Agenda

- Software Updates
  - Cypress Validation Utility + Calculation Check (CVU+)
  - Evolving Electronic Clinical Quality Measure (eCQM) Standards—Quality Data Model (QDM) vs Clinical Quality Language (CQL)
- Timing
- Recent Issues
  - CYPRESS-1525: Patient Characteristic Sex in Record Sample
  - CYPRESS-1537: “relatedTo” attribute in Record Sample
- Cypress Versions
- Open Discussion
- Contact Information
Software Updates

Introducing, CVU + Calculation Check

- Cypress v5 will include a new feature named the Cypress Validation Utility + Calculation Check (CVU+)
- This feature seeks to address the vendor concern that the ‘certification process does not mirror a production scenario for electronic Clinical Quality Measure (eCQM) reporting’
  - Certification uses a constrained set of test patients
  - Certification does not enforce reporting program requirements (i.e., CMS Implementation Guide)
- CVU+ will supplement the existing certification program
  - Use of CVU+ is not currently a requirement of the program
Software Updates
CVU + Calculation Check – Features

- Enhanced verification of a Health Information Technology (IT) system’s eCQM calculations
  - Using a combination of Cypress defined patients, and “bring your own” patients
  - Calculation for multiple eCQMs at once

- Verification of a Health IT system’s ability to be configured (by a provider) to report to CMS programs
  - CVU+ will test conformance with program specific requirements in the CMS Quality Reporting Document Architecture (QRDA) Implementation Guides
Software Updates

CVU + Calculation Check – Seeking Input

- Cypress plans to begin development of the CVU+ this fall for preliminary release in Spring 2019
  - Final release in Summer 2019 with Cypress v5
- Seeking input for features to be included with CVU+
- Continued discussion at future Tech Talks
Software Updates

Evolving eCQM Standards—QDM vs CQL Timing

Current (through CY2018)

- HQMF (Metadata, Population Structure)
- QDM (Logic)
- QDM (Data Model)

New (beginning CY2019)

- HQMF (Metadata, Population Structure)
- CQL (Logic)
- QDM (Data Model)

CQL = Clinical Quality Language
QDM = Quality Data Model
HQMF = Health Quality Measure Format

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Software Updates
Instant Granularity

- A CQL instant (calendar date/date + time of day) can contain varying levels of precision
  - Instant I1: 2012
  - Instant I2: 2012-03
  - Instant I3: 2012-03-10
  - Instant I4: 2012-03-10 22
  - Instant I5: 2012-03-10 22:05
  - Instant I6: 2012-03-10 22:05:09

- In QDM, instants must support at least "minute"-level precision
- CQL instants have a maximum precision of milliseconds
Both CQL and QDM support comparison of instants
  – Is one before or after the other?

CQL and QDM handle “unknown” instants differently

In QDM, an instant being "null" results in the comparison being “false”
  – DateTime(2015,2,5) Ends Before Start Of null
  – "False" in this case means that February 5, 2015 ends before start of “null”, which is not true

In CQL, if one is “null” (unknown), the result is also “null”
  – DateTime(2015,2,5) < null
    ▪ Returns “null”
CQL can compare instants even when data is partially missing

If the missing data doesn’t affect the comparison, the answer is returned

- `DateTime(2012) < DateTime(2014, 2, 15)`  
  - True

- `DateTime(2015) < DateTime(2014, 2, 15)`  
  - False

- `DateTime(2014) < DateTime(2014, 2, 15)`  
  - Null
Software Updates
Calculating Interval Durations

- QDM and CQL both count intervals of time in “buckets”; made up of years, which get divided into smaller buckets (months, days, hours, minutes, etc.) as necessary
  - QDM’s smallest bucket size is 1 minute
  - CQL’s smallest bucket size is 1 millisecond

- QDM can only calculate “duration” between two instants
  - In other words, the number of whole bucket units that can fit between two instants
  - duration in months between @2014-01-31 and @2014-04-01
    - 2
  - duration in months between @2014-01-31 and @2014-02-01
    - 0

- CQL can also calculate “durations”
Software Updates
Calculating interval differences

- CQL can also calculate “difference” between two instants
  - Number of bucket boundaries crossed
  - Duration in months between @2014-01-31 and @2014-04-01
    - 3
  - Duration in months between @2014-01-31 and @2014-02-01
    - 1
- QDM does not have this concept of “difference”
Software Updates
Additional CQL/timing resources

- **ESAC CQL Formatting & Usage Wiki**

- **Electronic Clinical Quality Improvement (eCQI) Resource Center “CQL Q&As”**
  - [https://ecqi.healthit.gov/cql/CQ-Qs%26As](https://ecqi.healthit.gov/cql/CQ-Qs%26As)

- **eCQI Resource Center CQL Resources**
  - [https://ecqi.healthit.gov/cql-clinical-quality-language](https://ecqi.healthit.gov/cql-clinical-quality-language)

- **ONC/CMS 2018 eCQM Logic and Implementation Guidance**
Software Updates

Bugs addressed in 4.0.1 patch release

Cypress v4.0.1

The Cypress 4.0.1 patch is scheduled for release on 10/11/18. Changes for the release are below.

Cypress Features
- Cypress build for the 2019 Reporting/Performance period (eCQM value sets as of September, 2018).

Cypress Bugs Addressed
- Misrepresentation of ongoing events in HTML. (CYPRESS-1450)
- Calculation of patient Z21 GP Adult for CMS249 does not account for race. (CYPRESS-1461)
- Cypress’s relative positioning of the “Negation Reason” in the Device, Order template impacts patient import. (CYPRESS-1443)
- C4 Problem filter not properly excluding patients without required diagnosis. (CYPRESS-1480)
- Duplicate Patients have significantly different date of births, impacting calculation depending on which date of birth is selected. (CYPRESS-1483)
- Master Patient List download does not contain patient files.
- “Race Condition” in C2 setup may cause the Expected Results to be calculated with a subset of patient records. (CYPRESS-1486)
Recent Issue
CYPRESS-1525: Patient Characteristic Sex in Record Sample

- **Precondition**
  - A Cypress 4.0.1 instance
  - Editing Record Sample Test

- **Issue**
  - When editing a Record Sample Test Data Criteria list, there are a number of options for replacement data criteria
  - If the user selects Patient Characteristic Sex, and saves the test, they receive a Server Error message.

- **Workaround:**
  - Patient Characteristic Sex is considered too trivial to be included by default in the test
  - Vendors and ATLs should not swap Patient Characteristic Sex in, should use any other criteria
**Recent Issue**

**CYPRESS-1537: “relatedTo” attribute in Record Sample**

- **Precondition**
  - A Cypress 4.0.1 instance
  - Measures with “Communication: From Provider To Provider”
    - Uses “relatedTo” attribute
    - Ex: CMS50v7
  - “Communication: From Provider To Provider” is randomly selected for test

- **Issue**
  - Cypress expecting retired “fulfills” template id for the “Communication: From Provider To Provider” attribute “relatedTo”
  - “relatedTo” id should be accepted instead

- **Workaround:**
  - Only necessary if Record Sample Test for CMS50v7 is generated with a “Communication: From Provider To Provider”
  - That data criteria should be swapped out for any other available data criteria option
  - May reach out to ATL to edit the test and swap this criteria

![Edit Test](image)

**Previous version:**

9.5 *Fulfills (V2)*

Fulfills (V2) (urn:hl7:2.16.840.1.113883.10.20.24.3.126:2016-08-01)

**Cypress should be expecting:**

4.2 *Related To*

[sdct:inFulfillmentOf: identifier
urn:hl7:2.16.840.1.113883.10.20.24.3.150:2017-08-01 (open)]

**Context in Communication from Provider to Provider:**

11. **MAY** contain zero or more [0..*] Related To (identifier: urn:hl7:2.16.840.1.113883.10.20.24.3.150:2017-08-01) (CONF:3343-29118).

Note: QDM Attribute: relatedTo
## Cypress Versions

<table>
<thead>
<tr>
<th>Version</th>
<th>Dates</th>
<th>Measures Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>V 3.2.3</td>
<td>December 14, 2017</td>
<td>Support for the eCQMs for the 2018 Reporting/Performance Period</td>
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<tr>
<td></td>
<td></td>
<td>*will be supported alongside Cypress v4</td>
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<tr>
<td>V4.0.1</td>
<td>October 11, 2018</td>
<td>Support for the eCQMs for the 2019 Reporting/Performance Period</td>
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<tr>
<td></td>
<td></td>
<td>Support for Clinical Quality Language (CQL) calculation</td>
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## Bundle Version

<table>
<thead>
<tr>
<th>Bundle Version</th>
<th>Dates</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017.0.3</td>
<td>April 24, 2018</td>
<td><strong>Cypress v3 only</strong> &quot;Z1 BH Adult&quot; updated for CMS128v6</td>
</tr>
<tr>
<td>2017.0.4</td>
<td>September 25, 2018</td>
<td><strong>Cypress v3 only</strong> Errata update to fix ‘Download All Patients’ feature when 2017.0.3 and 2017.0.2 are installed simultaneously</td>
</tr>
<tr>
<td>2018.0.1</td>
<td>July 26, 2018</td>
<td><strong>Cypress v4 only</strong> CQL-based measures released in 2018 for the 2019 reporting year eCQM Value Sets as of 5/4/2018.</td>
</tr>
<tr>
<td>2018.1.0</td>
<td>October 11, 2018</td>
<td><strong>Cypress v4 only</strong> CQL-based measures released in 2018 for the 2019 reporting year eCQM Value Sets as of 9/17/2018.</td>
</tr>
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OPEN DISCUSSION
Next Cypress Tech Talk

- Tuesday, December 18, 2018 at 1pm ET
- To join online, visit: https://meetings.cms.gov/orion/joinmeeting.do?MTID=98271705d4bc4ad148cf1e39d5c7408
- To join via phone, dial: 1-877-267-1577
- Meeting Number: 998 084 717
- Meeting link, as well as a calendar event file, available at: https://www.healthit.gov/cypress/techtalks.html
Notes

- Completed Webinars will be posted on the Cypress Website on the Timeline Tab
  - [https://www.healthit.gov/cypress/techtalks.html](https://www.healthit.gov/cypress/techtalks.html)

- Send questions and feedback to the Cypress Talk List at
  - [project-cypress-talk@googlegroups.com](mailto:project-cypress-talk@googlegroups.com)

- Report bugs and issues to the Cypress JIRA at
  - [https://oncprojecttracking.healthit.gov/support/browse/CYPRESS](https://oncprojecttracking.healthit.gov/support/browse/CYPRESS)