OpenCDS: Enabling Clinical Decision Support at Scale through Open-Source, Standards-Based Software and Resources

Kensaku Kawamoto, MD, PhD; David Shields; and Guilherme Del Fiol, MD, PhD

Department of Biomedical Informatics and Office of the Associate Vice President for Health Sciences IT
University of Utah, Salt Lake City, UT

Introduction

- Robust clinical decision support (CDS) is not widely available
- An important reason is the prevalence of non-standard and proprietary approaches to implementing CDS
- OpenCDS (www.opencds.org) is a multi-institutional effort to collaboratively develop open-source, standards-based CDS tools and resources that can be widely adopted to impact health care at scale

Key Components

Standard Interface & Data Model

- HL7/OMG Decision Support Service interface
- HL7 Virtual Medical Record data model

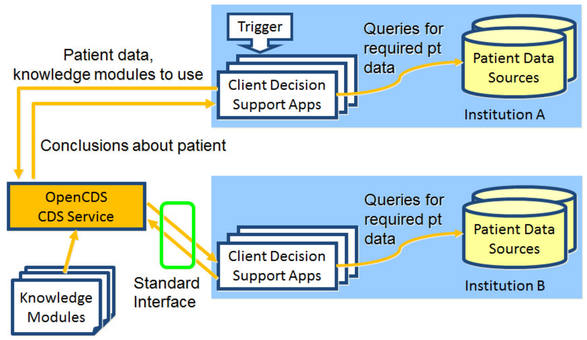
Knowledge Management Framework and Content

- Enables authoring, testing, and deployment of knowledge modules as a CDS Web service
- Web-based, clinician-friendly knowledge management platform leveraging JBoss Drools
- Apelon DTS terminology support
- Knowledge repository and growing open-source CDS content

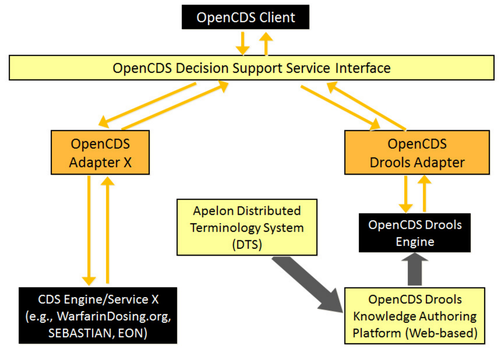
Adapters for Other CDS Engines

- Enables CDS implemented using alternate approaches to be served up through standard HL7 Decision Support Service interface

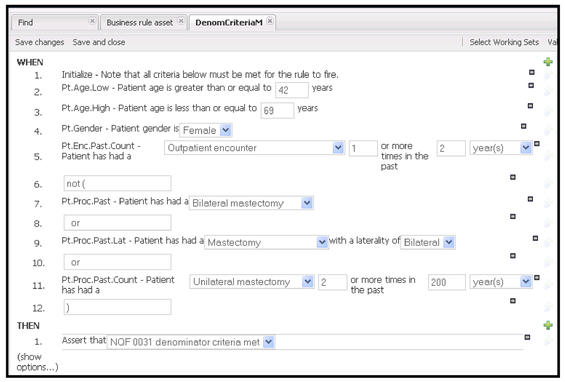
High-Level Interaction Model



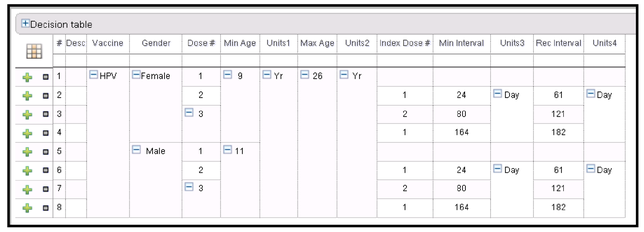
High-Level System Architecture



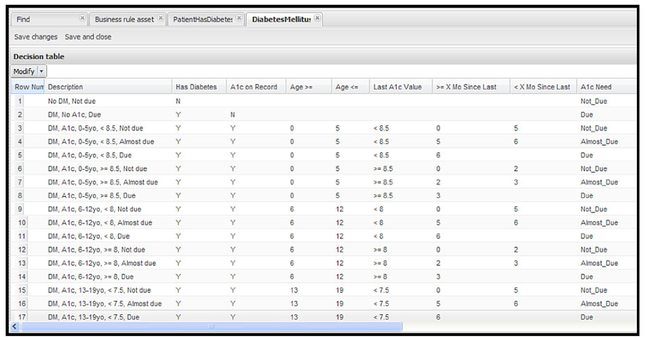
OpenCDS Screenshots



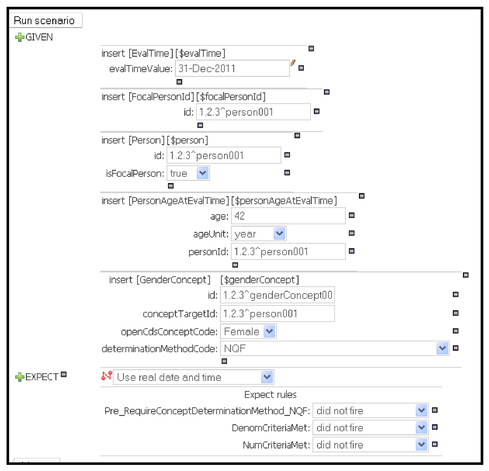
Implementation of NQF Measure 31 for Meaningful Use (Web-based)



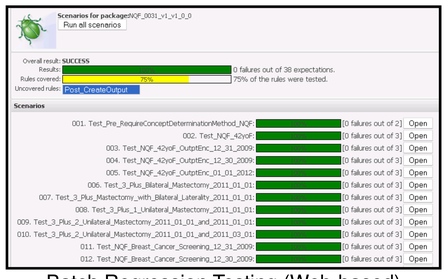
Implementation of HPV Vaccination Schedule (Web Decision Table)



Diabetes Hemoglobin A1c Management Module (Web Decision Table)



Test Scenario Specification (Web-based)



Batch Regression Testing (Web-based)

Sample Application Areas

Vaccine Forecasting

- Partners: HLN Consulting, LLC; New York Citywide Immunization Registry; Alabama Department of Public Health
- Implementing open-source, next-generation knowledge authoring, maintenance, testing, and execution environment for vaccine forecasting
- All rules will be made open-source

Personalized Medicine

- Partners: Intermountain Healthcare, Washington University, IsoDynamic
- Implementing risk assessment algorithms utilizing family health histories
- Enabling service-based access to genetically-guided warfarin dosing algorithms of www.WarfarinDosing.org

Enterprise Quality Reporting & CDS

- Partner: University of Utah Health Care
- In process of leveraging OpenCDS for enterprise quality reporting and population health management

Current State & Future Directions

- Alpha release available through an Apache 2.0 license via www.opencds.org
- 1.0 preview available to collaborators
- 1.0 release scheduled December 2011

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Contact Information

Kensaku Kawamoto, MD, PhD
Founder, OpenCDS
kensaku.kawamoto@utah.edu

The University of Utah Biomedical Informatics