

Test Scenario Procedure for EHR Interoperability: Intake

This document describes the test scenario procedure for evaluating conformance of electronic health record (EHR) technology to the certification criteria defined in 45 CFR Part 170 Subpart C of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule. The test scenario procedure evaluates conformance to these certification criteria in a clinically plausible workflow. The document¹ is organized by test procedures and derived test requirements with traceability to the normative certification criteria as described in the Test Scenario Procedure Overview document located at <http://www.healthit.gov/certification> (navigation: 2014 Edition Testing and Certification > 2014 Edition Test Method > 2014 Edition Test Scenarios > 2014 Edition Draft Test Scenarios). The test scenario procedures may be updated to reflect on-going feedback received during the certification activities.

The Department of Health and Human Services (HHS)/Office of the National Coordinator for Health Information Technology (ONC) has defined the standards, implementation guides and certification criteria used in the test procedures within the test scenario procedure. Applicability and interpretation of the standards, implementation guides and certification criteria to EHR technology is determined by ONC. Testing of EHR technology in the Permanent Certification Program, henceforth referred to as the ONC Health Information Technology (HIT) Certification Program², is carried out by National Voluntary Laboratory Accreditation Program (NVLAP)-Accredited Testing Laboratories (ATLs) as set forth in the final rule establishing the Permanent Certification Program (*Establishment of the Permanent Certification Program for Health Information Technology, 45 CFR Part 170; February 7, 2011*). For 2014 Edition Testing and Certification, scenario-based testing is optional.

Questions or concerns regarding the ONC HIT Certification Program should be directed to ONC at ONC.Certification@hhs.gov.

TEST SCENARIO NARRATIVE

This test scenario represents the following clinically plausible scenario:

Ambulatory

Patient is seen by Provider. During this ambulatory visit, a medication, medication allergy, and problem list are recorded, changed, and accessed in the Provider's EHR. This portion of the scenario tests:

- §170.314(a)(5) Medication list

¹ Disclaimer: Certain commercial products may be identified in this document. Such identification does not imply recommendation or endorsement by ONC.

² Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule.

- §170.314(a)(6) Medication allergy list
- §170.314(a)(4) Problem list

Patient is referred to Provider upon discharge from Hospital. During transition of care, a referral summary (C-CDA) is received, displayed, and incorporate in the Provider's EHR. This portion of the scenario tests:

- §170.314(b)(1) Transitions of care – receive, display, and incorporate transition of care/referral summaries

During incorporation of the referral summary (C-CDA), clinical information reconciliation is performed between the medication, medication allergy, and problem list stored in the EHR and those contained in the C-CDA. Upon completion of the clinical information reconciliation, the reconciled medication, medication allergy, and problem list are stored in the Provider's EHR. This portion of the scenario tests:

- §170.314(b)(4) Clinical information reconciliation

Inpatient

Patient is admitted to Hospital. During this hospitalization, a medication, medication allergy, and problem list are recorded, changed, and accessed in the Hospital's EHR. This portion of the scenario tests:

- §170.314(a)(5) Medication list
- §170.314(a)(6) Medication allergy list
- §170.314(a)(4) Problem list

Patient is directly admitted to Hospital form an ambulatory visit with Provider. During transition of care, a referral summary (C-CDA) is received, displayed, and incorporate in the Hospital's EHR. This portion of the scenario tests:

- §170.314(b)(1) Transitions of care – receive, display, and incorporate transition of care/referral summaries

During incorporation of the referral summary (C-CDA), clinical information reconciliation is performed between the medication, medication allergy, and problem list stored in the EHR and those contained in the C-CDA. Upon completion of the clinical information reconciliation, the reconciled medication, medication allergy, and problem list are stored in the Hospital's EHR. This portion of the scenario tests:

- §170.314(b)(4) Clinical information reconciliation

INFORMATIVE TEST SCENARIO DESCRIPTION

This test scenario is organized into five sections:

- Medication list (page 4) – evaluates the capability to record, change, and access a patient’s active medication list as well as medication history
 - The Tester records, changes, and accesses the ONC-supplied patient active medications as well as medication history
- Medication allergy list (page 14) – evaluates the capability to record, change, and access a patient’s active medication allergy list as well as medication allergy history
 - The Tester records, changes, and accesses the ONC-supplied patient active medication allergies as well as medication allergy history
- Problem list (page 24) – evaluates the capability to record, change, and access a patient’s active problem list
 - The Tester records, changes, and accesses the ONC-supplied patient active problems
- Transitions of care – receive, display and incorporate transition of care/referral summaries (page 35) – evaluates the capability to receive, display and incorporate transition of care/referral summary
 - The Tester receives, displays and incorporates the ONC-supplied transition of care/referral summary
- Clinical information reconciliation (page 53) – evaluates the capability to reconcile data that represent a patient’s active medication, problem, and medication allergy list
 - The Tester electronically and simultaneously displays the patient’s active medication, problem, and medication allergy lists recorded in the EHR and received in the transition of care/referral summary
 - The Tester creates, reviews, validates, confirms and submits a single reconciled list of medications, medication allergies, or problems

Test Procedure for §170.314(a)(6) Medication list

CERTIFICATION CRITERION

This certification criterion is from the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule issued by the Department of Health and Human Services (HHS) on September 4, 2012. This certification criterion is included in the definition of a Base EHR.

§170.314(a)(6) Medication List. Enable a user to electronically record, change, and access a patient's active medication list as well as medication history:

- (i) Ambulatory setting. Over multiple encounters; or
- (ii) Inpatient setting. For the duration of an entire hospitalization.

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule, the 2014 Edition of this certification criterion is classified as unchanged without refinements from the 2011 Edition. This certification criterion meets the three factors of unchanged certification criteria: (1) the certification criterion includes only the same capabilities that were specified in previously adopted certification criteria, (2) the certification criterion's capabilities apply to the same setting as they did in previously adopted certification criteria, and (3) the certification criterion remains designated as "mandatory," or it is re-designated as "optional," for the same setting for which it was previously adopted certification criterion.

2014 EDITION PREAMBLE LANGUAGE

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the medication list certification criterion is discussed:

- "...we have required the use of RxNorm in instances where EHR technology would be used to perform external transmissions (e.g., for a transition of care (§ 170.314(b)(2)). Additionally, we require the capability to reconcile a patient's medication list as part of the adopted "clinical information reconciliation" certification criterion at § 170.314(b)(4) and the receipt of RxNorm codes in a summary care record should greatly facilitate this process. Thus, at this juncture, we do not believe it is necessary to require as a condition of certification that EHR technology natively record medications directly into RxNorm although such an approach may be more efficient and expeditious for some."
- "'Access' is used to mean the ability to examine or review information in or through EHR technology. We proposed to replace the term "retrieve" used in the 2011 Edition EHR

certification criteria with “access” because we believe it is clearer and more accurately expresses the capability we intend for EHR technology to include. We noted that some stakeholders had interpreted “retrieve” to suggest that the EHR technology also needed to be able to obtain data from external sources. Nevertheless, we stated that we interpret both “access” and “retrieve” to have essentially the same meaning, but note that “access” should not be interpreted to include necessarily the capability of obtaining or transferring the data from an external source.”

2011 EDITION PREAMBLE LANGUAGE

None referenced

CHANGES FROM 2011 TO 2014 EDITION

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the medication list certification criterion is discussed:

- “We proposed to include the following unchanged certification criteria in the 2014 Edition EHR certification criteria without any substantial refinements, except, where appropriate, replacing the terms “generate,” “modify,” and “retrieve” with “create,” “change,” and “access,” respectively.”
- “We note that in response to comments received on our use of the term “longitudinal care” in this certification criterion and in other certification criteria, we have replaced the term...[and] refer readers to our discussion of the revised “problem list” certification criterion earlier in this preamble.”
 - Per the problem list criterion in this preamble, “...for the ambulatory setting, we have replaced the term “longitudinal care” with “over multiple encounters.” We believe using “encounters” instead of “office visits” is a more clinically appropriate. We note that this revision has no substantive impact on current or future testing and certification processes. For the inpatient setting, we have replaced the term “longitudinal care” with “duration of an entire hospitalization,” which would continue to include situations where the patient moves to different wards or units (e.g., emergency department, intensive care, and cardiology) within the hospital during the hospitalization and continue to maintain that it would not cover multiple hospitalizations for the purpose of certification.”

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 EHR technology to enable a user to electronically record, change, and access a patient's active medication list and medication history:

- (i) Ambulatory setting. Over multiple encounters; or
- (ii) Inpatient setting. For the duration of an entire hospitalization.

The test procedure is not prescriptive about the method used to change the medication list. For example, changing a medication list does not require changing an existing instance of a medication. Changes can be accomplished through discontinuing/inactivating an existing medication on the list and entering a new instance of the medication.

This criterion shall be evaluated in the context of the care setting supported by the EHR. Specifically, for EHRs designed for an ambulatory setting, access to the medication information gathered during multiple encounters shall be available to the provider. There is no requirement that medication information gathered by other hospitals be accessible. For EHRs designed for an inpatient care setting, access to medication information gathered during the duration of an entire hospitalization shall be available to users in the inpatient care setting. There is no requirement that medication information gathered during prior hospitalizations or by Eligible Providers in the ambulatory settings be accessible.

ONC supplies the test data for this test procedure.

This test procedure is organized into three sections:

- Record – evaluates the capability to enter patient active medication data into the EHR to create the patient active medication list
 - The Tester enters the ONC-supplied patient active medications
- Change – evaluates the capability to change patient medication data that have been previously entered into the EHR
 - The Tester displays the patient active medication list data entered during the Record Patient Active Medication List test
 - The Tester changes the previously entered active medication data using ONC-supplied medication data, for example, changing a medication dose or frequency and discontinuing a medication
- Access – evaluates the capability to display the patient medication list data that have been previously entered into the EHR, including the capability to display the patient medication list as recorded during multiple ambulatory encounters or during the duration of an entire inpatient hospitalization
 - The Tester displays the patient active medication data entered during the test
 - The Tester displays the patient medication history, including changed medication data
 - The Tester verifies that the displayed medication list data and medication history data are accurate and complete, including the medication list data that were changed during the change test

For EHR technology **targeted to the ambulatory setting**, the following derived test requirements apply:

- DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting
- DTR170.314(a)(6) – 2: Electronically Change Patient Active Medication List in an Ambulatory Setting
- DTR170.314(a)(6) – 3: Electronically Access Patient Active Medication List and Medication History in an Ambulatory Setting

For EHR technology **targeted to the inpatient setting**, the following derived test requirements apply:

- DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting
- DTR170.314(a)(6) – 5: Electronically Change Patient Active Medication List in an Inpatient Setting
- DTR170.314(a)(6) – 6: Electronically Access Patient Active Medication List and Medication History in an Inpatient Setting

For EHR technology **targeted to both settings**, the following derived test requirements apply:

- DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting
- DTR170.314(a)(6) – 2: Electronically Change Patient Active Medication List in an Ambulatory Setting
- DTR170.314(a)(6) – 3: Electronically Access Patient Active Medication List and Medication History in an Ambulatory Setting
- DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting
- DTR170.314(a)(6) – 5: Electronically Change Patient Active Medication List in an Inpatient Setting
- DTR170.314(a)(6) – 6: Electronically Access Patient Active Medication List and Medication History in an Inpatient Setting

REFERENCED STANDARDS

None

NORMATIVE TEST PROCEDURES – AMBULATORY SETTING

Derived Test Requirements

DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting

DTR170.314(a)(6) – 2: Electronically Change Patient Active Medication List in an Ambulatory Setting

DTR170.314(a)(6) – 3: Electronically Access Patient Active Medication List and Medication History in an Ambulatory Setting

DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting

Required Vendor Information

VE170.314(a)(6) – 1.01: Using patient demographics indicated in the ONC-supplied TSD170.314(a)(6) Ambulatory Setting Test Scenario Data, the Vendor shall create, in the EHR, an ambulatory test patient to be used for this test, containing patient medications entered during multiple ambulatory encounters (for testing purposes at least three encounters over a multiple month timeframe)

VE170.314(a)(6) – 1.02: Vendor shall identify the EHR function(s) that are available to: 1) select the patient, 2) enter patient active medications, 3) change patient medications, 4) access patient active medication list, and 5) access medication history for multiple ambulatory encounters

Required Test Procedure

TE170.314(a)(6) – 1.01: Tester shall select the patient active medication data from the ONC-supplied test scenario data set TSD170.314(a)(6) – 1

TE170.314(a)(6) – 1.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and enter the patient active medications data from the ONC-supplied test scenario data set TSD170.314(a)(6) – 1

TE170.314(a)(6) – 1.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active medication test data have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(6) – 1.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(6) – 1 Tester shall verify that the patient active medication list test data are entered correctly and without omission

IN170.314(a)(6) – 1.02: Tester shall verify that the patient medication list data are stored in the patient's record

DTR170.314(a)(6) – 2: Electronically Change Patient Active Medication List in an Ambulatory Setting

Required Vendor Information

- As defined in DTR170.314(a)(6) – 1, no additional information is required

Required Test Procedure

TE170.314(a)(6) – 2.01: Tester shall select the patient medication test data from the ONC-supplied test scenario data set TSD170.314(a)(6) – 2

TE170.314(a)(6) – 2.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record, shall display the patient active medication list data entered during the DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting test, and shall change the previously entered patient medication list data

TE170.314(a)(6) – 2.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient medication list data changed in TE170.314(a)(6) – 2.02 have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(6) – 2.01: Tester shall verify that the patient active medication data entered during the DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting test are accessed and changed

IN170.314(a)(6) – 2.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(6) – 2, Tester shall verify that the changed medication list data are stored in the patient's record correctly and without omission

DTR170.314(a)(6) – 3: Electronically Access Patient Active Medication List and Medication History in an Ambulatory Setting

Required Vendor Information

- As defined in DTR170.314(a)(6) – 1, no additional information is required

Required Test Procedure

TE170.314(a)(6) – 3.01: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient active medication data entered during the DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting test and changed during the DTR170.314(a)(6) – 2: Electronically Change Patient Active Medication List in an Ambulatory Setting test

TE170.314(a)(6) – 3.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient medication history

TE170.314(a)(6) – 3.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active medication test list and the medication history test data display correctly and without omission

Inspection Test Guide

IN170.314(a)(6) – 3.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(6) – 3a, Tester shall verify that the patient active medication list data entered in the DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting test display correctly and without omission

IN170.314(a)(6) – 3.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(6) – 3b, Tester shall verify that the patient active medication list data entered in the DTR170.314(a)(6) – 1: Electronically Record Patient Active Medication List in an Ambulatory Setting test and changed in the DTR170.314(a)(6) – 1: Electronically Change Patient Active Medication List in an Ambulatory Setting test display correctly and without omission

NORMATIVE TEST PROCEDURES – INPATIENT SETTING

Derived Test Requirements

DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting

DTR170.314(a)(6) – 5: Electronically Change Patient Active Medication List in an Inpatient Setting

DTR170.314(a)(6) – 6: Electronically Access Patient Active Medication List and Medication History in an Inpatient Setting

DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting

Required Vendor Information

VE170.314(a)(6) – 4.01: Using patient demographics indicated in the ONC-supplied TSD170.314(a)(6) Inpatient Setting Test Scenario Data, the Vendor shall create, in the EHR, an inpatient test patient to be used for this test, containing patient medications entered during a hospitalization (for testing purposes over the entire duration of a hospital visit)

VE170.314(a)(6) – 4.02: Vendor shall identify the EHR function(s) that are available to: 1) select the patient, 2) enter patient active medications, 3) change patient medications, 4) access patient active medication list, and 5) access medication history for the duration of an entire hospitalization

Required Test Procedure

TE170.314(a)(6) – 4.01: Tester shall select the patient active medication data from the ONC-supplied test scenario data set TSD170.314(a)(6) – 4

TE170.314(a)(6) – 4.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and enter the patient active medications data from the ONC-supplied test scenario data set TSD170.314(a)(6) – 4

TE170.314(a)(6) – 4.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active medication test data have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(6) – 4.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(6) – 4, Tester shall verify that the patient active medication list test data are entered correctly and without omission

IN170.314(a)(6) – 4.02: Tester shall verify that the patient medication list data are stored in the patient's record

DTR170.314(a)(6) – 5: Electronically Change Patient Active Medication List in an Inpatient Setting

Required Vendor Information

- As defined in DTR170.314(a)(6) – 4, no additional information is required

Required Test Procedure:

- TE170.314(a)(6) – 5.01: Tester shall select the patient medication test data from the ONC-supplied test scenario data set TSD170.314(a)(6) – 5
- TE170.314(a)(6) – 5.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record, shall display the patient active medication list data entered during the DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting test, and shall change the previously entered patient medication list data
- TE170.314(a)(6) – 5.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient medication list data changed in TE170.314(a)(6) – 5.02 have been entered correctly and without omission

Inspection Test Guide:

- IN170.314(a)(6) – 5.01: Tester shall verify that the patient medication data entered during the DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting test are accessed and changed
- IN170.314(a)(6) – 5.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(6) – 5, Tester shall verify that the changed medication list data are stored in the patient's record correctly and without omission

DTR170.314(a)(6) – 6: Electronically Access Patient Active Medication List and Medication History in an Inpatient Setting

Required Vendor Information

- As defined in DTR170.314(a)(6) – 4, no additional information is required

Required Test Procedure

- TE170.314(a)(6) – 6.01: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient active medication data entered during the DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting test and changed during the DTR170.314(a)(6) – 5: Electronically Change Patient Active Medication List in an Inpatient Setting test
- TE170.314(a)(6) – 6.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient medication history
- TE170.314(a)(6) – 6.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active medication list test data and the medication history display correctly and without omission

Inspection Test Guide

- IN170.314(a)(6) – 6.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(6) – 6a, Tester shall verify that the patient active medication list data entered in the DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting test display correctly and without omission

IN170.314(a)(6) – 6.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(6) – 6b, Tester shall verify that the patient active medication list data entered in the DTR170.314(a)(6) – 4: Electronically Record Patient Active Medication List in an Inpatient Setting test and changed in the DTR170.314(a)(6) – 5: Electronically Change Patient Active Medication List in an Inpatient Setting test display correctly and without omission

TEST DATA

ONC-supplied test data are provided with the test procedure to ensure that the applicable requirements identified in the criteria can be adequately evaluated for conformance, as well as to provide consistency in the testing process across multiple National Voluntary Laboratory Accreditation Program (NVLAP)-Accredited Testing Labs (ATLs). The provided test data focus on evaluating the basic capabilities of required EHR technology, rather than exercising the full breadth/depth of capability that installed EHR technology might be expected to support. The test data are 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 provided 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 provided test data needs to be modified in order to conduct an adequate test. Having made the determination that some modification to the provided 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 applicable requirements identified in the criterion can be adequately evaluated for conformance and that the test data provides a comparable level of robustness. Having made the determination that some modification to the provided test data is necessary, the Tester shall record the modifications made as part of the test documentation.

Any departure from the provided 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 applicable 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.

For additional information regarding the provided test data for use in this test procedure:

- Test Scenario Data for §170.314(a)(6) Medication list available at <http://www.healthit.gov/certification> (navigation: 2014 Edition Testing and Certification > 2014 Edition Test Method > 2014 Edition Test Scenarios > 2014 Edition Draft Test Scenarios)

CONFORMANCE TEST TOOLS

None

DRAFT

Test Procedure for §170.314(a)(7) Medication allergy list

CERTIFICATION CRITERION

This certification criterion is from the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule issued by the Department of Health and Human Services (HHS) on September 4, 2012. This certification criterion is included in the definition of a Base EHR.

§170.314(a)(7) Medication allergy list. Enable a user to electronically record, change, and access a patient's active medication allergy list as well as medication allergy history:

- (i) Ambulatory setting. Over multiple encounters; or
- (ii) Inpatient setting. For the duration of an entire hospitalization.

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Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the medication allergy list certification criterion is discussed:

- "...we continue to encourage EHR technology developers to include capabilities that may go beyond certification requirements, particularly where that may improve patient safety."
- "Similar to the rationale provided in our response...regarding the "medication list" certification criterion, we decline to require as a condition of certification that EHR technology natively record medication allergies directly into RxNorm. We have however, in response to these comments and other comments received on the other certification criteria that reference medication allergies, adopted RxNorm for instances where this data would be included in a CCDA formatted document."
- "'Access' is used to mean the ability to examine or review information in or through EHR technology. We proposed to replace the term "retrieve" used in the 2011 Edition EHR

certification criteria with “access” because we believe it is clearer and more accurately expresses the capability we intend for EHR technology to include. We noted that some stakeholders had interpreted “retrieve” to suggest that the EHR technology also needed to be able to obtain data from external sources. Nevertheless, we stated that we interpret both “access” and “retrieve” to have essentially the same meaning, but note that “access” should not be interpreted to include necessarily the capability of obtaining or transferring the data from an external source.”

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Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the medication allergy list certification criterion is discussed:

- “We proposed to include the following unchanged certification criteria in the 2014 Edition EHR certification criteria without any substantial refinements, except, where appropriate, replacing the terms “generate,” “modify,” and “retrieve” with “create,” “change,” and “access,” respectively.”
- “We note that in response to comments received on our use of the term “longitudinal care” in this certification criterion and in other certification criteria, we have replaced the term...[and] refer readers to our discussion of the revised “problem list” certification criterion earlier in this preamble.”
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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 EHR technology to enable a user to electronically record, change, and access a patient's active medication allergy list and medication allergy history:

- (i) Ambulatory setting. Over multiple encounters; or
- (ii) Inpatient setting. For the duration of an entire hospitalization

Changing a medication allergy list does not require changing an existing instance of a medication allergy. Changes may be accomplished through inactivating or annotating an existing medication allergy on the list.

This criterion shall be evaluated in the context of the care setting supported by the EHR. Specifically, for EHRs designed for an ambulatory setting, access to the medication allergy information gathered during multiple encounters shall be available to the provider. There is no requirement that allergy information gathered by hospitals be accessible. For EHRs designed for an inpatient care setting, access to medication allergy information gathered during the duration of an entire hospitalization shall be available to users in the inpatient care setting. There is no requirement that allergy information gathered during prior hospitalizations or by Eligible Providers in the ambulatory settings be accessible.

ONC supplies part of the test data and the Vendor supplies part of the test data for this test procedure.

This test procedure is organized into three sections:

- Record – evaluates the capability to enter patient active medication allergy data into the EHR to create the patient active medication allergy list
 - The Tester enters the ONC-supplied active medication allergies
- Change – evaluates the capability to change patient medication allergy data that have been previously entered into the EHR
 - The Tester displays the patient active medication allergy list data entered during the Record Patient Active Medication Allergy List test
 - The Tester changes the previously entered active medication allergy data using ONC-supplied medication allergy data, for example, changing an allergy status from active to inactive and changing or entering additional allergy reactions for an existing allergy
- Access – evaluates the capability to display the patient medication allergy list data that have been previously entered into the EHR, including the capability to display the patient medication allergy history list as recorded during multiple ambulatory encounters or during the duration of an entire inpatient hospitalization
 - The Tester displays the patient active medication allergy data entered during the test
 - The Tester displays the patient medication allergy history including changed patient medication allergy data
 - The Tester verifies that the displayed medication allergy list data and medication allergy history data are accurate and complete including the medication allergy list data that were changed during the change test

For EHR technology **targeted to the ambulatory setting**, the following derived test requirements apply:

- DTR170.314(a)(7) – 1: Electronically Record Patient Active Medication Allergy List in an Ambulatory Setting
- DTR170.314(a)(7) – 2: Electronically Change Patient Active Medication Allergy List in an Ambulatory Setting
- DTR170.314(a)(7) – 3: Electronically Access Patient Active Medication Allergy List and Medication Allergy History in an Ambulatory Setting

For EHR technology **targeted to the inpatient setting**, the following derived test requirements apply:

- DTR170.314(a)(7) – 4: Electronically Record Patient Active Medication Allergy List in an Inpatient Setting
- DTR170.314(a)(7) – 5: Electronically Change Patient Active Medication Allergy List in an Inpatient Setting
- DTR170.314(a)(7) – 6: Electronically Access Patient Active Medication Allergy List and Medication Allergy History in an Inpatient Setting

For EHR technology **targeted to both settings**, the following derived test requirements apply:

- DTR170.314(a)(7) – 1: Electronically Record Patient Active Medication Allergy List in an Ambulatory Setting
- DTR170.314(a)(7) – 2: Electronically Change Patient Active Medication Allergy List in an Ambulatory Setting
- DTR170.314(a)(7) – 3: Electronically Access Patient Active Medication Allergy List and Medication Allergy History in an Ambulatory Setting
- DTR170.314(a)(7) – 4: Electronically Record Patient Active Medication Allergy List in an Inpatient Setting
- DTR170.314(a)(7) – 5: Electronically Change Patient Active Medication Allergy List in an Inpatient Setting
- DTR170.314(a)(7) – 6: Electronically Access Patient Active Medication Allergy List and Medication Allergy History in an Inpatient Setting

REFERENCED STANDARDS

None

NORMATIVE TEST PROCEDURES – AMBULATORY SETTING

Derived Test Requirements

DTR170.314(a)(7) – 1: Electronically Record Patient Active Medication Allergy List in an Ambulatory Setting

DTR170.314(a)(7) – 2: Electronically Change Patient Active Medication Allergy List in an Ambulatory Setting

DTR170.314(a)(7) – 3: Electronically Access Patient Active Medication Allergy List and Medication Allergy History in an Ambulatory Setting

DTR170.314(a)(7) – 1: Electronically Record Patient Active Medication Allergy List in an Ambulatory Setting

Required Vendor Information

VE170.314(a)(7) – 1.01: Vendor shall use the ambulatory patient identified in the medication list test procedure which contains patient medication allergies entered during multiple ambulatory encounters to be used for this test (for testing purposes at least three encounters over a multiple month timeframe)

VE170.314(a)(7) – 1.02: Vendor shall identify the EHR function(s) that are available to: 1) select the patient, 2) enter patient medication allergies, 3) change patient medication allergies, and 4) access patient active medication allergy list and medication allergy history for multiple ambulatory encounters

Required Test Procedure

TE170.314(a)(7) – 1.01: Tester shall select the patient active medication allergy data from the ONC-supplied test scenario data set TSD170.314(a)(7) – 1

TE170.314(a)(7) – 1.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and enter the patient active medication allergy data from the ONC-supplied test scenario data set TSD170.314(a)(7) – 1

TE170.314(a)(7) – 1.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active medication allergy test data have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(7) – 1.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(7) – 1, Tester shall verify that the patient active medication allergy list test data are entered correctly and without omission

IN170.314(a)(7) – 1.02: Tester shall verify that the patient medication allergy list data are stored in the patient's record

DTR170.314(a)(7) – 2: Electronically Change Patient Active Medication Allergy List in an Ambulatory Setting

Required Vendor Information

- As defined in DTR170.314(a)(7) – 1, no additional information is required

Required Test Procedure

TE170.314(a)(7) – 2.01: Tester shall select the patient medication allergy test data from ONC-supplied test scenario data set TSD170.314(a)(7) – 2

TE170.314(a)(7) – 2.02: Using the EHR function(s) identified by the Vendor , the Tester shall select the patient's existing record, shall display the patient active medication allergy list data entered during the DTR170.314(a)(7) – 1: Electronically Record Patient Medication Allergy List in an Ambulatory Setting test, and shall change the previously entered patient medication allergy list data

TE170.314(a)(7) – 2.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient medication allergy list data changed in TE170.314(a)(7) – 2.02 have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(7) – 2.01: Tester shall verify that the patient medication allergy data entered during the DTR170.314(a)(7) – 1: Record Patient Medication Allergy List in an Ambulatory Setting test are accessed and changed

IN170.314(a)(7) – 2.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(7) – 2, Tester shall verify that the changed medication allergy list data are stored in the patient's record correctly and without omission

DTR170.314(a)(7) – 3: Electronically Access Patient Active Medication Allergy List and Medication Allergy History in an Ambulatory Setting

Required Vendor Information

- As defined in DTR170.314(a)(7) – 1, no additional information is required

Required Test Procedure

TE170.314(a)(7) – 3.01: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient active medication allergy list and medication allergy history data entered during the DTR170.314(a)(7) – 1: Electronically Record Patient Active Medication Allergy List in an Ambulatory Setting test and changed during the DTR170.314(a)(7) – 2: Electronically Change Patient Active Medication Allergy List in an Ambulatory Setting tests

TE170.314(a)(7) – 3.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient medication allergy history

TE170.314(a)(7) – 3.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active medication allergy list and medication allergy history test data display correctly and without omission

Inspection Test Guide

IN170.314(a)(7) – 3.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(7) – 3a, Tester shall verify that the patient active medication allergy list data entered in the DTR170.314(a)(7) – 1: Electronically Record Patient Active Medication Allergy in an Ambulatory Setting test and changed in the DTR170.314(a)(7) – 2: Electronically Change Patient Active Medication Allergy List in an Ambulatory Setting test display correctly and without omission

IN170.314(a)(7) – 3.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(7) – 3b, Tester shall verify that medication allergies with active as well as those with inactive status, as entered in the DTR170.314(a)(7) – 1: Electronically Record Patient Active Medication Allergy in an Ambulatory Setting test and changed in the DTR170.314(a)(7) – 2: Electronically Change Patient Active Medication Allergy List in an Ambulatory Setting test, display correctly and without omission

NORMATIVE TEST PROCEDURES – INPATIENT SETTING

Derived Test Requirements

DTR170.314(a)(7) – 4: Electronically Record Patient Active Medication Allergy List in an Inpatient Setting

DTR170.314(a)(7) – 5: Electronically Change Patient Active Medication Allergy List in an Inpatient Setting

DTR170.314(a)(7) – 6: Electronically Access Patient Active Medication Allergy List and Medication Allergy History in an Inpatient Setting

DTR170.314(a)(7) – 4: Electronically Record Patient Active Medication Allergy List in an Inpatient Setting

Required Vendor Information

VE170.314(a)(7) – 4.01: Vendor shall use the inpatient identified in the medication list test procedure which contains patient medication allergies entered during a hospitalization to be used for this test (for testing purposes over the entire duration of a hospital visit)

VE170.314(a)(7) – 4.02: Vendor shall identify the EHR function(s) that are available to: 1) select the patient, 2) enter patient medication allergies, 3) change patient medication allergies, and 4) access patient active medication allergy list and medication allergy history for the duration of an entire hospitalization

Required Test Procedure

TE170.314(a)(7) – 4.01: Tester shall select the patient active medication allergy data from the ONC-supplied test scenario data set TSD170.314(a)(7) – 4

TE170.314(a)(7) – 4.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and enter patient active medication allergy data from the ONC-supplied test scenario data set TSD170.314(a)(7) – 4

TE170.314(a)(7) – 4.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active medication allergy test data have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(7) – 4.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(7) – 4, Tester shall verify that the patient active medication allergy list test data are entered correctly and without omission

IN170.314(a)(7) – 4.02: Tester shall verify that the patient medication allergy list data are stored in the patient's record

DTR170.314(a)(7) – 5: Electronically Change Patient Active Medication Allergy List in an Inpatient Setting

Required Vendor Information

- As defined in DTR170.314(a)(7) – 4, no additional information is required

Required Test Procedure

TE170.314(a)(7) – 5.01: Tester shall select patient medication allergy test data from ONC-supplied test scenario data set TSD170.314(a)(7) – 5

TE170.314(a)(7) – 5.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record, shall display the patient active medication allergy list data entered during the DTR170.314(a)(7) – 4: Electronically Record Patient Active Medication Allergy List in an Inpatient Setting test, and shall change the previously entered patient medication allergy list data

TE170.314(a)(7) – 5.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient medication allergy list data changed in the DTR170.314(a)(7) – 5: Electronically Change Patient Active Medication Allergy List in an Inpatient Setting test have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(7) – 5.01: Tester shall verify that the patient medication allergy data entered during the DTR170.314(a)(7) – 4: Electronically Record Patient Active Medication Allergy List in an Inpatient Setting test are accessed and changed

IN170.314(a)(7) – 5.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(7) – 5, Tester shall verify that the changed medication allergy list data are stored in the patient's record correctly and without omission

DTR170.314(a)(7) – 6: Electronically Access Patient Active Medication Allergy List in an Inpatient Setting

Required Vendor Information

- As defined in DTR170.314(a)(7) – 4, no additional information is required

Required Test Procedure

TE170.314(a)(7) – 6.01: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient active medication allergy list data entered during the DTR170.314(a)(7) – 4: Electronically Record Patient

Active Medication Allergy List in an Inpatient Setting and DTR170.314(a)(7) – 5:
Electronically Change Patient Active Medication Allergy List in an Inpatient
Setting tests

TE170.314(a)(7) – 6.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient medication allergy history

TE170.314(a)(7) – 6.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active medication allergy list test data display correctly and without omission

Inspection Test Guide

IN170.314(a)(7) – 6.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(7) – 6a, Tester shall verify that the patient active medication allergy list data entered in the DTR170.314(a)(7) – 4: Electronically Record Patient Active Medication Allergy List in an Inpatient Setting test and changed in the DTR170.314(a)(7) – 5: Electronically Change Patient Active Medication Allergy List in an Inpatient Setting test display correctly and without omission

IN170.314(a)(7) – 6.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(7) – 6b, Tester shall verify that medication allergies with active as well as those with inactive status, as entered in the DTR170.314(a)(7) – 4: Electronically Record Patient Active Medication Allergy List in an Inpatient Setting test and changed in the DTR170.314(a)(7) – 5: Electronically Change Patient Active Medication Allergy List in an Inpatient Setting test, display correctly and without omission

TEST DATA

ONC- and Vendor-supplied test data are provided with the test procedure to ensure that the applicable requirements identified in the criteria can be adequately evaluated for conformance, as well as to provide consistency in the testing process across multiple National Voluntary Laboratory Accreditation Program (NVLAP)-Accredited Testing Labs (ATLs). The provided test data focus on evaluating the basic capabilities of required EHR technology, rather than exercising the full breadth/depth of capability that installed EHR technology might be expected to support. The test data are 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 provided test data during the test, without exception, unless one of the following conditions exists:

- The test procedure requires or permits the use of vendor-supplied test data.
- The Tester determines that the Vendor product is sufficiently specialized that the provided test data needs to be modified in order to conduct an adequate test. Having made the determination that some modification to the provided 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 applicable requirements identified in the criterion can be adequately evaluated for conformance and that the test data provides a comparable level of robustness. Having made the determination that some modification to the provided test data is necessary, the Tester shall record the modifications made as part of the test documentation.

Any departure from the provided 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 applicable 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.

For Vendor-supplied test data, the Tester shall address the following:

- Vendor-supplied test data shall ensure that the 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.

For additional information regarding the provided test data for use in this test procedure:

- Test Scenario Data for §170.314(a)(7) Medication allergy list available at <http://www.healthit.gov/certification> (navigation: 2014 Edition Testing and Certification > 2014 Edition Test Method > 2014 Edition Test Scenarios > 2014 Edition Draft Test Scenarios)

CONFORMANCE TEST TOOLS

None

Test Procedure for §170.314(a)(5) Problem list

CERTIFICATION CRITERION

This certification criterion is from the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule issued by the Department of Health and Human Services (HHS) on September 4, 2012. This certification criterion is included in the definition of a Base EHR.

§170.314(a)(5) Problem list. Enable a user to electronically record, change, and access a patient's active problem list:

- (i) Ambulatory setting. Over multiple encounters in accordance with, at a minimum, the version of the standard specified in §170.207(a)(3); or
- (ii) Inpatient setting. For the duration of an entire hospitalization in accordance with, at a minimum, the version of the standard specified in §170.207(a)(3).

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule, the 2014 Edition of this certification criterion is classified as revised from the 2011 Edition. This certification criterion meets at least one of the three factors of revised certification criteria: (1) the certification criterion includes changes to capabilities that were specified in the previously adopted certification criterion, (2) the certification criterion has a new mandatory capability that was not included in the previously adopted certification criterion, or (3) the certification criterion was previously adopted as “optional” for a particular setting and is subsequently adopted as “mandatory” for that setting.

2014 EDITION PREAMBLE LANGUAGE

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the problem list criterion is discussed:

- “...SNOMED CT[®] is the best vocabulary to use in those certification criteria that focus on electronic health information exchange. It is necessary that we specify a vocabulary for the problem list within EHR technology because it supports the current requirement that EPs, EHs, and CAHs need to meet to demonstrate MU.”
- “We clarify that this certification criterion does not preclude the use of interface terms, local terms, or other terms from being displayed to a health care provider in lieu of SNOMED CT[®] to find, select, or view a patient's problem list. However, if such an approach is taken, the EHR technology must ultimately be able to record the semantic representation of the problem list in

SNOMED CT[®]. For example, if a user of a given EHR technology is using a set of interface terms or any other clinical vocabulary that has been mapped to SNOMED CT[®], this user may perform a search for a term that represents the patient's problem, select the appropriate term, and "save" that term to the patient's problem list, where it may be displayed. The EHR technology is required to record the problem in SNOMED CT[®] because this is the requirement...for alignment with the EHR Incentive Programs... SNOMED CT[®] codes are not required for display in the EHR technology in order for it to meet this certification criterion."

- "For information exchange, the EHR technology must send the problem in SNOMED CT[®]."
- "...SNOMED CT[®] is the appropriate standard for clinical use, and we agree that mapping from SNOMED CT[®] to appropriate administrative codes such as ICD-10-CM will be necessary... We do not, however, intend to require the use of mappings as part of this 2014 Edition EHR certification criterion."
- "We have established a process for adopting certain vocabulary standards, including SNOMED CT[®], which permits the use of newer versions of those standards than the one adopted in regulation."

2011 EDITION PREAMBLE LANGUAGE

None referenced

CHANGES FROM 2011 TO 2014 EDITION

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the problem list criterion is discussed:

- "...we proposed to replace the terms "modify" and "retrieve" in the certification criterion with "change" and "access," respectively."
- "We stated that we agreed with the HITSC that the use of ICD-9-CM should no longer be required due to the pending move to ICD-10-CM, but also stated that it would be inappropriate to require the use of ICD-10-CM for problem lists."
- "We proposed the use of the January 2012 International Release of SNOMED CT[®], but have adopted the July 2012 International Release of SNOMED CT[®] as well as the March 2012 U.S. Extension to SNOMED CT[®]."
- "We stated that SNOMED CT[®] (and not ICD-10-CM) would be required for calculation of CQMs and proposed only SNOMED CT[®] as the appropriate standard for the recording of patient problems in a problem list. We noted that this proposal did not, however, preclude the use of ICD-10-CM for the capture and/or transmission of encounter billing diagnoses."
- "...we agree with commenters that...the US Extension [to SNOMED CT[®]] is necessary...and, therefore, [we] have adopted it in conjunction with SNOMED CT[®]."

- “...for the ambulatory setting, we have replaced the term “longitudinal care” with “over multiple encounters.” We believe using “encounters” instead of “office visits” is a more clinically appropriate. We note that this revision has no substantive impact on current or future testing and certification processes. For the inpatient setting, we have replaced the term “longitudinal care” with “duration of an entire hospitalization,” which would continue to include situations where the patient moves to different wards or units (e.g., emergency department, intensive care, and cardiology) within the hospital during the hospitalization and continue to maintain that it would not cover multiple hospitalizations for the purpose of certification.”

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 EHR technology to enable a user to electronically record, change, and access a patient’s problem list:

- (i) Ambulatory setting. Over multiple encounters in accordance with, at a minimum, the version of the standard specified in §170.207(a)(3); or
- (ii) Inpatient setting. For the duration of an entire hospitalization in accordance with, at a minimum, the version of the standard specified in §170.207(a)(3).

The test procedure is not prescriptive about the method used to change the problem list. For example, changing a problem list does not require changing an existing instance of a problem. Change can be accomplished through changing the status of an existing problem or entering a new problem.

For EHRs designed for an ambulatory setting, access to the problem list information gathered during multiple patient encounters shall be available to the provider. There is no requirement that problem list information gathered by hospitals be accessible. For EHRs designed for an inpatient care setting, access to problem list information gathered during the current hospitalization episode of care shall be available to users in the inpatient care setting. There is no requirement that problem list information gathered during prior hospitalizations or by Eligible Providers in the ambulatory settings be accessible.

ONC supplies part of the test data and the Vendor supplies part of the test data for this test procedure.

This test procedure is organized into three sections:

- Record – evaluates the capability to enter patient health problems into the EHR to create the patient active problem list
 - The Tester enters the ONC-supplied patient active problem test data. The Inspection Test Guide describes several methods by which the EHR can demonstrate conformance with the vocabulary requirement

- **Change** – evaluates the capability to change patient active problem list data which have been previously entered into the EHR
 - The Tester displays the patient active problem list data entered during the Record Patient Active Problem List test
 - The Tester changes the previously entered patient problems data using ONC-supplied patient active problem list data

- **Access** – evaluates the capability to display the patient problem list data that have been previously entered into the EHR, including the capability to display the patient problem list as recorded during multiple ambulatory encounters or during a single inpatient hospitalization
 - The Tester displays the patient active problem list data entered during the test
 - The Tester displays the patient problem history, including changed medication data
 - The Tester verifies that the displayed problem list data and problem history data are accurate and complete, including the problem list data that were changed during the change test

For EHR technology **targeted to the ambulatory setting**, the following derived test requirements apply:

- DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting
- DTR170.314(a)(5) – 2: Electronically Change Patient Active Problem List in an Ambulatory Setting
- DTR170.314(a)(5) – 3: Electronically Access Patient Active Problem List and Problem History in an Ambulatory Setting

For EHR technology **targeted to the inpatient setting**, the following derived test requirements apply:

- DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting
- DTR170.314(a)(5) – 5: Electronically Change Patient Active Problem List in an Inpatient Setting
- DTR170.314(a)(5) – 6: Electronically Access Patient Active Problem List and Problem History in an Inpatient Setting

For EHR technology **targeted to both settings**, the following derived test requirements apply:

- DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting
- DTR170.314(a)(5) – 2: Electronically Change Patient Active Problem List in an Ambulatory Setting
- DTR170.314(a)(5) – 3: Electronically Access Patient Active Problem List and Problem History in an Ambulatory Setting
- DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting
- DTR170.314(a)(5) – 5: Electronically Change Patient Active Problem List in an Inpatient Setting

- DTR170.314(a)(5) – 6: Electronically Access Patient Active Problem List and Problem History in an Inpatient Setting

REFERENCED STANDARDS

§170.207 Vocabulary standards for representing electronic health information	Regulatory Referenced Standard
The Secretary adopts the following code sets, terminology, and nomenclature as the vocabulary standards for the purpose of representing electronic health information:	
(a)(3) Standard. IHTSDO SNOMED CT® International Release July 2012 (incorporated by reference in §170.299) and US Extension to SNOMED CT® March 2012 Release (incorporated by reference in §170.299).	

NORMATIVE TEST PROCEDURES – AMBULATORY SETTING

Derived Test Requirements

- DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting
- DTR170.314(a)(5) – 2: Electronically Change Patient Active Problem List in an Ambulatory Setting
- DTR170.314(a)(5) – 3: Electronically Access Patient Active Problem List and Problem History in an Ambulatory Setting

DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting

Required Vendor Information

- VE170.314(a)(5) – 1.01: Vendor shall use the ambulatory patient identified in the medication and medication allergy list test procedures which contains patient problems entered during multiple ambulatory encounters to be used for this test (for testing purposes at least three encounters over a multiple month timeframe)
- VE170.314(a)(5) – 1.02: Vendor shall identify the EHR function(s) that are available to: 1) select the patient, 2) enter patient active problems, 3) change patient problems, 4) access patient active problem list, and 5) access patient problem history for multiple ambulatory encounters

Required Test Procedure

- TE170.314(a)(5) – 1.01: Tester shall select patient active problem list data from the ONC-supplied test scenario data set TSD170.314(a)(5) – 1
- TE170.314(a)(5) – 1.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and enter patient active problem list data from the ONC-supplied test scenario data set TSD170.314(a)(5) – 1

TE170.314(a)(5) – 1.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active problem test data have been entered correctly, without omission and in conformance with the vocabulary standard

Inspection Test Guide

IN170.314(a)(5) – 1.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(5) – 1, Tester shall verify that the patient active problem list test data are entered correctly and without omission

IN170.314(a)(5) – 1.02: Tester shall verify that the patient problem list data entered during the test are associated with the required vocabulary standard terms and codes. Verification methods include, but are not limited to:

- verifying that the appropriate vocabulary standard terms and codes are displayed along with the patient problem list data when the user is recording patient problems; or
- verifying that the EHR includes the capability to cross-reference (map) the user-displayed problem list data to the appropriate vocabulary standard terms and codes; or
- verifying that the patient problem list data stored in the EHR contains the appropriate vocabulary standard terms and codes

IN170.314(a)(5) – 1.03: Tester shall verify the patient problem list data and associated vocabulary standard terms and codes are stored in the patient's record

DTR170.314(a)(5) – 2: Electronically Change Patient Active Problem List in an Ambulatory Setting

Required Vendor Information

- As defined in DTR170.314(a)(5) – 1, no additional information is required

Required Test Procedure

TE170.314(a)(5) – 2.01: Tester shall select patient problem test data from the ONC-supplied test scenario data set TSD170.314(a)(5) – 2

TE170.314(a)(5) – 2.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record, shall display the patient active problem list data entered during the DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting test, and shall change the previously entered patient problem list data

TE170.314(a)(5) – 2.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient problem list data changed in TE170.314(a)(5) – 2.02 have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(5) – 2.01: Tester shall verify that the patient active problems entered during the DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting test are accessed and changed

IN170.314(a)(5) – 2.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(5) – 2, Tester shall verify that the changed patient problem list data and associated vocabulary standard terms and codes are stored in the patient’s record correctly and without omission

DTR170.314(a)(5) – 3: Electronically Access Patient Active Problem List and Problem History in an Ambulatory Setting

Required Vendor Information

- As defined in DTR170.314(a)(5) – 1, no additional information is required

Required Test Procedure

TE170.314(a)(5) – 3.01: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient’s existing record and shall display the patient active problems entered during the DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting test and changed during the DTR170.314(a)(5) – 2: Electronically Change Patient Active Problem List in an Ambulatory Setting test

TE170.314(a)(5) – 3.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient’s existing record and shall display the patient problem history

TE170.314(a)(5) – 3.03: Using the Inspection Test Guide (below), the tester shall verify that the patient active problem list test data and the patient problem history display correctly and without omission

Inspection Test Guide

IN170.314(a)(5) – 3.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(5) – 3, Tester shall verify that the patient active problem list data entered in the DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting test and DTR170.314(a)(5) – 2: Electronically Change Patient Active Problem List in an Ambulatory Setting test display correctly and without omission

IN170.314(a)(5) – 3.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(5) – 3, Tester shall verify that the patient active problem list data entered in the DTR170.314(a)(5) – 1: Electronically Record Patient Active Problem List in an Ambulatory Setting test and DTR170.314(a)(5) – 2: Electronically Change Patient Active Problem List in an Ambulatory Setting test display correctly and without omission

NORMATIVE TEST PROCEDURES – INPATIENT SETTING

Derived Test Requirements

DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting

DTR170.314(a)(5) – 5: Electronically Change Patient Active Problem List in an Inpatient Setting

DTR170.314(a)(5) – 6: Electronically Access Patient Active Problem List and Problem History in an Inpatient Setting

DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting

Required Vendor Information

VE170.314(a)(5) – 4.01: Vendor shall use the inpatient identified in the medication and medication allergy list test procedures which contains patient problems entered during a hospitalization to be used for this test (for testing purposes over the entire duration of a hospital visit)

VE170.314(a)(5) – 4.02: Vendor shall identify the EHR function(s) that are available to: 1) select the patient, 2) enter patient active problems, 3) change patient problems, 4) access patient active problem list, and 5) access patient problem history for the duration of an entire hospitalization

Required Test Procedure

TE170.314(a)(5) – 4.01: Tester shall select the patient active problems data from the ONC-supplied test scenario data set TSD170.314(a)(5) – 4

TE170.314(a)(5) – 4.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and enter patient active problem list data from the ONC-supplied test scenario data set TSD170.314(a)(5) – 4

TE170.314(a)(5) – 4.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient active problem test data have been entered correctly, without omission and in conformance with the vocabulary standard

Inspection Test Guide

IN170.314(a)(5) – 4.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(5) – 4, Tester shall verify that the patient active problem list test data are entered correctly and without omission

IN170.314(a)(5) – 4.02: Tester shall verify that the patient problem list data entered during the test are associated with the required vocabulary standard terms and codes. Verification methods include, but are not limited to:

- verifying that the appropriate vocabulary standard terms and codes are displayed along with the patient problem list data when the user is recording patient problems; or
- verifying that the EHR includes the capability to cross-reference (map) the user-displayed problem list data to the appropriate vocabulary standard terms and codes; or
- verifying that the patient problem list data stored in the EHR contains the appropriate vocabulary standard terms and codes

IN170.314(a)(5) – 4.03: Tester shall verify the patient problem list data and associated vocabulary standard terms and codes are stored in the patient's record

DTR170.314(a)(5) – 5: Electronically Change Patient Active Problem List in an Inpatient Setting

Required Vendor Information

- As defined in DTR170.314(a)(5) – 4, no additional information is required

Required Test Procedure

TE170.314(a)(5) – 5.01: Tester shall select the patient problem test data from the ONC-supplied test scenario data set TSD170.314(a)(5) – 5

TE170.314(a)(5) – 5.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record, shall display the patient active problem list data entered during the DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting test, and shall change the previously entered patient problem list data

TE170.314(a)(5) – 5.03: Using the Inspection Test Guide (below), the Tester shall verify that the patient problem list data changed in TE170.314(a)(5) – 5.02 have been entered correctly and without omission

Inspection Test Guide

IN170.314(a)(5) – 5.01: Tester shall verify that the patient problems entered during the DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting test are accessed and changed

IN170.314(a)(5) – 5.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(5) – 5, Tester shall verify that the changed patient problem list data and associated vocabulary standard terms and codes are stored in the patient's record

DTR170.314(a)(5) – 6: Electronically Access Patient Active Problem List and Problem History in an Inpatient Setting

Required Vendor Information

- As defined in DTR170.314(a)(5) – 4, no additional information is required

Required Test Procedure

TE170.314(a)(5) – 6.01: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient active problems entered during the DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting test and changed during the DTR170.314(a)(5) – 5: Electronically Change Patient Active Problem List in an Inpatient Setting test

TE170.314(a)(5) – 6.02: Using the EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the patient problem history

TE170.314(a)(5) – 6.03: Using the Inspection Test Guide (below), the tester shall verify that the patient active problem list test data and the patient problem history display correctly and without omission

Inspection Test Guide

IN170.314(a)(5) – 6.01: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(5) – 6a, Tester shall verify that the patient active problem list data entered in the DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting test and DTR170.314(a)(5) – 5: Electronically Change Patient Active Problem List in an Inpatient Setting test display correctly and without omission

IN170.314(a)(5) – 6.02: Using the data in the ONC-supplied test scenario data set TSD170.314(a)(5) – 6b, Tester shall verify that the patient active problem list data entered in the DTR170.314(a)(5) – 4: Electronically Record Patient Active Problem List in an Inpatient Setting test and DTR170.314(a)(5) – 5: Electronically Change Patient Active Problem List in an Inpatient Setting test display correctly and without omission

TEST DATA

ONC- and Vendor-supplied test data are provided with the test procedure to ensure that the applicable requirements identified in the criteria can be adequately evaluated for conformance, as well as to provide consistency in the testing process across multiple National Voluntary Laboratory Accreditation Program (NVLAP)-Accredited Testing Labs (ATLs). The provided test data focus on evaluating the basic capabilities of required EHR technology, rather than exercising the full breadth/depth of capability that installed EHR technology might be expected to support. The test data are 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 provided test data during the test, without exception, unless one of the following conditions exists:

- The test procedure requires or permits the use of vendor-supplied test data.
- The Tester determines that the Vendor product is sufficiently specialized that the provided test data needs to be modified in order to conduct an adequate test. Having made the determination that some modification to the provided 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 applicable requirements identified in the criterion can be adequately evaluated for conformance and that the test data provides a comparable level of robustness. Having made the determination that some modification to the provided test data is necessary, the Tester shall record the modifications made as part of the test documentation.

Any departure from the provided 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 applicable 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.

For Vendor-supplied test data, the Tester shall address the following:

- Vendor-supplied test data shall ensure that the 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.

For additional information regarding the provided test data for use in this test procedure:

- Test Scenario Data for §170.314(a)(5) Problem list available at <http://www.healthit.gov/certification> (navigation: 2014 Edition Testing and Certification > 2014 Edition Test Method > 2014 Edition Test Scenarios > 2014 Edition Draft Test Scenarios)

CONFORMANCE TEST TOOLS

None

Test Procedure for §170.314(b)(1) Transitions of care – receive, display and incorporate transition of care/referral summaries

CERTIFICATION CRITERION

This certification criterion is from the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule issued by the Department of Health and Human Services (HHS) on September 4, 2012. This certification criterion is included in the definition of a Base EHR.

§170.314(b)(1) Transitions of care – receive, display, and incorporate transition of care/referral summaries.

- (i) Receive. EHR technology must be able to electronically receive transition of care/referral summaries in accordance with:
 - (A) The standard specified in § 170.202(a).
 - (B) Optional. The standards specified in § 170.202(a) and (b).
 - (C) Optional. The standards specified in § 170.202(b) and (c).
- (ii) Display. EHR technology must be able to electronically display in human readable format the data included in transition of care/referral summaries received and formatted according to any of the following standards (and applicable implementation specifications) specified in: § 170.205(a)(1), § 170.205(a)(2), and § 170.205(a)(3).
- (iii) Incorporate. Upon receipt of a transition of care/referral summary formatted according to the standard adopted at § 170.205(a)(3), EHR technology must be able to:
 - (A) Correct patient. Demonstrate that the transition of care/referral summary received is or can be properly matched to the correct patient
 - (B) Data incorporation. Electronically incorporate the following data expressed according to the specified standard(s):
 - (1) Medications. At a minimum, the version of the standard specified in § 170.207(d)(2);
 - (2) Problems. At a minimum, the version of the standard specified in § 170.207(a)(3);
 - (3) Medication allergies. At a minimum, the version of the standard specified in §170.207(d)(2)
 - (C) Section views. Extract and allow for individual display each additional section or sections (and the accompanying document header information) that were included in a transition of care/referral summary received and formatted in accordance with the standard adopted at § 170.205(a)(3)

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule, the 2014 Edition of

this certification criterion is classified as revised from the 2011 Edition. This certification criterion meets at least one of the three factors of revised certification criteria: (1) the certification criterion includes changes to capabilities that were specified in the previously adopted certification criterion, (2) the certification criterion has a new mandatory capability that was not included in the previously adopted certification criterion, or (3) the certification criterion was previously adopted as “optional” for a particular setting and is subsequently adopted as “mandatory” for that setting.

2014 EDITION PREAMBLE LANGUAGE

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the transitions of care – receive, display, and incorporate transitions of care/referral summaries criterion is discussed:

- “We acknowledged that care plan, additional care team members, referring or transitioning provider’s name and contact information as well as certain hospital discharge information are not explicitly required to be captured by separate certification criteria, unlike most other data included in the summary care record. We noted that the ability to capture these data elements is both implicit and necessary to satisfy this certification criterion (as well as the other certification criteria that rely on the same data).”
- “We have revised the final certification criterion to require that EHR technology must be able to display in human readable format the data included in transition of care/referral summaries received and formatted according to each of the transition of care/referral summary standards we have adopted (i.e., CCD/C32; CCR; and Consolidated CDA).”
- “...commenters expressed concern regarding hospitalizations with large volumes of data such as lab results and how this information would display in a summary document of considerable length. ... This certification criterion expresses that EHR technology must be able to display transition of care/referral summaries received ... It does not, however, dictate how that information is displayed to a user. Those design decisions are fully within an EHR technology developer’s discretion.”
- “...we intended for the term “incorporate” to mean that EHR technology would be able to process the structured data contained in those three Consolidated CDA sections (medications, problems, medication allergies) such that it could be combined (in structured form) with data already maintained by EHR technology and would subsequently be available for use, such as to be used as part of the clinical information reconciliation capabilities (expressed in the certification criterion adopted at (§ 170.314(b)(4)).”
- “...we believe that there is clinical value to the extraction and individual display of the individual sections of the Consolidated CDA ... we have added to this certification criterion a specific capability that EHR technology be able to extract and allow for individual display each additional section or sections (and the accompanying document header information (i.e., metadata)) that

were included in a transition of care/referral summary received and formatted in accordance with the Consolidated CDA.”

- “...EHR technology would need to provide the user with a mechanism to select and just view those [Consolidated CDA] sections without having to navigate through what could be a lengthy document.”
- “We intend for testing and certification to verify that the document header information can be displayed with whatever individual sections are selected, but leave the ultimate quantity of header data to be displayed through implementation up to the EHR technology developer and its customers’ preferences.”
- “...this certification criterion does not necessarily require that it [the incorporate capability] be fully automated. ... it was implied by the certification criterion, that some form of matching would occur when a transition of care/referral summary is received in order to correctly determine that the document as a whole ... was attributed to the right patient.”
- “...upon receipt of a transition of care/referral summary is the appropriate point at which to verify that the transition of care/referral summary is being attributed to the correct patient.”
- “...we have revised this certification criterion to include a general statement that the EHR technology must be able to demonstrate that a transition of care/referral summary received is or can be properly matched to the correct patient. ...we have intentionally left this requirement flexible to permit many different ways for this capability to be designed.”

2011 EDITION PREAMBLE LANGUAGE

None referenced

CHANGES FROM 2011 TO 2014 EDITION

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the transitions of care – receive, display, and incorporate transitions of care/referral summaries criterion is discussed:

- “...we proposed to adopt the Consolidated CDA for this certification criterion because its template structure can accommodate the formatting of a summary care record that includes all of the data elements that CMS proposed be available for inclusion in a summary care record.”
- “We proposed that EHR technology would need to be capable of transmitting a summary care record according to both of the Direct Project’s specifications for secure transport. We also proposed to adopt as an optional standard at § 170.202(a)(3) the SOAP-Based Secure Transport RTM version 1.03³ which was developed under the nationwide health information network Exchange Initiative and to which we stated EHR technology should be able to be certified...”

³ <http://modularspecs.siframework.org/NwHIN+SOAP+Based+Secure+Transport+Artifacts>

- “We have revised the final certification criterion to require that EHR technology must be able to display in human readable format the data included in transition of care/referral summaries received and formatted according to each of the transition of care/referral summary standards we have adopted (i.e., CCD/C32; CCR; and Consolidated CDA).”
- “We recognize this certification criterion is more rigorous than the 2011 Edition EHR certification criterion, but believe that it is necessary to continue to introduce more demanding certification requirements for interoperability in order to advance our policy objectives for widespread electronic health information exchange.”

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 an EHR Technology to electronically receive, display in human readable format, and incorporate transition of care/referral summaries. The transition of care/referral summary (summary care record) must be received using the Applicability Statement for Secure Health Transport standard. The vendor may optionally elect to be evaluated for the capability to receive transition of care/referral summaries using the Applicability Statement for Secure Health Transport standard and the ONC XDR and XDM for Direct Messaging Specification standard. The vendor may also optionally elect to be evaluated for the capability to electronically receive transition of care/referral summaries using the ONC XDR and XDM for Direct Messaging Specification standard and the ONC Transport and Security Specification.

This test evaluates the capability for an EHR technology to electronically display a received transition of care/referral summary; and to match the correct patient, incorporate Problems, Medications, and Medication allergies data, and incorporate (and display) individual sections of the received transition of care/referral summary. Both ambulatory EHR technology and inpatient EHR technology presented for certification should be able to receive, display, and incorporate both ambulatory and inpatient summary care records (transition of care/referral summary). The incorporation of medications, medication allergies, and problems data, provides the ability for the data to be available for reconciliation (as evaluated in §170.314(b)(4) clinical information reconciliation). Incorporation, as evaluated in this test procedure, followed by clinical information reconciliation (§170.314(b)(4)) provides the ability for the medications, medication allergies, and problems received from a transition of care/referral summary to be available for triggering of clinical decision support interventions (as evaluated in §170.314(a)(8)).

ONC provides the test data for this test procedure.

This test procedure is organized into three required sections (and two optional sections):

- **Receive** – Evaluates the capability of EHR technology to electronically receive a transition of care/referral summary for a test patient from both ambulatory and inpatient care settings:
 - The Tester verifies that the EHR can correctly host address-bound or domain-bound

- certificates in either DNS CERT records or LDAP servers that are discoverable by other parties⁴
- Using the Vendor-identified function(s), the Tester causes the health information in C-CDA, HITSP/C32, and ASTM CCR formats to be transmitted from the Transport Testing Tool to the EHR using the Direct transport standard (ONC Applicability Statement for Secure Health Transport standard), based on ONC-supplied test information
 - The Tester verifies successful receipt of C-CDA conformant documents using the Direct transport standard for both unwrapped and RFC-8222 wrapped messages
 - The Tester verifies that the EHR rejects receipt of Direct messages when sent an invalid trust anchor
 - The Tester verifies that the EHR rejects receipt of Direct messages when sent using an invalid, expired, or revoked certificate or sent using an invalid trust store
 - The Tester verifies successful receipt of the health information by the EHR, and that the health information can be successfully decrypted and that a Message Delivery Notification (MDN) is sent by the EHR to the Transport Testing Tool
 - Optional: Using the Vendor-identified function(s), the Tester causes the health information in C-CDA format to be transmitted from the Transport Testing Tool to the EHR using Direct and the Cross-Enterprise Document Reliable Interchange (XDR) and Cross-Enterprise Document Media Interchange (XDM) for Direct Messaging Specification, based on ONC-supplied test information
 - Optional: Using the Vendor-identified function(s), the Tester causes the health information in C-CDA format to be transmitted from the Transport Testing Tool to the EHR using the SOAP-Based Secure Transport RTM version 1.0 and XDR, based on ONC-supplied test information
- Display – Evaluates the capability of the EHR technology to electronically display, in human readable format, the transition of care/referral summary that was received in the “Receive” step
 - The Tester logs in to the EHR technology as a provider
 - The Tester causes the EHR to display the transition of care/referral summary transmitted to the EHR in the “Receive” step
 - The Tester validates that the transition of care/referral summary received by the EHR system is electronically displayed in a human readable format for all three acceptable document conformance types: C-CDA, HITSP/C32, and ASTM CCR
 - The Tester verifies that the individual sections of the C-CDA conformant document for both the inpatient summary and ambulatory transition of care/referral summary records formatted to the C-CDA standard can be displayed in a human readable format
 - The Tester evaluates that the EHR technology individually displays all sections and accompanying document header information from the transition of care/referral summary received in the “Receive” step using the C-CDA standard and that the individual sections and header information is complete and accurate

⁴ Section 5.0 of the ONC Applicability Statement for Secure Health Transport v1.1: “STAs MUST be able to discover certificates using both the DNS as specified in this section and LDAP as described by the S&I Framework Certificate Discovery for Direct Project Implementation Guide. To achieve universal certificate discovery, STAs MAY elect to publish certificates in the DNS or using LDAP through the capabilities detailed in this section and in the S&I Framework Certificate Discovery for Direct Project Implementation Guide respectively”

- The Tester verifies that the transition of care/referral summary information is accurate and complete, and verifies that the Common MU Data Set data is displayed in their English representation if they associate with a vocabulary/code set:
 - Patient name
 - Sex
 - Date of birth
 - Race
 - Ethnicity
 - Preferred language
 - Smoking status
 - Problems
 - Medications
 - Medication Allergies
 - Laboratory test(s)
 - Laboratory value(s)/result(s)
 - Vital signs – height, weight, blood pressure, BMI
 - Care plan field(s), including goals and instructions
 - Procedures
 - Care team member(s)
 - For ambulatory transition of care/referral summary C-CDA: encounter diagnoses, immunizations, cognitive status, functional status, reason for referral, referring provider's name and contact information
 - For inpatient transition of care C-CDA: encounter diagnoses, immunizations, cognitive status, functional status, and discharge instructions
- Incorporate data – Evaluates that the EHR technology electronically incorporates medication, problem, and medication allergy list data from the transition of care/referral summary received in the “Receive” step:
 - Using Vendor-identified functions, the Tester evaluates that the inpatient and ambulatory transition of care/referral summary received in the “Receive” step using the C-CDA standard is properly matched to the correct patient
 - Using Vendor-identified function(s) the Tester verifies that the expected information is able to be incorporated into the patient's health record, including available for clinical information reconciliation:
 - Medications according to RxNorm standard at a minimum,
 - Problems according to the SNOMED CT standard at a minimum, and
 - Medication allergies according to the RxNorm standard at a minimum

REFERENCED STANDARDS

§170.202 Transport standards.	Regulatory Referenced Standard
The Secretary adopts the following transport standards:	
(a) <u>Standard</u> . ONC Applicability Statement for Secure Health Transport (incorporated by reference in § 170.299).	
(b) <u>Standard</u> . ONC XDR and XDM for Direct Messaging Specification (incorporated by reference in § 170.299).	
(c) <u>Standard</u> . ONC Transport and Security Specification (incorporated by reference in § 170.299).	
§170.205 Content exchange standards and implementation specifications for exchanging electronic health information.	Regulatory Referenced Standard
The Secretary adopts the following content exchange standards and associated implementation specifications:	
(a) <u>Patient summary record</u> . (1) <u>Standard</u> . Health Level Seven Clinical Document Architecture (CDA) Release 2, Continuity of Care Document (CCD) (incorporated by reference in §170.299). <u>Implementation specifications</u> . The Healthcare Information Technology Standards Panel (HITSP) Summary Documents Using HL7 CCD Component HITSP/C32 (incorporated by reference in §170.299).	
(a)(2) <u>Standard</u> . ASTM E2369 Standard Specification for Continuity of Care Record and Adjunct to ASTM E2369 (incorporated by reference in §170.299).	
(a)(3) <u>Standard</u> . HL7 Implementation Guide for CDA [®] Release 2: IHE Health Story Consolidation, (incorporated by reference in § 170.299). The use of the “unstructured document” document-level template is prohibited.	
§170.207 Vocabulary standards for representing electronic health information	Regulatory Referenced Standard
The Secretary adopts the following code sets, terminology, and nomenclature as the vocabulary standards for the purpose of representing electronic health information:	
(a)(3) <u>Standard</u> . IHTSDO SNOMED CT [®] International Release July 2012 (incorporated by reference in §170.299) and US Extension to SNOMED CT [®] March 2012 Release (incorporated by reference in §170.299).	
1) <u>Medications</u> (2) <u>Standard</u> . RxNorm, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine, August 6, 2012 Release (incorporated by reference in § 170.299).	

NORMATIVE TEST PROCEDURES

Derived Test Requirements

DTR170.314(b)(1) – 1: Receive Summary Care Record Using Direct

DTR170.314(b)(1) – 2: Receive Summary Care Record Using Direct and XDM Validation (Optional)

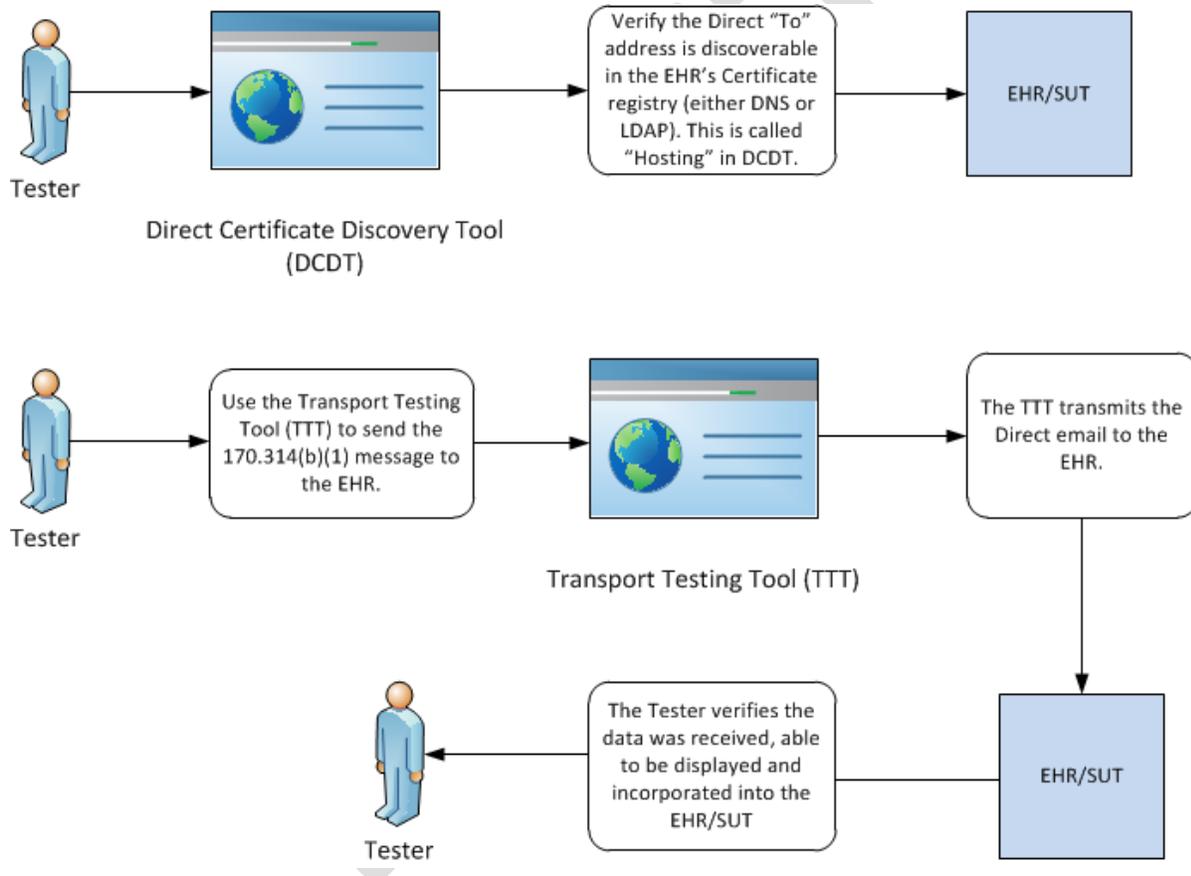
DTR170.314(b)(1) – 3: Receive Summary Care Record Using SOAP Protocols (Optional)

DTR170.314(b)(1) – 4: Display Summary Care Record

DTR170.314(b)(1) – 5: Incorporate Summary Care Record Data

DTR170.314(b)(1) – 1: Receive Summary Care Record Using Direct

Figure 1



Required Vendor Information

VE170.314(b)(1) – 1.01: The Vendor shall identify whether the EHR stores certificates as address-bound or domain-bound certificates and whether the EHR hosts certificates in DNS or LDAP servers

VE170.314(b)(1) – 1.02: The Vendor shall identify the Direct address for Test Cases within the Direct Certificate Discovery Tool and Transport Testing Tool

- VE170.314(b)(1) – 1.03: The Vendor shall create and install certificates for Direct receive address(es) and identify the certificate(s) (valid Trust Anchor) to be used for digital signing of the Direct message(s) to be sent by the Transport Testing Tool to the EHR
- VE170.314(b)(1) – 1.04: The Vendor shall identify the EHR's Public Key for encryption of the Direct message(s) to be sent by the Transport Testing Tool to the EHR
- VE170.314(b)(1) – 1.05: Vendor shall use the ambulatory and inpatient test patients identified in the medication, medication allergy, and problem list test procedures
- VE170.314(b)(1) – 1.06: Vendor shall identify a provider with authorized access to the ambulatory or inpatient test patients' records
- VE170.314(b)(1) – 1.07: Vendor shall identify the EHR function(s) that are available for a provider to receive Summary Care Records from Third Parties using the Direct standard

Required Test Procedure

- TE170.314(b)(1) – 1.01: Using the Vendor-identified EHR function(s), the Tester shall access the ambulatory or inpatient test patient's record as the provider
- TE170.314(b)(1) – 1.02: The Tester shall execute all test cases using the Direct Certificate Discovery Tool for address or domain-bound certificates hosted in DNS or LDAP servers based upon the Vendor's certificate hosting methods identified in VE170.314(b)(1) – 1.01 and the Direct address specified in VE170.314(b)(1) – 1.02
- TE170.314(b)(1) – 1.03: Using the Inspection Test Guide, the Tester shall verify that the EHR technology is able to correctly host either address-bound and domain-bound certificate(s) hosted in either DNS or LDAP servers that is discoverable by others
- TE170.314(b)(1) – 1.04: The Tester shall utilize the Transport Testing Tool to transmit an unwrapped message (that does not use the Direct RFC-8222 wrapper) digitally signed using a valid certificate and public key for the Vendor's EHR (provided in VE170.314(b)(1) – 1.03 and VE170.314(b)(1) – 1.04) for an Ambulatory Summary of Care Record in C-CDA format to the Vendor's Direct address specified in VE170.314(b)(1) – 1.02 (tested for both ambulatory EHR and inpatient EHR settings)
- TE170.314(b)(1) – 1.05: The Tester shall utilize the Transport Testing Tool to transmit an unwrapped message (that does not use the Direct RFC-8222 wrapper) digitally signed using a valid certificate and public key for the Vendor's EHR (provided in VE170.314(b)(1) – 1.03 and VE170.314(b)(1) – 1.04) for an Inpatient Summary of Care Record in C-CDA format to the Vendor's Direct address specified in VE170.314(b)(1) – 1.02 (tested for both ambulatory EHR and inpatient EHR settings)
- TE170.314(b)(1) – 1.06: The Tester shall utilize the Transport Testing Tool to transmit an unwrapped message (that does not use the Direct RFC-8222 wrapper) digitally signed using a valid certificate and public key for the Vendor's EHR (provided in VE170.314(b)(1) – 1.03 and VE170.314(b)(1) – 1.04) for HITSP/C32 document to the Vendor's Direct address specified in VE170.314(b)(1) – 1.02

- TE170.314(b)(1) – 1.07: The Tester shall utilize the Transport Testing Tool to transmit an unwrapped message (that does not use the Direct RFC-8222 wrapper) digitally signed using a valid certificate and public key for the Vendor's EHR (provided in VE170.314(b)(1) – 1.03 and VE170.314(b)(1) – 1.04) for an ASTM CCR document to the Vendor's Direct address specified in VE170.314(b)(1) – 1.02
- TE170.314(b)(1) – 1.08: Using the Inspection Test Guide, the Tester shall verify that the Ambulatory and Inpatient Summary of Care documents, HITSP/C32 document, and ASTM CCR document are successfully received, and the Transport Testing Tool receives a successful Message Delivery Notification (MDN) from the EHR for each message
- TE170.314(b)(1) – 1.09: The Tester shall utilize the Transport Testing Tool to transmit a Direct RFC-8222 wrapped message digitally signed using a valid certificate and public key for the Vendor's EHR (provided in VE170.314(b)(1) – 1.03 and VE170.314(b)(1) – 1.04) for a C-CDA document to the Vendor's Direct address specified in VE170.314(b)(1) – 1.02
- TE170.314(b)(1) – 1.10: Using the Inspection Test Guide, the Tester shall verify that the C-CDA conformant document transmitted in TE170.314(b)(1) – 1.09 is successfully received, and the Transport Testing Tool receives a successful Message Delivery Notification (MDN) from the EHR for the wrapped message
- TE170.314(b)(1) – 1.11: The Tester shall utilize the Transport Testing Tool to transmit a C-CDA conformant document using an invalid Trust Anchor to the EHR using the Direct transport standard
- TE170.314(b)(1) – 1.12: Using the Inspection Test Guide, the Tester shall verify that the EHR rejects receipt of the Direct message transmitted in TE170.314(b)(1) – 1.11
- TE170.314(b)(1) – 1.13: The Tester shall utilize the Transport Testing Tool to transmit a C-CDA conformant document using an invalid certificate to the EHR using the Direct transport standard
- TE170.314(b)(1) – 1.14: The Tester shall utilize the Transport Testing Tool to transmit a C-CDA conformant document using a revoked certificate to the EHR using the Direct transport standard
- TE170.314(b)(1) – 1.15: The Tester shall utilize the Transport Testing Tool to transmit a C-CDA conformant document using an expired certificate to the EHR using the Direct transport standard
- TE170.314(b)(1) – 1.16: The Tester shall utilize the Transport Testing Tool to transmit a C-CDA conformant document using a certificate with an invalid trust relationship to the EHR using the Direct transport standard
- TE170.314(b)(1) – 1.17: Using the Inspection Test Guide, the Tester shall verify that the EHR rejects receipt of the Direct messages using certificates that are invalid, revoked, expired, or have an invalid trust relationship to the NIST trust store stored in the EHR

Inspection Test Guide

- IN170.314(b)(1) – 1.01: Using the Direct Certificate Discovery Tool, the Tester shall verify that the EHR's hosted certificates are discoverable for the selected test cases
- IN170.314(b)(1) – 1.02: Using the Transport Testing Tool, the Tester shall verify that Message Delivery Notifications were sent by the EHR to indicate successful receipt of messages sent in: TE170.314(b)(1) – 1.04, TE170.314(b)(1) – 1.05, TE170.314(b)(1) – 1.06, TE170.314(b)(1) – 1.07, and TE170.314(b)(1) – 1.09
- IN170.314(b)(1) – 1.03: Using the Transport Testing Tool, the Tester shall verify that Message Delivery Notifications were not received for messages sent in: TE170.314(b)(1) – 1.04, TE170.314(b)(1) – 1.11, TE170.314(b)(1) – 1.13, TE170.314(b)(1) – 1.14, and TE170.314(b)(1) – 1.14 and inspect that the messages were rejected and not received by the EHR (e.g. inspecting audit logs to verify rejections)

DTR170.314(b)(1) – 2: Receive Summary of Care Record Using Direct and XDM Validation (Optional)

Required Vendor Information

- VE170.314(b)(1) – 2.01: As defined in DTR170.314(b)(1) – 1, no additional information is required

Required Test Procedure

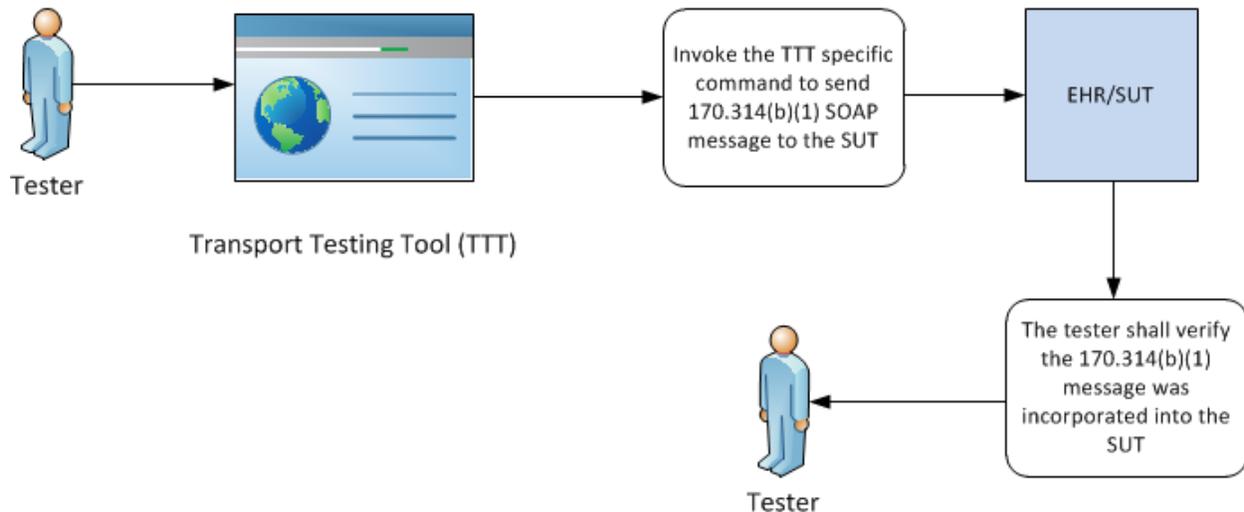
- TE170.314(b)(1) – 2.01: Using the Vendor-identified EHR function(s), the Tester shall access the ambulatory or inpatient test patient's record as the provider
- TE170.314(b)(1) – 2.02: The Tester shall utilize the Transport Testing Tool to transmit an unwrapped message (that does not use the Direct RFC-8222 wrapper) digitally signed using a valid certificate and public key for the Vendor's EHR (provided in VE170.314(b)(1) – 1.03 and VE170.314(b)(1) – 1.04) for a C-CDA conformant document to the Vendor's Direct address specified in VE170.314(b)(1) – 1.02 using ONC Applicability Statement for Secure Health Transport (Direct) standard with XDM Validation
- TE170.314(b)(1) – 2.03: The Tester shall utilize the Transport Testing Tool to transmit a Direct RFC-8222 wrapped message digitally signed using a valid certificate and public key for the Vendor's EHR (provided in VE170.314(b)(1) – 1.03 and VE170.314(b)(1) – 1.04) for a C-CDA conformant document to the Vendor's Direct address specified in VE170.314(b)(1) – 1.02 using ONC Applicability Statement for Secure Health Transport (Direct) standard with XDM Validation

Inspection Test Guide

- IN170.314(b)(1) – 1.02: Using the Transport Testing Tool, the Tester shall verify that Message Delivery Notifications were sent by the EHR to indicate successful receipt of messages sent in: TE170.314(b)(1) – 2.02 and TE170.314(b)(1) – 2.03

DTR170.314(b)(1) – 3: Receive Summary of Care Record Using SOAP Protocols (Optional)

Figure 2



Required Vendor Information

VE170.314(b)(1) – 3.01: The Vendor shall identify a SUT receiving email address to be used for receipt of the validation report generated by the Transport Testing Tool

Required Test Procedure

TE170.314(b)(1) – 3.01: The Tester shall cause the Transport Testing Tool transmit a Summary of Care C-CDA conformant document using SOAP Protocols with XDR Validation to the EHR's SOAP endpoint

TE170.314(b)(1) – 3.02: Using the Inspection Test Guide, the Tester shall verify that the Summary of Care Record transmitted in TE170.314(b)(1) – 3.01 is successful

Inspection Test Guide

IN170.314(b)(1) – 3.01: Using the Transport Testing Tool, the Tester shall verify that the transmitted C-CDA conformant document has been received successfully by the EHR according to SOAP Protocols with XDR Validation

DTR170.314(b)(1) – 4: Display Summary of Care Record

Required Vendor Information

VE170.314(b)(1) – 4.01: Vendor shall identify the EHR function(s) that are available for a provider to display Summary Care Records received electronically by third parties

Required Test Procedures

- TE170.314(b)(1) – 4.01: Using the Vendor-identified EHR function(s), the Tester shall access the ambulatory or inpatient test patient's record as the provider
- TE170.314(b)(1) – 4.02: Using the Vendor-identified EHR function(s), the Tester shall display the Ambulatory Summary Care Record received in TE170.314(b)(1) – 1.04 (If the EHR technology requires additional users that are not the provider to receive the message, view message header information, and match the summary care record to the patient prior to being available for the provider, this is permitted)
- TE170.314(b)(1) – 4.03: Using the Inspection Test Guide, the Tester shall verify that the information displayed for the Ambulatory Summary of Care record is complete and accurate and all sections are displayed individually
- TE170.314(b)(1) – 4.04: Using the Vendor-identified EHR function(s), the Tester shall display the Inpatient Summary Care Record received in TE170.314(b)(1) – 1.05 If the EHR technology requires additional users that are not the provider to receive the message, view message header information, and match the summary care record to the patient prior to being available for the provider, this is permitted)
- TE170.314(b)(1) – 4.05: Using the Inspection Test Guide, the Tester shall verify that the information displayed for the Inpatient Summary of Care record is complete and accurate and all sections are displayed individually
- TE170.314(b)(1) – 4.06: Using the Vendor-identified EHR function(s), the Tester shall cause the EHR to select individual sections (not all) for display for either the Inpatient or Ambulatory received C-CDA conformant Summary Care record
- TE170.314(b)(1) – 4.07: Using the Vendor-identified EHR function(s), the Tester shall display the HITSP/C32 document received in TE170.314(b)(1) – 1.06
- TE170.314(b)(1) – 4.08: Using the Inspection Test Guide, the Tester shall verify that the HITSP/C32 document can be successfully displayed
- TE170.314(b)(1) – 4.09: Using the Vendor-identified EHR function(s), the Tester shall display the ASTM CCR document received in TE170.314(b)(1) – 1.07
- TE170.314(b)(1) – 4.10: Using the Inspection Test Guide, the Tester shall verify that the ASTM CCR document can be successfully displayed

Inspection Test Guide

- IN170.314(b)(1) – 4.01: Using the ONC-provided test scenario data, the Tester shall verify that the content of the received C-CDA conformant Ambulatory Summary of Care Record displays completely and accurately, including section headings and at a minimum, the following data elements:
- 1) Encounter diagnoses
 - 2) Immunizations
 - 3) Cognitive status
 - 4) Functional status
 - 5) Reason for referral
 - 6) Referring or transitioning provider's name

- 7) Provider name
- 8) Provider office contact information
- 9) Common MU Data Set (in their English representation if they associate with a vocabulary/code set)
 - 1) Patient name
 - 2) Sex
 - 3) Date of birth
 - 4) Race
 - 5) Ethnicity
 - 6) Preferred language
 - 7) Smoking status
 - 8) Problems
 - 9) Medications
 - 10) Medication Allergies
 - 11) Laboratory test(s)
 - 12) Laboratory value(s)/result(s)
 - 13) Vital signs – height, weight, blood pressure, BMI
 - 14) Care plan field(s), including goals and instructions
 - 15) Procedures
 - 16) Care team member(s)

IN170.314(b)(1) – 4.02: Using the ONC-provided test scenario data, the Tester shall verify that the content of the received C-CDA conformant Inpatient Summary of Care Record displays completely and accurately, including section headings and at a minimum, the following data elements

- 1) Encounter diagnoses
- 2) Immunizations
- 3) Cognitive status
- 4) Functional status
- 5) Discharge instructions
- 6) Common MU Data Set (in their English representation if they associate with a vocabulary/code set)
 - 1) Patient name
 - 2) Sex
 - 3) Date of birth
 - 4) Race
 - 5) Ethnicity
 - 6) Preferred language
 - 7) Smoking status
 - 8) Problems
 - 9) Medications
 - 10) Medication Allergies

- 11) Laboratory test(s)
- 12) Laboratory value(s)/result(s)
- 13) Vital signs – height, weight, blood pressure, BMI
- 14) Care plan field(s), including goals and instructions
- 15) Procedures
- 16) Care team member(s)

- IN170.314(b)(1) – 4.03: Using the ONC-provided test scenario data, the Tester shall verify the EHR provides the individual section information contained within the Summary Care Record C-CDA conformant documents
- IN170.314(b)(1) – 4.04: Using the ONC-provided test scenario data, the Tester shall verify the EHR accurately displays header information and only the selected sections in TE170.314(b)(1) – 4.05 without having to view or navigate the entire document
- IN170.314(b)(1) – 4.05: Using the ONC-provided test scenario data,, the Tester shall verify that the content of the received HITSP/C32 document displays completely and accurately and coded information displays in its English representation if associated with a vocabulary/code set
- IN170.314(b)(1) – 4.06: Using the ONC-provided test data, the Tester shall verify that the content of the received ASTM CCR document displays completely and accurately and coded information displays in its English representation if associated with a vocabulary/code set

DTR170.314(b)(1) – 5: Incorporate Summary Care Record Data

Required Vendor Information

- VE170.314(b)(1) – 5.01: Vendor shall identify the EHR function(s) that are available for a provider to match patient identifying information from documents received electronically using Direct, Direct with XDM, and SOAP transport protocols with patient records within the EHR
- VE170.314(b)(1) – 5.02: Vendor shall identify the EHR function(s) that are available to save documents received electronically from third parties within a patient's record
- VE170.314(b)(1) – 5.03: Vendor shall identify the EHR function(s) that are available to incorporate medication list, problem list, and medication allergy list data from C-CDA conformant documents as structured data within the EHR
- VE170.314(b)(1) – 5.04: Vendor shall identify the EHR function(s) that are available to incorporate medication list, problem list, and medication allergy list data from C-CDA conformant documents for clinical information reconciliation

Required Test Procedures

- TE170.314(b)(1) – 5.01: Using the Vendor-identified EHR function(s), the Tester shall access the ambulatory or inpatient test patient's record as the provider
- TE170.314(b)(1) – 5.02: Using the Vendor-identified EHR function(s), the Tester shall cause the EHR to match and display the received Ambulatory Summary Care Record C-CDA conformant document received in TE170.314(b)(1) - 1.04 with the correct

- patient's record within the EHR
- TE170.314(b)(1) – 5.03: Using the Vendor-identified EHR function(s), the Tester shall cause the EHR to display that the Ambulatory Summary Care Record C-CDA conformant document received in TE170.314(b)(1) - 1.04 is stored as a C-CDA conformant document within the EHR
- TE170.314(b)(1) – 5.04: Using the Vendor-identified EHR function(s), the Tester shall cause the EHR to display the medication list, problem list, and medication allergy information within the Ambulatory Summary Care Record C-CDA conformant document received in TE170.314(b)(1) - 1.04 as structured data, available for clinical information reconciliation
- TE170.314(b)(1) – 5.05: Using the Vendor-identified EHR function(s), the Tester shall cause the EHR to match and display the received Inpatient Summary Care Record C-CDA conformant document received in TE170.314(b)(1) - 1.05 with the correct patient's record within the EHR
- TE170.314(b)(1) – 5.06: Using the Vendor-identified EHR function(s), the Tester shall cause the EHR to display that the Inpatient Summary Care Record C-CDA conformant document received in TE170.314(b)(1) - 1.05 is stored as a C-CDA conformant document within the EHR
- TE170.314(b)(1) – 5.07: Using the Vendor-identified EHR function(s), the Tester shall cause the EHR to display the medication list, problem list, and medication allergy information within the Inpatient Summary Care Record C-CDA conformant document received in TE170.314(b)(1) - 1.05 as structured data, available for clinical information reconciliation

Inspection Test Guide

- IN170.314(b)(1) – 5.01: Using the ONC-provided test data, the Tester shall verify that the documents received electronically are matched with the correct patient record and are stored as part of the patient record.
- IN170.314(b)(1) – 5.02: Using the ONC-provided test data, the Tester shall verify that medication list, problem list, and allergy list data is incorporated as structured and coded data for the received C-CDA conformant Summary Care Records
- IN170.314(b)(1) – 5.03: Using the ONC-provided test data, the Tester shall verify that medication list, problem list, and allergy list data for received C-CDA conformant Summary Care Records displayed for clinical information reconciliation is complete and accurate

TEST DATA

ONC supplied test data is provided with the test procedure to ensure that the applicable requirements identified in the criteria can be adequately evaluated for conformance, as well as, to provide consistency in the testing process across multiple National Voluntary Laboratory Accreditation Program -Accredited Testing Laboratories (ATLs). The provided test data focus on evaluating the basic capabilities of required

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 provided test data during the test, without exception, unless one of the following conditions exists:

- The Tester determines that the Vendor-selected message format requires some modification to the test data.
- The Tester determines that the Vendor product is sufficiently specialized that the provided test data needs to be modified in order to conduct an adequate test. Having made the determination that some modification to the provided 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. Having made the determination that some modification to the provided test data is necessary, the Tester shall record the modifications made as part of the test documentation.

Test data for §170.314(b)(1) Receive Display Incorporate is available through the conformance tool (reference Conformance Tool Section for tool access).

Any departure from the provided 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. For additional information on changes to the test data, refer to the Transport Test Tool documentation.

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.

CONFORMANCE TEST TOOLS

The following testing tools are available to evaluate conformance to the standards referenced in this test procedure:

- Direct Certificate Discovery Tool (DCDT) – ONC provides a web application certificate discovery testing tool to support this test procedure. This tool was created to support automated testing of systems that plan to enact the Certificate Discovery and Provider Directory Implementation Guide, approved as normative specification by the Direct community, as of July 9, 2012. It is based on the written test package and requirement traceability matrix created by the Modular Specifications project.
 - This application can be installed and deployed locally.
 - The Direct Certificate Discovery Tool, User's Guide, configuration instructions, and other documentation are available at: <http://code.google.com/p/direct-certificate-discovery-tool/>

Support for the Direct Certificate Discovery Tool is available at the DCDT user group: <https://groups.google.com/forum/#!forum/directtestsupport> or by contacting:

Avinash Shanbhag (Avinash.Shanbhag@hhs.gov)
Director, Nationwide Health Information Network Division
Office of Standards and Interoperability
Office of the National Coordinator for Health IT, HHS

- Transport Testing Tool (TTT) – the Transport Testing Tool is designed to support this test procedure. The Transport Testing Tool includes the capability to verify the ability to exchange Consolidated CDA (C-CDA) conformant documents using transport standards (e.g., Direct, Direct + XDM, SOAP).
 - The Transport Testing Tool (TTT) is available at: <http://transport-testing.nist.gov>

Support for the Transport Testing Tool is available by submitting questions to the Transport Testing Tool user group at: <https://groups.google.com/d/forum/transport-testing-tool>. Inquiries may also be sent to this user group via email: transport-testing-tool@googlegroups.com

Multiple browsers may be used to access this tool; if the tool does not load completely using Internet Explorer 8 or Internet Explorer 9, alternative browsers such as Firefox, Google Chrome, or Safari are recommended. The Transport Testing Tool uses non-standard ports. If your firewall blocks HTTP traffic on non-standard ports, this tool may not be accessible. Please retry access from a location without a firewall that blocks non-standard ports. Alternatively users may download and run a local version of the tool.

Test Procedure for §170.314(b)(4) Clinical information reconciliation

CERTIFICATION CRITERION

This certification criterion is from the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule issued by the Department of Health and Human Services (HHS) on September 4, 2012.

§170.314(b)(4) Clinical information reconciliation. Enable a user to electronically reconcile the data that represent a patient's active medication, problem, and medication allergy list as follows. For each list type:

- (i) Electronically and simultaneously display (that is, in a single view) the data from at least two list sources in a manner that allows a user to view the data and their attributes, which must include, at a minimum, the source and last modification date.
- (ii) Enable a user to create a single reconciled list of medications, medication allergies, or problems.
- (iii) Enable a user to review and validate the accuracy of a final set of data and, upon a user's confirmation, automatically update the list.

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule, the 2014 Edition of this certification criterion is classified as revised from the 2011 Edition. This certification criterion meets at least one of the three factors of revised certification criteria: (1) the certification criterion includes changes to capabilities that were specified in the previously adopted certification criterion, (2) the certification criterion has a new mandatory capability that was not included in the previously adopted certification criterion, or (3) the certification criterion was previously adopted as "optional" for a particular setting and is subsequently adopted as "mandatory" for that setting.

2014 EDITION PREAMBLE LANGUAGE

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the clinical information reconciliation certification criterion is discussed:

- "We intend for [medications, medication allergies, and problems] to be able to be incorporated from a transition of care/referral summary formatted according to the Consolidated CDA standard and subsequently available to use for reconciliation as part of this capability."
- "For the purpose of this certification criterion, 'last modification date' should be interpreted differently for each data type. For medications, it should be interpreted as the last date the medication was documented, ordered, prescribed, refilled, dispensed or edited. For problems, it should be interpreted as the last date the problem was documented or edited. For medication

allergies, it should be interpreted as the date that the medication allergy was last documented, edited, or updated.”

- “We interpret ‘merge’ to generally mean that EHR technology assists a user in creating a single list that is representative of the medications, medication allergies, or problems that are relevant to a patient. However, we believe that an approach using plain language to express the desired outcome would make this certification criterion clearer. It would also represent the many acceptable approaches we had in mind when we drafted this proposed certification criterion. Accordingly, we have modified § 170.314(b)(4)(ii) to state that EHR technology would need to enable a user to ‘create a single reconciled list of medications, medication allergies, or problems.’ How this would be accomplished is up to the EHR technology developer, but could include a user’s ability to merge equivalent elements and remove/deactivate no longer relevant information.”
- “Confirm is meant to apply to the single reconciled list (not each element) once it meets a user’s satisfaction.”
- “...enable a user to create a single reconciled list of medications, medication allergies, or problems. As in, there would be a single list for medications, a single list for medication allergies, and a single list for problems.”
- “...EHR technology should have the ability to simultaneously display the list type that is actively being reconciled [to eliminate the need for] a user to toggle between different views to reconcile data for one list type.”
- “In the event that data is in unstructured form, any method implemented by which the EHR is capable of assisting in reconciliation is acceptable...With respect to data received from a document formatted in accordance with the Consolidated CDA, we expect EHR technology to be tested on its ability to utilize structured data to assist in the reconciliation process.”

2011 EDITION PREAMBLE LANGUAGE

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 (July 28, 2010) where the medication reconciliation certification criterion is discussed:

- “...we have revised this certification criterion to require that Certified EHR Technology be capable of providing a user with the ability to electronically compare two or more medication lists (For example, between an externally provided medication list and the current medication list in Certified EHR Technology). We expect that this could be done in a number of ways and we do not want to preclude EHR technology developers from innovating, provided that the desired outcome is reached. For example, a user could be presented with two electronic lists side-by-side and move medications from one list to the other and then select the final current list.”

CHANGES FROM 2011 TO 2014 EDITION

Per Section III.A of the preamble of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule (September 4, 2012) where the clinical information reconciliation certification criterion is discussed:

- “In the Proposed Rule, we proposed to revise this certification criterion and adopt as part of the 2014 Edition EHR certification criteria an expanded version that focuses on the reconciliation of data in each of a patient’s medication, problem, and medication allergy lists.”
- “EHR technology would first need to be able to electronically display the data from two or more sources in a manner that allows a user to view the data and their attributes, which must include, at a minimum, the source and last modification date of the information.”
- “We proposed that the second specific capability EHR technology would need to include would be to enable a user to merge and remove individual data.”
- “...we proposed that EHR technology would need to enable a user to review and validate the accuracy of a final set of data elements and, upon a user’s confirmation, automatically update the patient’s medication, problem, and/or medication allergy list.”
- “Accordingly, we have modified § 170.314(b)(4)(ii) to state that EHR technology would need to enable a user to ‘create a single reconciled list of medications, medication allergies, or problems.’”
- “...we have modified the certification criterion, as commenters suggested, to say ‘from at least two list sources.’”

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 an EHR technology to enable a user to create single, reconciled lists of a patient’s active medications, a patient’s active problems, or a patient’s active medication allergies by electronically and simultaneously displaying data from at least two list sources, allowing the user to see the data via a single view along with attributes, which include, at a minimum, identification of the source and the last modification date of the data. Clinical accuracy is not evaluated as part of this test. By providing the capability for an end-user to perform clinical information reconciliation for active medications, problems, or medication allergies, EHR technology must allow the capability to perform reconciliation for all three types of data elements.

The Vendor supplies the test data for this test procedure.

This test procedure is organized into one section divided into three categories, each of which has three sub-sections. The Vendor may perform these functions individually, in combination, or as a single function:

- Reconcile - evaluates the capability for a user to electronically create a single reconciled list of data elements in a patient's active medication list, a patient's active problem list, and a patient's active medication allergy list

For a patient's active medication list:

- Display - evaluates the capability for a user to view electronically the data in at least two medication lists simultaneously with attributes including, at a minimum, the source for each medication list and the last date each medication was documented, ordered, prescribed, refilled, or edited
 - The Vendor uses the same patient identified in the medication list, medication allergy list, problem list, and transitions of care – receive, display and incorporate test procedures and ensures that the medication list is populated with the previously entered data from the medication list test procedure
 - In addition to the medication list already recorded in the EHR, the Vendor uses the medication list from the C-CDA in the transitions of care – receive, display and incorporate test procedure
 - The Tester displays the two medication lists simultaneously in a single view
 - The Tester verifies that each of the medication lists displays the source of the medication list and the last date each medication was documented, ordered, prescribed, refilled, or edited
- Create – evaluates the capability for a user to merge the two medication lists into a single reconciled medication list, including the capability for a user to consolidate a medication from one medication list and an identical medication from one or more other medication lists into one representation of that medication on a single reconciled medication list, and the capability to remove a medication from the single reconciled medication list (or mark for removal)
 - The Tester merges the two medication lists from the Display test into a single reconciled medication list
 - The Tester consolidates identical medications from these medication lists into one representation of those medications on the single reconciled medication list
 - The Tester removes a medication from the single reconciled medication list
- Review, Validate, Confirm, and Submit – evaluates the capability for a user to review the single reconciled medication list, validate that the reconciled medications displayed are accurate and complete, confirm and submit the reconciled medication list to the EHR, and view the updated version of the active medication list in the patient's EHR
 - The Tester displays the single reconciled medication list generated in the Merge test
 - The Tester reviews the reconciled medication list and validates that the data contained in the list are accurate and complete (view the reconciled list prior to committing it to update the active list)
 - The Tester confirms and submits the reconciled medication list to the patient's record in the EHR
 - The Tester views the patient's active medication list and verifies that it includes all of the reconciled medications and that these medications are accurate and complete

For a patient's active problem list:

- Display - evaluates the capability for a user to view electronically the data in at least two problem lists simultaneously with attributes including, at a minimum, the source for each problem list and the last date each problem was documented or edited
 - The Vendor uses the same patient identified in the medication list, medication allergy list, problem list, and transitions of care – receive, display and incorporate test procedures and ensures that the problem list is populated with the previously entered data from the problem list test procedure
 - In addition to the problem list already recorded in the EHR, the Vendor uses the problem list from the C-CDA in the transitions of care – receive, display and incorporate test procedure
 - The Tester displays the two problem lists simultaneously in a single view
 - The Tester verifies that each of the problem lists displays the source of the problem list and the last date each problem was documented or edited
- Create – evaluates the capability for a user to merge the two problem lists into a single reconciled problem list, including the capability for a user to consolidate a problem from one problem list and an identical problem from one or more other problem lists into one representation of that problem on a single reconciled problem list, and the capability to remove a problem from the single reconciled problem list (or mark for removal)
 - The Tester merges the two or more problem lists from the Display test into a single reconciled problem list
 - The Tester consolidates identical problems from these problem lists into one representation of those problems on the single reconciled problem list
 - The Tester removes a problem from the single reconciled problem list
- Review, Validate, Confirm, and Submit – evaluates the capability for a user to review the single reconciled problem list, validate that the reconciled problems displayed are accurate and complete, confirm and submit the reconciled problem list to the EHR, and view the updated version of the active problem list in the patient's EHR
 - The Tester displays the single reconciled problem list generated in the Merge test
 - The Tester reviews the reconciled problem list and validates that the data contained in the list are accurate and complete (view the reconciled list prior to committing it to update the active list)
 - The Tester confirms and submits the reconciled problem list to the patient's record in the EHR
 - The Tester views the patient's active problem list and verifies that it includes all of the reconciled problems and that these problems are accurate and complete

For a patient's active medication allergy list:

- Display - evaluates the capability for a user to view electronically the data in at least two medication allergy lists simultaneously with attributes including, at a minimum, the source for each medication

- allergy list and the last date each medication allergy was documented, edited, or updated
- The Vendor uses the same patient identified in the medication list, medication allergy list, problem list, and transitions of care – receive, display and incorporate test procedures and ensures that the medication allergy list is populated with the previously entered data from the problem list test procedure
 - In addition to the medication allergy list already recorded in the EHR, the Vendor uses the medication allergy list from the C-CDA in the transitions of care – receive, display and incorporate test procedure
 - The Tester displays the two medication allergy lists simultaneously in a single view
- Create – evaluates the capability for a user to merge the two medication allergy lists into a single reconciled medication allergy list, including the capability for a user to consolidate a medication allergy from one medication allergy list and an identical medication allergy from one or more other medication allergy lists into one representation of that medication allergy on a single reconciled medication allergy list, and the capability to remove a medication allergy from the single reconciled medication allergy list (or mark for removal)
 - The Tester merges the two or more medication allergy lists from the Display test into a single reconciled medication allergy list
 - The Tester consolidates identical medication allergies from these medication allergy lists into one representation of those medication allergies on the single reconciled medication allergy list
 - The Tester removes a medication allergy from the single reconciled medication allergy list
 - Review, Validate, Confirm, and Submit – evaluates the capability for a user to review the single reconciled medication allergy list, validate that the reconciled medication allergies displayed are accurate and complete, confirm and submit the reconciled medication allergy list to the EHR, and view the updated version of the active medication allergy list in the patient’s EHR
 - The Tester displays the single reconciled medication allergy list generated in the Merge test
 - The Tester reviews the reconciled medication allergy list and validates that the data contained in the list are accurate and complete (view the reconciled list prior to committing it to update the active list)
 - The Tester confirms and submits the reconciled medication allergy list to the patient’s record in the EHR
 - The Tester views the patient’s active medication allergy list and verifies that it includes all of the reconciled medication allergies and that these medication allergies are accurate and complete

REFERENCED STANDARDS

None

NORMATIVE TEST PROCEDURES

Derived Test Requirements

Active Medication List

- DTR170.314(b)(4) – 1: Electronically and Simultaneously Display Medication List Data in a Single View
- DTR170.314(b)(4) – 2: Create a Single Reconciled Medication List
- DTR170.314(b)(4) – 3: Review, Validate, Confirm, and Submit the Final Reconciled Medication List

Active Problem List

- DTR170.314(b)(4) – 4: Electronically and Simultaneously Display Problem List Data in a Single View
- DTR170.314(b)(4) – 5: Create a Single Reconciled Problem List
- DTR170.314(b)(4) – 6: Review, Validate, Confirm, and Submit the Final Reconciled Problem List

Active Medication Allergy List

- DTR170.314(b)(4) – 7: Electronically and Simultaneously Display Medication Allergy List Data in a Single View
- DTR170.314(b)(4) – 8: Create a Single Reconciled Medication Allergy List
- DTR170.314(b)(4) – 9: Review, Validate, Confirm, and Submit the Final Reconciled Medication Allergy List

Active Medication List

- DTR170.314(b)(4) – 1: Electronically and Simultaneously Display Medication List Data in a Single View**

Required Vendor Information

- VE170.314(b)(4) – 1.01: Vendor uses the ambulatory patient or inpatient identified in the medication list, medication allergy list, problem list, and transitions of care – receive, display and incorporate test procedures and ensures the following data elements are included: patient name, medical record number, and date of birth
- VE170.314(b)(4) – 1.02: Vendor shall ensure the medication list recorded in the EHR is populated with the previously entered test scenario data from the medication list test procedure
- VE170.314(b)(4) – 1.03: Vendor shall ensure an additional medication list is populated with the medication list from the C-CDA in the transitions of care – receive, display and incorporate test procedure
- VE170.314(b)(4) – 1.04: Vendor shall identify the EHR function(s) that are available to display the two medication lists at the same time on the EHR screen
- VE170.314(b)(4) – 1.05: Vendor shall identify the EHR function(s) available to merge the two medication lists into a single reconciled medication list
- VE170.314(b)(4) – 1.06: Vendor shall identify the EHR function(s) available to consolidate identical

medications from two or more medication lists into one representation of those medications on the single reconciled medication list

VE170.314(b)(4) – 1.07: Vendor shall identify the EHR function(s) available to remove a medication from the single reconciled medication list

VE170.314(b)(4) – 1.08: Vendor shall identify the EHR function(s) available to review, validate, confirm, and submit the reconciled medication list to the patient's record in the EHR

Required Test Procedures

TE170.314(b)(4) – 1.01: Tester shall log in to the EHR and shall select the same patient identified VE170.314(b)(4) – 1.01

TE170.314(b)(4) – 1.02: Using the Vendor-identified EHR function(s), the Tester shall display the medication lists at the same time on the EHR screen

TE170.314(b)(4) – 1.03: Using the Inspection Test Guide, the Tester shall verify that the two medication lists are displayed in a manner that allows a user to view, at a minimum, the source of the medication list and the last date each medication was documented, ordered, prescribed, refilled, or edited correctly and accurately

Inspection Test Guide

IN170.314(b)(4) – 1.01: Tester shall verify that the two medication lists are displayed in a single view on the EHR screen

IN170.314(b)(4) – 1.02: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 1, the Tester shall verify that each of the two medication lists displays, at a minimum, the source of the medication list and the last date each medication was documented, ordered, prescribed, refilled, or edited correctly and accurately

DTR170.314(b)(4) – 2: Create a Single Reconciled Medication List

Required Vendor Information

- As defined in DTR170.314(b)(4) – 1, no additional information is required

Required Test Procedures

TE170.314(b)(4) – 2.01: Using the Vendor-identified EHR function(s), the Tester shall merge the two medication lists into a single reconciled medication list

TE170.314(b)(4) – 2.02: Using the Vendor-identified EHR function(s), the Tester shall consolidate identical medications from the two medication lists into one representation of those medications on the single reconciled medication list

TE170.314(b)(4) – 2.03: Using the Vendor-identified EHR function(s), the Tester shall remove a medication from at least one of the medication lists from the single reconciled medication list (This may be accomplished via selecting medications to be consolidated and excluding the medication to be removed from the selection)

TE170.314(b)(4) – 2.04: Using the Inspection Test Guide, the Tester shall verify that the two medication lists are merged into a single reconciled medication list, that identical medications from the two or more medication lists are consolidated into one

representation of those medications on the single reconciled medication list, and that the removed medication does not appear on the single reconciled medication list

Inspection Test Guide

IN170.314(b)(4) – 2.01: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 2, the Tester shall verify that the two medication lists have been merged into a single reconciled medication list

IN170.314(b)(4) – 2.02: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 2, the Tester shall verify that the two or more identical medications are consolidated into one representation of that medication on the single reconciled medication list

IN170.314(b)(4) – 2.03: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 2, the Tester shall verify that the removed medication does not appear on the single reconciled medication list

DTR170.314(b)(4) – 3: Review, Validate, Confirm, and Submit the Final Reconciled Medication List

Required Vendor Information

- As defined in DTR170.314(b)(4) – 1, no additional information is required

Required Test Procedures

TE170.314(b)(4) – 3.01: Using the Vendor-identified EHR function(s), the Tester shall review the reconciled medications and validate that the reconciled medications displayed are accurate and complete

TE170.314(b)(4) – 3.02: Using the Vendor-identified EHR function(s), the Tester shall confirm and submit the reconciled medications to the patient's active medication list in the EHR

TE170.314(b)(4) – 3.03: Using the Inspection Test Guide, the Tester shall verify that the patient's active medication list includes the newly reconciled medications

Inspection Test Guide

IN170.314(b)(4) – 3.01: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 3, the Tester shall verify that the patient's medication list displays the reconciled medications correctly and accurately

Active Problem List

DTR170.314(b)(4) – 4: Electronically and Simultaneously Display Problem List Data in a Single View

Required Vendor Information

VE170.314(b)(4) – 4.01: Vendor uses the ambulatory patient or inpatient identified in the medication list, medication allergy list, problem list, and transitions of care – receive, display and incorporate test procedures and ensures the following data elements are included: patient name, medical record number, and date of birth

- VE170.314(b)(4) – 4.02: Vendor shall ensure the problem list recorded in the EHR is populated with the previously entered test scenario data from the problem list test procedure
- VE170.314(b)(4) – 4.03: Vendor shall ensure an additional problem list is populated with the medication list from the C-CDA in the transitions of care – receive, display and incorporate test procedure
- VE170.314(b)(4) – 4.04: Vendor shall identify the EHR function(s) that are available to display the problem lists at the same time on the EHR screen
- VE170.314(b)(4) – 4.05: Vendor shall identify the EHR function(s) available to merge the two problem lists into a single reconciled problem list
- VE170.314(b)(4) – 4.06: Vendor shall identify the EHR function(s) available to consolidate identical problems from two or more problem lists into one representation of those problems on the single reconciled problem list
- VE170.314(b)(4) – 4.07: Vendor shall identify the EHR function(s) available to remove a problem from the single reconciled problem list (This may be accomplished via selecting problems to be consolidated and excluding the problems to be removed from the selection)
- VE170.314(b)(4) – 4.08: Vendor shall identify the EHR function(s) available to review, validate, confirm, and submit the reconciled problem list to the patient's record in the EHR

Required Test Procedures

- TE170.314(b)(4) – 4.01: Tester shall log in to the EHR and shall select the same patient identified in VE170.314(b)(4) – 4.01
- TE170.314(b)(4) – 4.02: Using the Vendor-identified EHR function(s), the Tester shall display the problem lists at the same time on the EHR screen
- TE170.314(b)(4) – 4.03: Using the Inspection Test Guide, the Tester shall verify that the two problem lists are displayed in a manner that allows a user to view, at a minimum, the source of the problem list and the last date each problem was documented or edited correctly and accurately

Inspection Test Guide

- IN170.314(b)(4) – 4.01: Tester shall verify that the two problem lists are displayed in a single view on the EHR screen
- IN170.314(b)(4) – 4.02: Using ONC-supplied test scenario data set TSD170.314(b)(4) – 4, the Tester shall verify that each of the two problem lists displays, at a minimum, the source of the problem list and the last date each problem was documented or edited correctly and accurately

DTR170.314(b)(4) – 5: Create a Single Reconciled Problem List

Required Vendor Information

- As defined in DTR170.314(b)(4) – 4, no additional information is required

Required Test Procedures

- TE170.314(b)(4) – 5.01: Using the Vendor-identified EHR function(s), the Tester shall merge the two problem lists into a single reconciled problem list
- TE170.314(b)(4) – 5.02: Using the Vendor-identified EHR function(s), the Tester shall consolidate identical problems from the two problem lists into one representation of those problems on the single reconciled problem list
- TE170.314(b)(4) – 5.03: Using the Vendor-identified EHR function(s), the Tester shall remove a problem from the single reconciled problem list (This may be accomplished via selecting problems to be consolidated and excluding the problem to be removed from the selection)
- TE170.314(b)(4) – 5.04: Using the Inspection Test Guide, the Tester shall verify that the two problem lists are merged into a single reconciled problem list, that identical problems from the two problem lists are consolidated into one representation of those problems on the single reconciled problem list, and that the removed problem does not appear on the single reconciled problem list

Inspection Test Guide

- IN170.314(b)(4) – 5.01: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 5, the Tester shall verify that the two problem lists have been merged into a single reconciled problem list
- IN170.314(b)(4) – 5.02: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 5, the Tester shall verify that the two or more identical problems are consolidated into one representation of that problem on the single reconciled problem list
- IN170.314(b)(4) – 5.03: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 5, the Tester shall verify that the removed problem does not appear on the single reconciled problem list

DTR170.314(b)(4) – 6: Review, Validate, Confirm, and Submit the Final Reconciled Problem List

Required Vendor Information

- As defined in DTR170.314(b)(4) – 4, no additional information is required

Required Test Procedures

- TE170.314(b)(4) – 6.01: Using the Vendor-identified EHR function(s), the Tester shall review the reconciled problems and validate that the reconciled problems displayed are accurate and complete
- TE170.314(b)(4) – 6.02: Using the Vendor-identified EHR function(s), the Tester shall confirm and submit the reconciled problems to the patient's active problem list in the EHR
- TE170.314(b)(4) – 6.03: Using the Inspection Test Guide, the Tester shall verify that the patient's active problem list includes the newly reconciled problems

Inspection Test Guide

- IN170.314(b)(4) – 6.01: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 6, the Tester shall verify that the patient's problem list displays the reconciled

problems correctly and accurately

Active Medication Allergy List

DTR170.314(b)(4) – 7: Electronically and Simultaneously Display Medication Allergy List Data in a Single View

Required Vendor Information

- VE170.314(b)(4) – 7.01: Vendor uses the ambulatory patient or inpatient identified in the medication allergy list, medication allergy list, problem list, and transitions of care – receive, display and incorporate test procedures and ensures the following data elements are included: patient name, medical record number, and date of birth
- VE170.314(b)(4) – 7.02: Vendor shall ensure the medication allergy list recorded in the EHR is populated with the previously entered test scenario data from the medication list test procedure
- VE170.314(b)(4) – 7.03: Vendor shall ensure an additional medication allergy list is populated with the medication list from the C-CDA in the transitions of care – receive, display and incorporate test procedure
- VE170.314(b)(4) – 7.04: Vendor shall identify the EHR function(s) that are available to display the two medication allergy lists at the same time on the EHR screen
- VE170.314(b)(4) – 7.05: Vendor shall identify the EHR function(s) available to merge the two medication allergy lists into a single reconciled medication allergy list
- VE170.314(b)(4) – 7.06: Vendor shall identify the EHR function(s) available to consolidate identical medication allergies from two or more medication allergy lists into one representation of those medication allergies on the single reconciled medication allergy list
- VE170.314(b)(4) – 7.07: Vendor shall identify the EHR function(s) available to remove a medication allergy from the single reconciled medication allergy list (This may be accomplished via selecting medication allergies to be consolidated and excluding the medication allergy to be removed from the selection)
- VE170.314(b)(4) – 7.08: Vendor shall identify the EHR function(s) available to review, validate, confirm, and submit the reconciled medication allergy list to the patient's record in the EHR

Required Test Procedures

- TE170.314(b)(4) – 7.01: Tester shall log in to the EHR and shall select the same patient identified VE170.314(b)(4) – 7.01
- TE170.314(b)(4) – 7.02: Using the Vendor-identified EHR function(s), the Tester shall display the medication allergy lists at the same time on the EHR screen
- TE170.314(b)(4) – 7.03: Using the Inspection Test Guide, the Tester shall verify that the two medication allergy lists are displayed in a manner that allows a user to view, at a minimum, the source of the medication allergy list and the last date each medication allergy was documented, edited, or updated correctly and accurately

Inspection Test Guide

- IN170.314(b)(4) – 7.01: Tester shall verify that the two medication allergy lists display in a single view on the EHR screen
- IN170.314(b)(4) – 7.02: Using ONC-supplied test scenario data set TSD170.314(b)(4) – 7, the Tester shall verify that each of the two medication allergy lists displays, at a minimum, the source of the medication allergy list and the last date each medication allergy was documented, edited, or updated correctly and accurately

DTR170.314(b)(4) – 8: Create a Single Reconciled Medication Allergy List

Required Vendor Information

- As defined in DTR170.314(b)(4) – 7, no additional information is required

Required Test Procedures

- TE170.314(b)(4) – 8.01: Using the Vendor-identified EHR function(s), the Tester shall merge the two medication allergy lists into a single reconciled medication allergy list
- TE170.314(b)(4) – 8.02: Using the Vendor-identified EHR function(s), the Tester shall consolidate identical medication allergies from the two medication allergy lists into one representation of those medication allergies on the single reconciled medication allergy list
- TE170.314(b)(4) – 8.03: Using the Vendor-identified EHR function(s), the Tester shall remove a medication allergy from the single reconciled medication allergy list (This may be accomplished via selecting medication allergies to be consolidated and excluding the medication allergy to be removed from the selection)
- TE170.314(b)(4) – 8.04: Using the Inspection Test Guide, the Tester shall verify that the two medication allergy lists are merged into a single reconciled medication allergy list, that identical medication allergies from the two medication allergy lists are consolidated into one representation of those medication allergies on the single reconciled medication allergy list, and that the removed medication allergy does not appear on the single reconciled medication allergy list

Inspection Test Guide

- IN170.314(b)(4) – 8.01: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 8, the Tester shall verify that the two medication allergy lists have been merged into a single reconciled medication allergy list
- IN170.314(b)(4) – 8.02: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 8, the Tester shall verify that the two or more identical medication allergies are consolidated into one representation of that medication allergy on the single reconciled medication allergy list
- IN170.314(b)(4) – 8.03: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 8, the Tester shall verify that the removed medication allergy does not appear on the single reconciled medication allergy list

DTR170.314(b)(4) – 9: Review, Validate, Confirm, and Submit the Final Reconciled Medication Allergy List

Required Vendor Information

- As defined in DTR170.314(b)(4) – 7, no additional information is required

Required Test Procedures

- TE170.314(b)(4) – 9.01: Using the Vendor-identified EHR function(s), the Tester shall review the reconciled medication allergies and validate that the reconciled medication allergies displayed are accurate and complete
- TE170.314(b)(4) – 9.02: Using the Vendor-identified EHR function(s), the Tester shall confirm and submit the reconciled medication allergies to the patient's active medication allergy list in the EHR
- TE170.314(b)(4) – 9.03: Using the Inspection Test Guide, the Tester shall verify that the patient's active medication allergy list includes the newly reconciled medication allergies

Inspection Test Guide

- IN170.314(b)(4) – 9.01: Using the ONC-supplied test scenario data set TSD170.314(b)(4) – 9, the Tester shall verify that the patient's medication allergy list displays the reconciled medication allergies correctly and accurately

TEST DATA

ONC supplied test data is provided with the test procedure to ensure that the applicable requirements identified in the criteria can be adequately evaluated for conformance, as well as, to provide consistency in the testing process across multiple National Voluntary Laboratory Accreditation Program -Accredited Testing Laboratories (ATLs). The provided test data focus on evaluating the basic capabilities of required 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 provided test data during the test, without exception, unless one of the following conditions exists:

- The Tester determines that the Vendor-selected message format requires some modification to the test data.
- The Tester determines that the Vendor product is sufficiently specialized that the provided test data needs to be modified in order to conduct an adequate test. Having made the determination that some modification to the provided 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. Having made the determination that some modification to the provided test data is necessary, the Tester shall record the modifications made as part of the test documentation.

- Test Scenario Data for §170.314(b)(4) Clinical information reconciliation available at <http://www.healthit.gov/certification> (navigation: 2014 Edition Testing and Certification > 2014 Edition Test Method > 2014 Edition Test Scenarios > 2014 Edition Draft Test Scenarios)

Any departure from the provided 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. For additional information on changes to the test data, refer to the Transport Test Tool documentation.

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.

CONFORMANCE TEST TOOLS

None

Document History

Version Number	Description of Change	Date
1.0	Posted for Public Review	January 31, 2013

DRAFT