Cooking with CQL Q&As

Session 69 - Thursday, December 1, 2022

Measure Logic in CQL

**Q:** Value sets allow us to share concepts within electronic Clinical Quality Measures (eCQMs,) as well as reuse the value set definition within Clinical Quality Language (CQL.) The library example is a set of value set definitions. Where are the value set links pulled from?

|  |
| --- |
| library FHIRCommon version '4.0.1' |
| using FHIR version '4.0.1' |
|  |
| include FHIRHelpers version '4.0.1' |
|  |
| codesystem "LOINC": 'http://loinc.org' |
| codesystem "SNOMEDCT": 'http://snomed.info/sct' |
| codesystem "RoleCode": 'http://terminology.hl7.org/CodeSystem/v3-RoleCode' |
| codesystem "Diagnosis Role": 'http://terminology.hl7.org/CodeSystem/diagnosis-role' |
| codesystem "RequestIntent": 'http://terminology.hl7.org/CodeSystem/request-intent' |
| codesystem "MedicationRequestCategory": 'http://terminology.hl7.org/CodeSystem/medicationrequest-category' |
| codesystem "ConditionClinicalStatusCodes": 'http://terminology.hl7.org/CodeSystem/condition-clinical' |
| codesystem "ConditionVerificationStatusCodes": 'http://terminology.hl7.org/CodeSystem/condition-ver-status' |
| codesystem "AllergyIntoleranceClinicalStatusCodes": 'http://terminology.hl7.org/CodeSystem/allergyintolerance-clinical' |
| codesystem "AllergyIntoleranceVerificationStatusCodes": 'http://terminology.hl7.org/CodeSystem/allergyintolerance-verification' |

**A:** The value set links are the canonical uniform resource locators (URLs) of the value sets in the Value Set Authority Center (VSAC.) While there are times when you can link an object identifier (OID) to a value set, similar to usage in QDM eCQMs, a Fast Healthcare Interoperability Resources® (FHIR®) measure or library uses a canonical URL. The canonical URL is a globally unique identifier for that value set, and it includes the base URL for the value set. If the publisher has made the value set available in a website or application programming interface (API,) clicking the canonical URL link will take the user to the definition of the value set. For ValueSets published in the HL7 terminology host 'terminology.hl7.org’, information on the value set is provided in narrative, JavaScript Object Notation (JSON,) and Extensible Markup Language (XML) forms. For VSAC value sets, the canonical URL will resolve to a FHIR API that returns the ValueSet content as JSON. Note that the use of this API, just like any access to the VSAC, requires a National Library of Medicine (NLM) account.

Measure Logic in CQL

**Q:** In this code, what does the abbreviation Cs mean?

|  |  |  |
| --- | --- | --- |
| define "Flexible Sigmoidoscopy Performed": | |  |
|  | [Procedure: Cs."Flexible Sigmoidoscopy"] FlexibleSigmoidoscopy | |
|  | where FlexibleSigmoidoscopy.status = 'completed' | |

**A:** The 'Cs', as used in this example, is an alias for the "ColorectalCancerConcepts" library. The "ColorectalCancerConcepts" library references all concepts for colorectal cancer, as seen in the code. Putting all the concepts in their own library allows for swapping out value sets and reusing decision support.

|  |  |  |
| --- | --- | --- |
| library ColorectalCancerElements version '0.1.0' | |  |
|  |  | |
|  | using FHIR version '4.0.1' | |
|  |  | |
|  | include FHIRHelpers version '4.0.1' | |
|  | include FHIRCommon version '4.0.1' called FC | |
|  |  | |
|  | include ColorectalCancerConcepts called Cs | |

Measure Logic in CQL

**Q:** In this Clinical Quality Language (CQL) statement, is 'most recent' used as a CQL expression? Why is 'most recent' used instead of 'last'?

|  |  |  |
| --- | --- | --- |
| define "Rationale": | |  |
|  | Coalesce({ | |
|  | 'most recent FOBT issued on ' + ToString(date from CCE."Most Recent Fecal Occult Blood Test Result".issued), | |
|  | 'most recent FIT DNA issued on ' + ToString(date from CCE."Most Recent Fecal Immunochemical Test DNA Result".issued), | |
|  | 'most recent CT Colonography performed on ' + ToString(date from start of FC.ToInterval(CCE."Most Recent CT Colonography Performed".performed)), | |
|  | 'most recent Flexible Sigmoidoscopy performed on ' + ToString(date from start of FC.ToInterval(CCE."Most Recent Flexible Sigmoidoscopy Performed".performed)), | |
|  | 'most recent Colonoscopy performed on ' + ToString(date from start of FC.ToInterval(CCE."Most Recent Colonoscopy Performed".performed)), | |
|  | 'no evidence of appropriate screening' | |
|  | }) | |

**A:** 'Most recent' is not a CQL expression but used instead as a more descriptive name for the defined function. The 'most recent' function allows for the application of the 'last' function with the application to sort by an interval. Since 'last' references the final element in a list, if the sort was other than chronological (e.g., result.value), 'last' could reference a different concept.

Measure Logic in CQL

**Q:** When running Clinical Quality Language (CQL) for clinical decision support, does the evaluation service remember the calculation, like a RESTful server?

**A:** The ability to remember the calculation is dependent on the service. Typically, the servers are stateless and do not have the ability to remember a calculation. However, within an evaluation, calculations can be cached but would not be retained for future access once the evaluation is completed.