

# Cypress v3

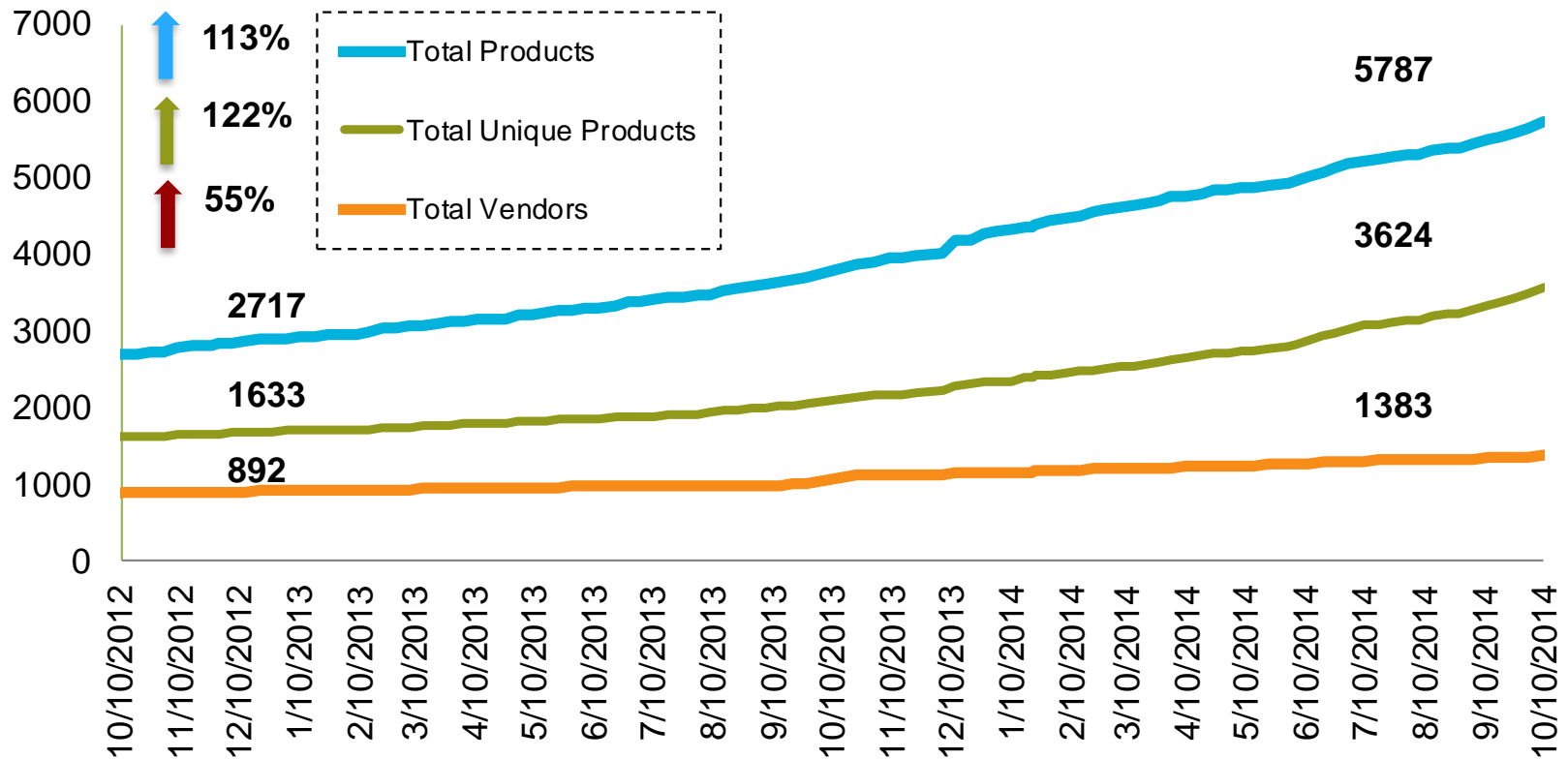
---

**Samuel Sayer**  
**The MITRE Corporation**  
**HIMSS 2017**

# Cypress

- **The Centers for Medicare & Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC) are focused on advancing the electronic clinical quality improvement ecosystem to move from manual, chart-based clinical quality measures to electronic clinical quality measures (eCQM).**
- **Cypress is the rigorous and repeatable testing tool for certifying Electronic Health Records (EHR) and EHR modules in the capture and calculation of eCQM.**
- **Cypress is open source and freely available for use or adoption by the health IT community including EHR vendors and testing labs.**

# Certified Health IT Products and Vendors



# Cypress Release Timeline



- **Vendor Feedback: Frequent releases causes frustration due to need to update.**
- **No more than two yearly releases going forward.**

*\* indicates release to support Annual Updates to eCQMs*

# Cypress Patient Test Deck

---

# V2 Test Deck

---

- **Test Deck**

- 36 Patients for Eligible Professional (EP) measures
- 20 Patients for Eligible Hospital (EH) measures

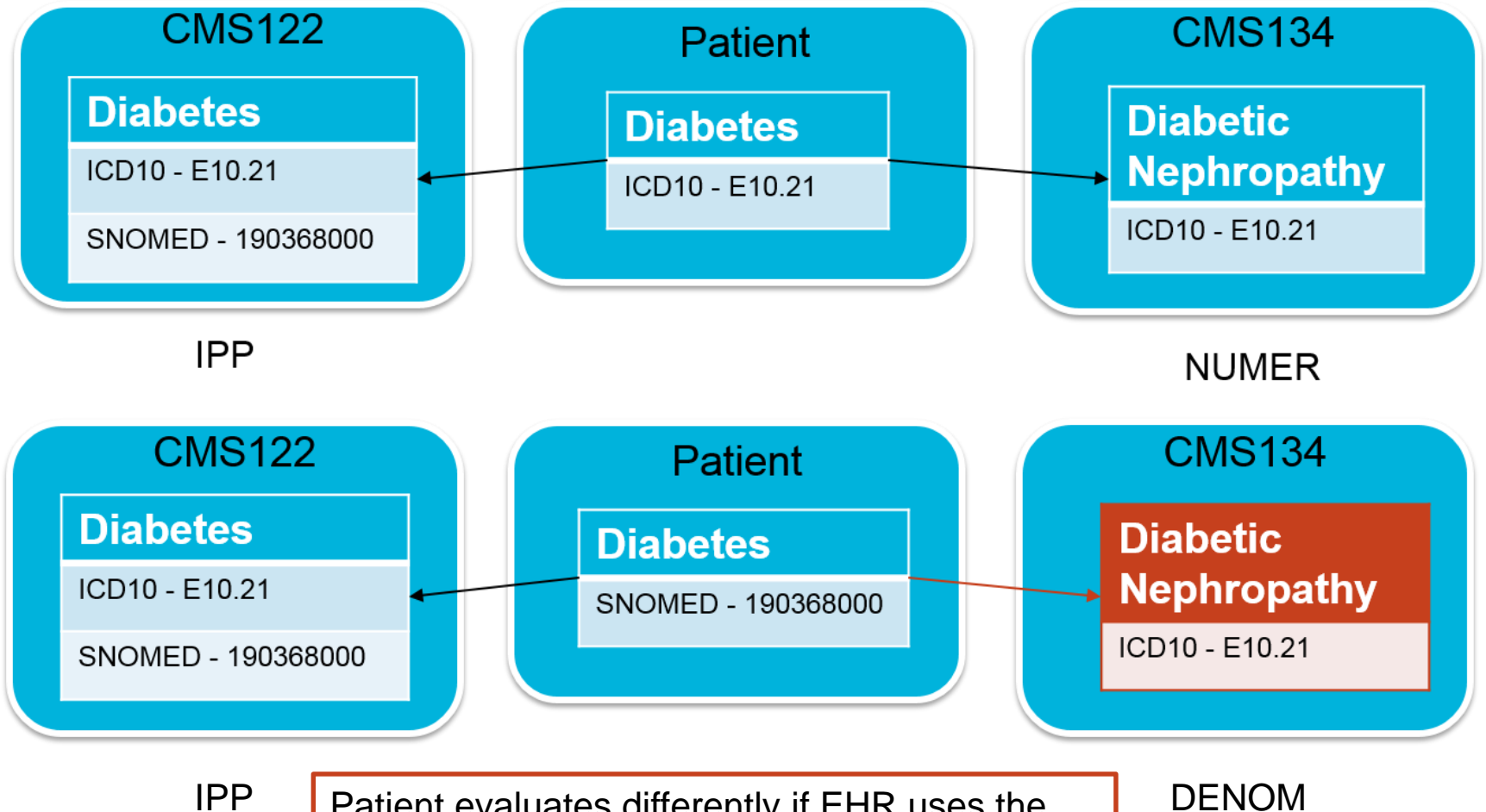
- **Coverage**

- Test at least one IPP, DENOM, and NUM for every measure
- DENEX / DENEXCEP only for Core measures

- **Rationale**

- Clinical Validity
- Manual Data Entry
- Value Set Crosswalk

# Crosswalk



Patient evaluates differently if EHR uses the “provided” Diabetes SNOMED code instead of the provided ICD10 code.

# V3 Test Deck(s)

---

- **Test Deck**
  - Separate test deck for every measure
  - 77 Patients for Eligible Professional (EP) measures
  - 72 Patients for Eligible Hospital (EH) measures
- **Coverage**
  - Minimum 80%
  - Every patient population covered by test deck
- **Rationale**
  - Desire for Increased Test Rigor
  - Clinical Validity
  - Automated Ingest of QRDA Category I documents



# Increased Rigor

Measure	Type	V2 Coverage	V3 Coverage
CMS132	EP	4%	<b>83%</b>
CMS133	EP	3%	<b>81%</b>
CMS18	EH	15%	<b>83%</b>
CMS188	EH	19%	<b>83%</b>
CMS190	EH	13%	<b>80%</b>

# 2015 EHR Certification Rule

---

# Test Procedures

## ■ V2

- C1: Capture & Export
  - Testing on a per measure basis
  - Data allowed from any selected measure
- C2: Import & Calculate
  - Testing across all selected measures
- C3: Submission
  - Testing baked into C1/C2 tests

## ■ V3

- C1: Record
  - Manual entry of patient data
- C1: Export
  - Testing on a per measure basis
- C2: Import and Calculate
  - Testing on a per measure basis
- C3: Report
  - Testing on a per measure basis
- C4: Data Filter
  - Patient/Provider attribute filtering

# 2015 EHR Certification Rule Goals

- Increased Test Rigor
- Modular/Optional Certification
- Automated Import/Export of QRDA Cat I
  
- ***“...Require that a system user be able to import CQM data formatted to the QRDA standard for one or multiple patients at any time the user chooses and without additional assistance to operate.”***
  
- ***“...Require that a system user be able to export CQM data formatted to the Quality Reporting Document Architecture (QRDA) Category I standard at any time the user chooses for one or multiple patients and without subsequent developer assistance to operate.”***
  - *2015 Edition Health Information Technology (Health IT) Certification Criteria, 62649*

# C1: Record

- **Still a need to test entry of data elements for C1**
- **Subset of data elements from selected measures**
- **Test entry of uncommon data elements**
- **No test patients supplied. Vendor tested only on codes and metadata for data criteria**

## Manual Entry Checklist

<b>CMS30v5 Statin Prescribed at Discharge</b>	<b>Failing</b>
<b>CMS100v4 Aspirin Prescribed at Discharge</b>	<b>Failing</b>
<b>CMS53v4 Primary PCI Received Within 90 Minutes of Hospital Arrival</b>	<b>Failing</b>
<b>CMS60v4 Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival</b>	<b>Failing</b>

### CMS30v5 Statin Prescribed at Discharge

Completed?	Description	Attributes
<input checked="" type="checkbox"/> Completed	Diagnosis, Active	Ordinal
<input type="checkbox"/> Completed	Encounter, Performed	Length of stay

# C1, C2, C3: Single Measure Tests

- Used for both C1, C2, and C3 certification
- Document Duplication
  - Future releases may increase complexity of duplication algorithm
- Additional validations based on common submission requirements
- Program specific submission errors displayed as warnings

Measure Information	C1 and C3	C2 and C3
<b>Measure:</b> Aspirin Prescribed at Discharge <b>CMS ID:</b> CMS100v4  <b>View Patients</b>	QRDA Errors -- Reporting Errors -- Submission Errors -- Execution Date --	QRDA Errors -- Reporting Errors -- Submission Errors -- Execution Date --  <b>start</b>

## 1 ⚡ Download Test Deck

Download and import this data into your EHR clinical quality measure calculator.

 Download QRDA Cat I (.zip)

## 2 ⚡ Upload files

Upload results from the EHR system in the form of a zip file of QRDA Category I documents to get test results. This will automatically run a test execution.

 Select file

# C4: Data Filter

## Filter Capabilities:

- Demographics
  - Race
  - Ethnicity
  - Gender
  - Payer
  - Age
- Problem List
- Provider
  - NPI
  - TIN
  - Practice Site

C1

C2

C3

C4

### Filter Information

**Measure:** Dementia: Cognitive Assessment

**CMS ID:** CMS149v4


**Ethnicities:** Not Hispanic or Latino (code: 2186-5)

**Races:** Black or African American (code: 2058-6)

### View Patients

#### 1 ⚡ Download Test Deck

Download and import this data into your EHR clinical quality measure calculator.

 Download QRDA Cat I (.zip)

# Testing C4 in Cypress v3

- **Uses patient population from a single measure**
- **Combination of demographic filters**
  - “All African-American Males”
  - “All Hispanics over the age of 65”
  - “All Medicaid patients under 30”
- **Problem List**
  - All patients that have a SNOMED code from a specified value set
- **Provider**
  - All patients that visited a specific provider, using a specific TIN at a single address

Patient	Race/Payer	Payer/Ethnicity	Diagnosis	Provider Location
Expected Patients	4	3	3	2
Reported Patients	4	3	3	2
Missing Patients	0	0	0	1
Unexpected Patients	0	0	0	1
Jennifer Doe	✓			
Holly Arthur			✓	
Joon Gianni	✓	✓		
Celeste Kim				✓
Alec Baldwin	✓		✓	
Shannon Thompson	✓			
Jessica Lee			✓	✗
Robin Williams		✓		
Hank Weinstein				
Theresa Blaine		✓		?
Melanie Johnson				





# Demo Server

- Hosted at <https://cypressdemo.healthit.gov>
- Available now!
- **Demo server will be updated as new features are available**
  - Requesting vendor feedback on frequency of updates/releases
- **Data may be deleted due to software updates**
- **Cypress v2 infrastructure to be retired 8/25/16**
  - Cypress v2 Demo Server
  - Cypress website will be retired and information will be moved to <https://cypress.healthit.gov>
- **Cypress 2.7.0 to be retired 3/11/16**
- **Cypress 2.6.1 will continue to be available for 2014 measures**
  
- **Please submit issues or suggestions to GitHub**
  - <https://github.com/projectcypress/cypress/issues>
  - JIRA will continue to be used for production Cypress versions

# Pre-Certification Testing

- **Cypress API**
  - REST API for performing certification tests
  - Goal is to allow vendors to perform all certification tests using only the API (apart from C1 Manual Entry Checklist)
  - Estimated availability in late March
  - Exploring building Cypress client SDKs
    - Need vendor input on languages/environments
- **Controlled Testing**
  - Non-randomized patient data
  - Disable de-duplication
- **Validation Utility features built into Cypress**
  - Measure calculation results included

# Other Planned Features

---

- **Roles and permissions system**
  - Allows ATLS to offer public Cypress instance with certification data available to vendors
- **Cypress Administration Dashboard**
  - Monitor status of test creation / calculation
  - Manage installed Cypress bundles
  - Manage users and access
- **Responsive UI**
  - Works with displays from tablet to 4K
  - 508 Compliant
- **Cypress Submission Toolbox**
  - Features from Cypress Validation Utility built into Cypress v3

# Demo

---

# Questions

---

# Keep in Touch

---

- **Cypress Talk List**
  - [project-cypress-stalk@googlegroups.com](mailto:project-cypress-stalk@googlegroups.com)
- **Cypress Bi-Weekly Tech Talks**
  - Next session March 15, 2016
- **ONC JIRA**
  - <http://jira.oncprojecttracking.org>
- **GitHub**
  - <https://www.github.com/projectcypress/cypress>