



eCQM Pre- and Post- Implementation Testing Overview

Updated March 2019

Overview

- What is implementation testing?
- Why is implementation testing important?
- How is it performed?
- What are eCQM testing tools
- When is testing performed?
- How does implementation testing differ from other types of testing?

What is Implementation Testing?

- Consumption of electronic clinical quality measures (eCQM) Health Quality Measure Format (HQMF) by Electronic Health Record (EHR) vendors in an automated way
 - Many vendors use a 'parser' to read XML code
- Simulating eCQMs in a pre-production environment to validate the accuracy of coding in a vendor's EHR
- Maintaining the integrity of the eCQM – the intent of the measure is not jeopardized
- Facilitating the consistent and accurate implementation of the eCQM

Why Is Implementation Testing Important?

- To ensure that providers can utilize eCQMs in the delivery of quality and safe care
- To decrease provider burden in the utilization of eCQMs and reporting for the Centers for Medicare & Medicaid Services (CMS) quality programs
- Achieve the goal of high quality data by
 - Yielding consistent results regardless of vendor product
 - Be implementable without “tweaks” to the code

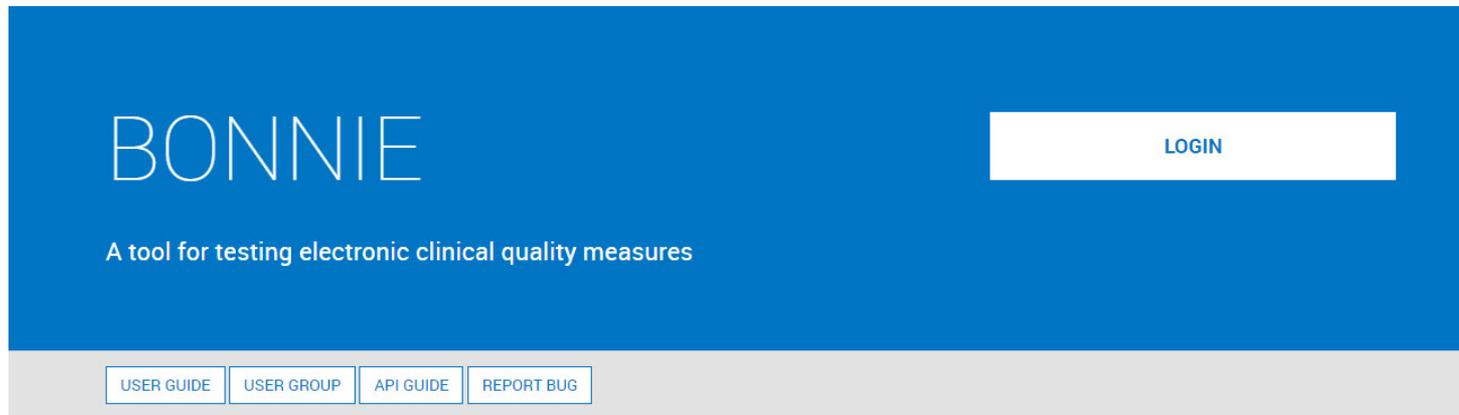
How is Implementation Testing Performed?

- Collaborating with vendors and providers by
 - Providing the HQMF and test cases to confirm
 - Data elements exist in the EHR
 - HQMF code is readable
 - Capture of data
 - Correct identification of measure populations and classification of test cases

What tools are used for eCQM testing?

- eCQM Development and Pre-implementation
 - Bonnie
- Certification
 - Cypress
 - NCQA eCQM Certification Program
- Post-implementation
 - Pre-Submission Validation Application (PSVA)
 - Cypress Validation Utility

Bonnie: An eCQM Testing Tool



**streamlined and
efficient**



pretesting for eCQMs

**developer
empowerment**



provides specific feedback on the
behavior of the CQM logic

**quality
reporting**



supports the CMS Quality Reporting
Programs

Bonnie is a tool for testing electronic clinical quality measures (eCQMs) designed to support streamlined and efficient pre-testing of eCQMs, particularly those used in the CMS Quality Reporting Programs.

Bonnie: An eCQM Testing Tool (Cont'd)

- Bonnie is a software tool that allows eCQM developers to test and verify the behavior of their eCQM logic
- The Bonnie application allows measure developers to independently load measures that they have constructed using the Measure Authoring Tool (MAT) and helps measure developers execute the measure logic against the constructed patient test deck and evaluate whether the logic aligns with the intent of the measure

Cypress Testing Tool

cypress 4.0.2

Sign In Sign Up

cypress

Rigorous & repeatable testing of Electronic Health Records

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Password

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Sign in

Sign up

Reset password

Resend confirmation email

What is Cypress?

Cypress is the open source, rigorous and repeatable testing tool of Electronic Health Records (EHRs) and EHR modules in calculating eQMs used by CMS's Promoting

CQM Certification

Cypress tests four different certification criteria:

- Record and Export - Record clinical data and export it in a format usable by other EHRs

Using Cypress

The Cypress software includes a standard test data of synthetic patient records that exercises all of the CQMs, for Eligible Professionals (EP) and Eligible Hospitals (EH).

Cypress Testing Tool (Cont'd)

- Cypress is an open source testing tool used by vendors to certify their EHRs and health information technology (IT) modules for calculating eCQMs. Cypress is an official testing tool for the ONC EHR Certification Program
- Testing involves Cypress generating synthetic patient records for the subset of published eCQMs selected for certification and testing the ability of the EHR systems and health IT modules to accurately record, import, calculate, filter, and report eCQMs

NCQA eCQM Certification Program



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OUR PROGRAMS

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[eMeasure Certification: Choosing the Right Vendor](#)

eMeasure Certification

Organizations that rely on data from systems certified through NCQA's eMeasure Certification program can be confident that systems have gone through the industry's most rigorous assessment of whether they provide accurate data.

ACCURATE DATA ARE IMPORTANT

The NCQA eMeasure Certification program evaluates how well electronic systems calculate electronic clinical quality measures (eCQM) using electronic clinical data.

Health plans, provider organizations and others rely on



NCQA eCQM Certification Program (Cont'd)

- The NCQA eMeasure Certification program evaluates how well electronic systems calculate eCQMs using electronic clinical data.
- How it works
 - NCQA creates unique sets of sample data, or “test decks,” for each eCQM, developed from randomly generated synthetic patient-level test data.
 - You process a test deck using your measure code. NCQA compares measure results to expected results, to determine if your software’s code computes the measure correctly. Multiple test decks are available for each measure, so you can correct errors.
 - A measure is NCQA-Certified when it passes certification. You receive a final certification report and seal to distribute to health plans, potential clients and Certified Auditors to demonstrate your achievement.

Pre-submission Validation Application (PSVA)

- The PSVA is an application program interface (API) which provides vendors, hospitals, and providers with a method for validating eCQM files within their own system/environment prior to submission and for securely transporting valid files to the CMS.
- The PSVA tool has three interfaces as part of the download package and a user is able to select the option that best meets their needs.

Cypress Validation Utility (CVU)

cypress validation utility

WARNING: This utility is meant for synthetic patient records only. **DO NOT** upload documents containing Protected Health Information (PHI) or Personally Identifiable Information (PII).

The Cypress QRDA Validation Utility is intended as a development tool for EHR vendors who are testing synthetic QRDA Category I and Category III documents for conformance to CMS submission requirements. Files submitted for validation must not contain PHI or PII.

Validate Files

Upload File

Annual Update Bundle

- 2017 Bundle for the 2018 Reporting Period
- 2018 Bundle for the 2019 Reporting Period

CMS Reporting Program

Document Type

PHI Confirmation

- By checking this box, I acknowledge that I've read and understand the warning, and to the best of my knowledge, the submitted files will contain neither PHI or PII.

This project is sponsored by the Centers for Medicare & Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC) and has been developed by The MITRE Corporation. For more information, visit the [Project Cypress site](#).

Cypress Validation Utility (CVU) (Cont'd)

- Cypress Validation Utility
 - The Cypress Validation Utility (CVU) conformance tool provides implementers with the ability to validate the conformance of QRDA Category I and Category III documents to CMS implementation guides.

When is Implementation Testing Performed?

- Testing is iterative; early and often
- In step with industry standards, i.e., using the most current version
- Before including in CMS quality programs
- When adding an eCQM to vendor product
- When the vendor product updated in the clinical environment

How does implementation testing differ from other types of testing?



- **Scientific Acceptability** - Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented

Resources

- [Bonnie](#)
- [Cypress](#)
- [NCQA eCQM Certification Program](#)
- [Presubmission Submission Validation Application](#)
- [Cypress Validation Utility](#)

Resources (Cont'd)

- [For questions related to eCQM specifications, standards, or tools, review the ONC Project Tracking Tool \(JIRA\)](#)
- For questions on the Hospital Inpatient Quality Reporting (IQR) Program requirements, policy, and alignment, refer to the Inpatient Support Team (844) 472-4477 (8:00am – 8:00pm ET) or submit questions via the [Q&A Tool](#)
- For questions on the Medicare and Medicaid Promoting Interoperability programs (formerly EHR Incentive Programs) please contact the [QualityNet Help Desk](#) or call (866) 288-8912, Monday through Friday 7 am- 7 pm CT
- For questions on the Quality Payment Program (QPP), please contact the [QPP Help Desk](#) or call (866) 288-8292