Test Procedure for §170.302(f) (3) Plot and Display Growth Charts

This document describes the draft 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 (f) Record and chart vital signs

(3) Plot and display growth charts. Plot and electronically display, upon request, growth charts for patients 2-20 years old.

[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 plot and display growth charts certification criterion is discussed:

- "For Stage 1, the related meaningful use objective addresses ages 2-20. In order to remain consistent with and support this objective, we do not believe that it is necessary at this time to require a capability for charting any additional ages as a condition of certification."
- "…we do not preclude Complete EHR and EHR Module developers from designing more specific displays of laboratory results that may need to be displayed in a more complex fashion."
- "While the regulation text does not specifically require comparison to national norms, we understand that this type of information is typically provided along with the growth chart itself to provide greater relevance and meaning for the growth charts. We encourage Complete EHR and EHR Module developers to include this feature."

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 plot and electronically display, upon request, growth charts for patients 2-20 years old.

The test procedure consists of one section:

- Plot and Display - evaluates the capability to plot and display, upon request, growth charts for patients 2-20 years old
    - The Tester enters the NIST-supplied height and weight for 2 patients (1 male and 1 female) 2-20 years old
    - The Tester displays the heights and weights entered during the test
    - The Tester validates that the heights and weights are plotted and displayed accurately on the age and gender-appropriate growth charts

REFERENCED STANDARDS

None

NORMATIVE TEST PROCEDURES

Derived Test Requirement(s)
DTR170.302.f.3 - 1: Plot and display growth charts

Required Vendor Information

VE170.302.f.3 – 1.01: Vendor shall identify six patients with an existing record in the EHR to be used for this test

- Three male patients with ages that conform to the age data provided for males in the test data set TD170.302.f.3 – 1 for this test
- Three female patients with ages that conform to the age data provided for females in the test data set TD170.302.f.3 – 1 for this test

VE170.302.f.3 - 1.02: Vendor shall identify the EHR function(s) that are available to: 1) select these patients, 2) enter the height and weight data for these patients, and 3) plot and display growth charts for these patients

Required Test Procedure

TE170.302.f.3 - 1.01: Tester shall select from the NIST-supplied test data set TD170.302.f.3 – 1 the height and weight data appropriate for the ages of one male patient and one female patient out of the six patients identified by the Vendor

TE170.302.f.3 - 1.02: Using the EHR function(s) identified by the Vendor, the Tester shall select each of these patient's existing EHR records and enter their height and weight data

TE170.302.f.3 - 1.03: Using the NIST-supplied Inspection Test Guide, the Tester shall verify that the test data have been entered correctly and without omission

TE170.302.f.3 - 1.04: Using the EHR function(s) identified by the Vendor, the Tester shall verify that the height and weight for each patient is plotted and displayed on the appropriate growth chart (male or female, 2-20 years)

Inspection Test Guide

IN170.302.f.3 – 1.01: Using the data in the NIST-supplied Test Data set TD170.302.f.3 – 1, Tester shall verify that the height and weight test data are entered correctly and without omission in each patient's record

IN170.302.f.3 – 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.3 – 1.03: Tester shall verify that the height and weight are stored in each patient's record

IN170.302.f.3 – 1.04: Tester shall verify that the gender and age of each patient are displayed

IN170.302.f.3 – 1.05: Tester shall verify that the appropriate growth charts (male and female, 2-20 years) display

IN170.302.f.3 – 1.06: Tester shall verify that the indicator for the point where the height and age meet on the growth chart for the male patient is plotted accurately

IN170.302.f.3 – 1.07: Tester shall verify that the indicator for the point where the weight and age meet on the growth chart for the male patient is plotted accurately

IN170.302.f.3 – 1.08: Tester shall verify that the indicator for the point where the height and age meet on the growth chart for the female patient is plotted accurately

IN170.302.f.3 – 1.09: Tester shall verify that the indicator for the point where the weight and age meet on the growth chart for the female patient is plotted accurately

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 exist:

- 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 control 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.3 – 1: Plot and Display Data on a Growth Chart

Test Data for Male Patient

Test Data Set 1

Age: 3 years old

Height: 2 ft 10 in OR 0.86 meters OR 86 cm
Weight: 30 lbs OR 14 kg OR 14,000 gm

Test Data Set 2

Age: 10 years old
Height: 4 ft 3 in OR 1.29 meters OR 129 cm
Weight: 70.4 lbs OR 32 kg OR 32,000 gm

Test Data Set 3

Age: 13 years old
Height: 5 ft 7 in OR 1.70 meters OR 170 cm
Weight: 150 lbs OR 68 kg OR 68,000 gm

Test Data for Female Patient

Test Data Set 1

Age: 4 years old
Height: 3 ft 1 in OR .93 meters OR 93 cm
Weight: 35.2 lbs OR 16 kg OR 16,000 gm

Test Data Set 2

Age: 9 years old
Height: 4 ft 8 in OR 1.42 meters OR 142 cm
Weight: 75 lbs OR 34 kg OR 34,000 gm

Test Data Set 3

Age: 17 years old
Height: 5 ft 11 in OR 1.80 meters OR 180 cm
Weight: 110 lbs OR 50 kg OR 50,000 gm

CONFORMANCE TEST TOOLS

None

Document History

Version Number	Description	Date Published
0.2	Original draft version	February 26, 2010
1.0	Updated to reflect Final Rule	July 21, 2010
1.0	Updates include: • removed "Pending" in header • updated height values in patient test data	August 13, 2010