

Interoperability in Practice

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What is Interoperability

- HIMSS

Level 1 – Foundational

Exchange without interpretation

Level 2 – Structural

Exchange with purpose, data, and movement defined

Level 3 – Semantic

Exchange with full definition of vocabulary and use

Foundational

- 1a – Scanned Images
 - Human readable eg TIFF
- 1b – True electronic documents
 - Machine readable eg PDF
 - The document can carry meaningful information such as authority and author through digital signatures

Structural

- The format of the data and its meaning are preserved in the exchange. Data can be used by the receiving system at the field level

Semantic

- The highest level of interoperability.
 - The data is both structured and codified.
 - A shared vocabulary is used between data partners
 - Data exchange becomes both platform and application independent

Dimensions of EHR/EPR Data Sharing

- Structured/Unstructured
- Centralised/Distributed
- Push / Pull
- Document-based/Data-based

Unstructured vs Structured

- Unstructured Data (HIMMS level 1)
 - Easiest in heterogeneous environments
 - Works for humans, not good for automated usage, search or audit
- Structured Data (HIMMS level 2 and 3)
 - Great for homogenous sources such as images – e.g. PACS
 - Useful for research and secondary uses

Centralised vs. Distributed

- Centralised
 - Data is held in one or more large central “stores”
- Distributed
 - Data is held locally
 - (or where most convenient)

Push vs. Pull

- Push:
 - Data is explicitly send to the chosen destination(s), based on local policies
- Pull:
 - Data is extracted from a published source via standard or custom interfaces

How can we achieve this evolution

- The application of Internationally agreed standards

Why we need standards 1

Principles

- Transparency
- Openness
- Impartiality
- Consensus
- Effectiveness
- Relevance
- Coherence

– Source ISO

Why we need Standards 2

Benefits

- Commoditisation
- Competition
 - avoid supplier lock-in
- Change control
 - costs of upgrades
- Quality
 - levelling up
- Testable
- Reduce cost and risk

Why 2014

- Safer Hospitals Technology Fund
- Nursing Technology Fund
- EU Antilope project
- EU eHealth Forum
- EU / US Trillium Bridge
- EU / Data Asset Framework
- PRSB – Digital Standards
- EHI - Clinical Digital Maturity Index

Why 2014

- Perhaps the best opportunity to take Interoperability to the next level

EHI - CDMI

- Three points for each system in place

4	Specialist departments	Cardiology	Oncology	Critical care	
		GE Healthcare (Carddas)	Elekta (MOSAIQ)	GE Healthcare (QS)	
3	Departmentals	A&E	Theatres	Maternity	
		ExtraMed (ExtraMed)	GE Healthcare (Opera)	CSC (Evolution)	
2	Core ancillary	Pharmacy	Pathology	RIS	PACS
		JAC (JAC Pharmacy)	GE Healthcare (Ultra Centricity)	HSS (CRIS)	GE Healthcare (Ultra Centricity)
1	Foundation	PAS	Discharge letters	Community PAS	Simple BI
		CSC (i.PM)	In-house (CRRS)	N/A	In-house (unknown)

EHI - CDMI

5 points

9	Advanced e-prescribing	Inpatient e-prescribing ward	Oncology e-prescribing	CDS in use in e-prescribing
		None	Elekta (Mosaik)	None

5 points

8	Simple e-prescribing	Outpatient TTO e-prescribing		
		None		

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4 points

7	Enterprise scheduling	Scheduling	Clinical workflow engine/integrated pathways	Blood tracking
		CSC (i.PM)	In-house (CRRS)	Haemonetics (BloodTrack)

3 points

6	Clinical noting and document management	Document management	Clinical noting	Observations of vital signs
		In-house (eLibrary)	None	Lorenzo
5	Order communications, diagnostic reporting and bed management	Order communications	Diagnostic reporting	Bed management
		None	None	The Learning Clinic (PatientFlow)

Contacts

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