
eQuality





Educational Webinar: *Quality Reporting Document Architecture (QRDA)*

Overview of Category I and III Reports

April 16, 2013

12:00 pm – 1:30 pm ET

Housekeeping

- Today's webinar is being recorded and will be made available for future viewing from the CMS website within one week.
- Electronic copies of the slides will be available for download from the CMS website within one week.
- You may verbally ask questions during the webinar by entering your unique audio PIN and raising your hand so your line can be unmuted.
- You may also type your questions into the webinar question queue.
- Please do not put your line on hold.
- Please mute your line when you are not speaking.

Objectives

- Understand QRDA and its relationship to the end-to-end quality reporting process
- Discuss how to create QRDA documents using Meaningful Use Stage 2 quality measure examples
- Review QRDA tools and resources that can support implementation
- Understand QRDA errata, including status and management process

Faculty

Gaye Dolin, MSN, RN
Chief Information Analyst
Lantana Consulting Group



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QRDA in Meaningful Use 2 (MU2)

§ 170.314 (c) Clinical Quality Measures	
(1) Clinical quality measures—capture and export	
(i) Capture	For each and every CQM for which the EHR technology is presented for certification, EHR technology must be able to electronically record all of the data identified in the standard specified at § 170.204(c) that would be necessary to calculate each CQM. Data required for CQM exclusions or exceptions must be codified entries, which may include specific terms as defined by each CQM, or may include codified expressions of “patient reason,” “system reason,” or “medical reason.”
(ii) Export	EHR technology must be able to electronically export a data file formatted in accordance with the standards specified at § 170.205(h) that includes all of the data captured for each and every CQM to which EHR technology was certified under paragraph (c)(1)(i) of this section.
(2) Clinical quality measures—import and calculate	
(i) Import	EHR technology must be able to electronically import a data file formatted in accordance with the standard specified at § 170.205(h) and use such data to perform the capability specified in paragraph (c)(2)(ii) of this section. EHR technology presented for certification to all three of the certification criteria adopted in paragraphs (c)(1) through (3) of this section is not required to meet paragraph (c)(2)(i).
(ii) Calculate	EHR technology must be able to electronically calculate each and every clinical quality measure for which it is presented for certification.
(3) Clinical quality measures—electronic submission	
	Enable a user to electronically create a data file for transmission of clinical quality measurement data: (i) In accordance with the standards specified at § 170.205(h) and (k); and (ii) That can be electronically accepted by CMS.

What is QRDA?

Quality Document Reporting Architecture (QRDA) is a Clinical Document Architecture (CDA)-based standard for reporting patient quality data for one or more quality measures.

*QRDA Category I (QRDA-I): Single-patient Report

QRDA Category II (QRDA-II): Patient List Report

*QRDA Category III (QRDA-III): Aggregate Report

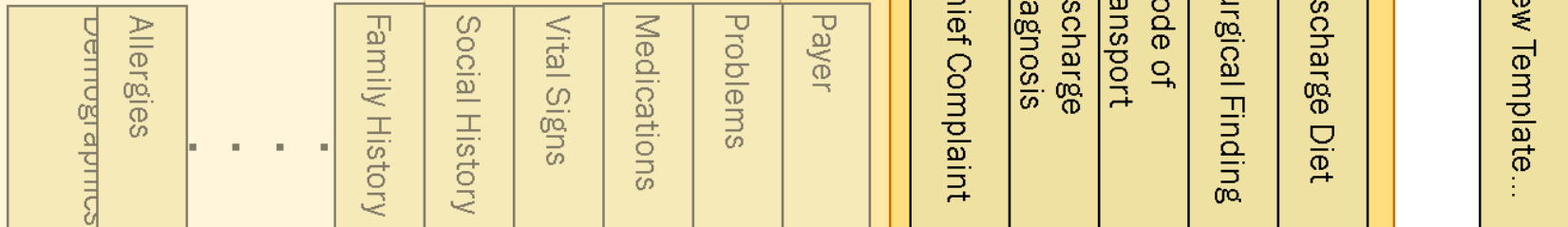
*Draft Standards for Trial Use (DSTUs)

QRDA – a Kind of Templated CDA

A QRDA document using Clinical Care Document (CCD) templates plus others

A CDA document using CCD templates

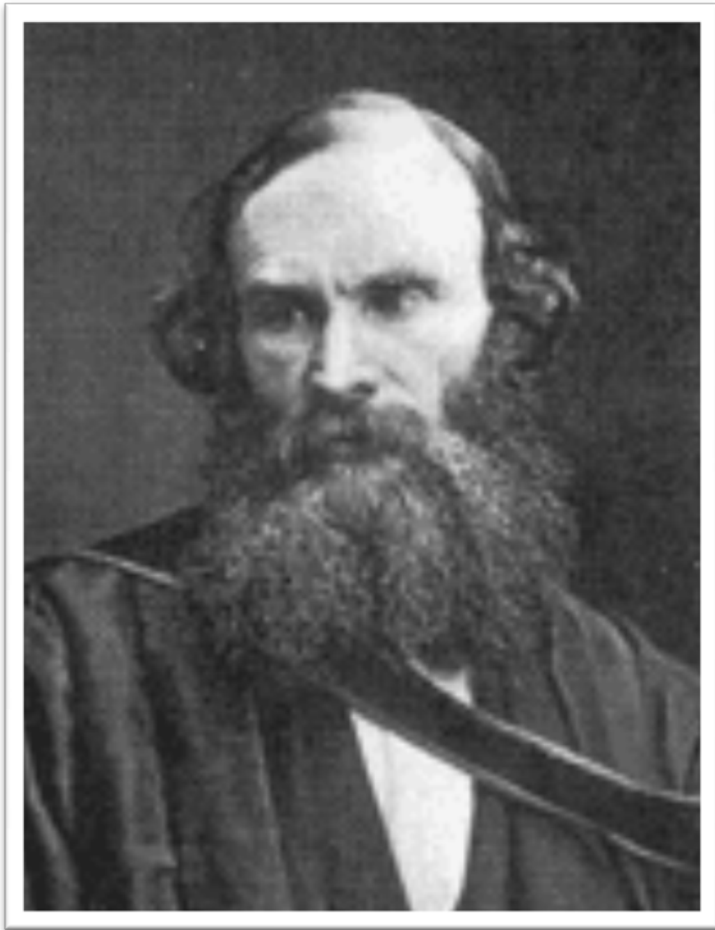
CCD



CDA

Big Picture – Quality Reporting

Standards are a Prerequisite to Functionality



*“If you cannot measure it,
you cannot improve it.”*

Lord Kelvin (1824-1907)

*“If you cannot standardize
it, you cannot measure it.”*

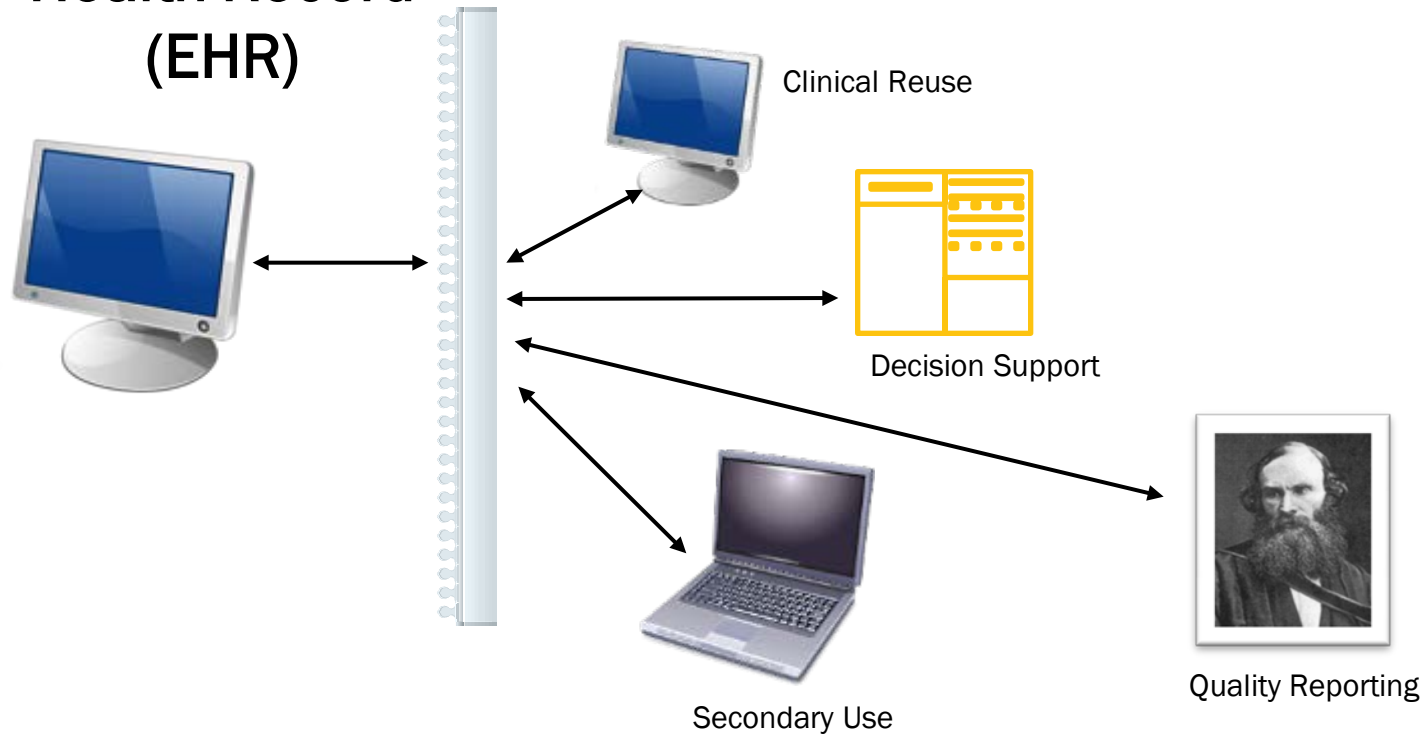


Bob Dolin (2011)

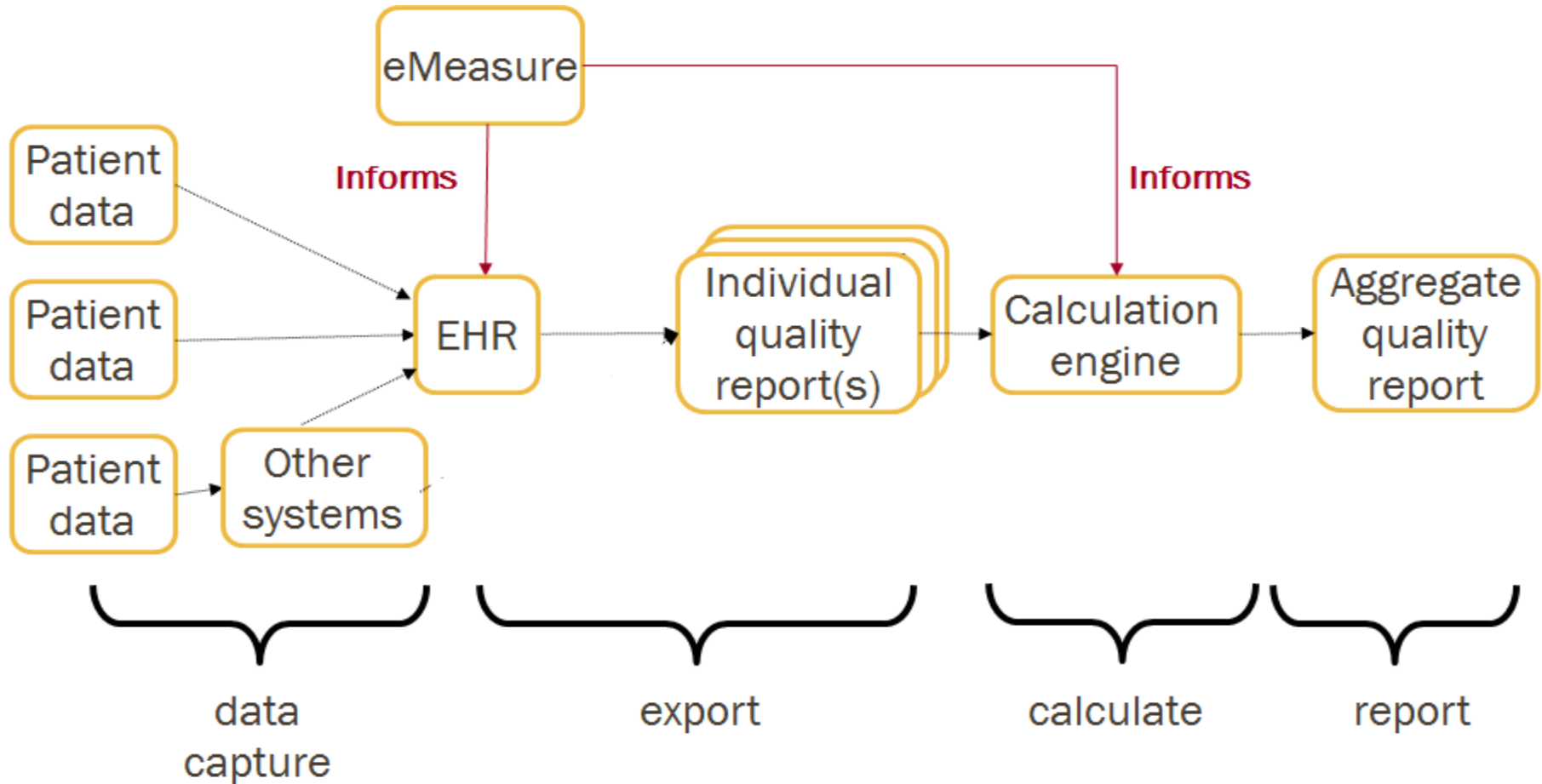
MU2 – Big-picture View

MU-certified
Electronic
Health Record
(EHR)

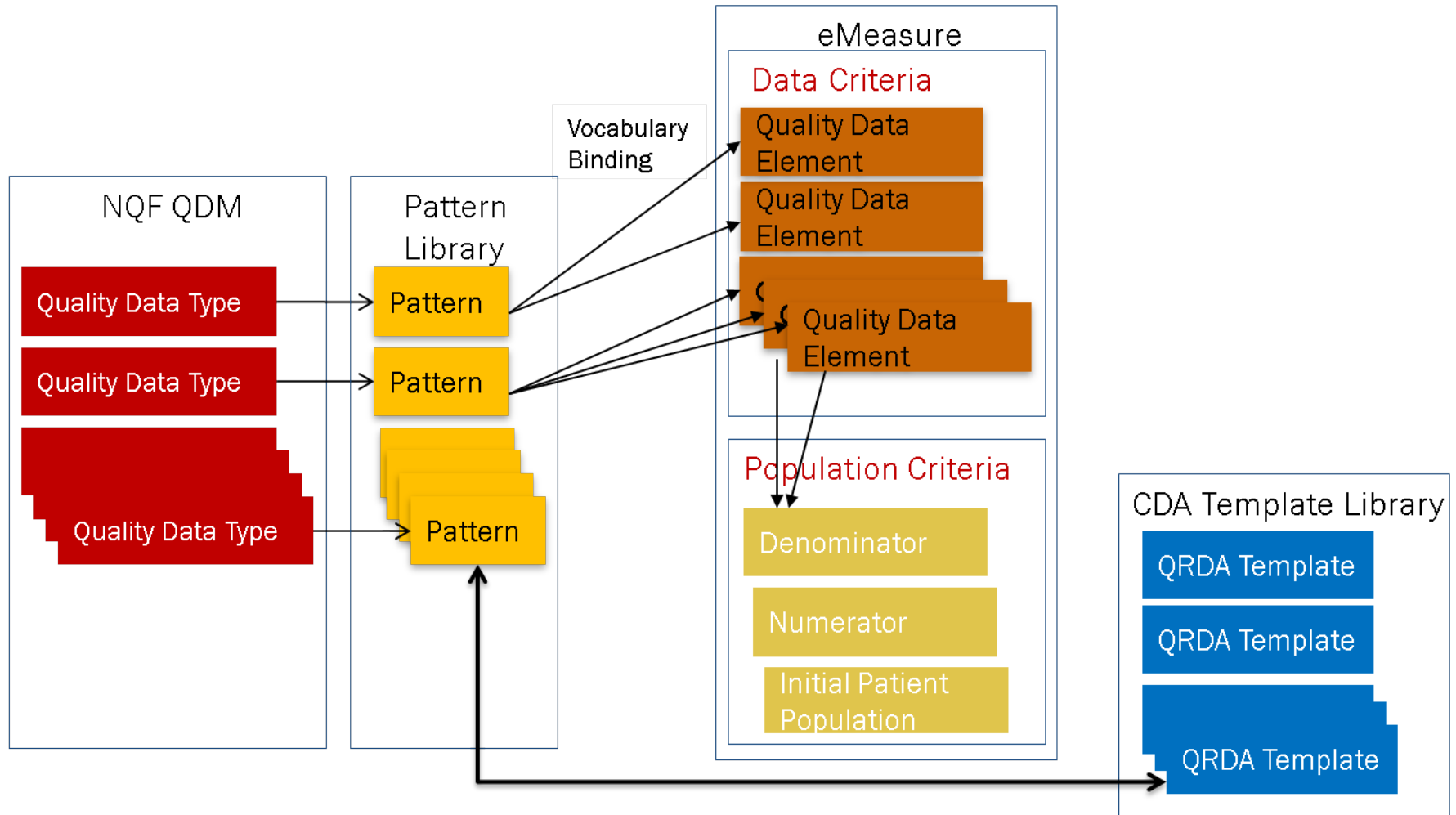
Meaningful Use of EHR
Data



MU2 and Quality Reporting



MU2 – Integrated Standards



Creating QRDA's

Eligible Provider (EP) eMeasure – Colorectal Cancer Screening

eMeasure Title	Colorectal Cancer Screening		
eMeasure Identifier (Measure Authoring Tool)	130	eMeasure Version number	1
NQF Number	0034	GUID	aa2a4bbc-864f-45ee-b17a-7ebcc62e6aac
Measurement Period	January 1, 20xx through December 31, 20xx		
Measure Steward	National Committee for Quality Assurance		
Measure Developer	National Committee for Quality Assurance		
Endorsed By	National Quality Forum		
Description	Percentage of adults 50-75 years of age who had appropriate screening for colorectal cancer.		

QRDA-I for EP eMeasure: Colorectal Cancer Screening

QRDA Incidence Report



Patient	Mr. Adam Everyman		
Date of birth	November 25, 1954	Sex	Male
Contact info	Primary Home: 17 Daws Rd. Blue Bell, MA 02368, US Tel:  (781)555-1212 	Patient IDs	12345 2.16.840.1.113883.4.572
Document Id	f2d5f971-d67a-4456-8833-213f01331ca10		
Document Created:	December 31, 2012, 00:00 -0400		
Author	Good Health Report Generator		
Contact info	21 North Ave. Burlington, MA 02368, US Tel: (555)555-1003		

Table of Contents

- [Measure Section](#)
- [Reporting Parameters](#)
- [Patient Data](#)

Measure Section

eMeasure Title	Version neutral identifier	eMeasure Version Number	NQF eMeasure Number	Version specific identifier
Colorectal Cancer Screening	aa2a4bbc-864f-45ee-b17a-7ebcc62e6aac	0	0034	8a4d92b2-35fb-4aa7-0136-403ad4504573

Reporting Parameters

- Reporting period: 01 Jan 2012 - 31 Dec 2012

Patient Data

Data Element - Value
Patient Characteristic Payer: Payer - Fee Basis
Diagnosis, Resolved: Malignant Neoplasm of Colon - Malignant neoplasm of appendix
Procedure, Performed: Colonoscopy - therapeutic colonoscopy (procedure)
Laboratory Test, Performed: Fecal Occult Blood Test (FOBT) - Hemoglobin.gastrointestinal [Presence] in Stool --7th specimen
Procedure, Performed: Flexible Sigmoidoscopy - flexible fiberoptic sigmoidoscopy (procedure)

Eligible Hospital (EH) eMeasure – Venous Thromboembolism Prophylaxis

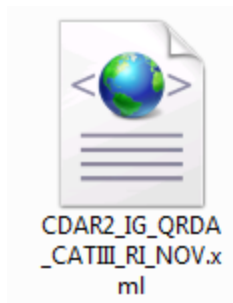
eMeasure Title	Venous Thromboembolism Prophylaxis		
eMeasure Identifier (Measure Authoring Tool)	108	eMeasure Version number	1
NQF Number	0371	GUID	38b0b5ec-0f63-466f-8fe3-2cd20ddd1622
Measurement Period	January 1, 20xx through December 31, 20xx		
Measure Steward	Joint Commission		
Measure Developer	Joint Commission		
Endorsed By	National Quality Forum		
Description	This measure assesses the number of patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given the day of or the day after hospital admission or surgery end date for surgeries that start the day of or the day after hospital admission.		

QRDA-I for EH eMeasure: Venous Thromboembolism Prophylaxis

QRDA Incidence Report				
Patient	Mr. Adam Everyman			
Date of birth	November 25, 1954	Sex	Male	
Contact info	Primary Home: 17 Daws Rd. Blue Bell, MA 02368, US Tel: (781)555-1212	Patient IDs	12345 2.16.840.1.113883.4.572	
Document Id	f2d5f971-d67a-4456-8833-213f01331ca18			
Document Created:	December 31, 2012, 00:00 -0400			
Author	Good Health Report Generator			
Contact info	21 North Ave. Burlington, MA 02368, US Tel: (555)555-1003			
Table of Contents				
<ul style="list-style-type: none"> Measure Section Reporting Parameters Patient Data 				
Measure Section				
eMeasure Title	Version neutral identifier	eMeasure Version Number	NQF eMeasure Number	Version specific identifier
Venous Thromboembolism Prophylaxis	38b0b5ec-0f63-466f-8fe3-2cd20ddd1622	1	0371	8a4d92b2-3802-9d1c-0138-063dfbec1074
Reporting Parameters				
<ul style="list-style-type: none"> Reporting period: 01 Jan 2012 - 31 Dec 2012 				
Patient Data				
Data Element - Value				
Device, Applied: Graduated compression stockings (GCS) - Compression hosiery class III kneecap circular knit made to measure (physical object)				
Procedure, Performed: General or Neuraxial Anesthesia - Introduction of Intracirculatory Anesthetic into Peripheral Vein, Open Approach				
Intervention, Performed: Palliative Care - Hospice care (regime/therapy)				
Diagnosis, Active: Obstetrics - Unspecified complication of labor and delivery, postpartum condition or complication				

Rendering an xml Document

- Place the xml file (.xml) in a local folder



- Place the style sheet file (.xsl) in the same folder



- Double click on the xml
- The xml file will render in your internet browser

A screenshot of a web browser displaying the rendered output of an XML document. The page shows a table with multiple columns and rows of data. The table has a header row with columns for 'ID', 'Name', 'Description', 'Status', 'Effective Date', and 'Expiration Date'. Below the header, there are several rows of data, including a section for 'Necessary Section' and a table with columns for 'Section ID', 'Section Name', 'Section Description', 'Section Status', and 'Section Effective Date'. The rendered output is a structured table with various data points, including section IDs, names, descriptions, and dates.

Create a QRDA Category I Instance

The data elements to be included in a QRDA-I instance are based on the eMeasures cited by that QRDA-I. You should include all data elements for all eMeasures cited that are present in the EHR.

Construction Heuristics:

1. Identify the relevant eMeasures.
2. Identify the relevant data elements.
3. Extract the relevant data elements from the EHR.
4. Populate the corresponding CDA templates.

Identify Relevant eMeasures

List each eMeasure in the Measure Section.

```
<section>
  <!-- Measure Section -->
  <templateId root="2.16.840.1.113883.10.20.24.2.2"/>
  <templateId root="2.16.840.1.113883.10.20.24.2.3"/>
  <code code="55186-1" codeSystem="2.16.840.1.113883.6.1"/>
  <title>Measure Section</title>
  <text>
```

eMeasure Title	Version neutral identifier	eMeasure Version Number	NQF eMeasure Number	Version specific identifier
Venous Thromboembolism Prophylaxis	38b0b5ec-0f63-466f-8fe3-2cd20ddd1622	1	0371	8a4d92b2-3802-9d1c-0138-063dfbec1074

```
</text>
</entry>
<organizer classCode="CLUSTER" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.24.3.98"/>
  <templateId root="2.16.840.1.113883.10.20.24.3.97"/>
  <statusCode code="completed"/>
  <reference typeCode="REFR">
    <externalDocument classCode="DOC" moodCode="EVN">
      <!-- QualityMeasureDocument/id (required)--> <id root="8a4d92b2-3802-9d1c-0138-063dfbec1074"/>
      <!-- NQF Number --> <id root="2.16.840.1.113883.3.560.1" extension="0371"/>
      <!-- SHOULD This is the title of the eMeasure -->
      <text>Children's Asthma Care (CAC-2) Systemic Corticosteroids for Inpatient Asthma</text>
      <!-- eMeasure version neutral id --> <setId root="dc78ee5d-1487-4d79-84c3-1dfdaff0781c"/>
      <!-- eMeasure Version number --> <versionNumber value="1"/>
    </externalDocument>
  </reference>
</organizer>
</entry>
<entry>...</entry>
</section>
```

Identify Relevant Data Elements

For each eMeasure, identify the relevant data elements*

Quality Data Element	Quality Data Type Pattern ID	Value Set Name	Value Set ID
Diagnosis, Active: Pregnancy	2.16.840.1.113883.3.560.1.2	Pregnancy Grouping Value Set	2.16.840.1.113883.3.600.0001.18
Medication, Administered: Aspirin	2.16.840.1.113883.3.560.1.14	Aspirin RxNorm Value Set	2.16.840.1.113883.3.666.05.626
Medication, Administered: Beta Blocker	2.16.840.1.113883.3.560.1.14	Beta Blocker RxNorm Value Set	2.16.840.1.113883.3.117.35
...			

* Includes data criteria, stratification variables, supplemental data elements, risk adjustment variables, etc.

Extract Relevant Data Elements from EHR



Scoop and Filter:

QRDA-I sends what is in the EHR. If there's nothing in the EHR, don't send anything in the QRDA-I*.



Smoking Gun:

At a minimum, the QRDA-I should include the positive evidence*.

* eMeasure performance rates are calculated based on a principle of "positive evidence."

Populate Corresponding CDA Templates

For each data element, identify the corresponding CDA template.

Quality Data Element	Quality Data Type Pattern ID	Value Set Name	Value Set ID	CDA Template Name	CDA Template Library ID
Diagnosis, Active: Pregnancy	2.16.840.1.113 883.3.560.1.2	Pregnancy Grouping Value Set	2.16.840.1.11388 3.3.600.0001.18	Diagnosis Active	2.16.840.1.1 13883.10.20. 24.3.11
Medication, Administered: Aspirin	2.16.840.1.113 883.3.560.1.14	Aspirin RxNorm Value Set	2.16.840.1.11388 3.3.666.05.626	Medication Administered	2.16.840.1.1 13883.10.20. 24.3.42
Medication, Administered: Beta Blocker	2.16.840.1.113 883.3.560.1.14	Beta Blocker RxNorm Value Set	2.16.840.1.11388 3.3.117.35	Medication Administered	2.16.840.1.1 13883.10.20. 24.3.42
...					

QRDA Category III – Aggregate Report

EHR Certification Number	medical record, device 1a2b3c (ONC) 98765 ()
Legal authenticator	Good Health Hospital signed at August 11, 2012
Document maintained by	Good Health Hospital

Table of Contents

- [Reporting Parameters](#)
- [Measure Section](#)

Reporting Parameters

- Reporting period: 01 January 2012 - 31 March 2012
- First encounter: 05 January 2012
- Last encounter: 24 March 2012

Measure Section

eMeasure Title	Version neutral identifier	eMeasure Version Number	NQF eMeasure Number	eMeasure Identifier (MAT)	Version specific identifier
Anticoagulation Therapy for Atrial Fibrillation/Flutter	03876d69-085b-415c-ae9d-9924171040c2	1	0436	71	8a4d92b2-3887-5df3-0139-013b0c87524a

Member of Measure Set: Clinical Quality Measure Set 2011-2012 - b6ac13e2-beb8-4e4f-94ed-fcc397406cd8

- **Performance Rate:** 83% (Predicted = 62%)
- **Reporting Rate:** 84%
- **Initial Patient Population:** 1000
 - Male: 400
 - Female: 600
 - Not Hispanic or Latino: 350
 - Hispanic or Latino: 650
 - Black: 300
 - White: 350
 - Asian: 350
 - Payer - Medicare: 250
 - Payer - Medicaid: 550
 - Zipcode 92543: 15
- **Denominator:** 500
 - Male: 200
 - Female: 300
 - Not Hispanic or Latino: 175
 - Hispanic or Latino: 325
 - Black: 150
 - White: 175
 - Asian: 175
 - Payer - Medicare: 125
 - Payer - Medicaid: 275
 - Zipcode 92543: 15
- **Numerator:** 400 (predicted=300)
 - Male: 100
 - Female: 300
 - Not Hispanic or Latino: 140
 - Hispanic or Latino: 260
 - Black: 120
 - White: 140
 - Asian: 140
 - Payer - Medicare: 100
 - Payer - Medicaid: 220
 - Zipcode 92543: 6
- **Denominator Exclusions:** 20
 - Male: 8

Create a QRDA Category III Instance

Construction Heuristics:

1. Calculate counts.
2. Populate corresponding CDA templates.

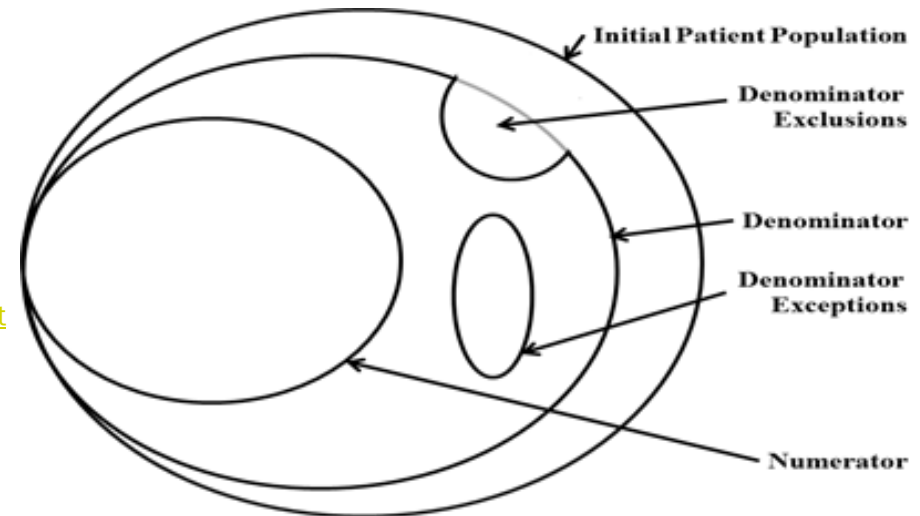
Calculate Counts

For each patient, determine which population(s) they fall into:

- Initial Patient Population: Patient meets the IPP criteria.
- Denominator: Patient meets IPP criteria AND meets DENOM criteria.
- Denominator Exclusions: Patient meets DENOM criteria AND meets EXCL criteria.
- Numerator: Patient meets DENOM criteria, AND does not meet EXCL criteria, AND meets NUMER criteria.
- Denominator Exceptions: Patient meets DENOM criteria, AND does not meet EXCL criteria, AND does not meet NUMER criteria.

See Centers for Medicare & Medicaid Services (CMS) Measures Management Blueprint for detailed calculation instructions:

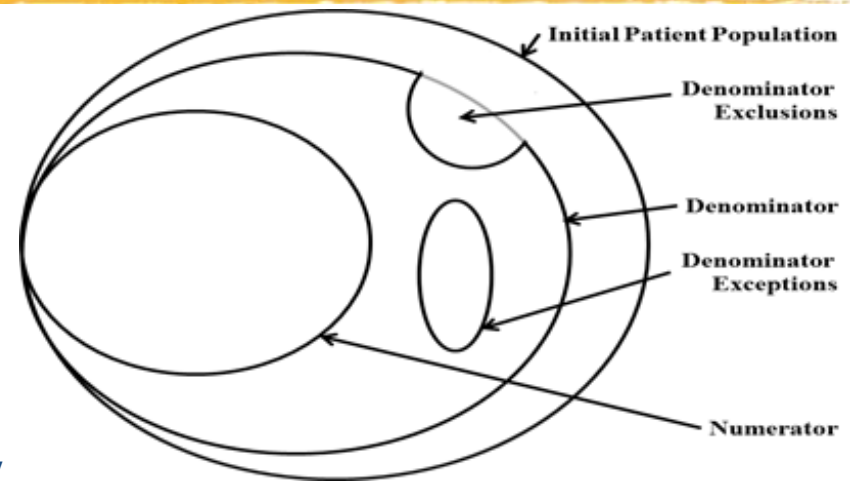
<http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/MeasuresManagementSystemBlueprint.html>



Calculate Counts – Examples

eMeasure:

- IPP: All patients aged 65 years and older with an active diagnosis of diabetes mellitus
- DENOM: Equals IPP
- EXCL: Bilateral blindness
- NUMER: Dilated eye exam for diabetic retinopathy
- EXCEP: Bed confinement status in a community where mobile eye-exam imaging is unavailable



Examples:

- 75-year-old male with diabetes. No mention of blindness in chart. Documented eye exam.
- 75-year-old male with diabetes. No mention of blindness in chart. No mention of eye exam in chart. No mention in chart that he is bed-bound.
- 85-year-old male with diabetes. No mention of blindness in chart. Documented eye exam. Known to be confined to bed in a community where mobile eye-exam imaging is unavailable.

Populate Corresponding CDA Templates

Measure Section

eMeasure Title	Version neutral identifier	eMeasure Version Number	NQF eMeasure Number	eMeasure Identifier (MAT)	Version specific identifier
Anticoagulation Therapy for Atrial Fibrillation/Flutter	03876d69-085b-415c-ae9d-9924171040c2	1	0436	71	8a4d92b2-3887-5df3-0139-013b0c87524a

Member of Measure Set: Clinical Quality Measure Set 2011-2012 - b6ac13e2-beb8-4e4f-94ed-fcc397406cd8

- Performance Rate: 83% (Predicted = 62%)
- Reporting Rate: 84%
- Initial Patient Population: 1000
 - Male: 400
 - Female: 600
 - Not Hispanic or Latino: 350
 - Hispanic or Latino: 650
 - Black: 300
 - White: 350
 - Asian: 350
 - Payer - Medicare: 250
 - Payer - Medicaid: 550
 - Zipcode 92543: 15
- Denominator: 500
 - Male: 200
 - Female: 300
 - Not Hispanic or Latino: 175
 - Hispanic or Latino: 325
 - Black: 150

- Measure Section
 - Measure Reference and Results
 - Performance Rate
 - Measure Data (IPP)
 - Aggregate Count (1000)
 - Supplemental Data Elements
 - Measure Data (DENOM)
 - Aggregate Count (500)
 - Supplemental Data Elements
 - ...
- Measure Reference and Results

QRDA Tools

CMS Website

http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/2014_ClinicalQualityMeasures.html

CMS home page for MU2 Clinical Quality Measures

QRDA Implementation Guides (IG)

- Definitive source
- Construction rules and heuristics
- Complete template library
- eMeasure to QRDA mapping tables

QRDA-I IG – Example Title Page

CDAR2_QRDA_DSTU_R2_2012JUL



**HL7 Implementation Guide for CDA® Release 2:
Quality Reporting Document Architecture – Category I,
DSTU Release 2**

(US Realm)

Draft Standard for Trial Use

July 2012

Publication of this draft standard for trial use and comment has been approved by Health Level Seven International (HL7). This draft standard is not an accredited American National Standard. The comment period for use of this draft standard shall end 12 months from the date of publication. Suggestions for revision should be submitted at <http://www.hl7.org/dstucomments/index.cfm>.

QRDA IG – Example Mapping Table

Table 323: HQMF QDM Pattern to CDA Template Mapping Table

Quality Data Type or Attribute Name	Quality Data Type Pattern ID	CDA Template Name	CDA Template ID
Care Goal	2.16.840.1.113883.3.560.1.9	Care Goal	2.16.840.1.113883.10.20.24.3.1
Communication: From Patient to Provider	2.16.840.1.113883.3.560.1.30	Communication from Patient to Provider	2.16.840.1.113883.10.20.24.3.2
Communication: From Provider to Patient	2.16.840.1.113883.3.560.1.31	Communication from Provider to Patient	2.16.840.1.113883.10.20.24.3.3
Communication: From Provider to Provider	2.16.840.1.113883.3.560.1.29	Communication from Provider to Provider	2.16.840.1.113883.10.20.24.3.4
Device, Adverse Event	2.16.840.1.113883.3.560.1.34	Device Adverse Event	2.16.840.1.113883.10.20.24.3.5

QRDA-III IG Example Title Page

CDAR2_QRDAIII_DSTU_R1_2012NOV¹



**HL7 Implementation Guide for CDA® Release 2:
Quality Reporting Document Architecture – Category III,
DSTU Release 1**

(US Realm)

Draft Standard for Trial Use

November 2012

Status of the QRDA DSTUs

Specification Title	Current Status	Future Status	Relationship to Meaningful Use	Location
Quality Reporting Document Architecture (QRDA) Category I DSTU, Release 2	DSTU published July 2012. Errata update published March 2013.	Updates to QRDA may be balloted in fall 2013 to maintain alignment with the QDM-based HQMF Implementation Guide.	Designated MU Stage 2 standard for transmitting patient-level quality data.	http://www.hl7.org/implementation/standards/product_brief.cfm?product_id=35
QRDA Category III DSTU, Release 1	DSTU published November 2012.	Updates to QRDA may be balloted in fall 2013 to maintain alignment with the QDM-based HQMF Implementation Guide.	Designated MU Stage 2 standard for transmitting aggregate-level quality data.	http://www.hl7.org/implementation/standards/product_brief.cfm?product_id=286

eSpecification Navigator

http://cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/eCOM_Library.html

Library of all MU2 eMeasures, each measure including:

- Quality Data Elements
- Value Sets
- CDA templates
- QRDA-I sample file

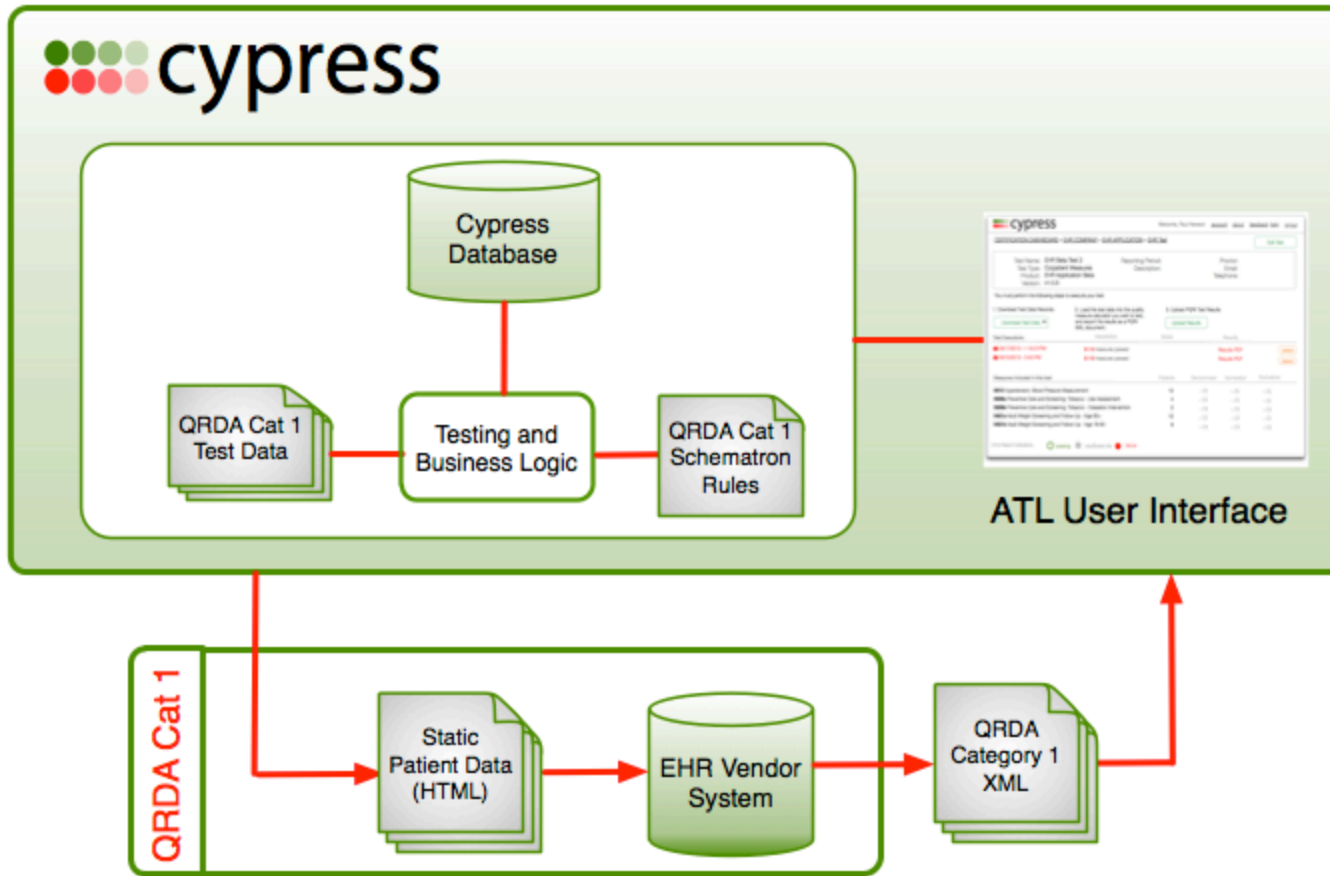
Cypress

<http://projectcypress.org/>

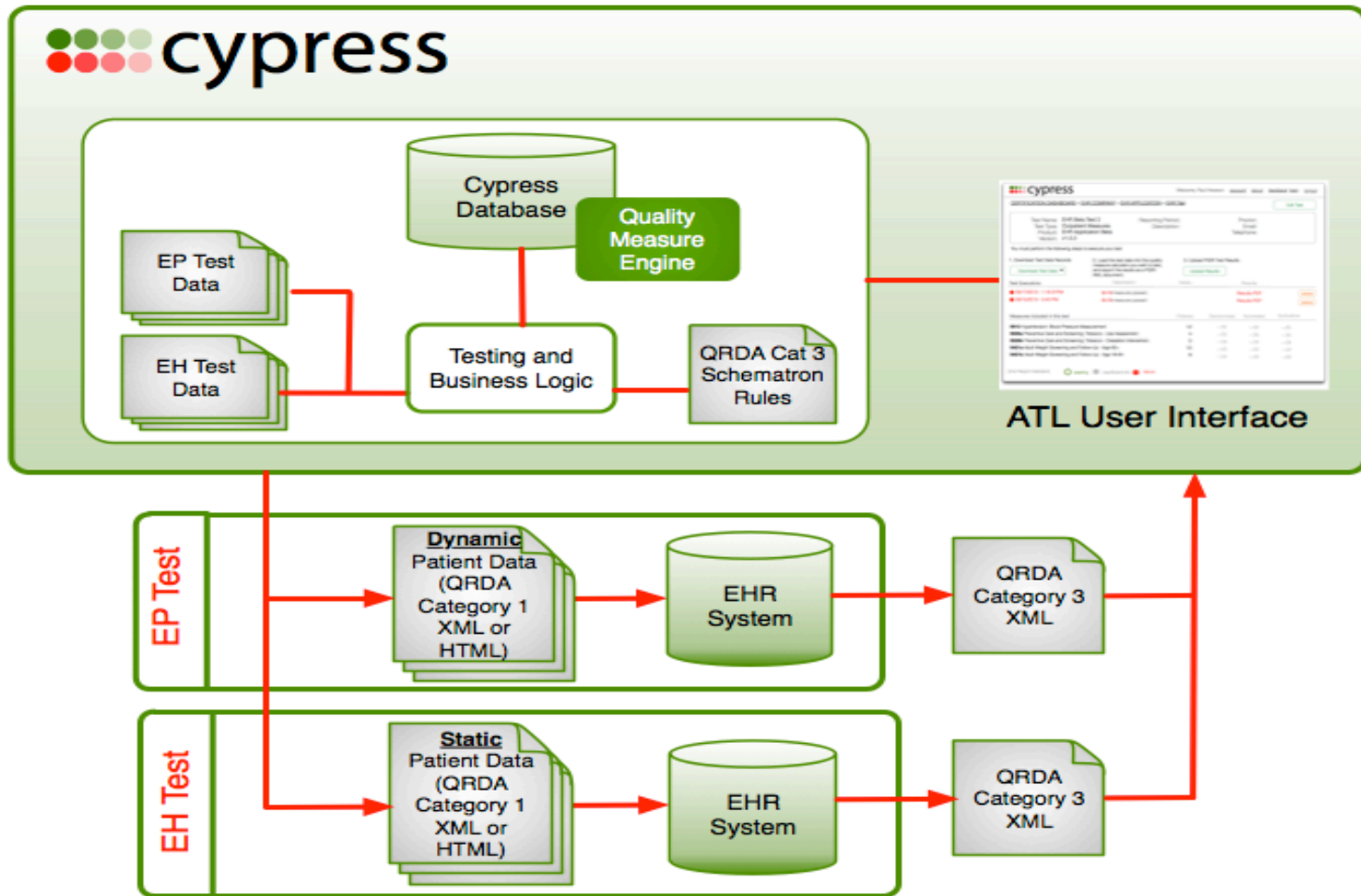
MU2 CQM Testing and Certification tool:

- Validate QRDA-I instances (against sample data)
- Validate QRDA-III instances (against sample data)

Cypress – QRDA-I Testing



Cypress – QRDA Category III Testing



PopHealth

<http://projectpophealth.org/>

(~ mid 2013) Calculates a QRDA-III, given a batch of QRDA-I's and eMeasures.

QRDA Errata

What is an “erratum”?

A QRDA erratum is a defect in the standard that HL7 Structured Documents Work Group (SDWG) has agreed is a technical or an editorial mistake.

- It is not a new feature or improvement.
- It does not deal with vocabulary discrepancies among MU, Base C-CDA, or eMeasure ValueSets.











Errata – Example

CONF:13743 in Intervention Order templateId
2.16.840.1.113883.10.20.24.3.31 Requires the wrong
template ID. CONF:13743 needs to be changed from
templateId/@root="2.16.840.1.113883.10.20.24.3.63" to
[templateId/@root = '2.16.840.1.113883.10.20.24.3.31']

Contents of the Errata Package

- The original published IG containing:
 - Fixed typos NOT in templates
 - Fixed xml examples
 - Fixed links
 - **No changes in template descriptions or conformance statements**
 - A template library, which has all the conformance corrections
 - A spreadsheet list of errata by template
 - Corrected samples files
 - Corrected Schematron
 - A read.me file explaining the package
 - Other supporting files
-

Contents of the Errata Package

-  Updated_CDA_Schema_Files_Extension_Support
-  CDAR2_QRDA_DSTU_R2_2012JUL.docx
-  CDAR2IG_QRDA_DSTUR2_Errata_2013MAY.doc
-  QRDA_CAC_Multiple_Sample.xml
-  QRDA_CAC-1_NQF0143_Sample.xml
-  QRDA_Category_I_Release_2.sch
-  QRDA_Errata_Change_List_2012_12_21.xlsx
-  QRDATemplateLibrary_2012_12_21.docx
-  README.txt
-  voc.xml

Location of the Errata Package

The errata package has replaced the July 2012 published package:

QRDA (*HL7 Implementation Guide for CDA® R2: Quality Reporting Document Architecture - Category I (QRDA) DSTU, Release 2 - US Realm*):

http://www.hl7.org/implement/standards/product_brief.cfm?product_id=35



Q&A

To Submit Questions Following the Webinar

Visit the Electronic Clinical Quality Measure Issue Tracker to submit questions following the webinar:

<https://cqm-issue-tracker.atlassian.net/secure/Dashboard.jspa>



Thank You!

**Gaye Dolin, MSN, RN
Chief Information Analyst
Lantana Consulting Group**