

# A hospital reflections

**Toward Semantic Interoperability of EHR systems:  
a joint effort for Europe**

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# Hospital experience

- Young hospital, fully informatics with leader suppliers.
- Digital image, departmental integration, CPOE...
- A health area 200.000 population
- Primary Care with Clinical Station
- Hospital and Primary Care paper less
- Basic integrations: standards HL7 2.x, DICOM
- Classifications ICD 9, ICPC 2, local vocabularies

# Hospital experience

- Clinical situation

More generalized use of free narrative text

Many forms, different in each system, users opinion designed

Disagreement in concepts for continuity of care

Lack of controlled vocabulary in principals concepts

Complex clinical models without standardization

- Technical situation

No influence in design requirements to suppliers

Need of use existing systems and return the inversion

Suppliers do not understand the semantics problems

# Hospital experience

## Aims

- Health terminologies: criteria and conditions for use in existing EHR
- Basic subsets: a set of allowed values for a concept
- Common concepts for continuity of care and workflow
- More complex: clinical detailed models

# Decisions

- Terminologies
  - Licence SNOMED CT Spanish translation
  - Evaluation other terminologies and ontologies
- Agreement in EN 13940 concepts
  - problem oriented health record
- EHR standards EN/ISO13606 for
  - expressing clinical detailed models
  - federation existing systems



LiU Archetype Editor - C:\Documents and Settings\pserrano\Mis documentos\Proyectos I+D\CEN\Arquetipos\Ar...

File Edit View Settings Language Experimental Help

New Open Save Description Definition Terminology Formats Interface

# Terminology

Term Bindings Term Definitions Constraint Definitions

**Terms**

- Úlcera por presión
  - (ITEM\_TREE)
    - Fecha de aparición
      - Originada en
        - Hospital**
        - Domicilio
        - Residencia
        - Desconocido
      - Curso clínico
      - Episodicidad
      - Localización
        - Sitio
          - Talón
          - Cefálica
          - Sacro
          - Glúteos
          - Espalda
          - Hombro
          - Cadera
          - Maléolo
          - Codo
          - Rodilla
          - Otro
        - Lateralidad
      - Evolución
        - Fecha registro
        - Estado

SCT hospital (medio ambiente)

**Terminologies**

Code	Terminology
SNOMED-CT	SNOMED International Clinical Terms, 2002
ICPC2E_1998	International Classification of Primary Care 2nd Edition, Electronic, 2...
LOINC	LOINC

+ Add terminology - Remove

**Bindings for node 'Hospital'**

Code binding

- [SNOMED-CT::22232009]

Manual Entry

**Terminology Services**

MoST SNOMED CT UMLS

Code	Concept
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Enable improved filtering ?

Archetype ID: openEHR-EHR-EVALUATION.pressure\_ulcer.v1 Filename: openEHR-EHR-EVALUA

LinkEHR-Ed Integration Archetype Editor

Archetype Edit Reference Model Datasources Help

Archetype Tree

- CODED\_TEXT [at0019] {0..1}
- CODED\_TEXT [at0020] {0..1}
- CODED\_TEXT [at0021] {0..1}
- CODED\_TEXT [at0022] {0..1}
- CODED\_TEXT [at0023] {0..1}
- CODED\_TEXT [at0024] {0..1}
- ELEMENT [at0025] {0..\*}
  - value (Optional)
  - CODED\_TEXT [at0026] {0..1}
- ELEMENT [at0027] {0..\*}
  - value (Optional)
  - CODED\_TEXT [at0028] {0..1}
- ELEMENT [at0029] {0..\*}
  - value (Optional)
  - CODED\_TEXT [at0030] {0..1}
- CLUSTER [at0031] {0..\*}
  - parts {0..\*}
    - ELEMENT [at0032] {0..\*}
      - value (Optional)
      - DATE [at0033] {0..1}
        - date (Optional)
        - String {0..1}
    - ELEMENT [at0034] {0..\*}
      - value (Optional)
    - ? Alternative

**C\_Complex\_Obj**

**CLUSTER**

ANY ALLOWED

**Occurrences**

Min.: 0

Max.: 0  Unbounded

**Ontology**

Text: Evolución

Description: This is a CLUSTER object

Binding: [SNOMED-CT06::263502005] Search Edit

Paths Console

Console

Parsing completed!

# Clinical perspective

- SNOMED CT use as reference terminology
- Limited as interface terminology
- To clinicians are hard navigation and difficult for concept identification
- Even binding concepts in archetypes required experience
- Need define clinical models: a more complete domain specification

# Clinical challenges

We now have technical artifacts: archetypes, templates and ontologies

We need:

- Develop solid methodologies to specification structured EHR content

Evidence base archetypes (no users/expert opinion base)

Systematic evidence review

Formal consensus

- Governance of artifacts design

**The underlying question:**  
**Formalize health sciences**

# Spanish semantic interoperability roadmap

- Within the project for National Health System Digital Health Record
- Request to be IHTSDO member

## In debate

- Terminology inventory
- Analyze reference models and terminology relations
- Localization Spanish-Spain
- Evaluation other Spanish language translation (catalan, vasque, gallego)
- Patient summary and e-prescribing related terminology : subsets for priority concepts
- Mapping with local terminologies
- Classifications cross maps ICPC 2, ATC...
- Extension for medicine products
- EHR content specification