Towards a Flexible Integration of Clinical Guideline Systems With Medical Ontologies and Medical Information Systems

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Outline

- Need for data integration
- Knowledge Sharing
- Guideline standardization
- External ontology integration
- GLARE proposal
- Translation Services
- Comparisons
Need for Data Integration

Clinical Guideline

GLARE Execution Environment

Patients’ Data

If ECG is altered for patient then …

SELECT exam FROM ... WHERE ...

DB
Knowledge Sharing

a) Centralized View:
• One Ontology
• Every IS adheres to it

b) Decentralized View:
• Different Ontologies
• Every IS particularize its data access in order to adhere to the choosed ontology
Guidelines Standardization

Different Standard Vocabularies

- SNOMED
- UMLS
- ICD-9

GLARE

Different IS

[Diagram showing connections from different vocabularies to GLARE, and then to different IS systems]
External Ontology Integration

- Domain Ontology #1
- Domain Ontology #2
- Mapping #1
- Mapping #2
- DB Ontology
- General DB concepts
- Particular DB description
- DB
GLAREs’ Proposal

System

Expert Physician

Acquisition Interface

Browser Module

Metadata

Medical Ontology

DB Ontology

Mapping

Extraction Module

Query Compiler

User Physician

Execution Interface

Acquisition

Execution

XML

XML

DBMS

CGL DB

Clinical DB

Patient DB

Instance DB
Mapping Services

Description Logic

Domain Ontology

Upper DB Ontology

Applicative Data

HL7 API

HL7 Domain Coding System

HL7 DB Coding System

HL7 Code System Translation API

DB
Comparisons

SAGE

GLARE

Common Ontology

VMR
Comparisons

SAGE

GLARE

Common Ontology

VMR

VMR