Health IT Enabled Quality Measurement and Improvement: 

The HL7 Clinical Quality Information Workgroup

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 Presented at HIMSS 2016 - HL7 Educational Sessions 
Las Vegas, Nevada    |    February 29 – March 4, 2016
Evolution of Quality Measurement

- For years a paper-based, manual-intensive process
- Electronic claims processing → new ways to perform quality measurement
- EHRs → automating process of extracting, calculating, and reporting quality measures
- National quality initiatives have moved to retool paper-based measures to an electronic format
- Major national programs have adopted and require use of electronic standards for quality measurement reporting (eMeasures or eCQMs) – CMS/Medicare (PQRS, Meaningful Use), Joint Commission, NCQA
- Under 2015 MACRA, CMS to align national quality measurement programs (including MU, PQRS, others) into new Merit-based Incentive Payment System
Who are all the players in the Quality space?

- **Policy Directions on Quality**
  - National Priorities Partnership, National Quality Strategy, CMS, ONC

- **Measure Requesters**
  - External demands of quality measures for accountability (CMS, NCQA, Joint Commission)
  - Internal demands for quality measures for improvement (quality improvement programs)

- **Measure Developers**
  - National Quality Forum, Measurement Development Partnership

- **Standards Developers**
  - HL7, IHE, IHTSDO, Others

- **EHR/Tool Developers**
  - EHR vendors, quality reporting tool developers

- **Measure Reporters and Users**
  - Providers, Health Plans, Public Programs, Others
Health IT-enabled Quality Measurement and Improvement Ecosystem

RESEARCH
What’s ACTUALLY Happening
Why?

GUIDELINES
What SHOULD Happen
What do we want to happen?

Patient, provider, population, public

REPORTING
- quality
- safety

MEASUREMENT/ANALYTICS
What DID Happen
What is happening now?

CLINICAL DECISION SUPPORT
How to MAKE IT Happen
HL7 Clinical Quality Information Workgroup

- HL7 has worked on quality measurement and reporting standards for years
- Mostly done within the Structured Documents Workgroup
- Since 2010, significant work being done to enhance the standards for quality measurement and reporting using data from EHRs
- In 2012, HL7 formed the Clinical Quality Information Workgroup
- It’s mission:

  
  Create and maintain information technology standards in support of improving health care quality, and to foster collaboration between quality measurement, outcomes and improvement stakeholders.
HL7 CQI Workgroup

- **Broad Participation**
  - Providers/Clinicians, Payers, Government Agencies, Accrediting Bodies, Vendors, Measure Developers, Measure Implementers, Quality Improvement Organizations

- **Cross-Collaboration**
  - With other HL7 Workgroup
    - Clinical Decision Support (CDS), Structure Documents (SD), Patient Care, Electronic Health Record (EHR), Public Health and Emergency Response (PHER), Fast Healthcare Interoperability Resource (FHIR), Others
  - With other industry groups
    - IHE, ISO, IHTSDO, LOINC, S&I Framework’s Clinical Quality Framework, NQF, CMS, NCQA, Joint Commission, Others
CQM – Clinical Quality Measures
CDS – Clinical Decision Support
HQMF – Health Quality Measure Framework
HeD – Health eDecisions
vMR – Virtual Medical Records

QRDA – Quality Reporting Document Architecture
*QDM – Quality Data Model (not an HL7 standard)
QUICK – Quality Improvement and Clinical Knowledge
CQL – Clinical Quality Language
CQI: Shared Standards

Clinical Quality Measure and Clinical Decision Support

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CQI Data Model
CQL: Current Projects

- **Active Standards for Ballot May 2016**
    - Seeking Vendor Input

- **Additional CQL Standards:**
  - QRDA Category I, R3.1
  - QRDA Category III, R1.1
  - HQMF v2.1
  - QDM-based HQMF, R1.3
  - CQL-based HQMF, R1
  - CQF Data Model (with CIMI)
  - FHIR QI CORE
    - QUICK
    - FHIR Quality Profile
    - CQL (CDS WG Sponsor)
    - Quality Metadata
    - CQF on FHIR
CQI White Papers

- A Framework for Standards
  - Identifies and describes how various electronic standards meet the needs of end-to-end workflow for quality measurement and clinical decision support

- QRDA Clinical Quality Data Sharing User Guide
  - Provides use cases for the application of QRDA standard to exchange clinical quality data
Quality Data Model (QDM)

- Quality Data Model
  - A model of information used to describe clinical concepts in a standardized format to enable clinical quality measurement
  - Describes the data elements and states (or contexts) in which data elements are expected to exist in clinical information systems
  - Not an HL7 standard but has been implemented in HQMF and QRDA
Health Quality Measure Format (HQMF - eMeasure, eCQM)

- The first international standard for the formal representation of a clinical quality measure as an electronic document (including metadata, data elements, and logic)
- Provides for quality measure consistency and unambiguous interpretation
- An eMeasure (also known as an eCQM) is a quality measure encoded in HQMF format
- QDM-based HQMF (R1.3)
- CQL-based HQMF (R1)
QRDA

Quality Reporting Document Architecture
– A standard for reporting patient or aggregate quality data for one or more quality measures
  ▪ QRDA Category I – Single Patient Report
  ▪ QRDA Category II – Patient List Report*
  ▪ QRDA Category III – Aggregate Report

* QRDA Category I and III are Standards for Trial Use (STU). QRDA Category II is not a STU.
QRDA Category I

- Single Patient Reports
  - Individual patient-level report containing data defined in an electronic clinical quality measure
  - Clinically measureable parameters are assembled into quality measures, which are then expressible as eMeasures
  - eMeasures guide the collection of EHR and other data, which are then assembled into QRDA quality reports and submitted to quality organizations
  - Version: R3.1
QRDA Category III

- **Aggregate Reports**
  - An aggregate quality report that contains calculated summary data for one or more measures for a specified population of patients within a particular health system over a specific period of time.
  - Communicates data residing in health information systems that are stripped of all patient identifiers, protecting patients and healthcare providers from the risks of inadvertent leakage of private information.
  - Version: R1.1
QUICK

- Quality Improvement and Clinical Knowledge (QUICK)
  - Logical model that represents patient-centric clinical concepts for the purpose of clinical decision support and clinical quality measures
  - Describes the use cases and requirements of a data model for quality improvement
  - Provides a standard way to reference information in EHRs
  - Learns from and builds upon existing standards (e.g., QDM, QRDA, etc.)
Clinical Quality Language (CQL)

- Defining canonical representation of expression logic for clinical quality
- Drawing on the requirements of the QDM, HQMF, CDS Knowledge Artifact Specification and QUICK
- Also defining a mechanism for enabling the point-to-point sharing of clinical knowledge
- Also defining a conformance profile of a human-readable syntax targeted for measure and decision support artifact authors
- Version: 1.0
FHIR QI CORE

- An Implementation Guide
- An overarching efforts that includes several projects focusing on developing Fast Healthcare Interoperability Resources (FHIR) artifacts needed for quality measurement and clinical decision support
  - FHIR Quality Profile
  - CQF on FHIR
- Approach aims to derive the QUICK logical model from FHIR profiles
- Version: 1.1
Current Use of CQI Standards and Artifacts

- HQMF/QDM/QRDA
  - Used to represent eMeasures (eCQMs) and transmit EHR-based data for CMS health care quality programs
    - EHR Incentive Program (Meaningful Use)
    - Hospital Inpatient Quality Reporting Program
    - Physician Quality Reporting System (PQRS)
    - Comprehensive Primary Care (CPC) Initiative
    - Pioneer ACO Program
  - Emerging use of HQMF/QDM/MAT in the Netherlands

- Other Standards (QUICK, CQL, FHIR Quality Profiles, CQF on FHIR)
  - Expected to be adopted and used in future iterations of quality measurement programs
How to Participate

- **CQI Workgroup**
  - Weekly calls: Fridays, 1:00 – 3:00 pm ET
  - F2F Working Group Meetings (x3/year)
  - Website: [http://www.hl7.org/Special/committees/cqi/index.cfm](http://www.hl7.org/Special/committees/cqi/index.cfm)
  - Ballot review/comment: [http://www.hl7.org/participate/onlineballoting.cfm?ref=nav](http://www.hl7.org/participate/onlineballoting.cfm?ref=nav)
How to Participate

- CQI WG Co-chairs
  - Kanwarpreet (KP) Sethi, Lantana Consulting Group kp.sethi@lantanagroup.com
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