Test Procedure for §170.302 (n) Automate Measure Calculation

This document describes the test procedure for evaluating conformance of complete EHRs or EHR modules[1] to the certification criteria defined in 45 CFR Part 170 Subpart C of the Final Rule for Health Information Technology: Initial Set of standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology as published in the Federal Register on July 28, 2010. The document[2] is organized by test procedure and derived test requirements with traceability to the normative certification criteria as described in the Overview document located at http://healthcare.nist.gov/docs/TestProcedureOverview_v1.pdf. The test procedures may be updated to reflect on-going feedback received during the certification activities.

The HHS/Office of the National Coordinator for Health Information Technology (ONC) has defined the standards, implementation guides and certification criteria used in this test procedure. Applicability and interpretation of the standards, implementation guides and certification criteria to EHR technology is determined by ONC. Test procedures to evaluate conformance of EHR technology to ONC's requirements are defined by NIST. Testing of EHR technology is carried out by ONC-Authorized Testing and Certification Bodies (ATCBs), not NIST, as set forth in the final rule establishing the Temporary Certification Program (*Establishment of the Temporary Certification Program for Health Information Technology, 45 CFR Part 170; June 24, 2010*.)

Questions about the applicability of the standards, implementation guides or criteria should be directed to ONC at ONC.Certification@hhs.gov. Questions about the test procedures should be directed to NIST at hit-tst-fdbk@nist.gov. Note that NIST will automatically forward to ONC any questions regarding the applicability of the standards, implementation guides or criteria. Questions about functions and activities of the ATCBs should be directed to ONC at ONC.Certification@hhs.gov .

CERTIFICATION CRITERIA

This Certification Criterion is from the Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology Final Rule issued by the Department of Health and Human Services (HHS) on July 28, 2010.

§170.302 n Automate measure calculation. For each meaningful use objective with a percentage-based measure, electronically record the numerator and denominator and generate a report including the numerator, denominator, and resulting percentage associated with each applicable meaningful use measure.

[1] Department of Health and Human Services, 45 CFR Part 170 Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, Final Rule, July 28, 2010.

[2] Disclaimer: Certain commercial products are identified in this document. Such identification does not imply recommendation or endorsement by the National Institute of Standards and Technology.

Per Section III.D of the preamble of the Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, Final Rule where the medication reconciliation certification criterion is discussed:
"… We agree with commenters that unless we expressly adopt a certification criterion to specify that Certified EHR Technology must be capable of performing percentage-based calculations for meaningful use measures that it would present a significant burden to eligible professionals and eligible hospitals and could deter them from participating in the Medicare and Medicaid EHR incentives programs. Accordingly, we believe that it is critical to adopt the certification criterion specified above. We clarify that Certified EHR Technology must be capable of calculating all denominators for those meaningful use measures which are percentage-based and for which CMS requires an eligible professional or eligible hospital to submit the results at the end of an EHR reporting period. (CMS provides a detailed discussion in the Medicare and Medicaid EHR Incentive Programs final rule on denominators.) We note that as discussed in the Medicare and Medicaid EHR Incentive Programs final rule under the heading "Discussion of the Burden Created by the Measures associated with the Stage 1 Meaningful Use Objectives," an eligible professional or eligible hospital is responsible for verifying that the denominator produced by Certified EHR Technology is complete

INFORMATIVE TEST DESCRIPTION

This section provides an informative description of how the test procedure is organized and conducted. It is not intended to provide normative statements of the certification requirements.

This test evaluates the capability for a Complete EHR or EHR Module to electronically record the numerator and denominator for each meaning use objective with a percentage-based measure, to calculate the resulting percentage, and to generate a report that includes the numerator, denominator, and resulting percentage associated with each applicable meaningful use measure.

The Vendor-supplied numerator and denominator information may be recorded automatically by the EHR, or recorded by the user in the EHR.

The Vendor provides the test data for this test procedure.

This test procedure is organized into two sections:

- Record – evaluates the capability to electronically record the numerator and denominator for each meaning use objective with a percentage-based measure
    - If the Vendor indicates that the EHR automatically records the numerator and denominator for the measure, the Tester proceeds to the Generate Report step below.
    - If the Vendor indicates that the EHR does not automatically record the numerator and/or denominator, the Tester uses Vendor-identified functions and Vendor-supplied numerator/denominator values to enter numerator/denominator information into the EHR.

- Generate Report – evaluates the capability to generate a report that includes the numerator, denominator, and resulting percentage associated with each percentage-based meaningful use measure
    - The Tester generates a report that includes the numerator, denominator, and resulting percentage associated with each percentage-based meaningful use measure
    - The Tester validates that the report is generated and is accurate and complete based on Vendor-supplied data

REFERENCED STANDARDS

None

NORMATIVE TEST PROCEDURES

Derived Test Requirements

DTR170.302.n – 1: Electronically record numerator and denominator

DTR170.302.n – 2: Generate percentage-based measures report

DTR170.302.n – 1: Electronically record numerator and denominator

Required Vendor Information

VE170.302.n – 1.01: Vendor shall provide the test data necessary to accomplish the test procedure

VE170.302.n – 1.02: Vendor shall identify and describe the report(s) generated by the EHR that include the numerator, denominator, and resulting percentage associated with each percentage-based meaningful use measure

VE170.302.n – 1.03: Vendor shall identify the EHR function(s) that are available to: 1) electronically record the numerator and denominator, if not recorded automatically, for each meaningful use objective with a percentage-based meaningful use measure 2) generate a report that includes the numerator, denominator, and resulting percentage associated with each percentage-based meaningful use measure

Required Test Procedure:

TE170.302.n – 1.01: If the EHR automatically records the numerator and denominator for the measure, the Tester proceeds to DTR170.302.n – 2.. If the EHR does not automatically calculate numerator and/or denominator, using the EHR function(s) identified by the Vendor, the Tester shall electronically record the numerator and denominator

TE170.302.n – 1.02: Using the NIST-supplied Inspection Test Guide, the Tester shall verify that the numerator and denominator test data are entered correctly and without omission

Inspection Test Guide

IN170.302.n – 1.01: Using the Vendor-supplied test data and the information listed in TD170.302.n – 1, the Tester shall verify that the numerator and denominator for each percentage-based meaningful use measure were recorded correctly and without omission

The Tester shall require the Vendor to show how their EHR supports recording the numerator and denominator for all of the percentage-based Meaningful Use Measures listed in TD170.302.n – 1 without exception

DTR170.302.n – 2: Generate percentage-based measures report

Required Vendor Information

- As defined in DTR170.302.n – 1, no additional information is required

Required Test Procedure:

TE170.302.n – 2.01: Using the EHR function(s) identified by the Vendor, the Tester shall generate a report that includes the numerators and denominators recorded in the DTR170.302.n – 1 Electronically Record Numerator and Denominator test and the resulting percentage associated with each percentage-based meaningful use measure

TE170.302.n – 2.02: Using the NIST-supplied Inspection Test Guide, the Tester shall verify that a report that includes the numerator, denominator, and resulting percentage associated with each percentage-based meaningful use measure is generated correctly and without omission

Inspection Test Guide

IN170.302.n – 2.01: Using the information listed in TD170.302.n – 1 and the information provided by the Vendor in VE170.302.n – 1.02, the Tester shall verify that a report including the numerator, denominator, and resulting percentage associated with each percentage-based meaningful use measure is generated correctly and without omission

The Tester will evaluate, to the extent possible given the Vendor-supplied data used in this Test Procedure, the calculations of the measures as described by the Vendor

TEST DATA

This Test Procedure requires the Vendor to supply the test data. The Tester shall address the following:

- Vendor-supplied test data shall ensure that the functional and interoperable requirements identified in the criterion can be adequately evaluated for conformance

- Vendor-supplied test data shall strictly focus on meeting the basic capabilities required of an EHR relative to the certification criterion rather than exercising the full breadth/depth of capability that an installed EHR might be expected to support
- Tester shall record as part of the test documentation the specific Vendor-supplied test data that was utilized for testing

TD170.302.n – 1: Meaningful Use Percentage-based Measures for Meaningful Use Objectives
From the Medicare and Medicaid Programs; Electronic Health Record Incentive Program Final Rule issued by the Department of Health and Human Services on July 28, 2010

Stage 1 Objectives		Stage 1 Measures
Eligible Professionals	**Eligible Hospitals and CAHs**	
Maintain an up-to-date problem list of current and active diagnoses	Maintain an up-to-date problem list of current and active diagnoses	More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one entry or an indication that no problems are known for the patient recorded as structured data
Maintain active medication list	Maintain active medication list	More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one entry (or an indication that the patient is not currently prescribed any medication) recorded as structured data
Maintain active medication allergy list	Maintain active medication allergy list	More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one entry (or an indication that the patient has no known medication allergies) recorded as structured data
Record demographics o Preferred language o Gender o Race o Ethnicity o Date of Birth	Record demographics o Preferred language o Gender o Race o Ethnicity o Date of Birth Date and preliminary cause of death in the event of mortality in the eligible hospital or CAH	More than 50% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have demographics recorded as structured data
Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient if appropriate	Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient if appropriate	More than 10% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) during the EHR reporting period are provided patient-specific education resources

Stage 1 Objectives		Stage 1 Measures
Eligible Professionals	**Eligible Hospitals and CAHs**	
Provide patients with timely electronic access to their health information (including lab results, problem list, medication lists, medication allergies) within four business days of the information being available to the EP		More than 10% of all unique patients seen by the EP are provided timely (available to the patient within four business days of being updated in the certified EHR technology) electronic access to their health information subject to the EP's discretion to withhold certain information
Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient if appropriate	Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient if appropriate	More than 10% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) are provided patient-specific education resources
Use CPOE for medication orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local and professional guidelines	Use CPOE for medication orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local and professional guidelines	More than 30% of unique patients with at least one medication in their medication list seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one medication order entered using CPOE
Generate and transmit permissible prescriptions electronically (eRx)		More than 40% of all permissible prescriptions written by the EP are transmitted electronically using certified EHR technology
Record and chart changes in vital signs: o Height o Weight o Blood pressure o Calculate and display BMI o Plot and display growth charts for children 2-20 years, including BMI	Record and chart changes in vital signs: o Height o Weight o Blood pressure o Calculate and display BMI o Plot and display growth charts for children 2-20 years, including BMI	More than 50% of all unique patients age 2 and over seen by the EP or admitted to eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23), height, weight and blood pressure are recorded as structured data
Record smoking status for patients 13 years old or older	Record smoking status for patients 13 years old or older	More than 50% of all unique patients 13 years old or older seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have smoking status recorded as structured data
	Record advance directives for patients 65 years old or older	More than 50% of all unique patients 65 years old or older admitted to the eligible hospital have an indication of an advance directive status recorded
Incorporate clinical lab-test results into certified EHR technology as structured data	Incorporate clinical lab-test results into certified EHR technology as structured data	More than 40% of all clinical lab tests results ordered by the EP or by an authorized provider of the eligible hospital or CAH for patients admitted to its inpatient or emergency department (POS 21 or 23) during the EHR reporting period whose results are either in a positive/negative or numerical format are incorporated in certified EHR technology as structured

Stage 1 Objectives		Stage 1 Measures
Eligible Professionals	**Eligible Hospitals and CAHs**	
		data
Provide patients with an electronic copy of their health information (including diagnostic test results, problem list, medication lists, medication allergies), upon request	Provide patients with an electronic copy of their health information (including diagnostic test results, problem list, medication lists, medication allergies, discharge summary, procedures), upon request	More than 50% of all patients of the EP or the inpatient or emergency departments of the eligible hospital or CAH (POS 21 or 23) who request an electronic copy of their health information are provided it within 3 business days
	Provide patients with an electronic copy of their discharge instructions at time of discharge, upon request	More than 50% of all patients who are discharged from an eligible hospital or CAH's inpatient department or emergency department (POS 21 or 23) and who request an electronic copy of their discharge instructions are provided it
Provide clinical summaries for patients for each office visit		Clinical summaries provided to patients for more than 50% of all office visits within 3 business days
Send reminders to patients per patient preference for preventive/ follow up care		More than 20% of all unique patients 65 years or older or 5 years old or younger were sent an appropriate reminder during the EHR reporting period
The EP, eligible hospital or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform medication reconciliation	The EP, eligible hospital or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform medication reconciliation	The EP, eligible hospital or CAH performs medication reconciliation for more than 50% of transitions of care in which the patient is transitioned into the care of the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23).
The EP, eligible hospital or CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care should provide summary of care record for each transition of care or referral	The EP, eligible hospital or CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care should provide summary of care record for each transition of care or referral	The EP, eligible hospital or CAH who transitions or refers their patient to another setting of care or provider of care provides a summary of care record for more than 50% of transitions of care and referrals

CONFORMANCE TEST TOOLS

None

Document History

Version Number	Description	Date Published
0.7	Original draft version	February 26, 2010
1.0	Updated to reflect Final Rule	July 21, 2010
1.0	Updated to remove “Pending” from header	August 13, 2010
1.1	• Removed “draft” in introductory paragraph • In the Certification Criteria section, added text from the ONC FR Preamble that explains the requirement to automatically calculate the denominator In the Normative Test Procedure the following changes have been made: • VE170.302n -1.03 added the phrase ‘if not recorded automatically’ • TE170.302n-1.01 revised the test procedure wording to “If the EHR automatically records the numerator and denominator for the measure, the Tester proceeds to DTR170.302.n – 2.. If the EHR does not automatically calculate numerator and/or denominator, using the EHR function(s) identified by the Vendor, the Tester shall electronically record the numerator and denominator • IN170.302.n-1.01 changed the word ‘entered’ to ‘recorded’; removed the sentence starting with ‘The Tester will evaluate, to the extent possible…”; added the phrase “.. supports recording the numerator and denominator for” • TE170.302.n-2.01 - changed the word ‘entered’ to ‘recorded’ In the Conformance Tools section, removed the text referring to an automated test tool	September 24, 2010