HL7 Implementation Guide

Clinical Decision Support Knowledge Artifact Implementation Guide, Release 1

Example Overview

Overview

The HeDS submission examples were selected to provide a broad range of clinically valid knowledge artifacts. Although they are example artifacts, they have been developed with the intent to illustrate functional examples that are essentially ready for consumption by an integrating EHR or content vendor.

At least two examples were chosen for each of the three artifact categories, ECA Rules, Order Sets, and Documentation Templates. The following table lists the examples included for submission:

Artifact	Type	Description
CorticoSteroidInhaler.xml	ECA Rule	Remind provider of inhaled corticosteroid omission.
NQF0068.xml	ECA Rule	Recommend use of antithrombotic in ischemic vascular disease.
HeartFailureAdmission.xml	Order Set	The Heart Failure module addresses the medical inpatient management of adult patients with new-onset or acute exacerbations of heart failure. The emphasis of this module is on medical management. Surgical and other nonmedical interventions are not covered in depth. This module addresses acute cardiogenic pulmonary edema due to heart failure with reduced left ventricular ejection fraction. This module does not fully address management of acute myocardial infarction or unstable angina.
RegularInsulinSlidingScale.xml	Order Set	Modular Diabetes Order Set Illustrating Insulin Sliding Scale Complex Medication.
DopamineComplexIVOrder.xml	Order Set	Illustrates a modular complex IV order set that could be included in an order set.
RespiratoryOrder.xml	Order Set	Order Set Illustrating Respiratory Orders. This order set is a linkable order set. That is, it is intended to be modular and included as part of a larger order set.
FLACC.xml	Documentation Template	FLACC Scale Evaluation Instrument
PHQ9	Documentation Template	PHQ-9 Patient Depression Questionnaire.

HL7 Standard CDS Knowledge Artifact Specification, DSTU Update 1.3
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UTI.xml	Documentation Template	Acute UTI Questionnaire.

Coritcosteroid Inhaler Reminder

This example illustrates the use of an ECA rule to remind clinicians to prescribe an inhaled corticosteroid for patients with persistent asthma.

The plain text description for this example can be found in the file CorticoSteroidInhalerReminder.pdf.

The example was chosen as a common clinically relevant usage for an ECA knowledge artifact.

NQF-0068 Reminder

This example encodes a rule for NQF 0068 / PQRS 204, a core measure in Meaningful Use Stage 2. It demonstrates condition-based logic for triggering patient-specific messages and clinician actions, using value sets maintained by the Value Set Authority Center (VSAC).

The plain text description for this example can be found in the file newMentor_HeD_NQF0068_ECArule_eample.pdf.

The example was chosen to illustrate the use of an ECA knowledge artifact to assist practitioners in meeting specific quality measures.

Heart Failure Admission Order

This example describes a partial order set for Heart Failure, Admission to the Med/Surg unit of a hospital.

The plain text description for this example can be found in the file HeartFailureAdmissionToMedSurgOrderSet.xlsx.

This example was chosen to illustrate a routine order set and how to represent sections, reminders, orders, order details, performance measures, evidence links, selection (and other) types of behaviors, and links to modular order sets.

Regular Insulin Sliding Scale Regime

This example describes a typical regular insulin sliding scale regime as a modular order set artifact.

The plain text description for the Insulin Sliding Scale Regime is:

- – Fingerstick blood glucose qac and qhs

- Hypoglycemia protocol PRN fingerstick blood glucose < 70 milligram/deciliter and patient is symptomatic

- Insulin Regular 2 unit subcutaneously qac and qhs PRN fingerstick blood glucose 150-199 milligram/deciliter

- Insulin Regular 4 unit subcutaneously qac and qhs PRN fingerstick blood glucose 200-249 milligram/deciliter

- Insulin Regular 6 unit subcutaneously qac and qhs PRN fingerstick blood glucose 250-299 milligram/deciliter

- Insulin Regular 8 unit subcutaneously qac and qhs PRN fingerstick blood glucose 300-349 milligram/deciliter

- Insulin Regular 10 unit subcutaneously qac and qhs PRN fingerstick blood glucose 350-399 milligram/deciliter

- Insulin Regular 12 unit subcutaneously qac and qhs PRN fingerstick blood glucose $\geq$ 400 milligram/deciliter

- Call provider if fingerstick blood glucose $\geq$ 400 milligram/deciliter

This example was chosen to illustrate a modular order set that could be used alone or in conjunction with another order set, to illustrate handling of constraints, and to illustrate the proposed vMR extension mechanism.

Dopamine Complex IV Order

This example describes a complex IV order as a modular order set artifact.

The plain text description for this order set is:

- DOPamine drip 800mg/500mL D5W

  - Diluent: D5W Titratable Base

  - Additive: DOPamine (for infusion) 800 mg

  - IV Attributes:

    - 500 mL, IV,

    - Starting Dose: 2 mcg/kg/min,

    - Titrate Increment: 0.5 mcg/kg/min every 5 minutes,

    - Keep MAP Greater Than: 60,

- Hold if HR Greater than: 120,

- Priority: Routine,

- Start time offset: Now,

- Special Inst: maximum dose of 20mcg/kg/min, titrate.

- Comments: Ordered as: DOPamine DRIP 800mg/500mL D5W

This example was chosen to illustrate a modular order set that could be used alone or in conjunction with another order set, to illustrate a composite order that contains both a diluent (base solution) and an additive, and to illustrate the proposed vMR extension mechanism.

Respiratory Order

This example defines a typical respiratory order.

The plain text description for this order set is:

- XOR

  - AND

    - Ventilator settings

    - OR

      - Pulse Oximetry

      - Blood gas, arterial

  - AND

    - XOR

      - Oxygen via nasal canula

      - Oxygen via nonrebreather face mask

      - Oxygen via simple face mask

      - Oxygen via venturi mask

    - OR

      - Pulse Oximetry

      - Blood gas, arterial

This example was chosen to illustrate a modular order set that could be used alone or in conjunction with another order set, and to illustrate the handling of Boolean selection logic within an order set.

FLACC Documentation Template

This example describes the FLACC pain scale as a documentation template.

The plain text for this artifact can be found at the following link: http://painconsortium.nih.gov/pain_scales/FLACCScale.pdf.

The example was chosen to illustrate the use of a documentation template to describe a typical practitioner administered patient evaluation instrument.

PHQ-9 Documentation Template

This example illustrates the use of the HeD schema for representing a patient questionnaire. The schema models the PHQ-9 instrument for depression.

The plain text for this artifact can be found at the following link: http://www.integration.samhsa.gov/images/res/PHQ%20-%20Questions.pdf.

This questionnaire was chosen because it is used in a quality measure, specifically NQF eMeasure 0712.

UTI Documentation Template

This example illustrates the use of the HeD schema for representing a structured documentation template for physician entered progress notes. The artifact models a progress note for acute urinary tract information.

The plain text description of the artifact can be found in the following file: UTI_HPI_Sample.pdf.

This template was chosen because it is representative of a structured documentation template used commonly within electronic health record systems.