Agenda

- Software Updates
  - Cypress v6 Release
    - Community Suggested Features and Bug Fixes
- Recent Issue
  - Cypress Known Issues Dashboard
- Cypress Versions
- Announcements
- Open Discussion
- Contact Information

*See the Glossary at the back for definitions of terms*
Software Updates
Cypress v6 Release

- Final Cypress v6 release anticipated July 23, 2020
  - HL7 QRDA Category 1 R5.2
  - 2021 CMS QRDA I Implementation Guide for Hospital Quality Reporting
  - 2021 CMS QRDA III Implementation Guide for Eligible Clinicians and Eligible Professionals
  - Support for 2021 reporting/performance period eCQMs
    - 9 EH/CAH eCQMs
    - 47 EP/EC eCQMs
    - 1 Hybrid eCQM (CMS529)
  - Continued and improved support for CVU+ testing
Software Updates
Community Suggested Features and Bug Fixes

- **Calculation and import updates:**
  - **CYPRESS-1687**: Bundle updates to avoid calculation discrepancies in contiguous US time zones
  - **CYPRESS-2058**: Unit of Measure validation for nullFlavor result
  - **CYPRESS-2015**: Warnings for improper QRDA-I file elements, especially time interval discrepancies

- **User experience improvements:**
  - **CYPRESS-1374**: Include all warnings in report as opposed to just errors
  - **CYPRESS-1985**: Fixed master patient filter so that it does not timeout
  - **CYPRESS-2040**: Update test result dropdown to fix inaccurate times

- **HTML improvements:**
  - **CYPRESS-1958**: Export all missing attributes in the HTML patient representation
  - **CYPRESS-2034**: Match patient IDs between QRDA and HTML patient files

- **CVU+ and/or vendor patient updates:**
  - **CYPRESS-1961** and **CYPRESS-2037**: Sorting quantities fixed to sort by value rather than sorting as a string
  - **CYPRESS-1980**: Select All option for vendor patient page
  - **CYPRESS-2042**: Clarify instructions for HL7 CVU+ tests
  - **CYPRESS-2051**: Fix calculation issue for performance rates with denominator 0

- **Features also included in latest v5:**
  - ATL Request: Random address used for realistic test patient deduplication
  - Google Group Request: Record Sample tests show ‘incomplete’ instead of ‘failing’ status (also included in latest v5)
  - **CYPRESS-1907**: Improved color contrast (also included in latest v5)
Software Updates
Calculation and Import Updates

- **CYPRESS-1687**: Bundle updates to avoid calculation discrepancies in contiguous US time zones
  - Cypress shifts all patient data to UTC time (UTC-0). This sometimes causes calculation issues with certain patients if the vendor software operates in western US time zones.
  - In the latest bundle, adjustments have been made to patients with data near a day boundary so that the date does not change when shifting time zones. Updated times are midday so that they work with any time zone in the contiguous US.
  - This should prevent problems for users that shift to US times rather than UTC.

- **CYPRESS-2058**: Unit of Measure validation for nullFlavor result
  - Impacted CMS9v8 and CMS105v8.
  - If a result value was created with a nullFlavor, Cypress previously errored on the QRDA input.
  - Cypress now appropriately evaluates patient data with nullFlavor result values.
Software Updates
Calculation and Import Updates (cont.)

- **CYPRESS-2015**: Warnings for improper QRDA-I file elements, especially time interval discrepancies
  - Four new warning types: dual nullFlavor intervals, interval low after high, nullFlavor negated code without valueset, and string type value warnings.

```xml
<observation classCode="OBS" moodCode="EVN" negationInd="true">
  <!-- Assessment Performed -->
  <templateId root="2.16.840.1.113883.10.20.24.3.144" extension="2019-12-01"/>
  <id root="1.3.6.1.4.1.115" extension="5ebe1ca66105e684b013cf5"/>
  <code nullFlavor="NA" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
</observation>

<!-- low and high both null warning -->
<effectiveTime>
  <low nullFlavor="UNK"/>
  <high nullFlavor="UNK"/>
</effectiveTime>

<!-- low after high warning -->
<effectiveTime>
  <low value="20201006080000"/>
  <high value="20181006083000"/>
</effectiveTime>

<!-- string value warning -->
<value xsi:type="ST">Good</value>
```
Software Updates
User Experience Improvements

- **CYPRESS-1374**: Include all warnings in report as opposed to just errors

C3 QRDA Category III Passing Measure Tests with Warnings

CMS2v10 Preventive Care and Screening: Screening for Depression and Follow-Up Plan

- **Warnings**
  - SHALL contain exactly one [1..1] templateId (CONF:CMS_1) such that it SHALL contain exactly one [1..1] @root="2.16.840.1.113883.10.20.27.1.2" (CONF:CMS_2).SHALL contain exactly one [1..1] @extension="2019-05-01" (CONF:CMS_3). (CMS2v10_5efe2268c1c388ac15576e69.debug_.1_.xml)

- **CYPRESS-1985**: Fixed master patient filter so that it does not timeout

<table>
<thead>
<tr>
<th>Filter Patients</th>
<th>Annual Update Bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type to search by measure</td>
<td>Alpha bundle for the 2020 Re</td>
</tr>
</tbody>
</table>

CMS111v9 - PopulationSet 1 Patients

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>DOB</th>
<th>Gender</th>
<th>IPOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z24 VTE</td>
<td>February 24, 1954</td>
<td>Male</td>
<td>1</td>
</tr>
<tr>
<td>A STROKE</td>
<td>March 7, 1943</td>
<td>Male</td>
<td>1</td>
</tr>
<tr>
<td>Z1 VTE</td>
<td>February 8, 1954</td>
<td>Male</td>
<td>1</td>
</tr>
<tr>
<td>S N ED</td>
<td>January 4, 1951</td>
<td>Female</td>
<td>1</td>
</tr>
<tr>
<td>2 ED</td>
<td>January 21, 2002</td>
<td>Female</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>
Software Updates
User Experience Improvements (cont.)

- **CYPRESS-2040**: Update test result dropdown to fix inaccurate times
  - All previous test runs were labelled with times to distinguish between test executions.
  - These times were labelled in UTC when they should be shown in the local time zone, so they appear to be off from the accurate time by the UTC offset.
  - Cypress will show these executions differently to not display the incorrect time.

![Image of Cypress test result dropdown with updated times]
Software Updates

HTML Improvements

- **CYPRESS-1958**: Export all missing attributes in the HTML patient representation
  - Several attributes representable in QRDA were not shown in the HTML exports for patients.
  - This was updated to support attributes such as participationPeriod, supply, requester, priority, methodCode, daysSupplied, and more.

```xml
<entryRelationship typeCode="REFR">
  <supply classCode="SPLY" moodCode="EVN">
    <!-- Days Supplied -->
    <templateId root="2.16.840.1.113883.10.20.24.3.157" extension="2018-10-01"/>
    <id root="6fc75044-6dc4-4ef6-b1e4-736c951cdfe4"/>
    <quantity value="10" unit="d"/>
  </supply>
</entryRelationship>
```

- **CYPRESS-2034**: Match patient IDs between QRDA and HTML patient files
  - Patient IDs in HTML files were previously different from the IDs used in the corresponding patient QRDA file. This has been fixed to match.
Software Updates
CVU+ and Vendor Patient Updates

- **CYPRESS-1961** and **CYPRESS-2037**: Sorting quantities fixed to sort by value rather than sorting as a string
  - Sorting results of type Quantity was previously done as a string comparison, rather than comparing the numeric quantities.
    - Example: “100 mmHg” would be considered to be less than (<) “80 mmHg”
  - Updated version compares the values (100 > 80) to determine order.
  - This doesn’t impact certification test patients, but it could impact calculation for CVU+ vendor patients.

- **CYPRESS-1980**: Select All option for vendor patient page

<table>
<thead>
<tr>
<th>Select</th>
<th>Patient Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Janet Kelly</td>
</tr>
<tr>
<td></td>
<td>JanetBad Kelly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select</th>
<th>Patient Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Janet Kelly</td>
</tr>
<tr>
<td></td>
<td>JanetBad Kelly</td>
</tr>
</tbody>
</table>

© 2020 The MITRE Corporation. All rights reserved. Approved for Public Release; Distribution Unlimited. Case Number 16-3054
Software Updates
CVU+ and Vendor Patient Updates (cont.)

- **CYGRESS-2042**: Clarify instructions for HL7 CVU+ tests
  - When HL7 only tests were added to the CVU+ program test section, the test details continued to show CMS program instructions.
  - Updated test interface shows the simpler instructions for HL7 only tests.
Software Updates
CVU+ and Vendor Patient Updates (cont.)

- **CYPRESS-2051**: Fix calculation issue for performance rates with denominator 0
  - For performance rates in QRDA-III documents, if the denominator has value 0, then the performance rate should be NA.
  - Previously, Cypress would give conflicting error messages showing that the performance rate should *not* be NA. Cypress now accepts the correct value or shows the correct error message as applicable.
  - This does not affect certification because no tests will have denominator with value 0.
Software Updates
Recent Features in Both v6 and v5

- Random address used for realistic test patient deduplication
  - Previously, Cypress created all patients with the same address.
  - Cypress creates patients with different addresses, where addresses will not be changed when duplicating patients.

```xml
<recordTarget>
  <patientRole>
    <id extension="5e9bfd19dfe4bd03bdf0fecf" root="1.3.6.1.4.1.115"/>
    <addr use="HP">
      <streetAddressLine>202 Burlington Rd.</streetAddressLine>
      <city>Bedford</city>
      <state>MA</state>
      <postalCode>01730</postalCode>
      <country>US</country>
    </addr>
    <telecom use="WP" value="tel:+1-781-271-3000"/>
  </patient>
</recordTarget>

<recordTarget>
  <patientRole>
    <id extension="5e9bfd19dfe4bd03bdf0fecf" root="1.3.6.1.4.1.115"/>
    <addr use="HP">
      <streetAddressLine>7478 Riverview Lane</streetAddressLine>
      <city>Massapequa</city>
      <state>NY</state>
      <postalCode>11758</postalCode>
      <country>US</country>
    </addr>
    <telecom use="WP" value="tel:+1-202-555-0165"/>
  </patient>
</recordTarget>
```
Software Updates
Recent Features in Both v6 and v5 (cont.)

- **C1 Record Sample tests “Incomplete” until first QRDA upload**

- **Before**

<table>
<thead>
<tr>
<th>Upload Results</th>
<th>C1 Upload Results</th>
<th>C3 Upload Results</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Not Started</td>
<td>○ Not Started</td>
<td>○ Not Started</td>
<td>○ Not Started</td>
</tr>
</tbody>
</table>

  **Data Criteria Verification**
  - CMS2v9 Preventive Care and Screening: Screening for Depression and Follow-Up Plan: **Failing**
  - CMS22v8 Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented: **Not Started**
  - CMS69v8 Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan: **Not Started**

- **After**

<table>
<thead>
<tr>
<th>Upload Results</th>
<th>C1 Upload Results</th>
<th>C3 Upload Results</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Not Started</td>
<td>○ Not Started</td>
<td>○ Not Started</td>
<td>○ Not Started</td>
</tr>
</tbody>
</table>

  **Data Criteria Verification**
  - CMS2v9 Preventive Care and Screening: Screening for Depression and Follow-Up Plan: **Incomplete**
  - CMS22v8 Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented: **Not Started**
  - CMS69v8 Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan: **Not Started**
## Software Updates

### Recent Features in Both v6 and v5 (cont.)

- **CYPRESS-1907**: Improved color contrast for expected results

### Before

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>Template Name</th>
<th>DOB</th>
<th>Gender</th>
<th>IPOP</th>
<th>DENOM</th>
<th>NUMER</th>
<th>DENEX</th>
<th>DENEXCEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constance Johnston</td>
<td>Z32 Heart Adult</td>
<td>February 13, 1950</td>
<td>Female</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Rick Gregory</td>
<td>Z12 GP Adult</td>
<td>February 3, 1972</td>
<td>Male</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Laurie Fleming</td>
<td>Z17 GP Adult</td>
<td>March 20, 1969</td>
<td>Female</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### After

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>Template Name</th>
<th>DOB</th>
<th>Gender</th>
<th>IPOP</th>
<th>DENOM</th>
<th>NUMER</th>
<th>DENEX</th>
<th>DENEXCEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis Boyd</td>
<td>Z12 GP Adult</td>
<td>February 3, 1972</td>
<td>Male</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Erik Bates</td>
<td>Z13 N GP Adult</td>
<td>February 13, 1972</td>
<td>Male</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Toni Stevenson</td>
<td>B (Independent Risk Factors 4)</td>
<td>September 1, 1965</td>
<td>Female</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>Cancer</td>
<td></td>
<td></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Carl Warren</td>
<td>A N BH Adult</td>
<td>January 1, 1978</td>
<td>Male</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Recent Issue

Cypress Known Issues Dashboard

- [https://oncprojecttracking.healthit.gov/support/secure/Dashboard.jspa?selectPageId=18000](https://oncprojecttracking.healthit.gov/support/secure/Dashboard.jspa?selectPageId=18000)
- The dashboard collects all labeled known issues in one place, sorted by Cypress version
- Easily navigate to the dashboard from the Cypress summary page

![Cypress Known Issues Dashboard](image)
# Cypress Versions

<table>
<thead>
<tr>
<th>Version</th>
<th>Dates</th>
<th>Measures Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>V6 Alpha</td>
<td>May 21, 2020</td>
<td>Initial support for QRDA Category 1 R5.2 and 2021 reporting/performance period eCQMs.</td>
</tr>
<tr>
<td>V6.0.0</td>
<td><strong>Anticipated July 23, 2020</strong></td>
<td>Support for QRDA Category 1 R5.2, Updated CMS IGs, and 2021 reporting/performance period eCQMs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bundle Version</th>
<th>Dates</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019.1.1</td>
<td>December 19, 2019</td>
<td>Cypress v5 only</td>
</tr>
<tr>
<td>V6 Alpha</td>
<td>May 21, 2020</td>
<td>Cypress v6 only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initial CQL-based measures released in 2020 for the 2021 reporting year.</td>
</tr>
<tr>
<td>2020.0.1</td>
<td><strong>Anticipated July 23, 2020</strong></td>
<td>Cypress v6 only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CQL-based measures released in 2020 for the 2021 reporting year.</td>
</tr>
</tbody>
</table>

*Cypress v4 and the 2018 bundle have been retired due to the end of the 2019 reporting period.*

Announcements

- **Now Available: Updated eCQM Data Element Repository (DERep) for 2021 Reporting and Performance Periods**
  - The eCQM Data Element Repository (DERep) now includes information for 2021 reporting and performance periods.
  - The eCQM DERep provides the data elements associated with eCQMs in CMS quality reporting programs, as well as the definitions for each data element. This information is intended to improve clarity for those implementing eCQMs.

- **CMS has published a guidance update for the Quality Data Model (QDM) version 5.5.** The referenced document clarifies some of the definitions and fixes minor errata noted in the document initially published to the eCQI Resource Center in August 2019.
OPEN DISCUSSION
Next Cypress Tech Talk

- Tuesday, July 28, 2020 at 1pm ET
- To join online, visit: https://global.gotomeeting.com/join/529898157
- To join via phone, dial: 1-646-749-3122
- Meeting Number: 529 898 157
- 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 Tech Talks 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

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

- CQL – Clinical Quality Language
- CVU – Cypress Validation Utility
- CVU+ – Cypress Validation Utility Plus Calculation Check
- EC – Eligible Clinician
- eCQM – Electronic Clinical Quality Measure
- EH – Eligible Hospital
- EP – Eligible Professional
- HL7 – Health Level Seven International
- IG – Implementation Guide
- QPP – Quality Payment Program
- QRDA – Quality Reporting Document Architecture