

Test Procedure for §170.302(f) (2) Calculate Body Mass Index

This document describes the test procedure for evaluating conformance of complete EHRs or EHR modules¹ 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 document² 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 (f) Record and chart vital signs

(2) Calculate body mass index. Automatically calculate and display body mass index (BMI) based on a patient's height and weight.

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 calculate body mass index certification criterion is discussed:

- “We expect that Complete EHR and EHR Module developers will include the units of measure that their customers believe are necessary to meet their needs, which in many cases will include those that patients routinely request.”

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 of a Complete EHR or EHR Module to automatically calculate and display a patient’s body mass index (BMI) using a patient’s height and weight.

This test procedure consists of one section:

- Calculate and display - evaluates the capability to calculate and display BMI based on a patient’s height and weight
 - The Tester enters the NIST-supplied height and weight data
 - The Tester validates that the BMI is displayed and calculated correctly from the entered height and weight

REFERENCED STANDARDS

None

NORMATIVE TEST PROCEDURES

Derived Test Requirement(s)

DTR170.302.f.2 - 1: Calculate and display body mass index

Required Vendor Information

VE170.302.f.2 - 1.01: Vendor shall identify a patient with an existing record in the EHR to be used for this test

VE170.302.f.2 - 1.02: Vendor shall identify the EHR function(s) that are available to select the patient, enter the patient’s height and weight, and calculate and display BMI

VE170.302.f.2 - 1.03: Vendor shall identify the system of measurement (e.g., English or Metric) and the units of measure (e.g., feet/inches, inches, centimeters, pounds, kilograms) to be used for this test

Required Test Procedure

- TE170.302.f.2 - 1.01: Tester shall select height and weight test data from NIST-supplied test data set in TD170.302.f.2 – 1
- TE170.302.f.2 - 1.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and enter the patient's height and weight
- TE170.302.f.2 - 1.03: Using the NIST-supplied Inspection Test Guide, the Tester shall verify that the test data has been entered correctly and without omission and that the BMI has been calculated correctly according to the NIST-supplied data set TD170.302.f.2 – 1

Inspection Test Guide

- IN170.302.f.2 – 1.01: Using the data in the NIST-supplied Test Data set TD170.302.f.2 – 1, Tester shall verify that the height and weight test data are entered correctly and without omission
- IN170.302.f.2 – 1.02: Tester shall verify that the units of measure appropriate for the height and weight display or are selected at the time these data are entered
- IN170.302.f.2 – 1.03: Using the data in the NIST-supplied data set TD170.302.f.2 – 1, the Tester shall verify that the BMI is calculated correctly from the entered height and weight and is displayed without omission and without error.

TEST DATA

Test data is provided by NIST in this Test Procedure to ensure that the functional and interoperable requirements identified in the criteria can be adequately evaluated for conformance, as well as to provide consistency in the testing process across multiple ONC-Authorized Testing and Certification Bodies (ATCBs). The NIST-supplied test data focus on evaluating the basic capabilities required of EHR technology, rather than exercising the full breadth/depth of capability that installed EHR technology might be expected to support. The test data is formatted for readability of use within the testing process. The format is not prescribing a particular end-user view or rendering. No additional requirements should be drawn from the format.

The Tester shall use and apply the NIST-supplied test data during the test, without exception, unless one of the following conditions exists:

- The Tester determines that the Vendor product is sufficiently specialized that the NIST-supplied test data needs to be modified in order to conduct an adequate test. Having made the determination that some modification to the NIST-supplied test data is necessary, the Tester shall record the modifications made as part of the test documentation.
- The Tester determines that changes to the test data will improve the efficiency of the testing process; primarily through using consistent demographic data throughout the testing workflow.

The Tester shall ensure that the functional and interoperable requirements identified in the criterion can be adequately evaluated for conformance and that the test data provides a comparable level of robustness.

Any departure from the NIST-supplied test data shall strictly focus on meeting the basic capabilities required of EHR technology relative to the certification criterion rather than exercising the full breadth/depth of capability that installed EHR technology might be expected to support.

The Test Procedures require that the Tester enter the test data into the EHR technology being evaluated for conformance. The intent is that the Tester fully controls the process of entering the test data in order to ensure that the data are correctly entered as specified in the test procedure. If a situation arises where it is impractical for a Tester to directly enter the test data, the Tester, at the tester's discretion, may instruct the Vendor to enter the test data, so long as the Tester remains in full control of the testing process, directly observes the test data being entered by the Vendor, and validates that the test data are entered correctly as specified in the test procedure.

TD170.302.f.2 – 1: Calculate and Display Body Mass Index (BMI)

The CDC BMI Calculator used for this test data is available at:

http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/english_bmi_calculator/bmi_calculator.html

Use of the CDC BMI Calculator is not required. It is recognized that other BMI calculators may have slightly different algorithms and the derived BMI may not be exactly the same as the test data below. It is the Tester's discretion to determine if the BMI value calculated during the test is comparable to the test data.

Test Data - Set 1

Height: 5 ft 6 in OR 66 in OR 1.67 meters OR 167 centimeters

Weight: 135 lbs OR 61.2 kg OR 61,200 gm

Calculated BMI: 21.8

Test Data - Set 2

Height: 5 ft 3 in OR 63 in OR 1.60 meters OR 160 centimeters

Weight: 130 lbs OR 59 kg OR 59,000 gm

Calculated BMI: 23

Test Data - Set 3

Height: 6 ft 2 in OR 74 in OR 1.88 meters OR 188 centimeters

Weight: 210 lbs OR 95.3 kg OR 95,300 gm

Calculated BMI: 27

CONFORMANCE TEST TOOLS

None

Document History

Version Number	Description	Date Published
0.2	Original draft version	February 23, 2010
1.0	Updated to reflect Final Rule	July 21, 2010
1.1	Removed “draft” from introductory paragraph In the Test Data section <ul style="list-style-type: none">Added the url for the CDC BMI Calculator used for this test dataAdded “Use of the CDC BMI Calculator is not required. It is recognized that other BMI calculators may have slightly different algorithms and the derived BMI may not be exactly the same as the test data below. It is the Tester’s discretion to determine if the BMI value calculated during the test is comparable to the test data.”	September 24, 2010