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

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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

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

OpenCDS Screenshots
Implementation of NQF Measure 31 for Meaningful Use (Web-based)
Implementation of HPV Vaccination Schedule (Web Decision Table)
Implementation of Warfarin Dosing Algorithms (Web-based)
Diabetes Hemoglobin A1c Management Module (Web Decision Table)
Test Scenario Specification (Web-based)
Batch Regression Testing (Web-based)

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