Integrating the Healthcare Enterprise

IHE IT Infrastructure

Cross Enterprise Document Sharing – XDS Integration Profile

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Introduction:
EHR Cross-Enterprise Document Sharing

First step towards the longitudinal dimension of the EHR

Focus: Support document sharing between EHRs in different care settings and organizations
Typically, a patient goes through a sequence of encounters in different Care Settings.

- **Acute Care (Inpatient)**
- **Long Term Care**
- **Other Specialized Care (incl. Diagnostics Services)**
- **GPs and Clinics (Ambulatory)**

**Continuity of Care:**

**Patient Longitudinal Record**
Finding patient records – tedious manual process

The challenge:
To easily find and obtain documents from other care providers in the community
Sharing records that have been published

Community

Hospital Record

Laboratory Results

Specialist Record

Reference to records

Index of patients records (Document-level)

2-References to Records found

3-Selected Records

4-Patient data presented to Clinician

Patient History

Temporary Aggregate

Clinical Encounter

1-Patient Authorized Query

Selected Records

References to records found

Patient data presented to Clinician

Sharing System

Index of patients records

Reference to records found
Actors & Transactions of XDS Profile

- Patient Identity Source
- Document Registry
- Document Consumer
- Document Source
- Document Repository

- Patient Identity Feed
- Query Documents
- Provide & Register Document Set
- Register Document Set
- Retrieve Document
IHE-XDS = Flexibility
centralised or distributed architecture

Document Source
Provide & Register Document Set

Patient Identity Source
Patient Identity Feed

Document Registry
Register Document Set

Query Documents

Document Repository

Document Consumer
Retrieve Document

Documents

IHE EU-Conference & Workshop
February 7, 2005
Standards selection for IHE XDS

No single standard can address Cross-enterprise Document Sharing

Electronic Business Standards
- ebXML Registry, SOAP, etc.

Internet Standards
- HTML, HTTP, ISO, PDF, JPEG, etc.

Healthcare Content Standards
- HL7 CDA, CEN EHRcom
- HL7, ASTM CCR
- DICOM, etc.

Marriage of healthcare standards facilitates implementation and leverages complementary technologies (e.g. security & privacy).
XDS – Value Proposition

- **Foundation for Health IT Infrastructures**: Shared Electronic Health Record, in a community, region, etc.

- **Effective means to contribute and access clinical documents across health enterprises.**

- **Scalable sharing of documents** between private clinicians, clinics, long term care, pharmacy, acute care with different clinical IT systems.

- **Easy access**: Care providers are given the means to query for and retrieve clinical documents of interest.
XDS - Value Proposition

- **Distributed:** Each Care delivery organization “publishes” clinical information for others. Actual documents may remain in the source EHR-CR.

- **Cross-Enterprise:** A Registry provides an index of submitted documents available to authorized care delivery organizations belonging to the same clinical affinity domain (group of enterprises which have agreed to share documents).

- **Document Centric:** Published clinical data is organized into “clinical documents”. using agreed standard document types (HL7-CDA, ASTM-CCR, PDF, DICOM, etc.)

- **Document Content Neutral:** Document content is processed only by source and consumer IT systems.

- **Standardized Registry Attributes:** Queries based on meaningful attributes ensure deterministic document searches.
How real is XDS?

- Specification work since Nov 2003
- Public Comments June-July 2004
  - 600 constructive comments received.
  - Validity of XDS approach confirmed around the world.
- Stable specification IHE Technical Framework
  Published Aug 15th, 2004 (TI Supplement)

- IHE Connectathon - January 2005 (USA)-17 vendors
- HIMSS Feb 2005 - show-wide demonstration
- IHE Connectathon - April 2005 (Europe)-22 vendors

Several Implementation Projects by health authorities in 2005
HIMSS leverages its sponsorship of IHE to demonstrate practical interoperability in two large Showcase Exhibits:

- **cross-enterprise sharing of health information in the acute care** (18 vendors) and ambulatory (14 vendors).

- **HIMSS Showcase exhibits linked with vendor booths** (15 vendors) show-wide.

- **Show-wide interactive environment demonstrating attendees “patient” record in a “HIMSS RHIO”**. Uses IHE Cross-enterprise Document Sharing:
  - Around a central document registry
  - Distributed document repositories
  - 17 EHR that publish/share documents (CCR, CDA, HL7-lab, PDF)
HIMSS 2005 Interoperability Showcases

HIMSS sponsors the testing and demonstration of IHE interoperability in two large Showcase Exhibits:

- **cross-enterprise sharing of health information in the acute care**, 20 vendors:
  - Cedara
  - Dictaphone
  - Eastman Kodak
  - Eclipsys
  - Emageon
  - Epic
  - GE Healthcare
  - Gusrada/Care Science
  -IDX
  - InterSystems
  - Infiniti
  - Kryptiq
  - MedCommons
  - Mortara Instruments
  - NIST
  - Novell
  - Open Text
  - Sentillion
  - Siemens
  - Univ. Of Washington

- **ambulatory sharing of health information**, 13 vendors:
  - Allscripts
  - CapMed/SanDisk
  - Cerner
  - Eclipsys
  - ETIAM
  - GE Healthcare
  - IDX
  - Kryptiq
  - MedcomSoft
  - MediNotes
  - MidMark
  - NextGen
  - WebMD
IHE XDS Integration Profile: Key Concepts

- XDS Document
- XDS Submission Set
- XDS Folder
Document Repository and Registry

Example of Submission Request

Submission Request

Folder A

Submission Set 1

Document Entry

Document Entry

Document

Document
IHE XDS Integration Profile: Key Concepts

XDS Document
- A set of attested clinical information (structured or not) which form an element of a patient record to be shared. It may already exist within the source IT system.

XDS Submission Set
- A set of documents related to a patient that a (team of) clinician(s) in the same source system have decided to make available to potential consumers.

XDS Folder
A means to group documents for a number of other reasons:
- Team work across several physicians,
- Episode of care,
- Emergency information for a patient, etc.

XDS leaves open the use of folders to affinity domain clinicians.
More about XDS

- Meeting: Delivering the results of diagnostic medicine.
- 31st January 2006
- British Institute of Radiology, London
- Main speaker in the afternoon is Charles Parisot IHE XDS project leader
- www.bir.org.uk for details and application form – look under events