



Panel Session: Development in the IHE Domains

IHE Workshop 2007

IHE Domain Co-chairs



IT Infrastructure

IHE Workshop 2007

Charles Parisot, GE

Co-chair ITI Planning Committee



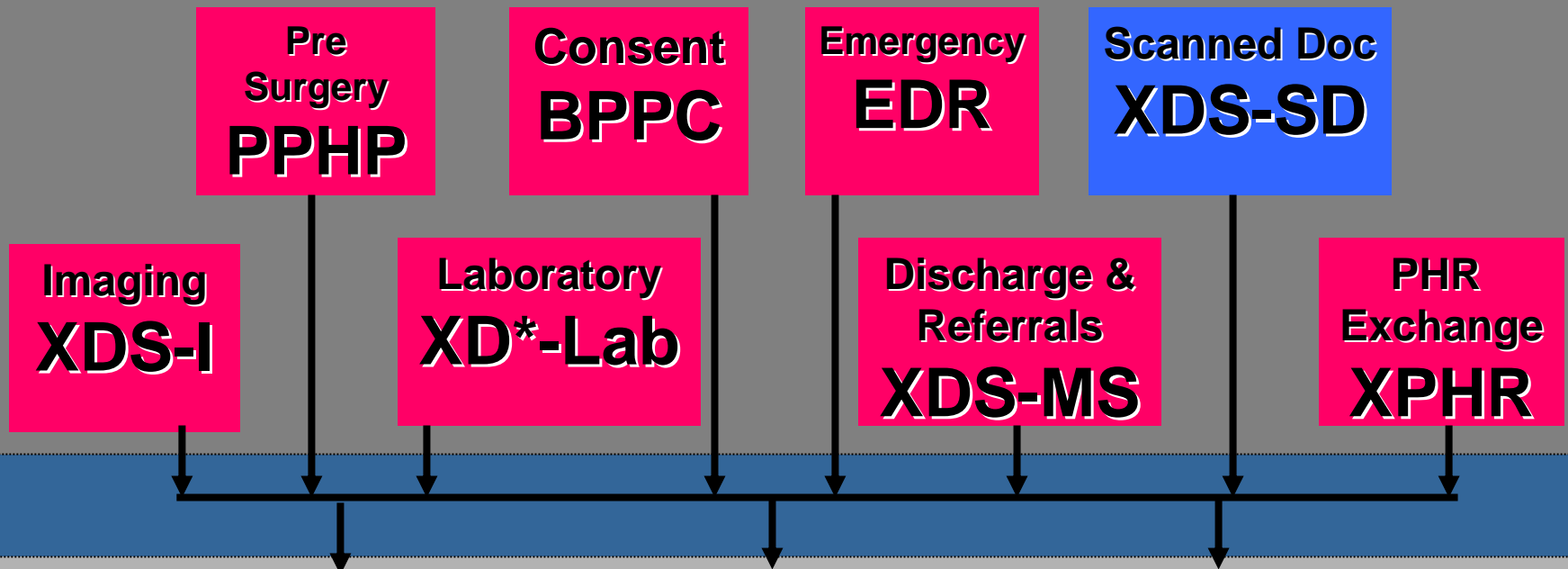
What is IHE IT Infrastructure?

● IHE IT Infrastructure domain produces...

- Profiles that serve the purposes of clinical workflows, regardless of IHE clinical domain
Examples: Security, Records Storage, Patient Identifiers
- Basic implementation-specification foundations to be extended by other IHE clinical domains
Examples: Retrieve Forms for Data Capture; Cross-Enterprise Document Sharing
- White Papers for current work items
Examples: HIE Security and Privacy; Health Data Re-use Infrastructure; Risk Management

ITI Provides Foundation for Document Exchange

Doc Content Profiles



Doc Exchange Integration Profiles

IHE IT Infrastructure

Composable Integration Profiles

Cross-Enterprise User Assertion

User Attributes for Access Cntrl

Document Digital Signature

Attesting "true-copy and origin"

Audit Trail & Node Authentication

Centralized privacy audit trail and node to node authentication to create a secured domain.

Consistent Time

Coordinate time across networked systems

Personal White Pages

Enterprise User Authentication

Patient Demographics Query

Patient Identifier Cross-referencing

Map patient identifiers across independent identification domains

Notice of Document Availability

Know about new information

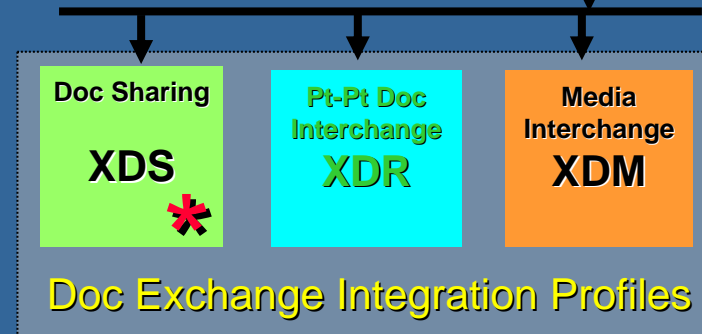
Request Form for Data Capture

Remotely Manage Information Capture

Patient Administration Management

Patient Synchronized Applications

Scanned Doc
XDS-SD



Cross-Community Access

Querying and Retrieving Documents across multiple communities

(Intra-Enterprise only)

Retrieve Information for Display

* Adopted by HITSP

IHE IT Infrastructure- What is new?

- New Profiles that serve the purposes of clinical workflows, regardless of IHE clinical domain

*Cross-Enterprise User Assertion**

*Cross-Community Access**

*Patient Id X-Ref (V3)**

*Patient Demographics Query(V3)**

*Supplements: SOA-Web Services extension for XDS (XDS.b)**

*Appendix L : Affinity Domain Checklist**

*XDS patient Merge**

- Basic implementation-specification foundations to be extended by other IHE clinical domains

*Request Form for Data Capture**

- White Papers for current work items

Health Info Exchange Security and Privacy

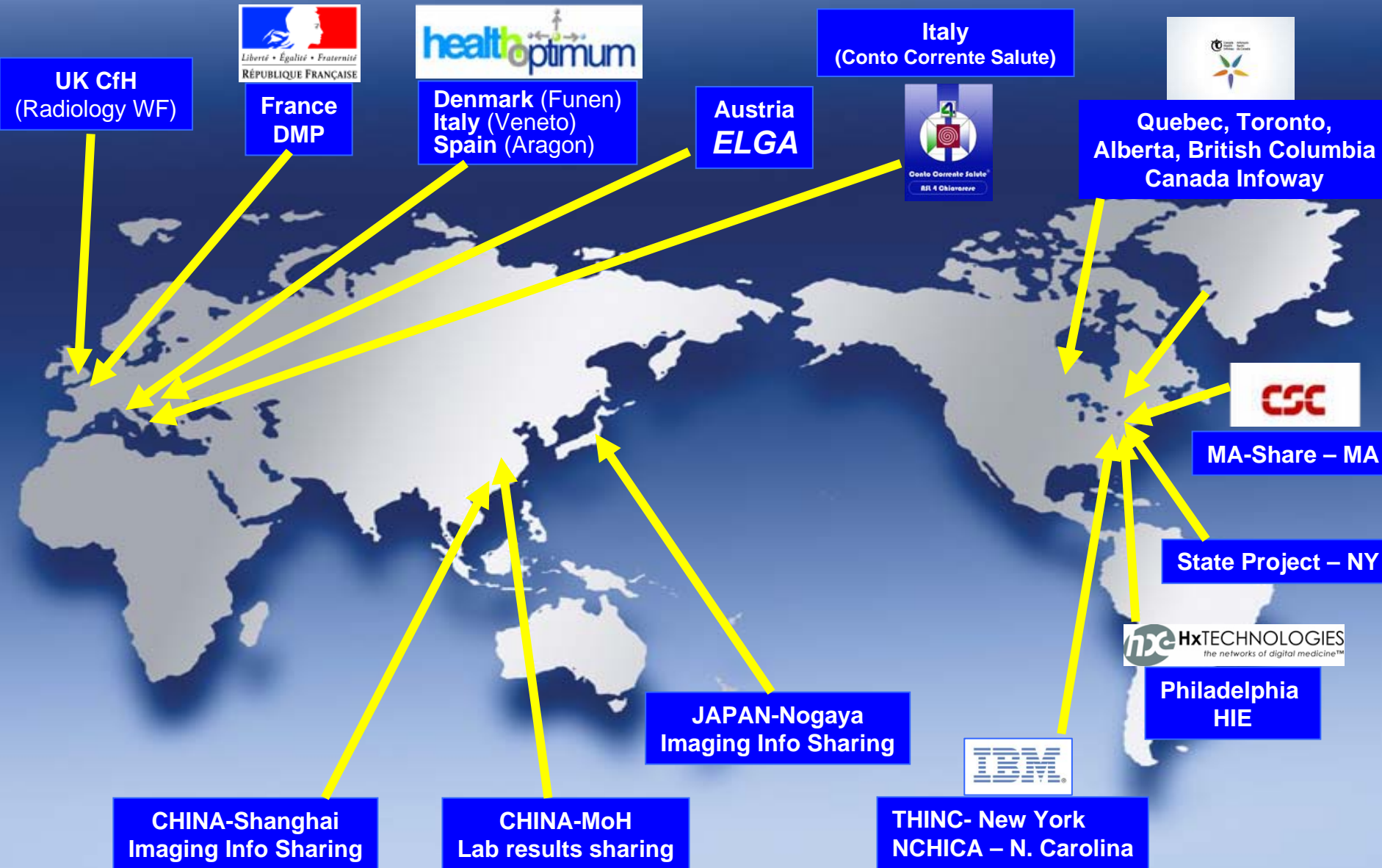
Risk Management

Configuration Managemnt

Health Data Reuse

* *Public Comment June 10th-July 10th*

IHE, the only sets of harmonized global standards already adopted by several national & regional projects





Laboratory

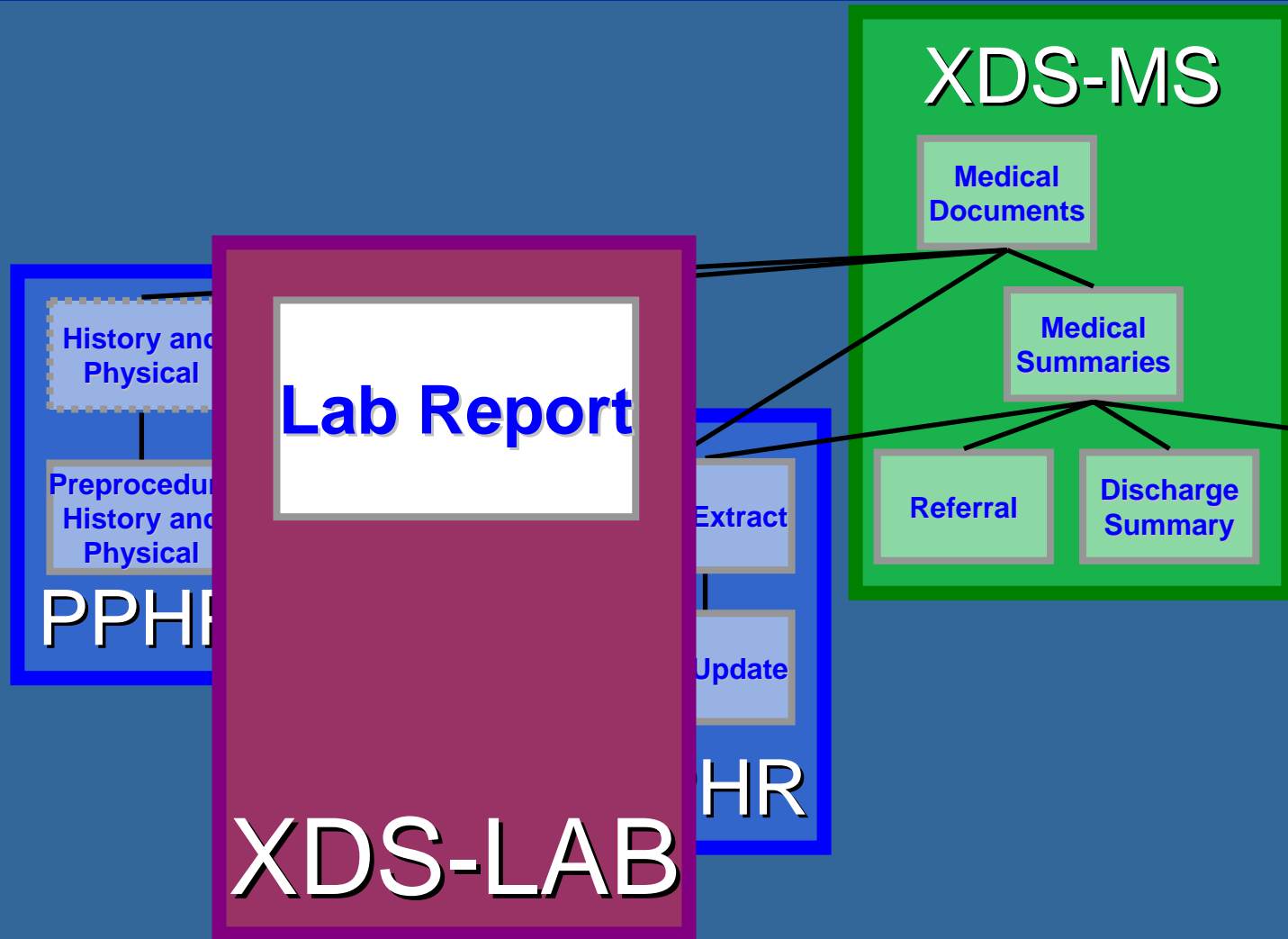
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XDS Laboratory Report



Scope

- **The clinical laboratory report is:**

- A report of **a set of final results** (the fulfillment process being completed) to be shared as “historical information”.
- **Human-readable**, shared between care providers of various specialties and patients (e.g. through a PHR)
- May contain **machine readable coded entries** (decision support, bio-surveillance)

- **All clinical laboratory specialties in scope, except:**

- Blood banks (blood products out of scope, but blood tests in scope)
- Pathology (has its dedicated domain in IHE)

Key Technical Properties

- **Information is Human Readable (two levels of sections) and machine processable**
- **Full alignments with HL7 V3 lab messages**
- **Supports custom report organizations and results rendering regulations (e.g. CLIA in the USA).**
- **Complements the real-time result return to ordering provider.**
- **Used both in sharing (XDS) & pt-pt interchange (XDP)**
- **May protect Information using Digital Signature**



Patient Care Coordination

IHE Workshop 2007

IHE Patient Care Coordination

John Donnelly, Co-Chair Planning Committee



Primary Membership Sponsors

- **Physician and Nursing Associations & Colleges**
 - ACP, AAP, AAFP, FACEP, ANA/ANIA
- **EMR Vendors**
 - Ambulatory, Inpatient
- **PHR Vendors**
 - Tethered solutions, Independent PC-based systems, Independent Web-based solutions
- **Other Stakeholders in HIT**
 - HIMSS, CAST/AHIMA, TIGER/ANI, Clinical research initiatives, Public health agencies

Profile Roadmap

● Years 2005-2007 (Trial Implementation)

- Medical Summary [MS] – Acute Care Discharge to PCP, PCP Referral to Specialist
- Unstructured Document – CDA-wrapped pdf
- Medical Summary [MS] – ED Referral [EDR], Pre-procedure H&P [PHP]
- Consents for H/C Information Sharing [BPPC]
- Exchange Personal Health Record [XPHR]

Profile Roadmap

● Year 2007-2008 (Development & Testing)

- Functional Status Assessments
- Query for Existing Data (QED)
- Emergency Department Encounter Record (EDER)
- Public Health Lab Reporting Content (PHLab)
- Antepartum Summary (APS)
- PCC Technical Framework Updates

● Future (White Paper)

- Case Management (Clinical research, Quality, Public Health)

PCC Profiles

Content



Integration



- Among 30 Consensus Standards Recommended by HITSP and accepted by HHS Secretary Leavitt.

Domain Visibility & Support

● HIMSS Annual Conference

- 2007 HIMSS 'RHIO' Showcase – 50+ vendors exchanged XDS-MS, XDS-pdf documents
- Informational Presentations from Providers & HIT Vendors

● ACC Annual Conference

- 2007 ACC Interoperability Showcase – 20+ vendors exchanged XDS-MS, XDS-pdf documents
- Informational Presentations from HIT Vendors

● Physician Association Annual Meetings

- Informational Presentations Planned

● RHIO and Interoperability Initiatives Participation

- Multiple NHIIN “Pilot” RHIO’s Deploy IHE profiles
- HITSP Interoperability Specification Constructs v2.0 Mandate Numerous IHE Profiles



Cardiology

IHE Workshop 2007

Keith Klassy, Emageon

Co-chair, IHE Cardiology Technical Committee



Primary Membership Sponsors

● Physician Associations & Colleges

- Primary: ACC, ESC
- Specialty: ASE, ASNC, HRS, SCAI

● Vendor Participation— ACC Demonstrators 2006:

- Leadership Level:
 - GE Healthcare
 - Heartlab, An Agfa Company
 - McKesson
- Implementer Level:
 - Camtronics – An Emageon Company
 - Cardiac Science Corporation
 - Medical Informatics Engineering, Inc
 - MediNotes Corporation
 - Medis medical imaging systems, bv
 - Philips Medical Systems
- Implementer Level: (cont)
 - ProSolv CardioVascular
 - Siemens Medical Solutions
 - Toshiba Medical Solutions
 - Witt Biomedical Corporation
- Supporter Level:
 - Cerner Corporation
 - GOODMAN Healthcare IT Solutions
 - LUMEDX
 - St. Jude Medical

IHE Cardiology Profiles:

Workflow Foundation

- **Managing cardiology procedure workflow to ensure consistently identified and integrated data**
 1. Cardiac Catheterization Workflow Profile
 2. Echocardiography Workflow Profile
 3. Stress Testing Workflow Profile
 4. Nuclear Medicine Image Profile (Cardiology option)

IHE Cardiology Profiles:

Getting Results

- **Consistent electronic methods for reporting on cardiology findings**
 5. Evidence Documents Profile (measurements)
 - Cath, Echo, Stress, CTA/MRA options
 6. Implantable Cardiac Device Observations Profile
 7. Displayable Reports Profile
 8. Retrieve Information for Display Profile
 - A. Retrieve ECG for Display Profile

Domain Visibility & Support

- **ACC Annual Conference**
 - 2005, 2006, 2007 ACC Interoperability Showcase
 - Educational Workshops and Session
- **ESC Annual Conference**
 - 2005, 2006, 2007 ACC Interoperability Showcase
 - Educational Workshops and Session
- **Specialty Hands-On Demonstrations**
 - ASE 2006
 - ASNC 2007
 - HRS 2007
- **Additional Conference Representation**
 - CT Angiography
 - SCAI
 - Computers in Cardiology
 - American College of Cardiology Administrators (ACCA)

Eye Care

IHE Workshop 2007



IHE Eye Care

- **Targeting all eye care providers**
 - Ophthalmology and Optometry
- **Roots in DICOM WG9 (Ophthalmology)**
 - OP and Stereo modules approved
 - OTM and Refractive SR work items in progress
- **AAO is the sponsoring organization**
 - Dr. Flora Lum, AAO, coordinator
 - Don Van Syckle, DVS Consulting, Project Manager
- **Planning Committee**
 - Mike Schmidt, Carl Zeiss Meditec
 - Dr. Mark Horton, U.S. Indian Health Services
- **Technical Committee co-chairs**
 - Jim Riggi, Medflow
 - Peter Kuzmak, U.S. Dept. of Veteran Affairs

IHE Eye Care – Plan for 2007

- **Informal Efforts 2005**
 - **AAO Showcase:** **October 2005**
- **First AAO IHE Demonstration**
AAO 2006 Annual Meeting, Las Vegas
- **Development Schedule**
 - **Technical Framework Updated to Trial Implementation:** **May 2007**
 - **Mini-connectathon/Demo Rehearsal:** **October 2007**
 - **AAO Showcase:** **November 2007**
New Orleans, LA
- **Available Profiles**
 - **Eye Care Scheduled Workflow (EYECARE)**
 - **Charge Posting (CHG)**
 - **Eye Care Evidence Documents [ECED]**
 - **New: Eye Care Displayable Report (ECDR)**

IHE Eye Care Connectathon

- **Open invitation to vendor community**
- **October Timeframe, Location TBD**
- **Prerequisite to participate in the AAO Annual Meeting Interoperability Showcase**
- **Application: Contact Flora Lum, flum@aao.org, (415) 561-8592**

Patient Care Devices

IHE Workshop 2006

Todd Cooper / Jack Harrington

Co-chairs, PCD Technical Committee



Primary Membership Sponsors

- **Physician Associations & Colleges**

- ACCE

- **Medical Device Vendors**

- Physio Monitors, ventilators, pumps, home health

- **Purchasers / Providers**

- Acute care – ED, ICU, OR

- **Other Stakeholders in HIT**

- Regulatory & Public health agencies

Over 100 PCD members ... in the first year!

Profile Roadmap

- **Year 0: 2005 (Domain Created)**
 - Organizational meeting 2006-Sept in D.C.
 - Charter: Use Cases w/at least one regulated medical device
- **Year 1: 2006-2007 (Development & Testing)**
 - Enterprise communication of PCD data [ECPCDD]
 - Filter PCD Data [FPCDD]
 - Patient Identification Association [PIDA]
 - Content Profile: Monitors, ventilators, infusion pumps
 - Public comment starts end 2006 June
- **Future...**
 - PCD Plug-n-Play Interoperability
 - Real-time data archiving & communication
 - Alarm management ... wireless/mobile ... teledevices ... !

Domain Visibility & Support

● HIMSS Annual Conference

- 2005 & 2006: Booth in IHE Showcase
- 2006: Showcase presentation ... “standing room only”

● Industry Survey

- 2005: Survey within HIMSS / IHE re. PCD priorities
- 2006: Survey widened to include many other groups

● Presentations at Conferences

- IHE PCD Presentations at conferences such as AAMI & APSF

Quality

IHE Workshop 2007

Floyd Eisenberg, MD, MPH

Co-chair, Quality Technical Committee



Primary Membership Sponsors

- **Physician Associations & Colleges**

- ACC, AHA, HIMSS, RSNA

- **EHR and General HIT Vendors**

- **Other Stakeholders**

- Regulatory & Public health agencies
- Quality monitoring and accreditation organizations

- **Technical Committee Co-chair**

- Floyd Eisenberg, MD, MPH – Siemens Medical Systems
- Recruiting committee leadership

Profile Roadmap

● Year 1: 2007-2008 (Development & Testing)

- Patient-level Export of Quality Data (PEQD)
- ACEI-ARB Content Profile
- Public comment starts June 15

● Future...

- Other data measures
- Data registries
- Peer review
- Outcomes analysis
- Real-time CME
- Adverse event reporting, etc.



Radiology

**Kevin O'Donnell, Toshiba Medical Systems
Co-chair, IHE Radiology Planning Cmte**



IHE Radiology

- **Scope:**
 - Radiology including Nuclear Medicine, Mammography
- **Vendors**
 - Acquisition Modalities, RIS, PACS, Workstations, Displays, Printers
- **Established 1998 (first IHE domain)**
- **Sponsor: RSNA**
- **Supporters: COCIR, DRG, EAR, ECR, EuroPACS, GMSIH, JIRA, JAHIS, JRS, JSRT, METI, MEDIS-DC, SFR, SIRM**

IHE Radiology - Deployment

● In active use:

- Robust Vendor Participation at Connectathons (78 of 150 Systems in Chicago)
- Over 200 IHE Integration Statements published
- IHE Profiles appearing in User Purchasing Processes

● Most implemented Profiles

- Scheduled Workflow
- Patient Information Reconciliation
- Consistent Presentation of Images
- Portable Data for Imaging
- XDS for Imaging

IHE Radiology - Achievements

Year 1998-2006

- **Basic radiology workflows**

- Acquisition, Post-Processing, Reporting, Teaching Files/Clinical Trials, CD/Hardcopy Import

- **Handling imaging content**

- Measurements, CAD Results, NM, Mammo, Fusion, Presentation States, Reports, Key Image Notes

- **Distribution of imaging information**

- on CDs, to EHRs, keeping Audit Trails

IHE Radiology – Recent Direction

- **Support National Extensions to Technical Framework**
 - IHE Canada
 - IHE Spain
 - (IHE Japan)
- **Expand support for specialties**
 - Refactored NM Image Profile for Cardiology
 - Mammography Users Handbook
 - Mammography Workflow – Use Cases
- **Reporting 2.0**
 - Drafting Strawman Whitepaper – Use Cases, Workflow Model
 - Cross-domain Reporting Task Force



Radiation Oncology

Bruce Curran, MD

Associate Prof/Univ of Michigan



Primary Membership Sponsors

- **Radiation Oncology Vendors**

- Delivery Devices – Linear Accelerators, Brachytherapy
- Simulators
- Treatment Planning Systems
- Oncology Information Systems

- **Physician Associations & Colleges**

- ASTRO (American Society for Therapeutic Radiation Oncology)
- AAPM (American Association of Physicists in Medicine)
- ATC (Advanced Technology Consortium)

Profile Roadmap

- **Initial Implementation (2005-2007)**
 - RO General Integration Profile
 - CT Image Retrieval / Storage
 - Image Set Contouring
 - Geometric Plan Definition
 - Dosimetric Plan Definition
 - 3D Dose Matrix Viewer
 - Reduce Multiplicity of Implementation Paths
 - Test Tools Contract in place
 - Connectathon Scheduled (8/25/2007)
- **2008 Profiles**
 - RO Multimodality Registration
 - Treatment Delivery Workflow

Domain Visibility & Support

- **ASTRO Annual Conference**
 - 2006 eASTRO IHE-RO Showcase
 - 2007 Public Demonstration
- **Other Potential Conferences**
 - AAPM
 - ESTRO
 - JASTRO



IHE Changing the Way Healthcare **CONNECTS**

Questions?

WWW.IHE.NET