



Cooking with Clinical Quality Language (CQL) or How to author eCQMs with QDM and CQL

**Thursday July 21, 2016
4:00 PM EDT**

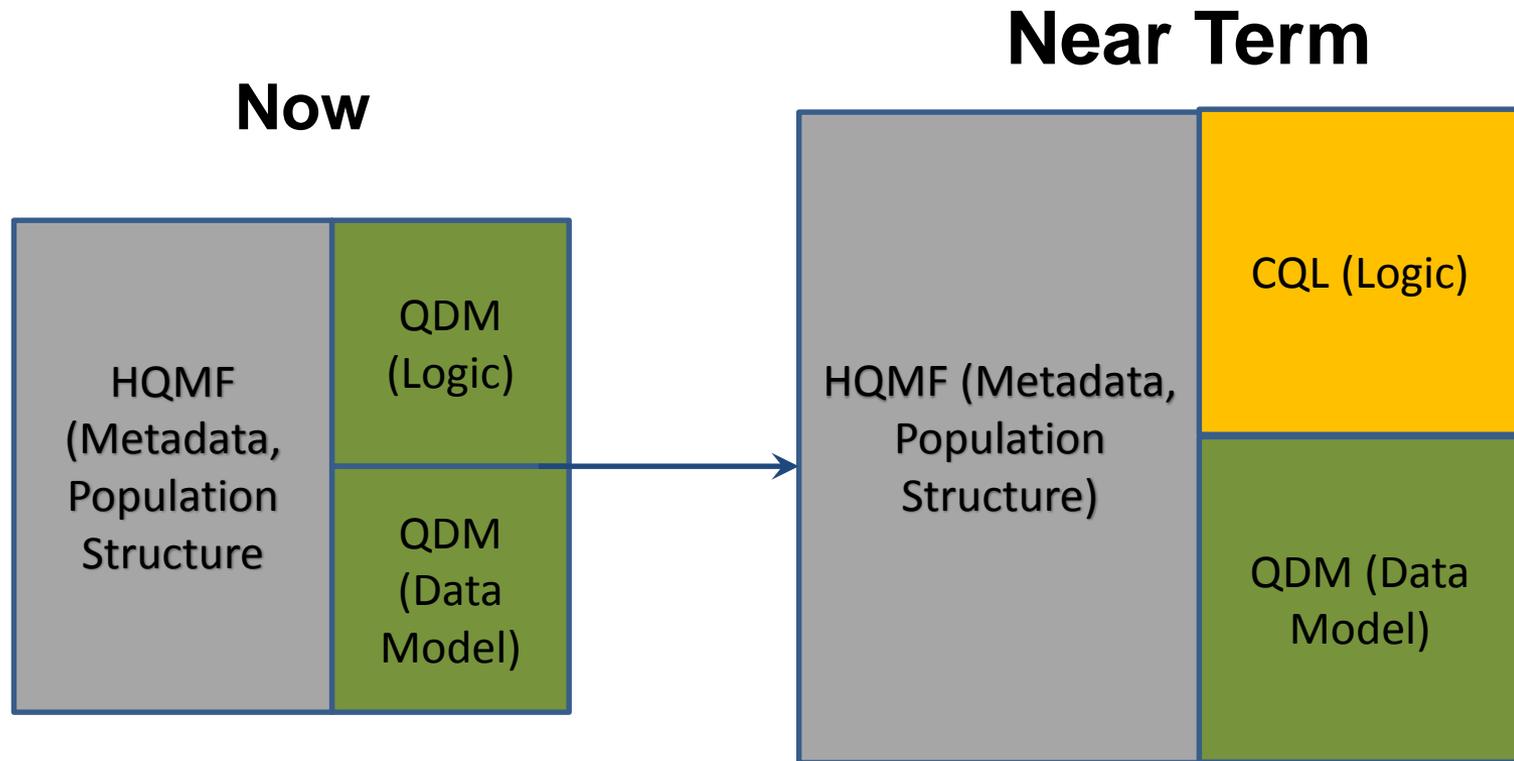
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Agenda

- Welcome and Background
- CQL and FHIR
- QDM 5.0 Draft Review
- White Board Session

Evolving eCQM Standards



Definitions:

HQMF – Health Quality Measure Format

CQL – Clinical Quality Language

QDM – Quality Data Model

Differences Between the Quality Data Model (QDM) Now and When using Clinical Quality Language (CQL)

QDM Now

- Data Model and Logic are both in the QDM

QDM with CQL

- The Data Model will continue to exist as the QDM
- CQL will provide the logic expressions and will replace that function currently in the QDM

Benefits of CQL

	QDM Logic	CQL Logic
Modularity and Computability	Low	High
Data Model Flexibility	**	High
Expressive and Robust Logic Expression	Low	High
Duplicative work for Implementers, Vendors, and Developers	Yes	Lower

Proposed Timeline For Updating Standards

Work Effort: 2016 through Fall 2017

Fall 2017 +

Measures using QDM v4.2 & HQMF 2.1

Measure Development

- 2015
- 2016

Testing CQL – QDM – HQMF 2.1

Testing and Development

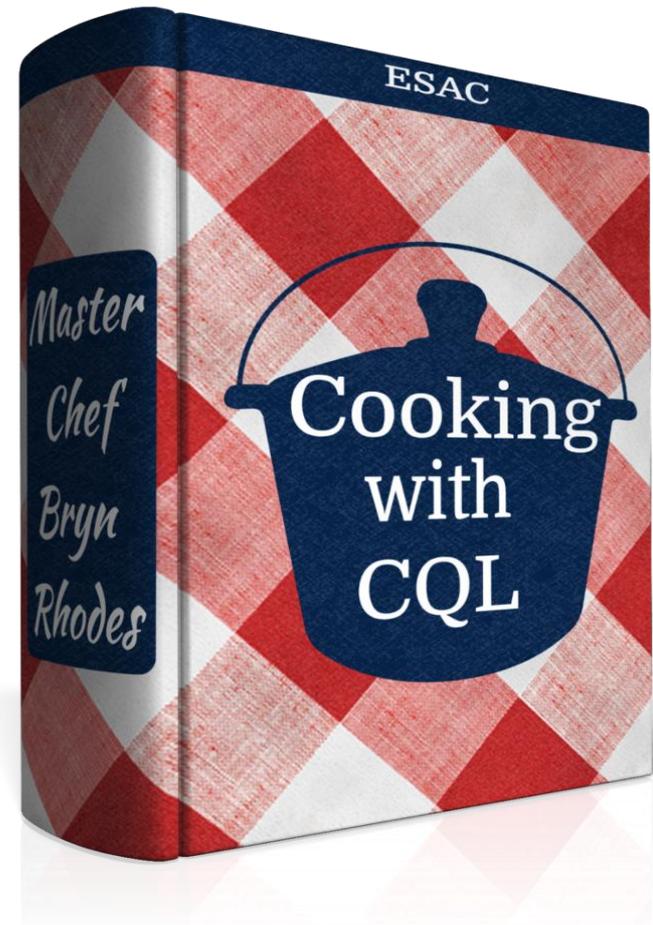
- Measure Developers
- Implementers & Vendors
- CQL Training/Education
- Measure Authoring Tool
- Bonnie & Cypress
- Quality Data Model
- Integration Testing
- Feedback Loops

Testing eCQM using CQL - – QDM – HQMF 2.1

- Measure Development and Testing in a simulated environment
- Starts 2017

Purpose and Goals of “Cooking with CQL”

- Interactive Forum
- Engage Measure Developers
- Solicit Feedback Early and Often



Disclaimers

- Tools for CQL authoring are still in development
- Examples and solutions are built near real-time
- Need thorough clinical, terminological, and technical review

Disclaimers (cont'd)

- Whatever we review on the calls is recorded and available for public viewing. Those presenting content for review and CQL formatting should only provide information that is appropriate for public display and distribution. If there is intellectual property in the content, the submitter agrees that it may be shared publicly.
- There are a few concepts that may not have QDM representation. For example, members for whom a plan can receive electronic clinical quality data (ECDS) may be a “System characteristic” but QDM does not have such a datatype and the data source is not clear. We are able to provide advice on representing logic in CQL only if there is a way to represent the information with the QDM data model.

CQL and FHIR

- CQL is model independent
 - Can be used to write logic against QDM as well as FHIR
- CQF FHIR Implementation Guidance
 - Provides guidance for using FHIR to implement:
 - Knowledge Sharing (measures, decision support rules, etc.)
 - Evaluation (clinical decision support, measure evaluation)

CQL and FHIR

- CQF FHIR Implementation Guidance
 - Balloting w/ FHIR STU3
 - Includes guidance on using CQL to express logic within
 - FHIR Resources
 - Knowledge Artifacts (Order Sets, Protocols, Event-Condition-Action Rules, etc)

CQL and FHIR

- FHIR is language independent
 - FluentPath – A lightweight path-based language similar to XPath
 - CQL
- CQL is aligned with FluentPath
 - Can use FluentPath expressions within CQL queries (subset in CQL 1.1, fully in CQL 1.2)
 - Similar to the relationship between XPath and XQuery

QDM 5.0 Draft Review

Item	Description	Proposed
1	Modify syntax for “negation rationale”	5.0
2	Add “dateTime” as a result attribute [QDM-103 , QDM-41 , QDM User Group] and percentage as a result response	5.0
3	Add “target date” to Care Goal datatype, and percentage as a result response	5.0
4	Remove “Transfer from” and “Transfer to” – Add Encounter attributes – Admission Source, Change “Discharge Status” to “Discharge Disposition”	5.0
5	Add “EventCode” to QDM to address all datatypes	5.0
6	Medication Attributes: Remove “cumulative medication duration”; Change “dose” to “dosage” and add “supply”	5.0
7	Create Allergy/Intolerance and Adverse Reaction Datatypes	5.0
8	Update timing attributes to relevant periods, prevalence periods, or author times [QDM-115]	5.0

QDM 5.0 – Negation Rationale

1. Retain Negation Rationale as an attribute for existing Datatypes
2. Change syntax slightly
 - From: “Procedure, Performed Not Done: *Procedure* (negation rationale: *value set*)
 - To: “Procedure, *Not* Performed: *Procedure* (negation rationale: *value set*)
3. CQL to EML Model Info to address the change. No change to QDM model

Reference: <https://github.com/esacinc/CQL-Formatting-and-Usage-Wiki/wiki/Negation-in-QDM>

QDM 5.0 – Assessment Changes

- Add support for new response types
 - Date/Time
 - Percentage
- Allows timing relationships to be defined based on the result of an assessment question (instead of based on the author time of the assessment)
 - e.g. Last Menstrual Period for estimating gestational age

QDM 5.0 – Care Goal

- Assure initiation and “targetDates” are covered with Start and Stop times
Allows measures to create logic asking if the target outcome was met by the date specified by the clinician and patient.
- Add “percentage” as a result response type for Target Outcome

QDM 5.0 – Transfer to, Transfer from

1. Remove Transfer to, Transfer from Datatypes
2. Add one new attribute to Encounter, Performed
 - **New** – Admission Source (to cover Transfer from)
 - **Already present** (to cover Transfer to)
 - Discharge Status – “The disposition of the patient at the time of discharge.” (uses disposition C-CDA Template)
 - **Change name** to Discharge Disposition

QDM 5.0 – Cumulative Medication Duration

Remove Cumulative Medication Duration (attribute), add Supply Attribute

- Cumulative medication duration is actually a derivation from other data.
- CQL provides an opportunity to express logic to define cumulative medication duration and provide greater clarity than the current (QDM 4.3) attribute.
- Calculation using CQL requires an additional Supply attribute for the Medication, Administered or Medication, Dispensed or Medication Ordered datatypes:
 - Dose – Change description to “Dosage”
 - Frequency
 - Supply – (basically, # doses supplied) NEW

QDM 5.0 – Allergy/Intolerance

- Existing CDA and FHIR resources manage allergy, intolerance and adverse reactions as classes. QDM includes these concepts as subcategories of other classes (e.g., Med Allergy, etc.)
- Proposal:
 - Remove existing allergy, intolerance and adverse reaction/event datatypes
 - Add 2 new datatypes:
 - Allergy
 - Intolerance/Adverse Reaction
 - For each, attributes of
 - » Substance
 - » Type
 - » Severity
 - » Prevalence Period
 - Onset DateTime
 - Abatement (resolution)

QDM 5.0 – Timing Attributes

- Changes throughout to clarify meaning of timing attributes and to take advantage of Interval representation where appropriate
 - e.g. startTime/stopTime is now relevantPeriod
 - authorTime used consistently to indicate when the event was recorded
 - multiple timings (e.g. Procedure has relevantPeriod and incisionDateTime)

White Board Session



Questions?



Resources

- HL7 Standard: Clinical Quality Language Specification, Release 1 DSTU
 - http://www.hl7.org/implement/standards/product_brief.cfm?product_id=400
- HL7 CDS Workgroup Project Homepage
 - http://wiki.hl7.org/index.php?title=Clinical_Quality_Language
- GitHub Tools Repository
 - https://github.com/cqframework/clinical_quality_language
- CQL JIRA site
 - <https://oncprojecttracking.healthit.gov/support/browse/CQLI>



Soliciting Examples for the Next Session

- Feedback Survey pop up at the close of this session
- ESAC CQL Email Account
 - cql-esac@esacinc.com
- CQL JIRA Site
 - <https://oncprojecttracking.healthit.gov/support/browse/CQLIT>

eCQI Resource Center

- eCQI Resource Center - <https://ecqi.healthit.gov>
- CQL Space - <https://ecqi.healthit.gov/cql>

The one-stop shop for the most current resources to support **Electronic Clinical Quality Improvement**.

Learn about eCQI resources and connect with the community of professionals who are dedicated to clinical quality improvement for better health

Getting Started



A *gentle* introduction to understanding eCQI and this Resource Center

[More information](#)

eCQMs



The who, what, when, where, and why of eCQMs

[More information](#)

Education



A selection of educational materials and resources to broaden your eCQI knowledge

[More information](#)

Latest News

Mon 18 Jul **Bonnie (eCQM testing tool) User Group**
 CMS and ONC invite you to join the new Bonnie User Group. Bonnie is a tool for testing electronic clinical quality measures (eCQMs). The purpose of this user group is to create a community of Bonnie users that can benefit from one another's experience and questions, and to allow the development team to easily reach out to the community regarding new releases, proposed features, and focus group opportunities.

To join:

- Navigate to <https://groups.google.com/forum/#!forum/bonnie>
- Sign into a google account.... [Read more](#)

Tue 12 Jul **Alpha Versions of Bonnie Features Released to Staging Server**
 The Bonnie team recently released alpha versions of several new features onto the Bonnie staging server (<https://bonnie.ahrqstg.org>). Because they are alpha versions for pre-production testing, these features may be unstable and prone to bugs. The

Upcoming Events

Jul 25 2016 **Common Errors for QRDA Category I Test Files - Session I**
 This Outreach and Education webinar for participants in the Hospital Inpatient Quality Reporting (IQR) Program is scheduled for Monday, July 25, 2016.

The webinar, titled *Common Errors for QRDA Category I Test Files - Session I* will be presented by Yan Heras, PhD, Lead Informaticist, ESAC Support Contractor (SC), and Artrina Sturges, EdD, Project Lead, Medicare IQR-Electronic Health Record (EHR) Incentive Program Alignment, Hospital Inpatient VIQR Outreach and Education SC.

Aug 02 2016 **Cypress Testing Tool "Tech Talk"**
 Bi-weekly Cypress "Tech Talk" call is held to review issues that arise when using the Cypress testing tool which