



# cypress

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## An Open Source Clinical Quality Measure Testing and Certification Tool



*Health in the 21<sup>st</sup> Century*

**MITRE**

# Goals

- Proposed to be the rigorous and repeatable testing tool of Electronic Health Records (EHRs) and EHR modules in calculating Meaningful Use (MU) Stage 2 Clinical Quality Measures (CQMs)
- CQM certification criteria addressed by Cypress include:
  - Capture and Export – the capability of EHR technology to create a data file that can be incorporated by another EHR technology which could be used to calculate CQMs
  - Import and Calculate – the capability of EHR technology to incorporate data (from another EHR technology where necessary) and correctly calculate the result for CQMs
  - Electronic Submission – the capability of EHR technology to create a standard data file that can be electronically accepted by the Centers for Medicare and Medicaid Services (CMS)

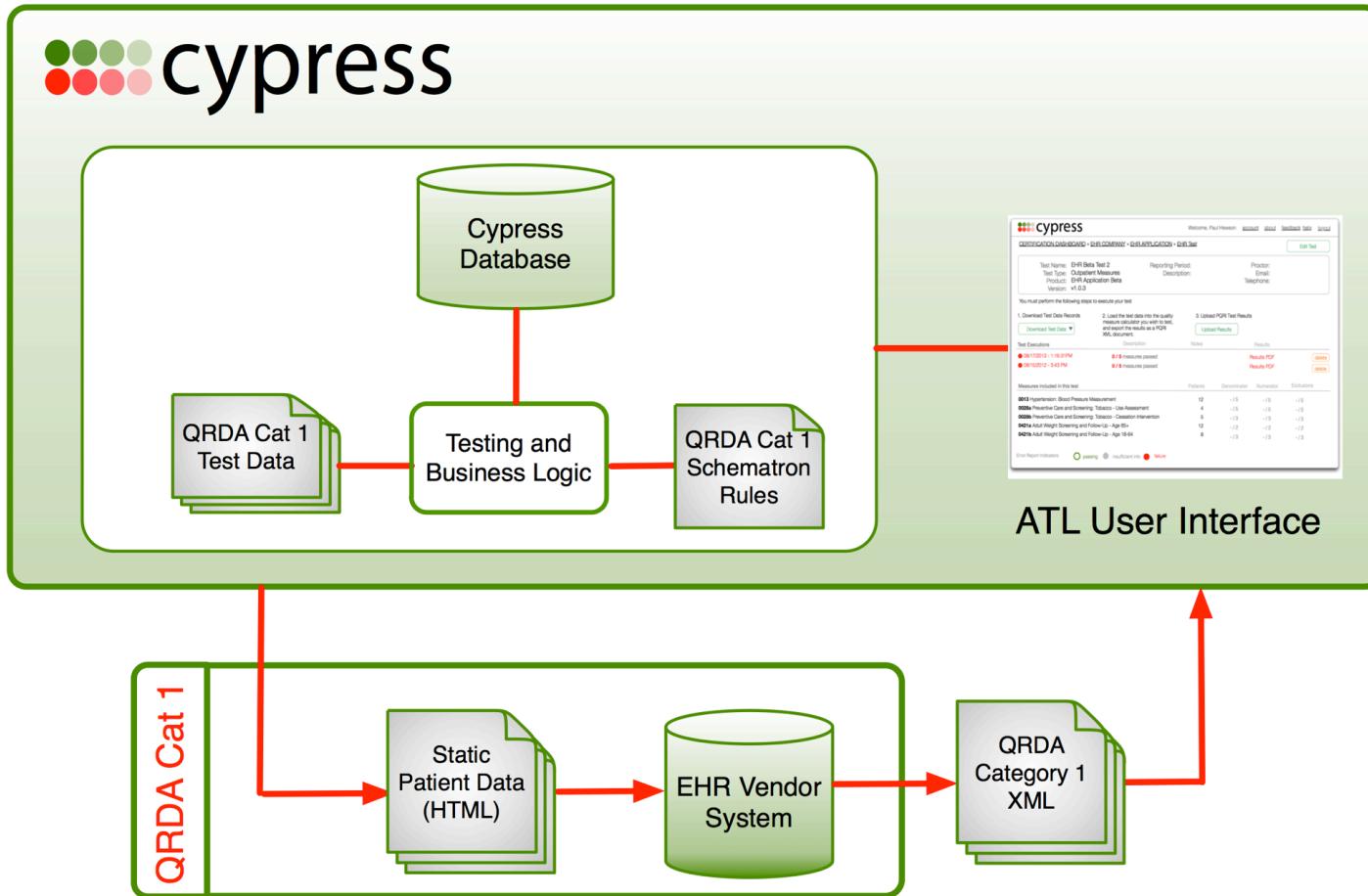
# Test Capabilities

- Cypress v2 provides 4 tests in support of CQM certification:
  1. Extensible Markup Language (XML) Data conformance testing of the Quality Reporting Document Architecture (QRDA) **Category 1** standard for individual patient-level data used for CQM calculation
  2. XML Data conformance testing of the QRDA **Category 3** standard for aggregate reporting of CQM calculation
  3. Accuracy calculation testing of the Meaningful Use Stage 2 Eligible Provider (**EP**) CQMs
  4. Accuracy calculation testing of the Meaningful Use Stage 2 Eligible Hospital (**EH**) CQMs

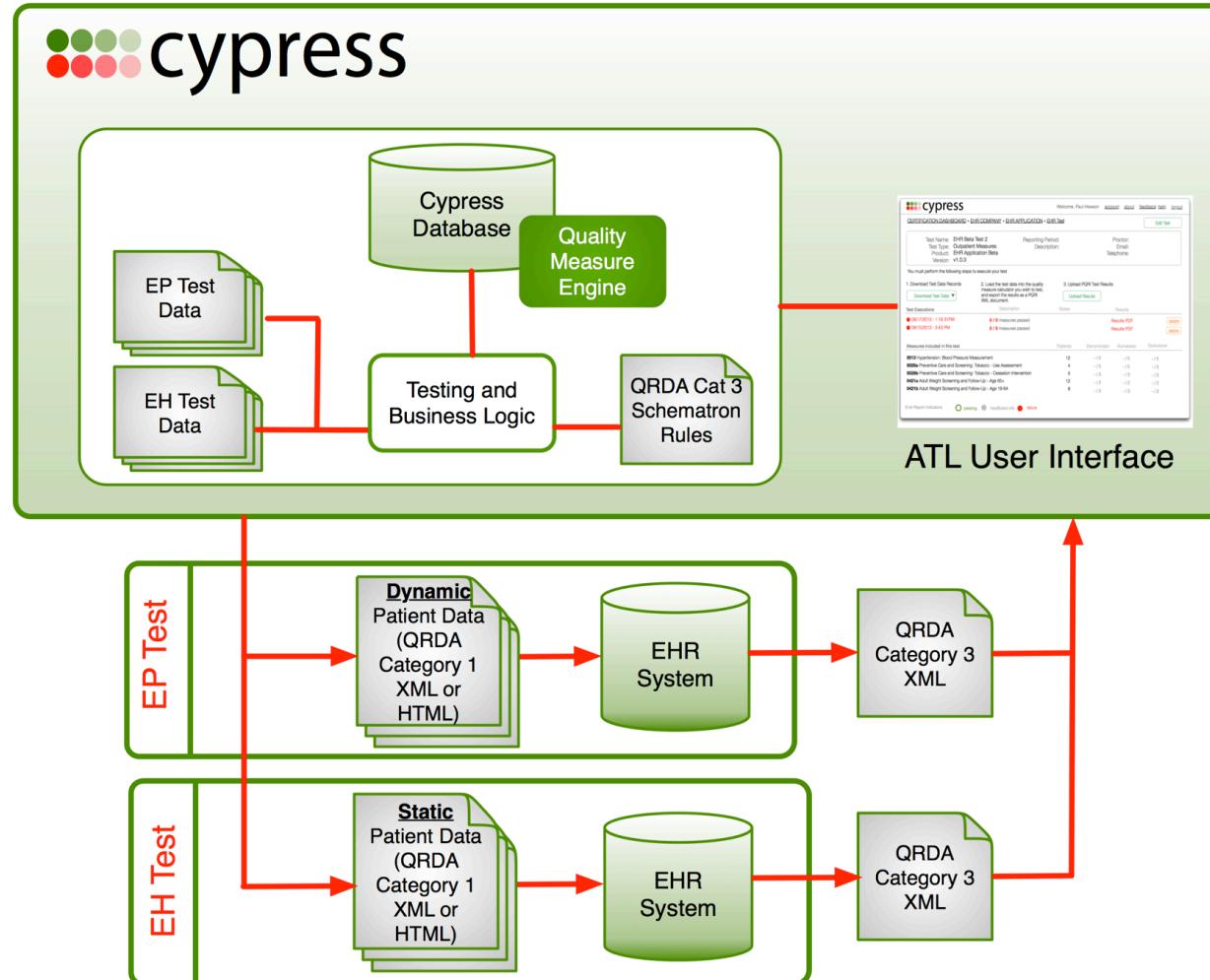
# Intended Users

- Authorized Testing Labs (ATLs)
- Planned to serve as the official testing tool for the 2014 EHR Certification program supported by the Office of the National Coordinator for Health IT (ONC)
- Cypress is open source and freely available for use or adoption by the health IT community, including EHR vendors and authorized testing labs
  - Any EHR vendor may use Cypress to pre-test software packages for certification readiness
  - EHR vendors will have access to not only the Cypress service, but also the underlying source code
  - Provides transparency and accessibility to the underlying Cypress software for federal stakeholders

# Concept of Operations Capture and Export



# Concept of Operations Import, Calculate, Electronic Submission



# Cypress v2 ATL Test Proctor Workflow

- Test Proctor will be the sole user to interact with Cypress v2 interface
- Test Proctor will work with EHR vendor (possibly remotely, possibly face-to-face) to identify CQMs to be tested under the various testing modes
- Test Proctor will provide all Cypress patient test inputs to EHR vendor
- Test Proctor will be responsible for overseeing the EHR vendor's capture/import/export during the test
- Test Proctor will be responsible for uploading any artifacts from the EHR into Cypress
  - QRDA Category 1 XML
  - QRDA Category 3 XML
- To Be Determined (TBD) - Federal stakeholder policy decision whether the ATL Test Proctor will have the ability to "manually override" Cypress test results in the Cypress tool

# What is a Passing Grade in Cypress?

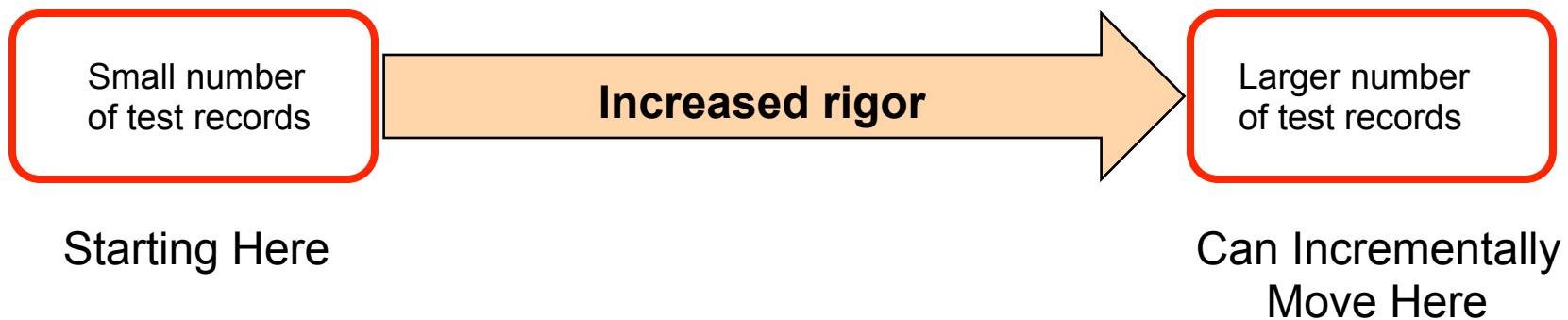
- For QRDA Category 1 and Category 3 Schematron validation:
  - Any errors constitute a failure
  - Any warnings constitute a warning
  - Cypress will highlight where in the XML the Schematron errors and warnings were encountered to allow EHR vendor to fix software issue in their product
- For CQM accuracy calculation:
  - EHR vendors will have to have the exact summary CQM results in QRDA Category 3 XML
    - For example, if the CQM expected 2 patients in numerator and 5 in denominator, then any value other than 2/5 will constitute a failure
    - Cypress will be able to provide the full details of the patients that were expected for the 2 numerator results and 5 denominator results to allow an EHR vendor to either dispute the result or to fix software issue in their product

# Cypress v2 Certification Test Data Overview

- **Expected results for a set of known patients - Authoritative**
  - Conformance with standards and accuracy of CQM calculation
- **Maximum confidence from minimum data entry**
  - Minimize vendors' manual data entry burden
- **3 Cypress test decks include:**
  - QRDA Category 1 Test Data for verifying conformance with the QRDA Category 1 standard
  - EP CQM Test Data for certification testing of accurate calculation of EP measures
  - EH CQM Test Data for certification testing of accurate calculation of EH measures
- **Certification is a spot check of vendor performance – *not* an exhaustive test**

# Cypress v2 Patient Test Data

- Level of confidence in accuracy of CQM calculations
  - Support manual entry of test records by vendors
  - Support future capability for automated import of test data
  - MITRE is working to balance EHR manual entry burden with rigor in exercising various logical paths through CQMs



# Cypress v2 Patient Test Data

- How long will it take to test an EHR vendor with Cypress?
  - Currently an unknown, and will be valuable information to collect in beta pilots in early Dec 2012 with ATL and EHR vendors
- Manual Data Entry
  - Time to load patient data dependent on the number of CQMs that the EHR vendors wants to be certified for
  - Estimate to fully test all 64 of the EP CQMs and all 29 EH CQMs for both QRDA Validation and CQM Calculation Accuracy is approximately 2 days for manual data entry of the approximately 200 patient records
  - Fully automated import of Cypress patient data will radically reduce this time to a few minutes

# QRDA Category 1 and 3 Validation

- MITRE is integrating testing files developed by a contractor into Cypress v2
  - Schematron XML validation rules
  - Errors cause failure
  - Warnings are notified to ATL user, but do not fail EHRs

## QRDA Category 1 Validation

- Patient-level data

## QRDA Category 3 Validation

- Aggregate-level data

# EP CQM CALCULATION TEST

# MU Stage 2 EP Test Deck

- **Draft version of the Cypress EP Test Data consists of 37 patients**
  - At least 2 DEN and 1 NUM patient for each of the 64 EP CQMs
  - Cypress is not testing all the Multi-Numerator permutations
  - Cypress is testing a portion of the Exclusion logic by including at least one path through each of the *Recommended Core* EP CQMs
  - Exception logic was not targeted at this time
- **Range is from 1 to 34 data points per patient**
- **This work and the patient records are currently being vetted by MU Stage 2 measure stewards**

# Measure Pathway Example

- Sample mapping of a pathway through the *Cholesterol Screening – Risk measure logic* to the Cypress Test patient data on the right

## Population criteria

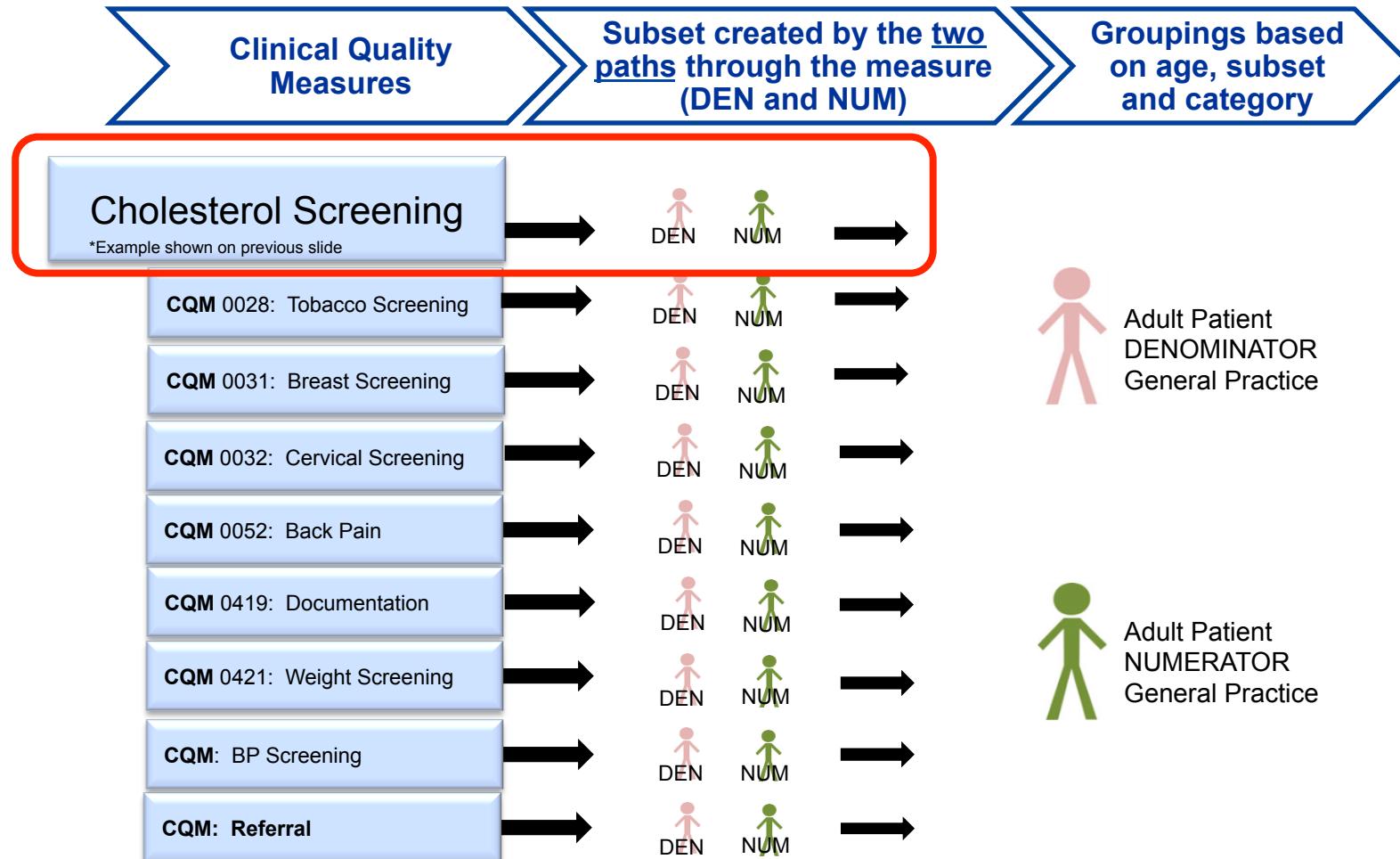
----- Population Criteria 1 ----- <High Risk>

- Initial Patient Population 1 = <Patients are 20-80 years old at start of measurement period, plus encounter>
  - AND: "Occurrence A of Encounter, Performed: Cholesterol Measure Encounter Codes" during "Measurement Period"
  - AND:
    - AND: "Patient Characteristic Birthdate: birth date"  $\geq$  20 year(s) starts before start of "Measurement Period"
    - AND: "Patient Characteristic Birthdate: birth date"  $<$  80 year(s) starts before start of "Measurement Period"
- Denominator 1 =
  - AND: "Initial Patient Population 1"
  - AND: <fasting LDL-C or a calculated LDL-C test>
    - OR: "Laboratory Test, Performed: LDL Test" during "Measurement Period"
    - OR:
      - AND: "Laboratory Test, Performed: Total Cholesterol"
      - AND: "Laboratory Test, Performed: High Density Lipoprotein (HDL)"
      - AND: "Laboratory Test, Performed: Triglycerides"
      - during "Measurement Period"
  - AND:
    - OR: "Diagnosis, Active: CHD or CHD Risk Equivalent" starts before or during "Occurrence A of Encounter, Performed: Cholesterol Measure Encounter Codes" <CHD or CHD Risk Equivalent>
    - OR:

Cypress Test Patient data will be listed in this column:

- Patient has a cholesterol encounter
- Patient is 45 years old
- Patient has an LDL test
- Patient is diagnosed with CHD

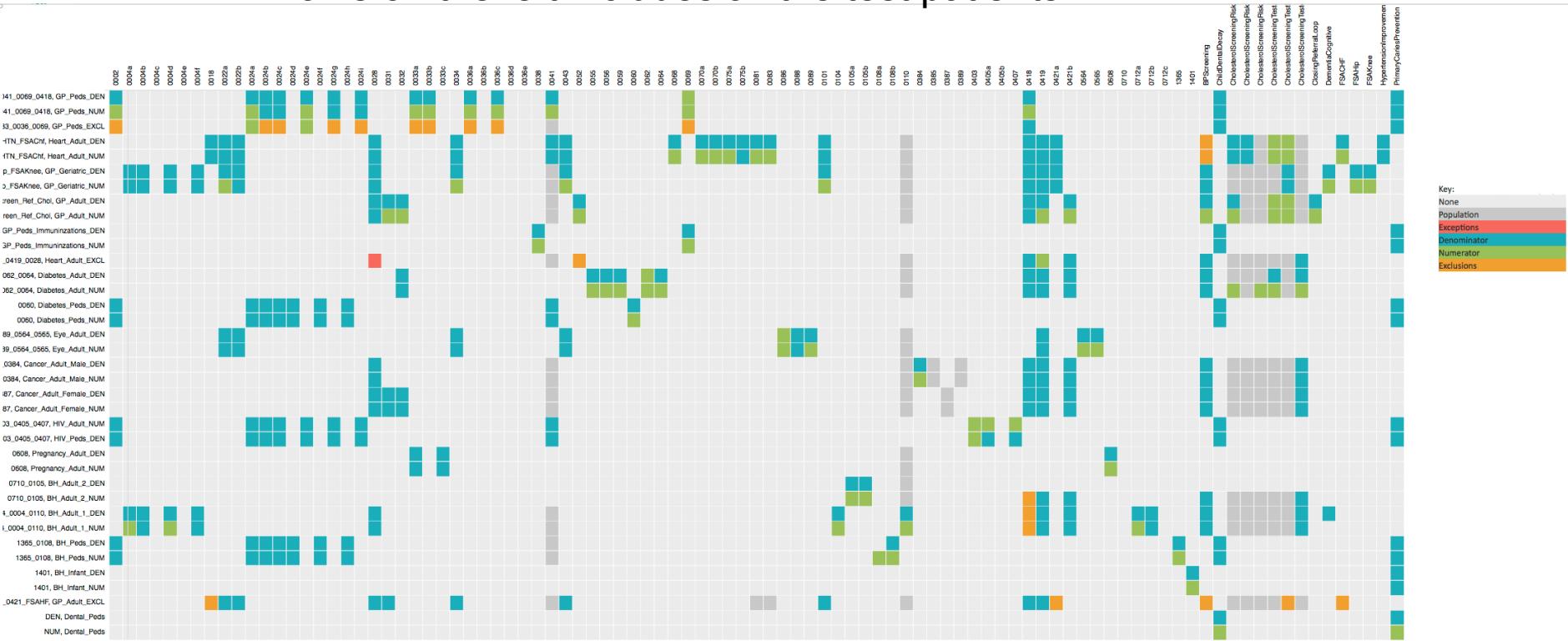
# Measure Pathway Grouping Example



# Cypress Test Data Alignment

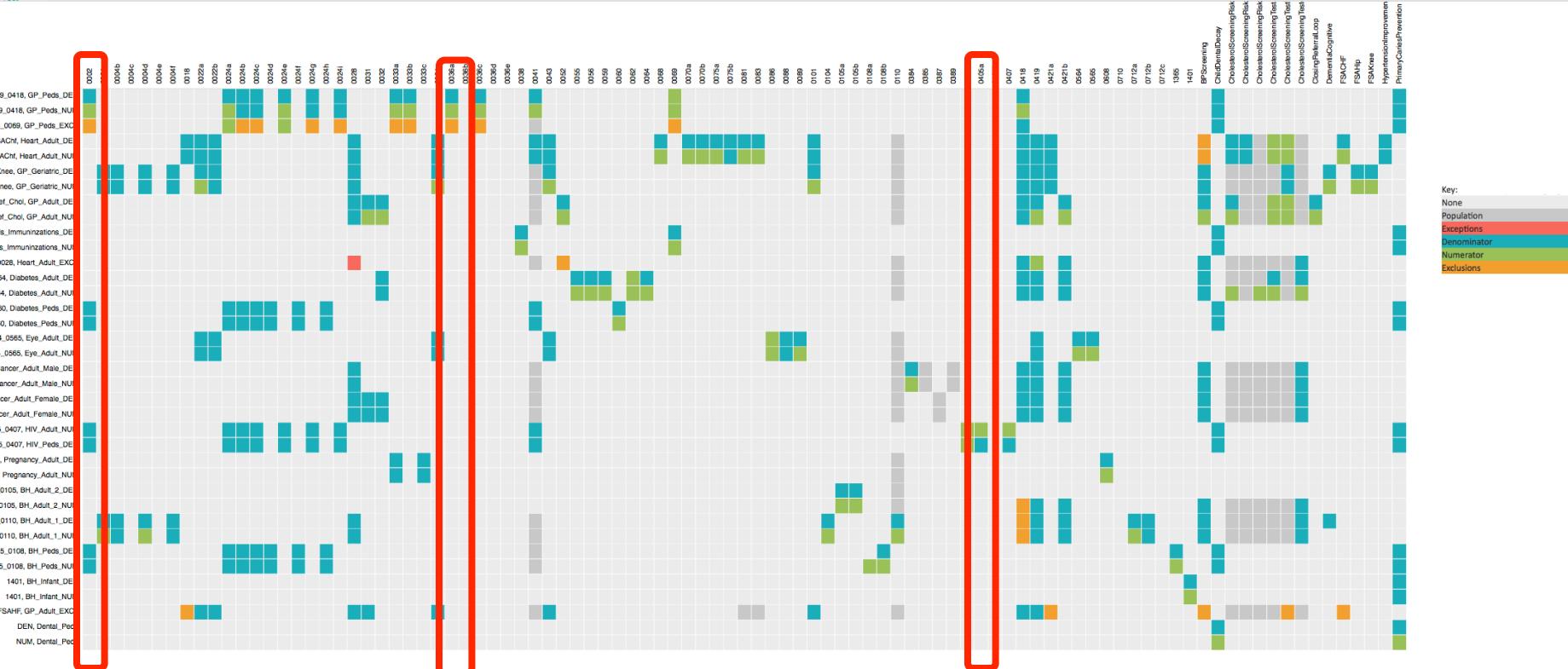


- Below is a matrix of the Cypress MU Stage 2 EP Test Data applied against the MU EP CQM space
    - X-axis on the top includes all the MU CQMS
    - Y-axis on the left includes all the test patients



# Measure Selection

- Measures selected by vendor will determine which patients to use... assume these 3 EP CQMs are selected



# Patient Identification

- Cypress will identify 9 patients that can exercise numerator/denominator and some exclusion for the 3 CQMs



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# Patient Matching

- When possible, Cypress will remove additional patients if other patients can provide more coverage and still have 1 numerator and 2 denominator matches



# Final Test Patients

- These 5 patients can now provide a minimal test to exercise the 3 selected EP CQMs



# Testing Randomization

## ■ Guarding against gamesmanship with randomization

- Cypress will introduce some variability and randomness by “cloning” a patient that meets numerator logic for each CQM
- Final randomization for EP Data will be ready for January release
  - Random removal of conditions/encounters/medications/etc. from “cloned” patient
  - Random modification of values like blood pressure (BP)/labs from “cloned” patient
- Cypress v2 Quality Measure Engine (QME) software is key to this recalculation of randomized data
  - Machine executable logical code driven from the Healthcare Quality Measure Format (HQMF) definitions of the EP CQMs on CMS site
  - Capable of recalculating expected results for any of the EP CQMs
  - Capable of calculating results for any part of the EP CQMs

# EH TEST DATA

# MU Stage 2 EH Test Deck

- Requires manual inspection of the 29 EH CQMs by MITRE staff and measure stewards
- Draft version of the EH Test Data currently consists of 21 patients covering 29 measures
  - At least 2 DEN and 1 NUM patient per measure
- MITRE is currently reviewing to verify results of test data to the EH measures as well as updating patients according to any logic changes
  - EH measures have less overlap in the populations than the EP measures
  - Result is a higher patient to measure ratio in the EH deck just to test denominator and numerator pathways
- EH CQM testing will not be dynamic/random until April 2013 because the Quality Measure Engine will not be enhanced to support non numerator/denominator CQM calculation

# QRDA CATEGORY 1 TEST DATA

# QRDA Category 1 Test Data

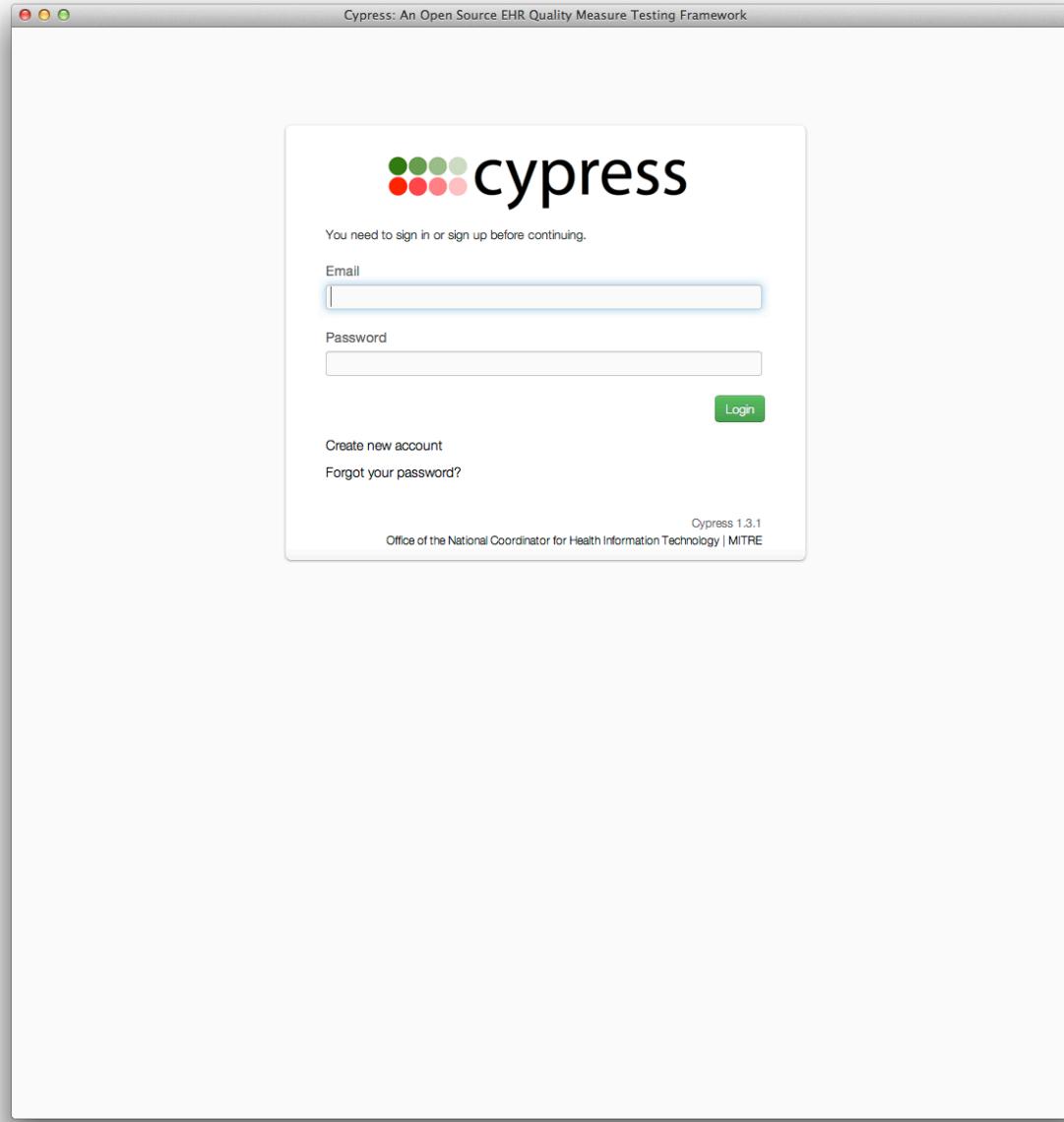
- Cypress presents a single patient record to fully exercise all clinical attributes in a CQM for generation of a single QRDA Category 1 XML document
- These patient records represent all the clinical attributes which could be used for a CQM, and are not designed to be realistic patient records

# TESTING AND PILOTS

# Cypress v2 Testing and Pilots

- Cypress v2 Beta Pilots
  - Require both ATL **and** EHR vendor
  - Meant to test both workflow but also maturity of Cypress software
  - Ideally, pilots start early December 2012
  - EHR vendor readiness for December and MU Stage 2 CQMs and data standards is a risk to this plan
  - ATL feedback is welcome on this plan

# EP TEST SCREENSHOTS



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\* First name

\* Last name

\* Email

Telephone

\* Password  Must be at least 5 characters long.

\* Password confirmation

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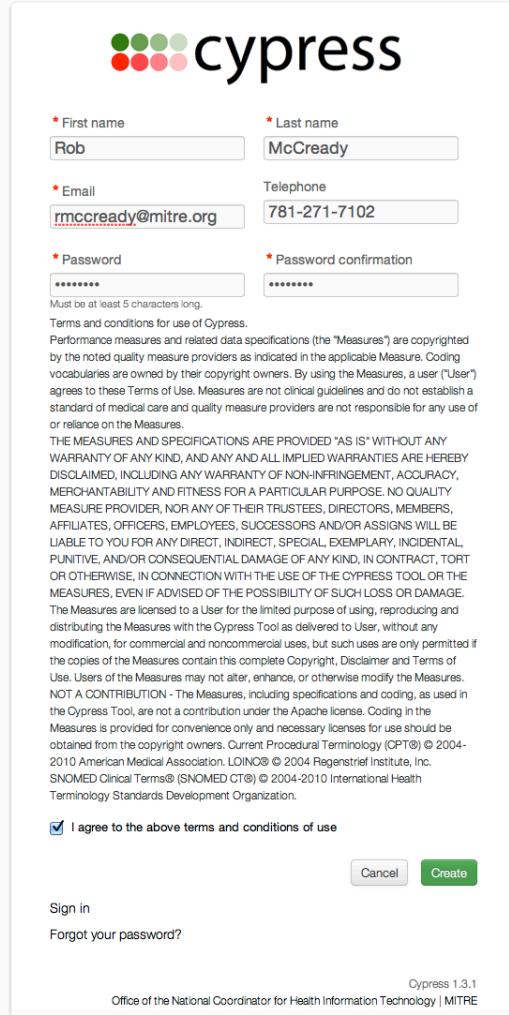
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\* Email      Telephone  
     

\* Password      \* Password confirmation  
        
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## CERTIFICATION DASHBOARD » CREATE NEW VENDOR

### Vendor Information

\* Vendor Name:

EHR POC:

Vendor ID:

Email:

Url:

Phone:

Address:

Fax:

State:

ZIP:

### alternate POCS

Main EHR POC:

Technical POC:

Email:

Email:

Phone:

Phone:

Press POC:

Email:

Email:

Phone:

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**CERTIFICATION DASHBOARD**

**Candidate EHR:** EHR Vendor 4  
**Vendor ID:**  
**URL:** [www.ehrvendor4.com](http://www.ehrvendor4.com)

**EHR POC:** Fred Simpson  
**Email:** [fsimpson@ehrvendor4.com](mailto:fsimpson@ehrvendor4.com)  
**Phone:** 555-555-5555

**PRODUCTS**

There are no products for this vendor. [Add Product](#)

Error Report Indicators: ○ passing ● insufficient info ● failing

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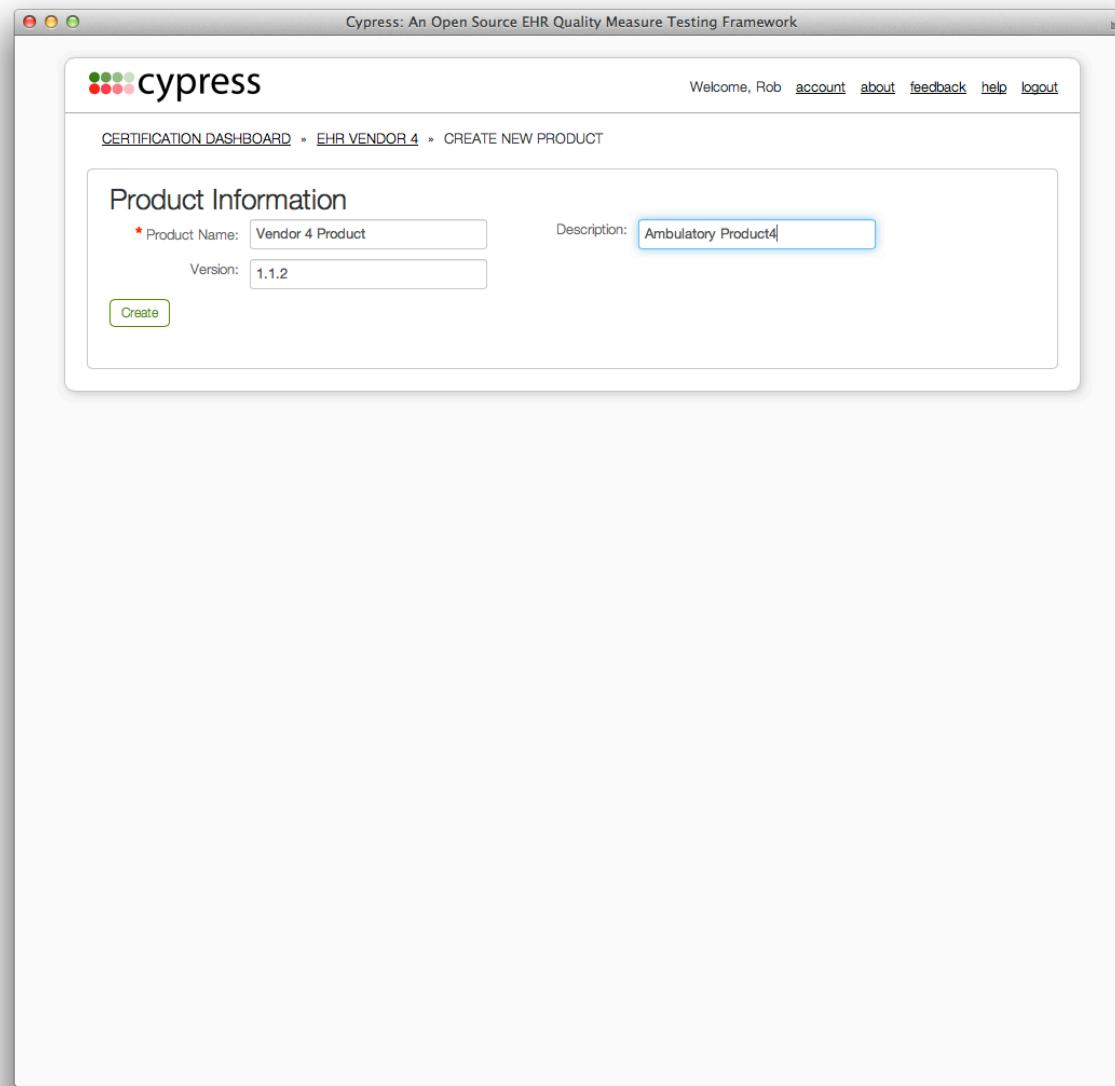
CERTIFICATION DASHBOARD » EHR VENDOR 4 » CREATE NEW PRODUCT

### Product Information

\* Product Name:

Description:

Version:

A screenshot of a web-based application window titled "Cypress: An Open Source EHR Quality Measure Testing Framework". The window shows a "CERTIFICATION DASHBOARD" with a breadcrumb trail "EHR VENDOR 4" and "CREATE NEW PRODUCT". The main content area is titled "Product Information" and contains three input fields: "Product Name" (Vendor 4 Product), "Description" (Ambulatory Product4|), and "Version" (1.1.2). A "Create" button is at the bottom of the form. The overall interface has a clean, modern design with a light gray background and white form elements.

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**CERTIFICATION DASHBOARD**

**Candidate EHR:** EHR Vendor 4  
**Vendor ID:**  
**URL:** [www.ehrvendor4.com](http://www.ehrvendor4.com)

**EHR POC:** Fred Simpson  
**Email:** [fsimpson@ehrvendor4.com](mailto:fsimpson@ehrvendor4.com)  
**Phone:** 555-555-5555

**PASSING PRODUCTS** **DESCRIPTION** **TESTS**

<input checked="" type="radio"/> Vendor 4 Product	Ambulatory Product4	0 / 0	<a href="#">Delete</a>
---------------------------------------------------	---------------------	-------	------------------------

Error Report Indicators:  passing  insufficient info  failing

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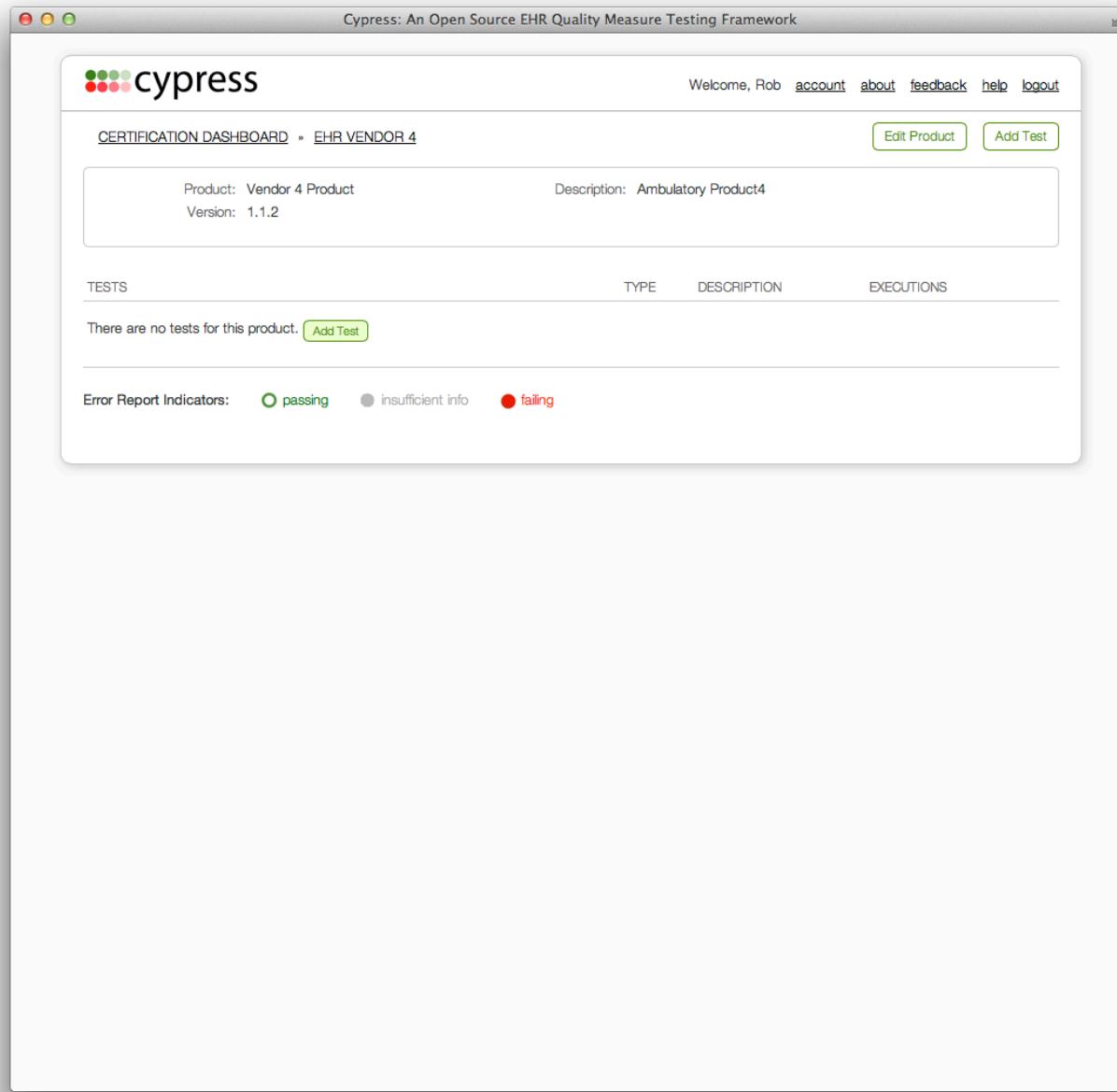
[CERTIFICATION DASHBOARD](#) > [EHR VENDOR.4](#)

Product: Vendor 4 Product      Description: Ambulatory Product4  
Version: 1.1.2

[Edit Product](#) [Add Test](#)

TESTS	TYPE	DESCRIPTION	EXECUTIONS
There are no tests for this product. <a href="#">Add Test</a>			

Error Report Indicators:  passing  insufficient info  failing



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[Back](#) Step 1 of 2 [Next](#)

Describe the test...

\* Test Name:

Reporting Period: from 10/01/2010 to 01/01/2011

Description: All of the Meaningful Use Stage 2 Eligible Professional Clinical Quality Measures

Test Type:  Outpatient - to test quality measures for Eligible Professionals (EP)  
 Inpatient - to test quality measures for Eligible Hospitals (EH)  
 QRDA Category I - to test using the QRDA Category I format

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[Back](#) Step 2 of 2 [Done](#)

You must choose at least one quality measure.

Identify **at least one** quality measure to test from the list of available measures for this product...

all quality measures

ADE	
<input type="checkbox"/> all ADE measures	
<input type="checkbox"/> ADE_TTR - ADE Prevention and Monitoring: Warfarin Time in Therapeutic Range	
ADHD	
Alcohol and Drug	
Asthma	
Back Pain	
Blood Pressure	
CAD	
Cancer	
Cataracts	
Cholesterol	
Dementia	
Dentistry	
Depression	
Diabetes	
Diabetic Retinopathy	
Elderly	
Falls	
Glaucoma	
HF	
HIV	

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Identify **at least one** quality measure to test from the list of available measures for this product...

all quality measures

ADE	1	<input checked="" type="checkbox"/> all ADE measures
ADHD	1	<input checked="" type="checkbox"/> ADE_TTR - ADE Prevention and Monitoring: Warfarin Time in Therapeutic Range
Alcohol and Drug	1	
Asthma	1	
Back Pain	1	
Blood Pressure	1	
CAD	1	
Cancer	6	
Cataracts	2	
Cholesterol	1	
Dementia	1	
Dentistry	2	
Depression	6	
Diabetes	3	
Diabetic Retinopathy	2	
Elderly	1	
Falls	1	
Glaucoma	1	
HF	2	
HIV	1	
Home Health	1	

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Back Step 2 of 2 Done

Identify **at least one** quality measure to test from the list of available measures for this product...

all quality measures

ADE	1	<input checked="" type="checkbox"/> all Depression measures
ADHD	1	<input checked="" type="checkbox"/> 0710 - Depression Remission at Twelve Months
Alcohol and Drug	1	<input checked="" type="checkbox"/> 0105 - Anti-depressant Medication Management
Asthma	1	<input checked="" type="checkbox"/> 1365 - Child and Adolescent Major Depressive Disorder (MDD): Suicide Risk Assessment
Back Pain	1	<input checked="" type="checkbox"/> 0712 - Depression Utilization of the PHQ-9 Tool
Blood Pressure	1	<input checked="" type="checkbox"/> 1401 - Maternal Depression Screening
CAD	1	<input checked="" type="checkbox"/> 0104 - Major Depressive Disorder (MDD): Suicide Risk Assessment
Cancer	6	
Cataracts	2	
Cholesterol	1	
Dementia	1	
Dentistry	2	
Depression	6	
Diabetes	3	
Diabetic Retinopathy	2	
Elderly	1	
Falls	1	
Glaucoma	1	
HF	2	
HIV	1	
Homeless	1	

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CERTIFICATION DASHBOARD » EHR VENDOR.4

Product: Vendor 4 Product Description: Ambulatory Product4  
Version: 1.1.2

Edit Product Add Test

INCOMPLETE TESTS	TYPE	DESCRIPTION	EXECUTIONS
<input checked="" type="radio"/> All MU Stage 2 EP CQMs	EP	All of the Meaningful Use Stage 2 Eligible Professional Clinical Quality Measures	<a href="#">Delete</a>

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Test Name: All MU Stage 2 EP CQMs	Reporting Period: 10/01/2010 - 01/01/2011	Proctor: Rob McCready
Test Type: EP	Description: All of the Meaningful Use Stage 2 Eligible Professional Clinical Quality Measures	Email: rmccready@mitre.org
Product: Vendor 4 Product		Telephone: 781-271-7102
Version: 1.1.2		

You must perform the following steps to execute your test:

1. Download Test Data
2. Load Test Data into your quality measure calculator
3. Upload Results

[Test Data](#) [Upload Results](#)

Notes:  [add note](#)

TEST EXECUTIONS	DESCRIPTION	RESULTS
There are no test executions		

Error Report Indicators:  **passing**  insufficient info  **failing**

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Test Name: All MU Stage 2 EP CQMs Reporting Period: 10/01/2010 - 01/01/2011 Proctor: Rob McCready  
Test Type: EP Description: All of the Meaningful Use Email: rmccready@mitre.org  
Product: Vendor 4 Product Stage 2 Eligible Professional Telephone: 781-271-7102  
Version: 1.1.2 Clinical Quality Measures

You must perform the following steps to execute your test:

1. Download Test Data
2. Load Test Data into your quality measure calculator
3. Upload Results

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ITIONS	DESCRIPTION	RESULTS
test executions		

Indicators: ○ passing ● insufficient info ● failing

Open "[http://wiggy.mitre.org:3000/product\\_tests/5089a9143054cf1a12000357/download.html](http://wiggy.mitre.org:3000/product_tests/5089a9143054cf1a12000357/download.html)" in a new tab

Test\_5089a9143054cf1a12000357

	Name	Date Modified	Size	Kind
	0_10_11_12_Eye_Adult_NUM_0086_0088_0089_0564_0565.html	Today 5:21 PM	25 KB	HTM
	1_10_11_12_Cancer_Adult_Male_DEN_0385_0389_0384.html	Today 5:21 PM	26 KB	HTM
	2_10_11_12_Diabetes_Adult_N...5_0056_0059_0062_0064.html	Today 5:21 PM	17 KB	HTM
	3_10_11_12_GP_Adult_DEN_00...0421_BPScreen_Ref_Chol.html	Today 5:21 PM	27 KB	HTM
	4_10_11_12_GP_Peds_DEN_000...3_0036_0041_0069_0418.html	Today 5:21 PM	27 KB	HTM
	5_10_11_12_Diabetes_Peds_NUM_0060.html	Today 5:21 PM	15 KB	HTM
	6_10_11_12_BH_Infant_DEN_1401.html	Today 5:21 PM	8 KB	HTM
	7_10_11_12_GP_Geriatric_DEN_...ementia_FSAHip_FSAKnee.html	Today 5:21 PM	20 KB	HTM
	8_10_11_12_Dental_Peds_DEN.html	Today 5:21 PM	8 KB	HTM
	9_10_11_12_Heart_Adult_DEN_..._0083_0075_HTN_FSAChf.html	Today 5:21 PM	31 KB	HTM
	10_10_11_12_Pregnancy_Adult_DEN_0608.html	Today 5:21 PM	8 KB	HTM
	11_10_11_12_BH_Peds_DEN_1365_0108.html	Today 5:21 PM	15 KB	HTM
	12_10_11_12_GP_Peds_Immunicizations_DEN_0038.html	Today 5:21 PM	8 KB	HTM
	13_10_11_12_Cancer_Adult_Female_DEN_0387.html	Today 5:21 PM	16 KB	HTM
	14_10_11_12_HIV_Peds_DEN_0403_0405_0407.html	Today 5:21 PM	14 KB	HTM
	15_10_11_12_Eye_Adult_DEN_0086_0088_0089_0564_0565.html	Today 5:21 PM	18 KB	HTM
	16_10_11_12_Diabetes_Peds_DEN_0060.html	Today 5:21 PM	12 KB	HTM
	17_10_11_12_GP_Peds_Immunicizations_NUM_0038.html	Today 5:21 PM	74 KB	HTM
	18_10_11_12_BH_Infant_NUM_1401.html	Today 5:21 PM	10 KB	HTM
	19_10_11_12_Dental_Peds_NUM.html	Today 5:21 PM	13 KB	HTM
	20_10_11_12_Pregnancy_Adult_NUM_0608.html	Today 5:21 PM	16 KB	HTM
	21_10_11_12_GP_Geriatric_NUM...Dementia_FSAHip_FSAKnee.html	Today 5:21 PM	36 KB	HTM
	22_10_11_12_BH_Peds_NUM_1365_0108.html	Today 5:21 PM	23 KB	HTM
	23_10_11_12_Cancer_Adult_Male_NUM_0385_0389_0384.html	Today 5:21 PM	28 KB	HTM
	24_10_11_12_HIV_Peds_NUM_0403_0405_0407.html	Today 5:21 PM	18 KB	HTM
	25_10_11_12_Cancer_Adult_Female_NUM_0387.html	Today 5:21 PM	24 KB	HTM
	26_10_11_12_Diabetes_Adult_...55_0056_0059_0062_0064.html	Today 5:21 PM	11 KB	HTM
	27_10_11_12_BH_Adult_1_DEN_0712_0104_0004_0110.html	Today 5:21 PM	21 KB	HTM
	28_10_11_12_GP_Adult_NUM_0...0421_BPScreen_Ref_Chol.html	Today 5:21 PM	45 KB	HTM
	29_10_11_12_Heart_Adult_NUM_0...1_0083_0075_HTN_FSAChf.html	Today 5:21 PM	40 KB	HTM
	30_10_11_12_GP_Peds_NUM_0...3_0036_0041_0069_0418.html	Today 5:21 PM	42 KB	HTM
	31_10_11_12_BH_Adult_1_NUM_0712_0104_0004_0110.html	Today 5:21 PM	29 KB	HTM
	32_10_11_12_BH_Adult_2_DEN_0710_0105.html	Today 5:21 PM	17 KB	HTM
	33_10_11_12_BH_Adult_2_NUM_0710_0105.html	Today 5:21 PM	21 KB	HTM
	34_10_11_12_GP_Peds_EXCL_0...4_0033_0036_0069_0108.html	Today 5:21 PM	40 KB	HTM
	35_10_11_12_GP_Adult_EXCL_18_FSAHF.html	Today 5:21 PM	17 KB	HTM
	36_10_11_12_Heart_Adult_EXCL_0052_0418_0419_0028.html	Today 5:21 PM	18 KB	HTM

Cypress Certification Patient Test Record: 10\_11\_12\_GP\_Geriatric\_DEN 0022\_0043\_0101\_0034\_Dementia\_FSAHip\_FSAKnee

Cypress Certification Patient Test Record: 10\_11\_12\_GP\_Geriatric\_DEN  
0022\_0043\_0101\_0034\_Dementia\_FSAHip\_FSAKnee

Patient	10_11_12_GP_Geriatric_DEN 0022_0043_0101_0034_Dementia_FSAHip_FSAKnee		
Date of birth	January 2nd, 1943 19:30	Sex	Male
Contact info	Primary Home: 202 Burlington Rd. Bedford, MA 01730 Tel: +1-781-271-3000	Patient IDs	5089a9153054cf1a120003ae Cypress
Document Id	5089a9153054cf1a120003ae 2.16.840.1.113883.3.72		
Document Created:	October 25th, 2012 21:21		
Author	Auto Generated		
Contact info	Tel: +1-781-271-3000		
Document maintained by	Cypress		
Contact info	202 Burlington Rd. Bedford, MA 01730 Tel: +1-781-271-3000		

**View By Encounter**

**Diagnoses**

Description	Codes	Time	Status	Results	Fields
Diagnosis, Active: Dementia & Mental Degenerations (Code List: 2.16.840.1.113883.3.526.3.1005)	<b>ICD-9-CM: 094.1</b> <b>ICD-10-CM: A52.17</b> <b>SNOMED-CT: 281004</b>	January 29th, 2010 05:00 - January 29th, 2010 05:00	active		causeOfDeath: () free_text: () name: () ordinality: () ordinality_code: () priority: () severity: () specifics: () type: ()

**Encounters**

Description	Codes	Time	Status	Results	Fields
Office Visit (Code List: 2.16.840.1.113883.3.464.1003.101.12.1001)	<b>CPT: 99201</b>	August 1st, 2009 04:00 - August 1st, 2009 04:00	performed		admitType: () admit_time: () dischargeDisposition: () discharge_time: () free_text: () performer_id: () specifics: ()
Office Visit (Code List: 2.16.840.1.113883.3.464.1003.101.12.1001)	<b>CPT: 99201</b>	October 1st, 2009 04:00 - October 1st, 2009 04:00	performed		admitType: () admit_time: () dischargeDisposition: () discharge_time: () free_text: () performer_id: () specifics: ()
Office Visit (Code List: 2.16.840.1.113883.3.464.1003.101.12.1001)	<b>CPT: 99201</b>	January 29th,	performed		admitType: ()

Fri: 63°F Sat: 63°F Sun: 54°F Mon: 51°F

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Test Name: All MU Stage 2 EP CQMs	Reporting Period: 10/01/2010 - 01/01/2011	Proctor: Rob McCreedy
Test Type: EP	Description: All of the Meaningful Use Stage 2 Eligible Professional Clinical Quality Measures	Email: rmcready@mitre.org
Product: Vendor 4 Product		Telephone: 781-271-7102
Version: 1.1.2		

You must perform the following steps to execute your test:

1. Download Test Data
2. Load Test Data into your quality measure calculator
3. Upload Results

[Test Data](#) [Upload Results](#)

Notes:

TEST EXECUTIONS  
There are no test executions

Error Report Indicators:  passing

**Upload Results**

1. Results File [Choose File](#)

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Test Name: All MU Stage 2 EP CQMs Reporting Period: 10/01/2010 - 01/01/2011 Proctor: Rob McCready  
 Test Type: EP Description: All of the Meaningful Use Email: rmccready@mitre.org  
 Product: Vendor 4 Product Stage 2 Eligible Professional Telephone: 781-271-7102  
 Version: 1.1.2 Clinical Quality Measures

You must perform the following steps to execute your test:

1. Download Test Data      2. Load Test Data into your quality measure calculator      3. Upload Results

[Test Data](#) [Upload Results](#)

Notes:  [add note](#)

TEST EXECUTIONS	DESCRIPTION	RESULTS
2012-10-25 21:24:52 UTC		<a href="#">Results</a>

TEST RESULTS

PASSING MEASURES

MEASURES INCLUDED IN THIS TEST	PATIENTS	DENOMINATOR	DEN. EXCLUSIONS	NUM. EXCLUSIONS	EXCEPTIONS
HypertensionImprovement - Hypertension: Improvement in Blood Pressure	0/0	0 / 0	0 / 0	0 / 0	- / - /
FSACHF - Functional Status Assessment for Complex Chronic Conditions	3/3	33 / 2	0 / 1	1 / 1	- / - /
ClosingReferralLoop - Closing the referral loop: receipt of specialist report	2/2	2 / 2	- /	1 / 1	- / - /
0608 - Pregnant women that had HBsAg testing	2/2	2 / 2	- /	1 / 1	- / - /
0043 - Pneumonia Vaccination Status for Older Adults	5/5	5 / 5	- /	1 / 1	- / - /
0086 - Primary Open Angle Glaucoma (POAG): Optic Nerve Evaluation	2/2	43 / 2	- /	1 / 1	- / - /
0083 - Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	3/3	2 / 2	- /	1 / 1	- / - /
PrimaryCariesPrevention - Primary Caries Prevention Intervention as Offered by Primary Care Providers, including Dentists	15/15	15 / 15	- /	1 / 1	- / - /
ChildDentalDecay - Children Who Have Dental Decay or Cavities	15/15	15 / 15	- /	1 / 1	- / - /
1365 - Child and Adolescent Major Depressive Disorder (MDD): Suicide Risk Assessment	3/3	3 / 3	- /	1 / 1	- / - /
1401 - Maternal Depression Screening	2/2	2 / 2	- /	0 / 0	- / - /
0101 - Falls: Screening for Future Fall Risk	5/5	5 / 5	- /	1 / 1	- / - /
0088 - Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy	2/2	2 / 2	- /	1 / 1	- / - /
0000 - Bulk All Data - No Data Available	0/0	0 / 0	- /	- /	- /

Cypress: An Open Source EHR Quality Measure Testing Framework

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CERTIFICATION DASHBOARD » EHR VENDOR 4

Product: Vendor 4 Product Description: Ambulatory Product4  
Version: 1.1.2

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FAILING TESTS	TYPE	DESCRIPTION	EXECUTIONS
● ► All MU Stage 2 EP CQMs	EP	All of the Meaningful Use Stage 2 Eligible Professional Clinical Quality Measures	<a href="#">Delete</a>

Error Report Indicators:  passing  insufficient info  failing