A Reference Architecture for Integrated EHR in Colombia

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Introduction

- Complexity HS/EHR in Colombia

Current Situation:
- **Law 1438/2011.** Integrated National HIS (by 2014)

Challenge (as researchers/HL7):
- No to reinvent the wheel!
- Avoid mistakes:

**Hypothesis:** Desing a State of the art Reference (system) Architecture:

Source: http://quirurgicosltda.com/clientes.html
Objective

- To propose a **reference architecture** for the implementation of an **integrated EHR in Colombia**, based on the current **state of EHR architectures and standards**, and responding to the needs of the **Colombian Health System**.
Materials and Methods

Formal methodology for HIS architecture development: HIS-DF (Lopez & Blobel, 2009*)

Architectural Approaches:
- GCM, RM-ODP, SOA

Development Process:
- RUP, MDA, SOA4HL7

Formal Notations:
- UML, OCL

eHealth Inter. Standards
- SNOMED, HL7 models,
- CDA
- IHE Profiles

* Lopez DM, Blobel BG
A development framework for semantically interoperable health information systems. Int J Med Inform. 2009 Feb;78(2):83-103
Results (1)
Computational ViewPoint (UML4ODP)
Results (2)

Technological ViewPoint (UML4ODP)

IHEOS \(\rightarrow\) XDS.b
XDSrig \(\rightarrow\) D Consumer
OpenPIXPDQ

IHE
NIST
National Institute of Standards and Technology

CDA
MDHT-CDA
Open Health Tools

Eclipse
JAX-WS
OpenEJB
Java Web Services
The dental staff of the "Unidad de Salud" may consult the patient’s HER. Users can also do the same.

The dentist recorded the consultation in the EHR system at "Unidad de Salud".

The Periodontal specialist can check remote HCE and make the consultation and record it in the EHR system of the CES.

The dentist chooses the specialist of CES and sends the request of interconsult.
Conclusion

- The paper proposes a reference architecture for the implementation an integrated EHR in Colombia, based on the current state of EHR architectures and standards.

- The proposed architecture has the following advantages:
  - Formally defined Platform independent Architecture (MDA impl, eg. MDHT)
  - Legacy EHR systems can be integrated without needing to develop their own HL7-CDA interfaces (using the OHT MDHT Service)
  - It is completely based on open source technologies, platforms and web standards.

- Future work: Migration to a SOA, Business Services
Thank you for your attention!

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