Update on EMR and EHR Standards: Finally Starting to Come Together? (and the Data Standards Life Cycle)

ASIS&T 2017 Annual Meeting
Standards Update Panel
October 30, 2017

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Electronic Health Information

EMR vs EHR

Often used interchangeably, but different:

- **EMR = Electronic Medical Record**
  
  A single practice’s digital version of a patient’s chart, encounter notes, etc.

- **EHR = Electronic Health Record**
  
  More inclusive; medical history; designed to be shared (with other providers, hospitals, etc.)
Sharing Health Information

…is complicated!

- Hospitals vs Practices vs Labs vs vs vs…
  - Have different systems, requirements, needs

- Privacy concerns

- Legal issues/Liability (for breeches etc.)

- Regulatory Compliance
  - Minimum requirements
  - But for different countries…
  - (also language problems!)
Moreover, there are actually interesting problems to solve:

- Classical records management problems
  - Storage
  - Preservation
- Interoperability
- Synchronization
  - You sent me a record about a patient; I updated it
  - Do I have to push it back to you? And who else?!
- And, of course: Data Quality
Current Standards Landscape

ASC X12 (EDI) – transaction protocols used for patient data, billing data (USA)
ASTM International – Continuity of Care Record
CEN TC/251 – EHR standards (Europe):
  • EN 13606 – communications
  • CONTSYS (EN 13940) – continuity of care
  • HISA (EN 12967) – clinical information
DICOM – international protocol for image-based data (sponsored by NEMA (National Electrical Manufacturers Association))

**HL7** – text communications protocol between hospital and physician record systems, and between practice management systems
  • Fast Healthcare Interoperability Resources (FHIR) – a modernized proposal from HL7 designed to provide open, granular access to medical information

Pronounced “fire”
Current Standards Landscape (continued)

ISO –
- ISO TC 215 (international) technical specifications for EHRs
- ISO 18308 describes EHR architectures

xDT – (Germany) medical data exchange formats

Open specifications
- openEHR – community-developed for shared health records. Multilingual.
- Virtual Medical Record: HL7's proposed open model
- SMART (Substitutable Medical Apps, reusable technologies): an open platform for multiple healthcare applications
HL7 and FHIR

- HL7 is becoming the accepted standard
- AMA is pushing this
- Adoption is slow, uneven

FHIR is designed to help with this adoption and implementation, speed up buy-in, ease transitions

FHIR XML data is platform (EHR, EMR) agnostic!
FHIR

- Interoperability is the primary goal
- Patient-service centric
- Keeps providers from being locked into an EHR
  - FHIR designed specifically to work with all of them
- RESTful APIs
- XML-based back-end
- CSS
- JSON or XML output for consuming applications
FHIR

Image via Aegis PPT from Allscripts Developer Summit, May 2017

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Data-centric format

- Not designed for any one system
- **Interoperability** is the byword – which is great, but:
- How long until extensions and “flavors” will appear?

This leads to:

- The SKOS problem
The SKOS Problem

There are so many flavors and extensions of SKOS that consuming applications can often no longer ingest SKOS from other organizations without significant pain:

- Scripting
- Time
- Money
- Frustration
Can you use SKOS?

- Of Course
- ...

WHICH ONE?
- Atypon?
- Temis?
- Highwire?
- Skos 1
- SKOS – XL?
  - Which XL
- Etc.
Data Standards Life Cycle

Example of a typical Life Cycle diagram (from USGS)

What's missing from this picture?
How do extensible standards remain interoperable?

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Thank You

Questions?

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