Test Procedure for §170.302 (k) Submission to Immunization Registries

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

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

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

CERTIFICATION CRITERIA

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

§170.302(k) Submission to immunization registries. Electronically record, modify, retrieve, and submit immunization information in accordance with:

(1) the standard (and applicable implementation specifications) specified in §170.205(e)(1) or §170.205(e)(2); and

(2) At a minimum, the version of the standard specified in §170.207(e).

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

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

Per Section III.D of the preamble of the Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, Final Rule where the submission to immunization registries certification criterion is discussed:

- "We are primarily concerned with Certified EHR Technology's ability to transmit the immunization information in a standardized format, and do not believe that it is necessary to specify a particular recipient in the certification criterion."
- "The CDC maintains an openly available list of updated CVX codes as well as a mapping of CVX codes to CPT codes on their website." "NDC codes were not adopted as a standard to represent immunizations and we do not believe that requiring their use for the purposes of demonstrating compliance with this certification criterion would be appropriate."
- "…we have revised the certification criterion to replace the word "transmit" with "submit" to better align this certification criterion with the meaningful use objective and measure."

INFORMATIVE TEST DESCRIPTION

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

This test evaluates the capability for a Complete EHR or EHR Module to electronically record, retrieve and submit immunization information to immunization registries in either HL7 2.3.1 or HL7 2.5.1 format including the appropriate HL7 CVX codes.

The capability to modify the recorded immunization information is not included in this test procedure.

The Vendor supplies part of the test data and NIST provides part of the test data for this test procedure.

The test procedure is organized into three sections:

- Record – evaluates the capability to enter CVX-encoded immunization information into the EHR
  - Using Vendor-defined EHR functions, the Tester enters immunization information into the EHR

- Retrieve – evaluates the capability of the EHR to display the CVX-encoded immunization information that has been entered into the EHR
  - Using Vendor-defined EHR functions, the Tester displays the immunization information entered during the test
  - The Tester validates that the displayed immunization information is accurate and complete

- Submit – evaluates the capability of the EHR to electronically submit the CVX-encoded immunization information to an immunization registry in either HL7 2.3.1 or HL7 2.5.1 format

- Using Vendor-defined EHR functions, the Tester submits the immunization information entered during the test to an external recipient
- The Tester validates that the submitted immunization message is conformant using the NIST-supplied conformance testing tool identified in the Conformance Tools section of this test procedure

REFERENCED STANDARDS

§170.205 Content exchange standards and implementation specifications for exchanging electronic health information.	Regulatory Referenced Standard
(e) Electronic submission to immunization registries	
(1) Standard. HL7 2.3.1 (incorporated by reference in §170.299). Implementation specifications. Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the Health Level Seven (HL7) Standard Protocol Implementation Guide Version 2.2 (incorporated by reference in §170.299). (2) Standard. HL7 2.5.1 (incorporated by reference in §170.299). Implementation specifications. HL7 2.5.1 Implementation Guide for Immunization Messaging Release 1.0 (incorporated by reference in §170.299).	

§170.207 Vocabulary standards for representing electronic health information.	Regulatory Referenced Standard
(e) Immunizations. Standard. HL7 Standard Code Set CVX - Vaccines Administered, July 30, 2009 version (incorporated by reference in §170.299).	

NORMATIVE TEST PROCEDURES

Derived Test Requirements

DTR170.302.k – 1: Electronically Record Immunization Information

DTR170.302.k – 2: Electronically Retrieve Immunization Information

DTR170.302.k – 3: Electronically Submit Immunization Information

DTR170.302.k – 1: Electronically Record Immunization Information

Required Vendor Information

VE170.302.k – 1.01: Vendor shall identify a patient record in the EHR to be used for this test, and shall have entered the following Vendor-supplied information into the patient record:

- Patient ID Number
- Patient ID Number Type
- Family Name or Surname
- Given name
- Date of Birth
- Administrative Sex/Gender

- Race
- Ethnicity
- Patient address and phone data
  - Street Address
  - City
  - State
  - Zip Code
  - Country
  - Address Type
  - Home Telephone Number

VE170.302.k – 1.02: Vendor shall identify the EHR function(s) that are available to record, retrieve and submit immunization information to an immunization registry

VE170.302.k – 1.03: Vendor shall specify whether they wish to use HL7 2.3.1 or HL7 2.5.1 format

Required Test Procedure

TE170.302.k – 1.01: Tester shall select immunization test data from the NIST-supplied test data sets in TD170.302.k

TE170.302.k – 1.02: Using EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and enter the immunization test data into the EHR

TE170.302.k – 1.03: Using the EHR function(s) identified by the Vendor and the NIST-supplied Inspection Test Guide, the Tester shall verify that the immunization information has been entered correctly and without omission

Inspection Test Guide

IN170.302.k – 1.01: Using the data in the NIST-supplied Test Data sets in TD170.302.k, Tester shall verify that the immunization test data are entered correctly and without omission

IN170.302.k – 1.02: Tester shall verify that the immunization test data entered during the test are stored in the patient's record

DTR170.302.k – 2: Electronically Retrieve Immunization Information

Required Vendor Information

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

Required Test Procedure

TE170.302.k – 2.01: Using EHR function(s) identified by the Vendor, the Tester shall select the patient's existing record and shall display the immunization information entered during the DTR170.302.k – 1: Electronically Record Immunization Information test

TE170.302.k – 2.02: Using the NIST-supplied Inspection Test Guide, the Tester shall verify that the immunization information entered during the DTR170.302.k – 1: Electronically Record Immunization Information test is displayed correctly and without omission

Inspection Test Guide

IN170.302.k – 2.01: Using the data in the NIST-supplied Test Data sets in TD170.302.k, Tester shall verify that the immunization information entered during the DTR170.302.k – 1: Electronically Record Immunization Information test display correctly and without omission

DTR170.302.k – 3: Electronically Submit Immunization Information

Required Vendor Information

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

Required Test Procedures

TE170.302.k – 3.01: Using the EHR function(s) identified by the Vendor, the Tester shall submit the immunization information entered during the DTR170.302.k – 1: Electronically Record Immunization Information test to an external system

TE170.302.k – 3.02: Using the NIST-supplied Inspection Test Guide, the Tester shall verify conformance of the submitted immunization message to the applicable standards

Inspection Test Guide

IN170.302.k – 3.01: Using the NIST-supplied conformance testing tools described in the Conformance Testing Tools section of this test procedure, and the NIST-supplied Test Data sets in TD170.302.k, the Tester shall verify that the immunization information data are submitted by the EHR to an external system

IN170.302.k – 3.02: Using the NIST-supplied conformance testing tools described in the Conformance Testing Tools section of this test procedure, and the NIST-supplied Test Data sets in TD170.302.k, Tester shall verify that the immunization test data submitted to the NIST-supplied Testing Tool are complete and correct, and that the received test data are conformant to the referenced HL7v2 standard and include the CVX vocabulary codes entered during the DTR170.302.k – 1: Electronically Record Immunization Information test

TEST DATA MESSAGE STRUCTURES

The Test Data Message Structures section includes charts that provide a detailed description of the message data elements required for this test procedure. In these charts, the information in the ***Location*** column indicates the canonical element location in the HL7 V2 message. For example, MSH-9.3 represents the 3rd component in the 9th field of the MSH segment. In the ***Data Element*** column is the name of each data element as specified by the HL7 V2 standard.

The source of test data for this test procedure is either NIST-supplied or Vendor-supplied. Vendor-supplied data can be system generated (i.e., system dependent, e.g., message control id) or fictitious data created by the vendor (e.g., an existing patient in the EHR). In the ***Test Data*** column in the charts, *NIST-Supplied* indicates the content for that data element is provided by NIST, and that this content is required for the test. As described in the Normative Test Procedures section of this document, the system being tested shall record and use these data to generate the message. In evaluation of the message, the exact content of these data will be examined by the Test Tool. *Vendor-Supplied* listed in the ***Test Data*** column indicates that these data are customarily provided by or exist in the system or are dependent on the system being tested. The system is expected to provide data for these elements.[3] In evaluation of the message, the Test Tool confirms the existence of the data, but will not evaluate the specific content for conformance.

When a Test Procedure states that the Vendor supplies the test data, the following guidance applies:

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

NIST has categorized the test data as NIST-supplied or Vendor-supplied. The ATCB has the latitude, as part of the testing process, to re-categorize these data based on the capabilities of the system being tested. Data values that appear in the ***Test Data*** column are “Fixed” and must be in the message exactly as listed (e.g., MSH.9.1 must be ORU).

[3] The data spreadsheet that accompanies the conformance test tool contains sample data values for Vendor-supplied data. The vendor may choose to use this NIST-supplied sample data for Vendor-supplied data where appropriate.

The data in the ***Comments*** column of a chart provide additional information about the data element. The ***Table #*** column indicates the HL7 value set that is used to evaluate conformance of the data element.

TDMS170.302.k: Submission to Immunization Registries

Immunization VXU Message – Message Header Segment

Location	Data Element	Test Data	Comments	Table #
MSH-1	Field Separator	|	FIXED	
MSH-2	Encoding Characters	^~\&	FIXED	
MSH-3	Sending Application[4]			
MSH-3.1	Namespace ID	Vendor-Supplied		
MSH-3.2	Universal ID	Vendor-Supplied		
MSH-3.3	Universal ID Type	Vendor-Supplied		HL70301
MSH-4	Sending Facility[6]			
MSH-4.1	Namespace ID	Vendor-Supplied		
MSH-4.2	Universal ID	Vendor-Supplied		
MSH-4.3	Universal ID Type	Vendor-Supplied		HL70301
MSH-5	Sending Facility[6]			
MSH-5.1	Namespace ID	Vendor-Supplied		
MSH-5.2	Universal ID	Vendor-Supplied		
MSH-5.3	Universal ID Type	Vendor-Supplied		HL70301
MSH-6	Sending Facility[6]			
MSH-6.1	Namespace ID	Vendor-Supplied		
MSH-6.2	Universal ID	Vendor-Supplied		
MSH-6.3	Universal ID Type	Vendor-Supplied		HL70301

[4] For the data elements specified with the HD datatype, namely MSH-3, MSH-4, MSH-5, MSH-6, and PID-3.4 the following rule will apply: The parent element is required. This requirement may be satisfied in one of the following 3 ways. The first element of the HD datatype is populated, the second and third pair is populated, or all three elements are populated. Therefore the components of the HD datatype are indicated as conditional. For more information please consult the HL7 V2 standard.

Location	Data Element	Test Data	Comments	Table #
MSH-7.1	Date/Time of Message	Vendor-Supplied	Current time of the SUT	
MSH-9	Message Type		For version 2.3.1	
MSH-9.1	Message Code	VXU	FIXED	HL70076
MSH-9.2	Event Type	V04	FIXED	HL70003
MSH-9.3	Message Structure	VXU_V04	Optional	HL70354
MSH-9	Message Type		For version 2.5.1	
MSH-9.1	Message Code	VXU	FIXED	HL70076
MSH-9.2	Event Type	V04	FIXED	HL70003
MSH-9.3	Message Structure	VXU_V04	FIXED	HL70354
MSH-10	Message Control ID		Created by the SUT	
MSH-11.1	Processing ID	P	FIXED	HL70103
MSH-12.1	Version ID	2.3.1 or 2.5.1	FIXED	HL70104

FIXED: the test data for this field will always be the same for any data set.

Vendor-supplied data either are pre-existing in the EHR, are entered by the vendor into the EHR for this test, or are generated automatically by the EHR during this test.

NIST-supplied data are provided in both the Test Data Message Structures spreadsheet at http://xreg2.nist.gov:8080/HL7V2MuValidation2011 and in TD170.302.k of this test procedure document.

Immunization Message – Patient ID Segment

Location	Data Element	Test Data	Table #
PID-3	Patient Identifier List		
PID-3.1	ID Number	Vendor-Supplied	
PID-3.4	Assigning Authority		
PID-3.4.1	Namespace ID	Vendor-Supplied	HL70300
PID-3.4.2	Universal ID	Vendor-Supplied	
PID-3.4.3	Universal ID Type	Vendor-Supplied	HL70301
PID-3.5	ID Number Type	Vendor-Supplied	HL70203

Location	Data Element	Test Data	Table #
PID-5	Patient Name		
PID-5.1	Family Name		
PID-5.1.1	Surname	Vendor-Supplied	
PID-5.2	Given Name	Vendor-Supplied	
PID-7.1	Date of Birth	Vendor-Supplied	
PID-8	Administrative Sex	Vendor-Supplied	HL70001
PID-10	Race		
PID-10.1	Identifier	Vendor-Supplied	HL70005
PID-10.2	Text	Vendor-Supplied	
PID-10.3	Name of Coding System	NIST-Supplied	
PID-11	Patient Address		
PID-11.1	Street Address (VXU 2.3.1)	Vendor-Supplied	
PID-11.1	Street Address		
PID-11.1.1	Street or Mailing Address (VXU 2.5.1)	Vendor-Supplied	
PID-11.3	City	Vendor-Supplied	
PID-11.4	State	Vendor-Supplied	
PID-11.5	Zip Code	Vendor-Supplied	
PID-11.6	Country	Vendor-Supplied	HL70399
PID-11.7	Address Type	Vendor-Supplied	HL70190
PID-13	Phone Number-Home		
PID-13.6	Area/City Code	Vendor-Supplied	
PID-13.7	Local Number	Vendor-Supplied	
PID-22	Ethnic Group		
PID-22.1	Identifier	Vendor-Supplied	HL70189
PID-22.2	Text	Vendor-Supplied	
PID-22.3	Name of Coding System	NIST-Supplied	

Vendor-supplied data either are pre-existing in the EHR, are entered by the vendor into the EHR for this test, or are generated automatically by the EHR during this test.

NIST-supplied data are provided in both the Test Data Message Structures spreadsheet at http://xreg2.nist.gov:8080/HL7V2MuValidation2011 and in TD170.302.k of this test procedure document. In the cases where the data elements are designated as Vendor-supplied, the NIST-supplied data sets provide examples that the vendor may use if they prefer.

Immunization Message – Common Order Segment

Location	Data Element	Test Data	Table #
ORC-1	Order Control (VXU 2.5.1)	FIXED Value = RE	HL70119

FIXED: the test data for this field will always be the same for any data set

Vendor-supplied data either are pre-existing in the EHR, are entered by the vendor into the EHR for this test, or are generated automatically by the EHR during this test.

NIST-supplied data are provided in both the Test Data Message Structures spreadsheet at http://xreg2.nist.gov:8080/HL7V2MuValidation2011 and in TD170.302.k of this test procedure document. In the cases where the data elements are designated as Vendor-supplied, the NIST-supplied data sets provide examples that the vendor may use if they prefer.

Immunization Message – RXA Vaccine Segment

Location	Data Element	Test Data	Table #
RXA-1	Give Sub-ID Counter	FIXED Value = 0	
RXA-2	Administration Sub-ID Counter	FIXED Value = 1	
RXA-3.1	Date/Time Start of Administration	Vendor-Supplied	
RXA-4.1	Date/Time End of Administration	Vendor-Supplied	
RXA-5	Administered Code		
RXA-5.1	Identifier	NIST-Supplied	HL70292
RXA-5.2	Text	Vendor-Supplied	
RXA-5.3	Name of Coding System	FIXED Value = CVX or HL70292	
RXA-6	Administered Amount	Vendor-Supplied	
RXA-7	Administered Units (ml, etc)		
RXA-7.1	Identifier	Vendor-Supplied	

Location	Data Element	Test Data	Table #
RXA-7.2	Text	Vendor-Supplied	
RXA-7.3	Name of Coding System	Vendor-Supplied	HL70396
RXA-15	Substance Lot Numbers	Vendor-Supplied	
RXA-17	Substance Manufacturer Name		
RXA-17.1	Identifier	Vendor-Supplied	HL70227
RXA-17.2	Text	Vendor-Supplied	
RXA-17.3	Name of Coding System	FIXED Value = MVX or HL70227	
RXA-21	Action Code	FIXED Value = A; all use cases are "add"	

FIXED: the test data for this field will always be the same for any data set

Vendor-supplied data either are pre-existing in the EHR, are entered by the vendor into the EHR for this test, or are generated automatically by the EHR during this test.

NIST-supplied data are provided in both the Test Data Message Structures spreadsheet at http://xreg2.nist.gov:8080/HL7V2MuValidation2011 and in TD170.302.k of this test procedure document. In the cases where the data elements are designated as Vendor-supplied, the NIST-supplied data sets provide examples that the vendor may use if they prefer.

TEST DATA

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

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

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

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

- The Tester determines that the Vendor product is sufficiently specialized that the NIST-supplied test data needs to be modified in order to conduct an adequate test. Having made the determination that some modification to the NIST-supplied test data is necessary, the Tester shall record the modifications made as part of the test documentation.
- The Tester determines that changes to the test data will improve the efficiency of the testing process; primarily through using consistent demographic data throughout the testing workflow. The tester shall ensure that the functional and interoperable requirements identified in the criterion can be adequately evaluated for conformance and that the test data provides a comparable level of robustness.

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

TD170.302.k: Record Immunization Information

Immunization Information – Data Set #1

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	9817566735
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Johnson
Given Name	Vendor-supplied	Philip
Date of Birth	Vendor-supplied	May 26, 1984
Administrative Sex/Gender	Vendor-supplied	Male
Race	Vendor-supplied	White
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	3345 Elm Street
City	Vendor-supplied	Aurora
State	Vendor-supplied	Colorado
Zip Code	Vendor-supplied	80011
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	303-554-8889
Vaccine Administration Information		
CVX Code	52	
Vaccine Name	Vendor-supplied	Hepatitis A, Adult
Date/Time Start of Vaccine Administration	Vendor-supplied	July 6, 2010
Administered Amount	Vendor-supplied	1
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	HAB9678V1
Manufacturer Name	Vendor-supplied	GLAXOSMITHKLINE
Manufacturer Code	Vendor-supplied	SKB

Immunization Information – Data Set #2

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	5667351009
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Anderson
Given Name	Vendor-supplied	Janet
Date of Birth	Vendor-supplied	September 30, 1986
Administrative Sex/Gender	Vendor-supplied	Female
Race	Vendor-supplied	White
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	3345 16th Street
City	Vendor-supplied	Fargo
State	Vendor-supplied	North Dakota
Zip Code	Vendor-supplied	54102
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	701-454-8989
Vaccine Administration Information		
CVX Code	88	
Vaccine Name	Vendor-supplied	Influenza-NOS
Date/Time Start of Vaccine Administration	Vendor-supplied	June 15, 2010
Administered Amount	Vendor-supplied	0.5
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	L888355
Manufacturer Name	Vendor-supplied	GLAXOSMITHKLINE
Manufacturer Code	Vendor-supplied	SKB

Immunization Information – Data Set #3

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	686774009
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Takamura
Given Name	Vendor-supplied	Michael
Date of Birth	Vendor-supplied	19820815
Administrative Sex/Gender	Vendor-supplied	Male
Race	Vendor-supplied	Asian
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	3567 Maple Street
City	Vendor-supplied	Oakland
State	Vendor-supplied	California
Zip Code	Vendor-supplied	94607
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	510-665-8876
Vaccine Administration Information		
CVX Code	43	
Vaccine Name	Vendor-supplied	Hepatitis B, Adult
Date/Time Start of Vaccine Administration	Vendor-supplied	May 12, 2010
Administered Amount	Vendor-supplied	999 (= unknown)
Administered Units	Vendor-supplied	Null
Vaccine Lot Number	Vendor-supplied	Null
Manufacturer Name	Vendor-supplied	GLAXOSMITHKLINE
Manufacturer Code	Vendor-supplied	SKB

Immunization Information – Data Set #4

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	774009153
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Sinclair
Given Name	Vendor-supplied	John
Date of Birth	Vendor-supplied	19871012
Administrative Sex/Gender	Vendor-supplied	Male
Race	Vendor-supplied	Black or African American
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	3567 Maple Street
City	Vendor-supplied	Elizabeth City
State	Vendor-supplied	North Carolina
Zip Code	Vendor-supplied	27909
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	252-227-5887
Vaccine Administration Information		
CVX Code	16	
Vaccine Name	Vendor-supplied	Influenza, whole
Date/Time Start of Vaccine Administration	Vendor-supplied	May 26, 2010
Administered Amount	Vendor-supplied	0.5
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	U6007
Manufacturer Name	Vendor-supplied	NOVARTIS
Manufacturer Code	Vendor-supplied	NOV

Immunization Information – Data Set #5

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	874889153
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Haena
Given Name	Vendor-supplied	Mary
Date of Birth	Vendor-supplied	19791122
Administrative Sex/Gender	Vendor-supplied	Female
Race	Vendor-supplied	Native Hawaiian or Other Pacific Islander
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	6778 Kaulula Road
City	Vendor-supplied	Honolulu
State	Vendor-supplied	Hawaii
Zip Code	Vendor-supplied	96813
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	808-727-8755
Vaccine Administration Information		
CVX Code	33	
Vaccine Name	Vendor-supplied	Pneumococcal Polysaccharide Vaccine
Date/Time Start of Vaccine Administration	Vendor-supplied	June 10, 2010
Administered Amount	Vendor-supplied	0.5
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	1039A
Manufacturer Name	Vendor-supplied	MERCK
Manufacturer Code	Vendor-supplied	MSD

Immunization Information – Data Set #6

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	987488015
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Whiteagle
Given Name	Vendor-supplied	Adam
Date of Birth	Vendor-supplied	19800321
Administrative Sex/Gender	Vendor-supplied	Male
Race	Vendor-supplied	American Indian or Alaska Native
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	354 Glacier Road
City	Vendor-supplied	Eklutna
State	Vendor-supplied	Alaska
Zip Code	Vendor-supplied	99567
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	907-755-2189
Vaccine Administration Information		
CVX Code	03	
Vaccine Name	Vendor-supplied	Measles Mumps Rubella Vaccine
Date/Time Start of Vaccine Administration	Vendor-supplied	June 15, 2010
Administered Amount	Vendor-supplied	999 (= unknown)
Administered Units	Vendor-supplied	Null
Vaccine Lot Number	Vendor-supplied	Null
Manufacturer Name	Vendor-supplied	MERCK
Manufacturer Code	Vendor-supplied	MSD

Immunization Information – Data Set #7

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	787478017
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	James
Given Name	Vendor-supplied	Wanda
Date of Birth	Vendor-supplied	19810430
Administrative Sex/Gender	Vendor-supplied	Female
Race	Vendor-supplied	White
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	574 Wilkins Road
City	Vendor-supplied	Shawville
State	Vendor-supplied	Pennsylvania
Zip Code	Vendor-supplied	16873
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	814-575-2819
Vaccine Administration Information		
CVX Code	52	
Vaccine Name	Vendor-supplied	Hepatitis A, Adult
Date/Time Start of Vaccine Administration	Vendor-supplied	July 1, 2010
Administered Amount	Vendor-supplied	1
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	HAB9678V1
Manufacturer Name	Vendor-supplied	GLAXOSMITHKLINE
Manufacturer Code	Vendor-supplied	SKB
Vaccine Administration Information		
CVX Code	03	

Data Element	Test Data	NIST-supplied Examples
Vaccine Name	Vendor-supplied	Measles Mumps Rubella Vaccine
Date/Time Start of Vaccine Administration	Vendor-supplied	March 2, 2010
Administered Amount	Vendor-supplied	999 (= unknown)
Administered Units	Vendor-supplied	Null
Vaccine Lot Number	Vendor-supplied	Null
Manufacturer Name	Vendor-supplied	MERCK
Manufacturer Code	Vendor-supplied	MSD

Immunization Information – Data Set #8

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	9787478015
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Tyler
Given Name	Vendor-supplied	Christine
Date of Birth	Vendor-supplied	19880728
Administrative Sex/Gender	Vendor-supplied	Female
Race	Vendor-supplied	Black or African American
Ethnic Group	Vendor-supplied	Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	766 Bohen Street
City	Vendor-supplied	Marshalltown
State	Vendor-supplied	Iowa
Zip Code	Vendor-supplied	50158
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	641-225-8190
Vaccine Administration Information		

Data Element	Test Data	NIST-supplied Examples
CVX Code	88	
Vaccine Name	Vendor-supplied	Influenza-NOS
Date/Time Start of Vaccine Administration	Vendor-supplied	May 12, 2010
Administered Amount	Vendor-supplied	0.5
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	L888355
Manufacturer Name	Vendor-supplied	GLAXOSMITHKLINE
Manufacturer Code	Vendor-supplied	SKB
Vaccine Administration Information		
CVX Code	16	
Vaccine Name	Vendor-supplied	Influenza, whole
Date/Time Start of Vaccine Administration	Vendor-supplied	September 12, 2009
Administered Amount	Vendor-supplied	0.5
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	U6007
Manufacturer Name	Vendor-supplied	NOVARTIS
Manufacturer Code	Vendor-supplied	NOV

Immunization Information – Data Set #9

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	78015669
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Singer
Given Name	Vendor-supplied	Carlton
Date of Birth	Vendor-supplied	19781015
Administrative Sex/Gender	Vendor-supplied	Male
Race	Vendor-supplied	White

Data Element	Test Data	NIST-supplied Examples
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	677 Tylar Street
City	Vendor-supplied	Blanchard
State	Vendor-supplied	Oklahoma
Zip Code	Vendor-supplied	73010
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	405-255-9229
Vaccine Administration Information		
CVX Code	43	
Vaccine Name	Vendor-supplied	Hepatitis B, Adult
Date/Time Start of Vaccine Administration	Vendor-supplied	June 25, 2010
Administered Amount	Vendor-supplied	999 (= unknown)
Administered Units	Vendor-supplied	Null
Vaccine Lot Number	Vendor-supplied	Null
Manufacturer Name	Vendor-supplied	GLAXOSMITHKLINE
Manufacturer Code	Vendor-supplied	SKB
Vaccine Administration Information		
CVX Code	03	
Vaccine Name	Vendor-supplied	Measles Mumps Rubella Vaccine
Date/Time Start of Vaccine Administration	Vendor-supplied	April 15, 2010
Administered Amount	Vendor-supplied	999 (=unknown)
Administered Units	Vendor-supplied	Null
Vaccine Lot Number	Vendor-supplied	Null
Manufacturer Name	Vendor-supplied	MERCK
Manufacturer Code	Vendor-supplied	MSD

Immunization Information – Data Set #10

Data Element	Test Data	NIST-supplied Examples
ID Number	Vendor-supplied	97833566
ID Number Type	Vendor-supplied	Medical Record
Family Name/Surname	Vendor-supplied	Brown
Given Name	Vendor-supplied	Mark
Date of Birth	Vendor-supplied	19880617
Administrative Sex/Gender	Vendor-supplied	Male
Race	Vendor-supplied	Black or African American
Ethnic Group	Vendor-supplied	Not Hispanic or Latino
Patient Address		
Street Address	Vendor-supplied	799 Newton Street
City	Vendor-supplied	Augusta
State	Vendor-supplied	Maine
Zip Code	Vendor-supplied	04330
Country	Vendor-supplied	USA
Address Type	Vendor-supplied	Mailing
Telephone Number - Home	Vendor-supplied	207-959-2228
Vaccine Administration Information		
CVX Code	33	
Vaccine Name	Vendor-supplied	Pneumococcal Polysaccharide Vaccine
Date/Time Start of Vaccine Administration	Vendor-supplied	April 5, 2010
Administered Amount	Vendor-supplied	0.5
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	1039A
Manufacturer Name	Vendor-supplied	MERCK
Manufacturer Code	Vendor-supplied	MSD
Vaccine Administration Information		
CVX Code	16	

Data Element	Test Data	NIST-supplied Examples
Vaccine Name	Vendor-supplied	Influenza, whole
Date/Time Start of Vaccine Administration	Vendor-supplied	February 12, 2010
Administered Amount	Vendor-supplied	0.5
Administered Units	Vendor-supplied	ml
Vaccine Lot Number	Vendor-supplied	U6007
Manufacturer Name	Vendor-supplied	NOVARTIS
Manufacturer Code	Vendor-supplied	NOV

CONFORMANCE TEST TOOLS

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

- HL7 v2 – NIST provides an HL7 v2 validation tool designed specifically to support this test procedure. The tool is available in three forms:
    - Web Application
    - Desktop Java Application
    - Java class library (archive/jar file)
- All three instances can be downloaded for local installation
- NIST is making available the web-accessible version for pre-testing
- The downloadable tools and the web application validation service are available at: http://xreg2.nist.gov:8080/HL7V2MuValidation2011

Support for these tools is available by contacting

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Computer Scientist
National Institute of Standards and Technology (NIST)
Information Technology Laboratory

The following information is provided to assist the Tester in interpreting the conformance reports generated by the NIST conformance testing tools. The NIST HL7 conformance testing tool evaluates individual conformance statements which have been derived from the standards and implementation guides identified in the Final Rule and the test data provided in this test procedure. The conformance tool evaluates the submitted HL7 message for each conformance statement, and then produces a conformance report. The Tester should consider that a report containing only Affirmative and Warning messages indicates general conformance to the standard and test data expectations. If reported, Errors should be considered as significant departures from the standard or test data requirements which need to be corrected in order to claim conformance. ATCBs will need to further analyze each error to determine if, in the context of meeting the criterion and overall meaningful use objective, the error results in a failure of the Test Procedure by the EHR technology.

Document History

Version Number	Description	Date Published
0.28	Original draft version	May 17, 2010
1.0	Updated to reflect Final Rule	July 21, 2010
1.0	Updated to remove “Pending” from header	August 13, 2010