

Clinical Quality Framework

Background

The Clinical Quality Framework is a joint effort by the Clinical Decision Support and Clinical Quality Information Work Groups to identify, develop, and harmonize standards that promote integration and reuse between Clinical Decision Support (CDS) and Clinical Quality Measurement (CQM).

The effort began as a public-private initiative sponsored by the Centers for Medicare and Medicaid Services (CMS) and the Office of the National Coordinator of Health IT (ONC) and has since transitioned to a joint effort within HL7 as the stewards of the specifications involved. Archived information about the CQF Initiative (charter, members, pilots, and meetings) can be found on the ONC Tech Labs [Clinical Quality Framework Initiative](#) site.

The effort focuses on two primary use cases:

1. Representation and distribution of knowledge artifacts (rules, order sets, documentation templates, measures, etc)
2. Evaluation of knowledge

Representation

For the knowledge representation use case, artifacts such as rules, order sets, and quality measures are represented using three primary components:

1. Metadata - Structured information about the artifact such as description, usage, evidence, stewardship, and catalog information
2. Patient and Clinical Information - Data models used to represent patient and clinical information within the artifacts
3. Expression Logic - Formal representation of logic involved in the artifact such as rule conditions and quality measure population criteria

Metadata

Harmonized metadata requirements for decision support and quality measurement artifacts are described conceptually in [Clinical Quality Common Metadata Conceptual Model](#).

These metadata are realized concretely in FHIR as the initial group of elements present on all the knowledge resources. For a representative example, see the [PlanDefinition](#) elements up to [relatedArtifact](#).

Patient and Clinical Information

Harmonized information model requirements for decision support and quality measurement artifacts are described conceptually in [Health Quality Improvement](#) (also known as Quality Improvement Domain Analysis Model, QIDAM).

These conceptual requirements are then realized as a set of FHIR Profiles in [Quality Improvement Core \(QI-Core\)](#).

For more information on model harmonization efforts, refer to [Health Quality Information Models Activities](#) (Includes CMS Quality Data Model (QDM) mapping activities to QI Core).

Expression Logic

Harmonized expression logic requirements for decision support and quality measurement artifacts are described conceptually in [Harmonization of Health Quality Artifact Reasoning and Expression Logic](#).

These conceptual requirements are realized in the [Clinical Quality Language](#) specification.

For more information on Clinical Quality Language, refer to the [Clinical Quality Language](#) project page.

Artifact Representation

Decision support and quality measurement artifacts can then be expressed using these components.

In FHIR, artifacts are expressed using the resources defined by the [Clinical Reasoning](#) module.

In addition, the [Clinical Decision Support Knowledge Artifact Specification \(KAS\)](#) can be used to define decision support artifacts, and the [Health Quality Measure Format \(HQMF\)](#) can be used to define quality measurement artifacts.

Evaluation

The [CDS Hooks](#) specification provides the basis for the evaluation use case. The CQF community participates in the CDS Hooks process in pursuit of decision support evaluation use cases.

Current State

The following table depicts standards currently used in the V3 and FHIR families for Clinical Decision Support:

Caption: Clinical Decision Support Standards

Component	V3-based	FHIR-based
Metadata and Structure	Clinical Decision Support Knowledge Artifact Specification (aka HeD, and sometimes KNART)	FHIR Clinical Reasoning FHIR Clinical Guidelines
Logic	Clinical Quality Language (CQL)	Clinical Quality Language (CQL)
Clinical Data	Virtual Medical Record (vMR)	QI-Core
Evaluation	Decision Support Specification (DSS)	CDS Hooks

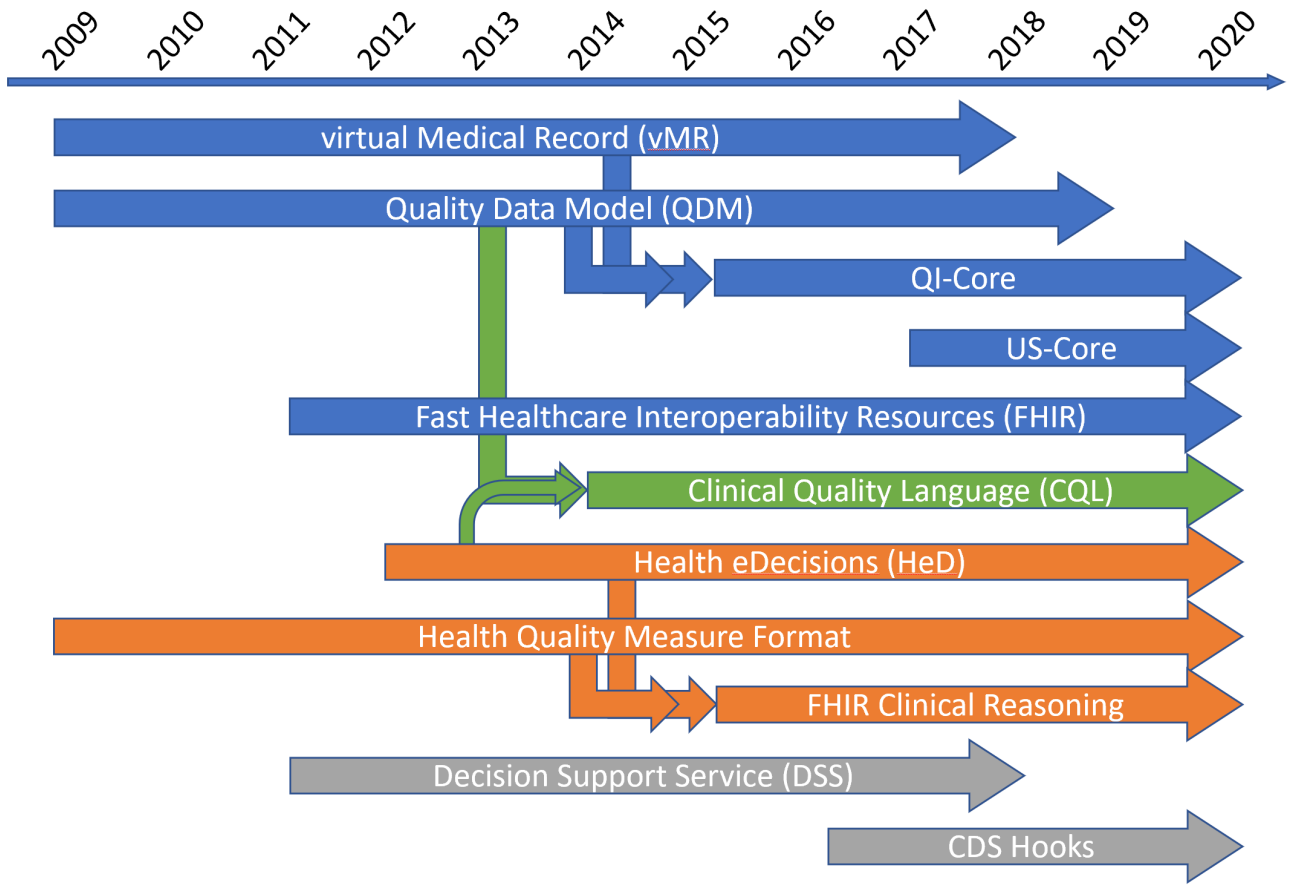
And the same table for Clinical Quality Measurement:

Caption: Clinical Quality Measurement Standards

Component	V3-based	FHIR-based
Metadata and Structure	Health Quality Measure Format (HQMF)	FHIR Clinical Reasoning FHIR Quality Measures
Logic	Clinical Quality Language (CQL)	Clinical Quality Language (CQL)
Clinical Data	Quality Data Model	QI-Core
Evaluation	Quality Reporting Document Architecture (QRDA)	FHIR Clinical Reasoning FHIR Data Exchange for Quality Measures

Standards Evolution

The following diagram illustrates the overall evolution of quality improvement and related standards, focusing in particular on the standards that are the intended focus of the Clinical Quality Framework initiative:



- Data Model
- Structure
- Logic
- Service