
Health Quality Measures Format (HQMF) R2.1

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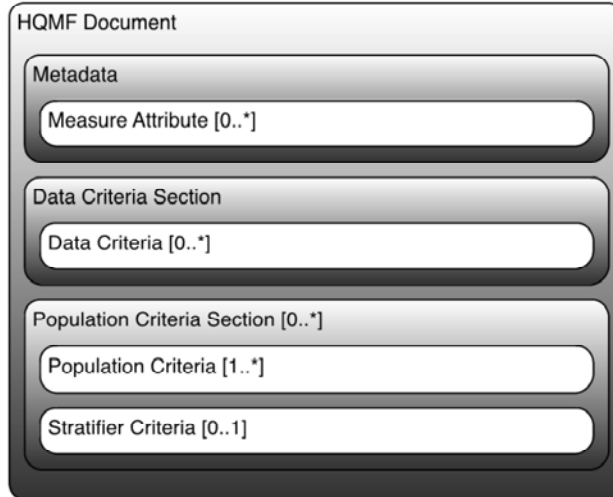
Basics

- **With the update to HQMF R2.1, QDM remains the basis for MU eMeasures**
- **HQMF R2.1 improves on HQMF R1 used for MU2 eMeasures**
 - Simplified Structure
 - Clearer execution model
 - (Somewhat) easier to work with but some things remain awkward due to use of HL7 RIM
- **XML format**
 - HQMF specification includes an XML schema but that doesn't tell the whole story
 - Need to refer to QDM-based Implementation Guide and associated Schematron rules for additional constraints
- **Base Specification:**
<http://www.hl7.org/dstucomments/showdetail.cfm?dstuid=109>
- **QDM IG:** <http://www.hl7.org/dstucomments/showdetail.cfm?dstuid=120>

Motivation for Automated Processing

- **HQMF R2.1 much more tractable than HQMF R1**
 - Easier to parse
 - Simpler execution model
- **Automated processing has many advantages**
 - Less effort than manual measure implementation
 - Less chance of error than manual implementation
 - Faster turnaround for measure updates
 - Fix bugs in library code (e.g., temporal operators) once
 - Once you can import one measure you can rapidly add others

High-Level Structure



Data Criteria

"Diagnosis, Active: Chlamydia" starts before or during "Measurement Period"

```
<entry typeCode="DRIV">
  <localVariableName value="DiagnosisActiveChlamydia"/>
  <observationCriteria moodCode="EVN" classCode="OBS">
    <templated>
      <item root="2.16.840.1.113883.3.560.1.2" identifierName="diagnosis, active
template"/>
    </templated>
    <id root="2.16.840.1.113883.3.100.1" extension="DiagnosisActiveChlamydia"/>
    <text value="Diagnosis, Active: Chlamydia"/>
    <statusCode code="active"/>
    <value xsi:type="CD" valueSet="2.16.840.1.113883.3.464.1003.112.12.1003">
      <displayName value="Chlamydia"/>
    </value>
    <temporallyRelatedInformation typeCode="SBOD">
      <criteriaReference moodCode="EVN" classCode="OBS">
        <id root="2.16.840.1.113883.3.100.1" extension="MeasurePeriod"/>
      </criteriaReference>
    </temporallyRelatedInformation>
  </observationCriteria>
</entry>
```

HQMF includes a lot of boiler plate due to its derivation from the HL7 RIM. Fortunately much of it can be ignored when parsing to extract the required information.

Data Criteria

"Diagnosis, Active: Chlamydia" starts before or during "Measurement Period"

```

<entry typeCode="DRIV">
  <localVariableName value="DiagnosisActiveChlamydia"/>
  <observationCriteria moodCode="EVN" classCode="OBS">
    <templated>
      <item root="2.16.840.1.113883.3.560.1.2" identifierName="diagnosis, active
template"/>
    </templated>
    <id root="2.16.840.1.113883.3.100.1" extension="DiagnosisActiveChlamydia"/>
    <text value="Diagnosis, Active: Chlamydia"/>
    <statusCode code="active"/>
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      <criteriaReference moodCode="EVN" classCode="OBS">
        <id root="2.16.840.1.113883.3.100.1" extension="MeasurePeriod"/>
      </criteriaReference>
    </temporallyRelatedInformation>
  </observationCriteria>
</entry>

```

QDM data type is captured using a template identifier. The QDM-based HQMF IG lists all of the template identifiers and the corresponding QDM data type. Determining the QDM data type is straightforward based on the template identifier.

Data Criteria

"Diagnosis, Active Chlamydia" starts before or during "Measurement Period"

```

<entry typeCode="DRIV">
  <localVariableName value="DiagnosisActiveChlamydia"/>
  <observationCriteria moodCode="EVN" classCode="OBS">
    <templateId>
      <item root="2.16.840.1.113883.3.560.1.2" identifierName="diagnosis, active
template"/>
    </templateId>
    <id root="2.16.840.1.113883.3.100.1" extension="DiagnosisActiveChlamydia"/>
    <text value="Diagnosis, Active: Chlamydia"/>
    <statusCode code="active"/>
    <value xsi:type="CD" valueSet="2.16.840.1.113883.3.464.1003.112.12.1003">
      <displayName value="Chlamydia"/>
    </value>
    <temporallyRelatedInformation typeCode="SBOD">
      <criteriaReference moodCode="EVN" classCode="OBS">
        <id root="2.16.840.1.113883.3.100.1" extension="MeasurePeriod"/>
      </criteriaReference>
    </temporallyRelatedInformation>
  </observationCriteria>
</entry>

```

The clinical type is identified using a value set. Note that for observations the value set is in the value element, other data types may have the value set in the code element. The QDM-based HQMF IG identifies the correct element to hold the value set.

Data Criteria

"Diagnosis, Active: Chlamydia" starts before or during "Measurement Period"

```

<entry typeCode="DRIV">
  <localVariableName value="DiagnosisActiveChlamydia"/>
  <observationCriteria moodCode="EVN" classCode="OBS">
    <templated>
      <item root="2.16.840.1.113883.3.560.1.2" identifierName="diagnosis, active
template"/>
    </templated>
    <id root="2.16.840.1.113883.3.100.1" extension="DiagnosisActiveChlamydia"/>
    <text value="Diagnosis, Active: Chlamydia"/>
    <statusCode code="active"/>
    <value xsi:type="CD" valueSet="2.16.840.1.113883.3.464.1003.112.12.1003">
      <displayName value="Chlamydia"/>
    </value>
    <temporallyRelatedInformation typeCode="SBOD">
      <criteriaReference moodCode="EVN" classCode="OBS">
        <id root="2.16.840.1.113883.3.100.1" extension="MeasurePeriod"/>
      </criteriaReference>
    </temporallyRelatedInformation>
  </observationCriteria>
</entry>

```

Temporal relationship are specified using a set of RIM codes like SBE (starts before end) on the optional temporallyRelatedInformation element.

Data Criteria

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```

<entry typeCode="DRIV">
  <localVariableName value="DiagnosisActiveChlamydia"/>
  <observationCriteria moodCode="EVN" classCode="OBS">
    <templated>
      <item root="2.16.840.1.113883.3.560.1.2" identifierName="diagnosis, active
template"/>
    </templated>
    <id root="2.16.840.1.113883.3.100.1" extension="DiagnosisActiveChlamydia"/>
    <text value="Diagnosis, Active: Chlamydia"/>
    <statusCode code="active"/>
    <value xsi:type="CD" valueSet="2.16.840.1.113883.3.464.1003.112.12.1003">
      <displayName value="Chlamydia"/>
    </value>
    <temporallyRelatedInformation typeCode="SBOD">
      <criteriaReference moodCode="EVN" classCode="OBS">
        <id root="2.16.840.1.113883.3.100.1" extension="MeasurementPeriod"/>
      </criteriaReference>
    </temporallyRelatedInformation>
  </observationCriteria>
</entry>

```

The child criteriaReference of the temporallyRelatedInformation element identifies the target of the temporal relationship. The target of a temporal relationship may be the measurement period or another data criteria.

Population Criteria

- **Similar story for population criteria**
 - XML looks confusing initially, but
 - Much of the XML can be ignored
 - Straightforward to extract required information

HQMF R2.1 Samples

- All 2015 Annual Update measures *pre-released* in HQMF R2.1
 - Not yet final, do not implement for Program Year 2016
- http://ushik.org/mdr/portals/mu/HQMF_R_2_1_download?system=mu