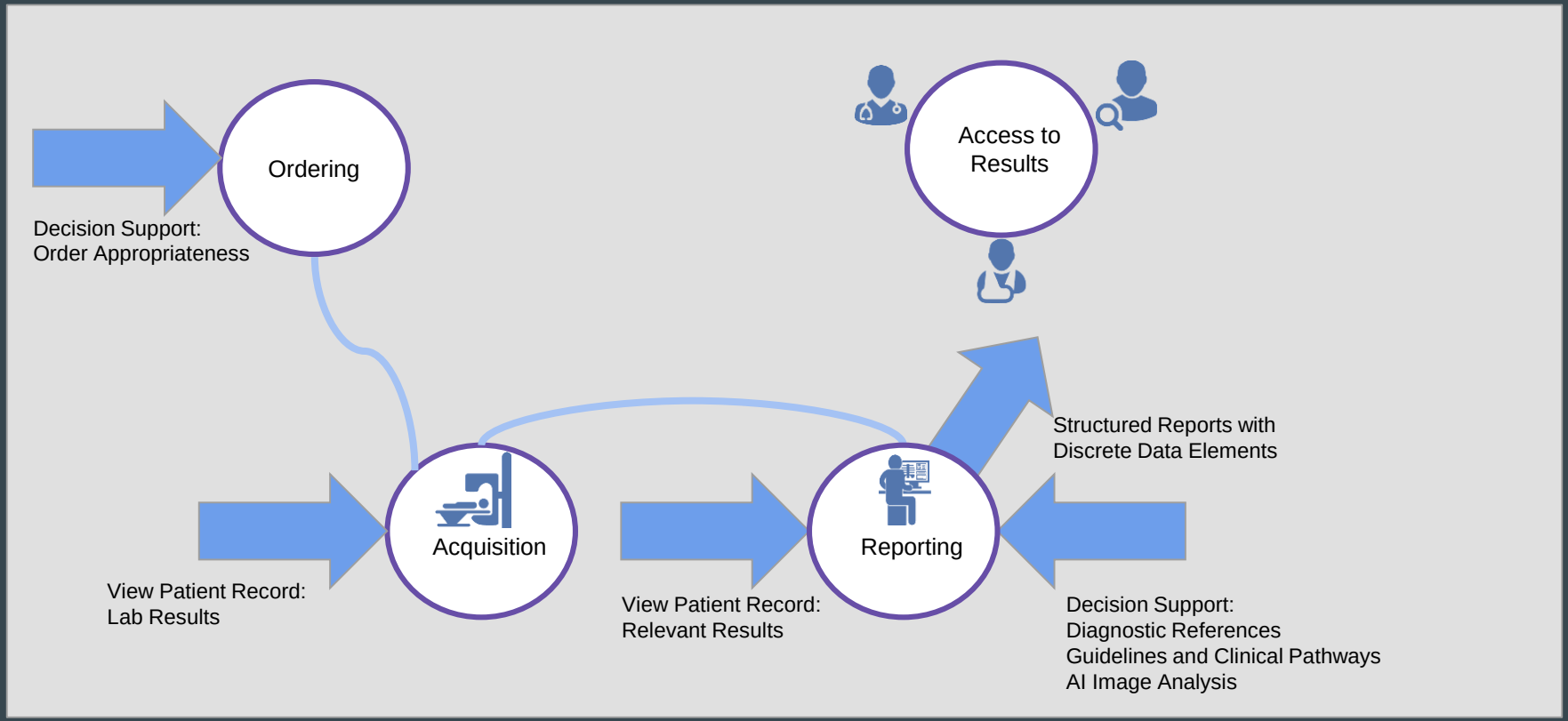
- First IHE profile published (1999)
- Addresses integration of radiology systems with hospital information systems
- Covers flow from ordering up to image availability
- Focuses on communication of operational/event information
- Built on HL7 v. 2.3 and DICOM 3
- Widely implemented--with local variation
- Established IHE's role in driving implementation of standards



Imaging for Cancer Care - Project Goals

- Document clinical use case(s) for cancer care to support optimal care, patient-provider communication, research and technological innovation
- Identify gaps in current imaging data- and workflow that can be addressed using emerging standards - HL7 FHIR, DICOMweb
- Foster collaboration to accelerate development and implementation of relevant standards
- Establish goals and timelines for specification development, testing, demonstration and implementation
- Develop relevant IHE Profiles and FHIR Implementation Guides
- Conduct series of increasingly rigorous testing and demonstration events

Opportunities for Enhanced Radiology-EHR Integration



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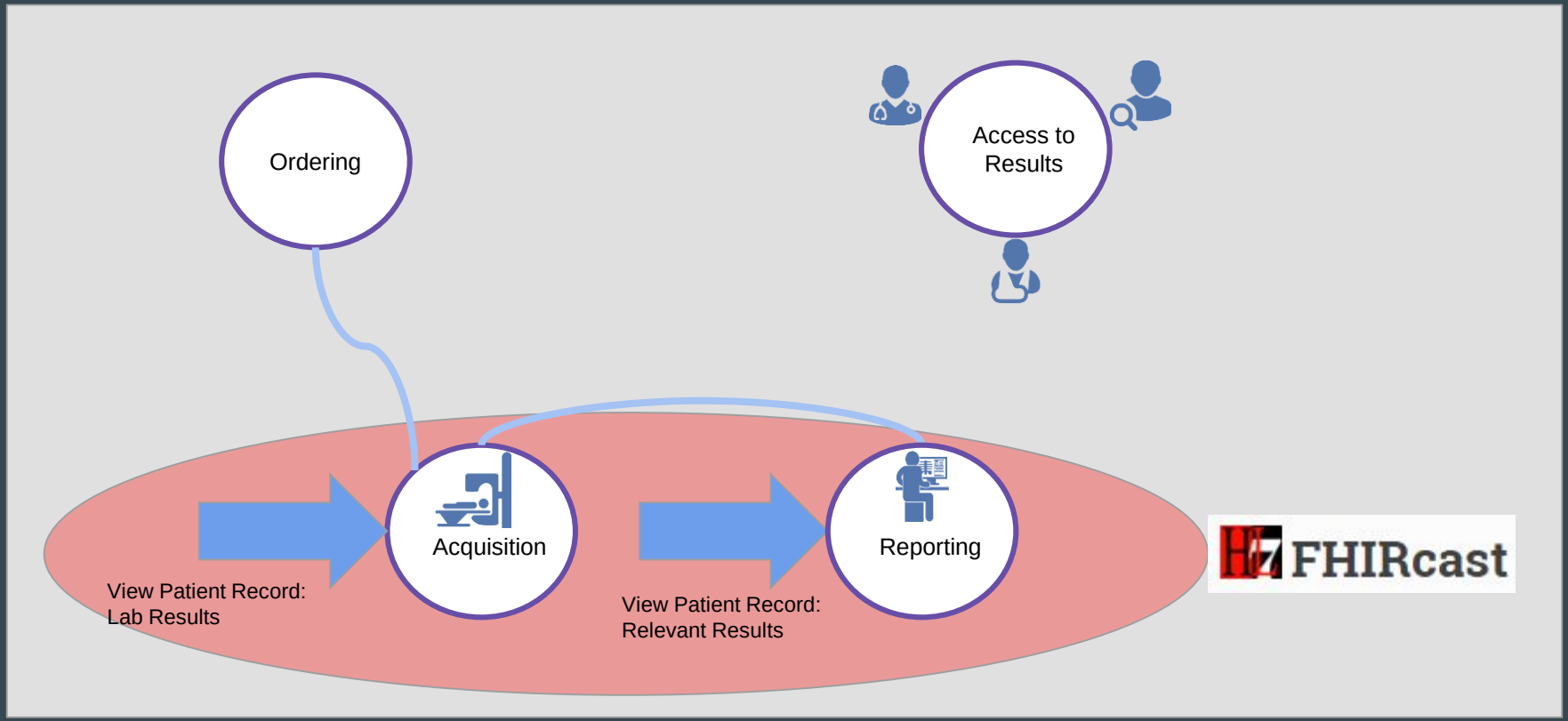
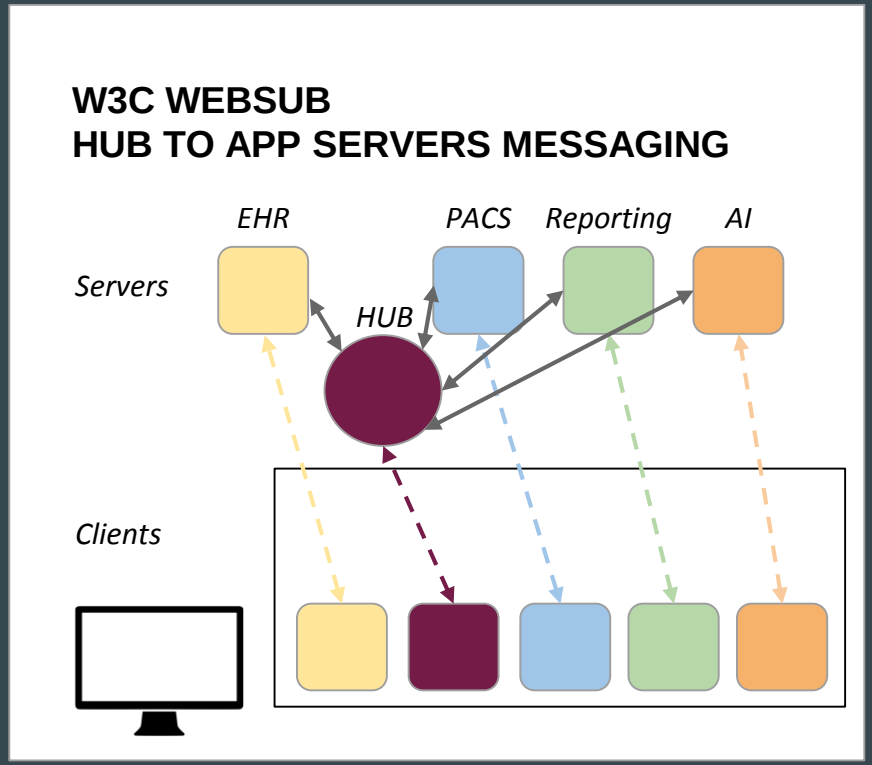


FHIRcast

- Establishes context synchronization between systems: same patient, same encounter, same study
- Allows systems to subscribe to relevant events (eg, open imaging study, close patient chart)
- Enables access to records across system boundaries (eg, access to labs from radiology ordering and reporting environments)



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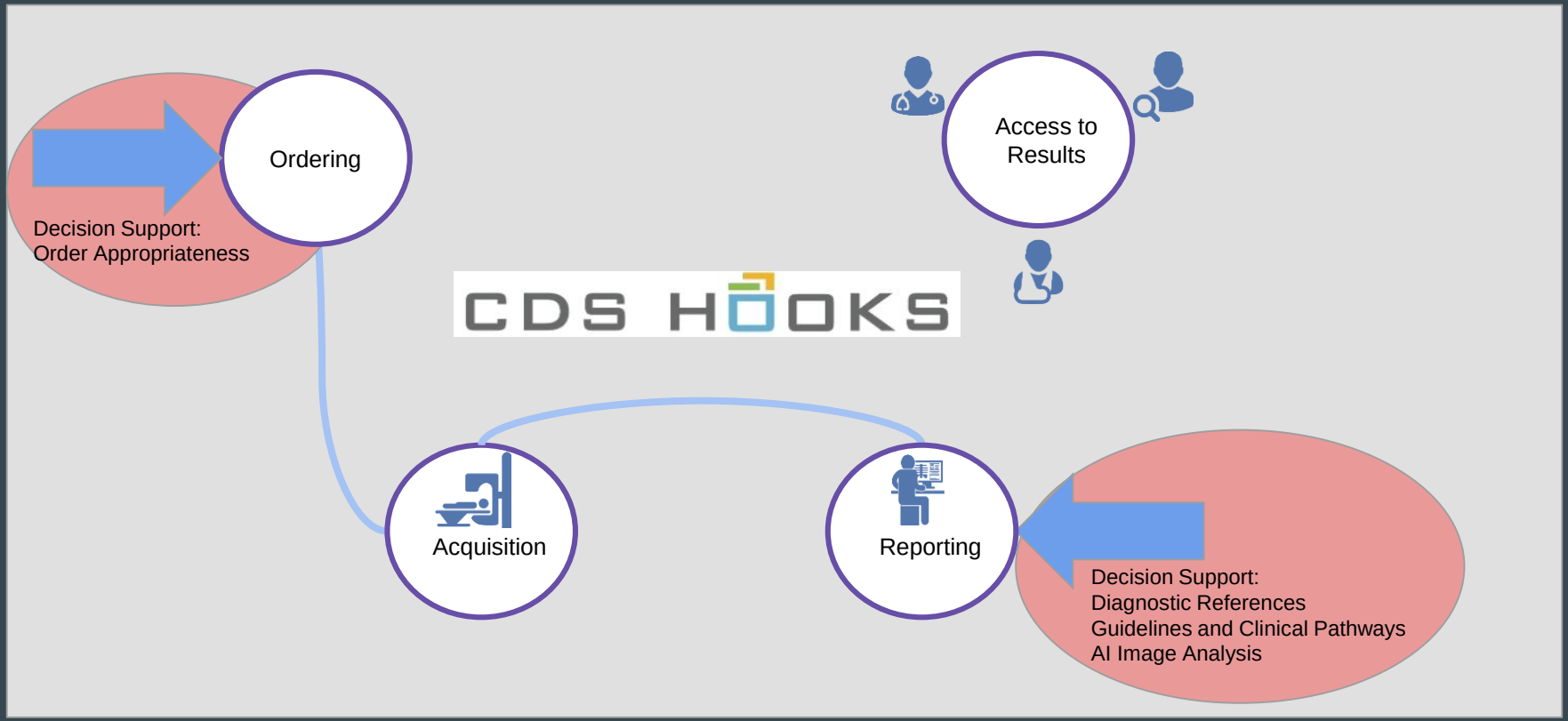
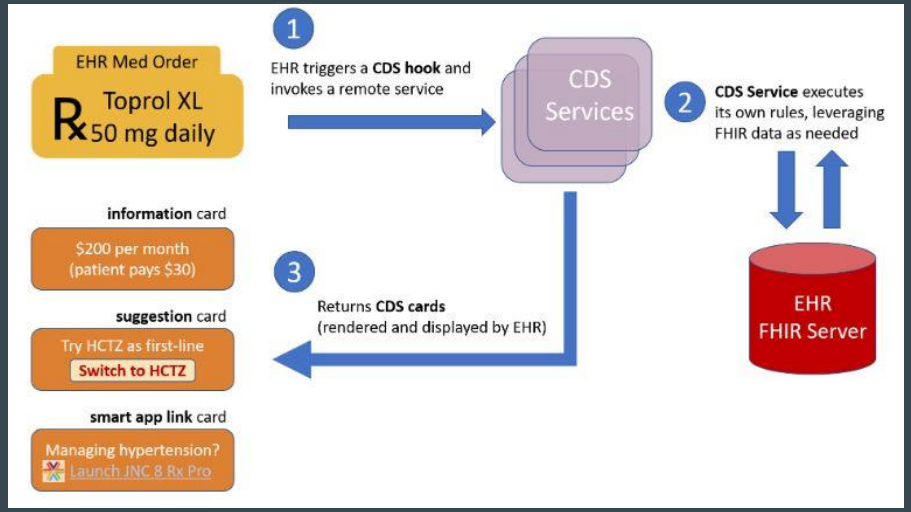


CDS Hooks

- Lets a system or user invoke a decision support service as part of the workflow, based on patient and encounter context.
- The service executes logic and returns “cards” that contain information or links to approved apps.
- Radiology-relevant tools include ordering appropriateness and diagnostic decision support.



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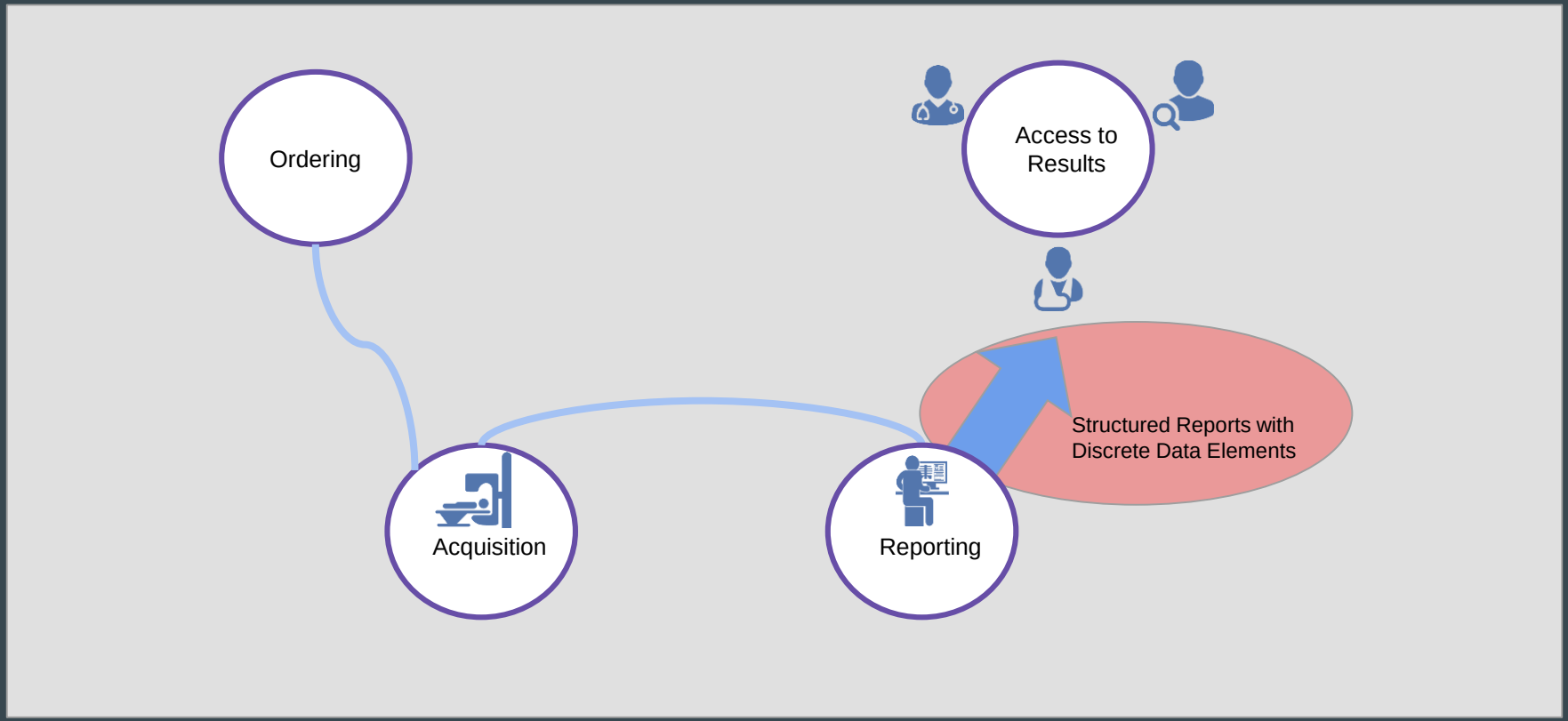
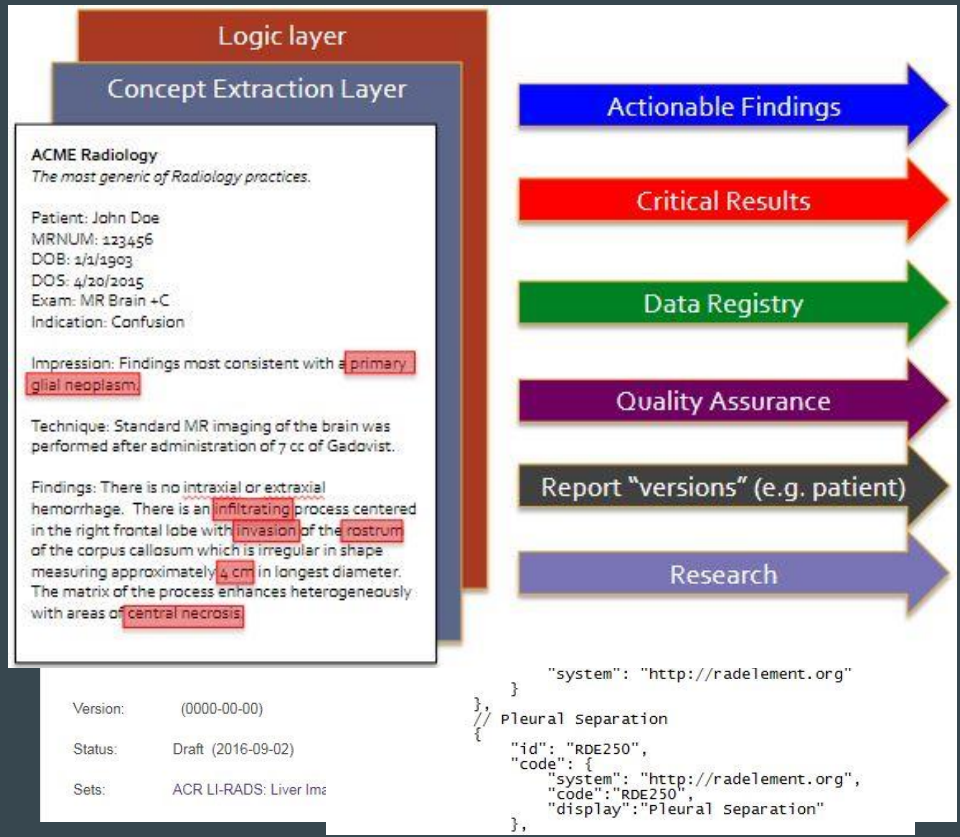


ACR-RSNA Common Data Elements → HL7 CDA and FHIR

- ACR-RSNA project to have radiologists define sets of data elements for specific clinical use cases
- Collaborating with HL7 CIMI and Cancer Interoperability Group to express as CDA, SDC and FHIR
- CDEs will be used in radiology reporting, decision support, outcomes research, AI, etc.



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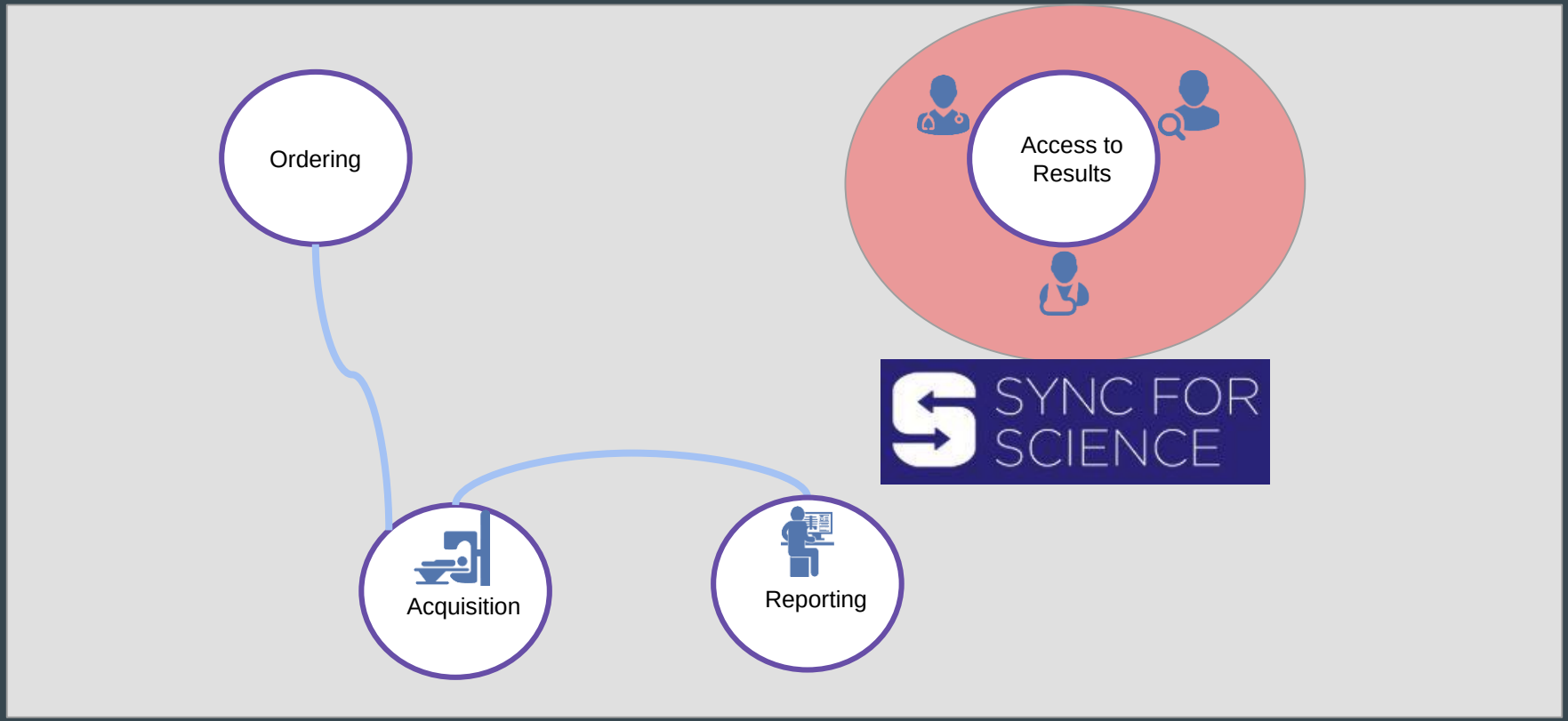
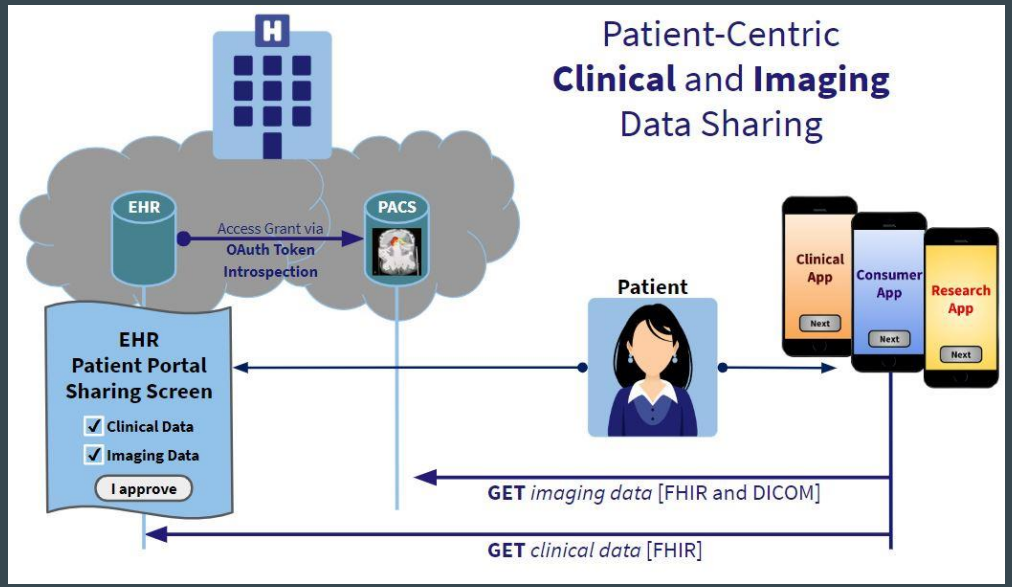


SMART on FHIR/S4S for Imaging Access



- Links EHR and radiology systems in shared security infrastructure (OAuth2).
- API based on HL7 FHIR and DICOMweb standards lets authorized applications find and access imaging studies and reports.
- Supports patient-facing applications, research applications and clinical applications.

Benefits of Enhanced Integration

- Streamlined workflow
- Access to relevant data elements
- Incorporation of new sources of data and data tools
  - Decision support
  - AI
- Ability to generate more consistent, data rich reports for improved clinical care, outcomes analysis, AI, etc.
- Better access to records for providers, patients and research

Pilot Project Steps

- Select and describe specific clinical scenario(s)
- Develop relevant testing and demonstration data
  - Imaging datasets
  - Common data elements
  - Radiology reports
  - Decision support modules
- Recruit participants for testing and demonstration events
- Develop technical specifications for demonstration participants
- Conduct testing and demonstration events of increasing rigor and specificity
- Develop standards based on progressively refined testing specifications
  - IHE Profiles
  - FHIR Implementation Guides

Upcoming Events

- HIMSS19: February 11–15, Orlando, FL
  - Interoperability Showcase and HL7 Presentation Theater
- IHE-Europe Connectathon: April 8-12, Rennes, France
  - FHIR-based IHE profile testing
  - Plug-a-thon testing tracks
- HL7 FHIR Connectathon: May 4-5, Montreal, Canada
- HL7 FHIR Connectathon: Sept. 14-15, Atlanta, GA
- RSNA 2019 Annual Meeting: Dec. 1-6, Chicago, IL

References and Opportunities for Engagement

- http://fhircast.org/
- https://cds-hooks.org/
- http://radreport.org/
- http://radelement.org/
- http://syncfor.science/use-case/imaging/
- HL7 IIWG/DICOM WG-20: https://confluence.hl7.org/display/IMIN/Imaging+Integration+Home
- IHE Radiology: https://wiki.ihe.net/index.php/Radiology

Conclusions

- Interoperability by definition needs all affected parties to work together
- Committing to the interoperability vision thus involves placing the common good above that of any single individual or organization
- HL7 and IHE can make a significant difference in achieving the vision by sharing the best of all worlds
- We’re only beginning to realize what we can do – stay tuned for more progress updates as our collaboration continues.

Thank you!

Questions?