AIRA
AMERICAN IMMUNIZATION REGISTRY ASSOCIATION

HL7 FAQ

Frequently Asked Questions Series
Reviewed and Approved by AIRA and CDC Staff

Last Updated: 12/20/2019

Update History

- Created 09/20/2016
- Updated 12/12/2016
- Updated 07/20/2017
- Updated 09/10/2017
- Updated 12/20/2019

Organization of this Document

This document is organized by topics, which are listed on the next page 2. The topics are followed by the list of questions which link to the full question and answer.

Implementation Resources

The current HL7 2.5.1 Rel. 1.5 IG is here:

https://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-5-2014-11.pdf

The addendum is here:

https://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-addendum-7-2015.pdf

A consolidated version of the HL7 2.5.1 Rel. 1.5 IG with the Addendum applied:

http://repository.immregistries.org/files/resources/5bef530428317/hl7_2_5_1_release_1_5__2018_update.pdf

Testing tool to ensure the messages are meeting the HL7 standard including some test cases:

https://hl7v2-iz-r1.5-testing.nist.gov/iztool/#/home

Contents

Data Types

What is a data type flavor?

A standard set of restrictions on a standard data type. When HL7 v2.x implementation guides are developed, data types often are (and should be) constrained to suit a particular use for a message element. Therefore, multiple specializations of a data type are required that necessitates a distinct specification and identifier. Each specialization becomes a data type flavor. For example, if DT_IZ01 is used to for OBX-5, then the data type in OBX-2 will be DT.

Never transmit them in HL7. When a guide specific flavor is specified, OBX-2 of the message should be populated with the base HL7 data type for that flavor.

What is an HD (Hierarchic Designator) datatype?

The HD data type is one of the most complex and confusing data types in HL7 version 2. Keep in mind that the HD data type is sometimes used for fields (e.g., MSH-4) and other times used for components (e.g., CX.4 as used in PID-3). In the examples below, we demonstrate HD usage using component-based scenarios, but the same suggestions and rules apply for field level HD usage as well.

The HD data type is divided into 3 elements:

- The Namespace
- The Universal ID
- The Universal ID Type

The last two elements work together to define an ID along with the appropriate ID Type and the Release 1.5 IG constrains the Universal ID to be an OID and constrains the Universal ID Type to the value “ISO”. The Namespace and the OID should be synonyms for each other. That is, the HD element should NOT be populated such that the Namespace is a value in the value set specified by the OID.

The Release 1.5 IG allows for 3 valid “flavors” of the HD data:

- Namespace&& (ideally without the trailing ampersands)
- Namespace&<OID>&ISO
- &<OID>&ISO

How should Namespaces and OIDs be used in HD data types?

The Namespace is widely used today and support for sending and receiving the Namespace is highly encouraged for all vendors. The OID can be used in addition to the Namespace, but we do not encourage replacing the Namespace with the OID. That is, while the third flavor above is valid, we don't endorse the use of it due to the current extensive use of Namespace.
Future releases of the IG may tighten the Usage of the Namespace to Required (R) while still supporting the use of OIDs.

How should I implement the TS (Time Stamp) data type?

For data elements where the time component is optional, the receiving system may decide to support using the time or not. If the receiving system chooses not to use the time, an error/warning should not be returned for sending a time if it's formatted correctly.

How should I implement the XTN (Extended Telecommunications Number) data type?

Currently when sending a phone number, the Area/City Code (XTN.6) has a usage of RE while the Local Number (XTN.7) has a usage of R.

- Legacy data in the IIS (or EHR) may exist without an area code. We still need the ability to message this data.
- IIS can further constrain the usage of the area code if local needs require it.
- Future releases of the IG will maintain the current usages.

What are the possible variations in XTN fields?

The large number of Conditional Usages makes the XTN data type a complex one. It can be used to send either phone numbers or email addresses, but each of those looks quite different.

- A maximally populated phone number looks like this:
  - ^PRN^CP^^^406^5557896
- As noted above, it is also valid to send a phone number without an area code:
  - ^PRN^PH^^^^5552236
- An email address looks like this:
  - ^NET^^warren.jackson@example.com
- When populating a field with both phone numbers and an email address, they are separated by the repetition (~)

delimiter. For example, the PID-14 value for a patient with a home phone, cell phone and email address would look like this:

- ^PRN^CP^^^406^5557896~^PRN^PH^^^^5552236~^NET^^warren.jackson@example.com

Value Sets

What is the future of the NIP004 (Serological Evidence) value set that was part of the HL7 v2.3.1 IG?

In the HL7 2.3.1 IG, the NIP004 value set was designed to document Vaccination contraindications/precautions (LOINC code 30945-0). Values included allergies, medical observations (pregnancy, fever, chronic illness, etc.) and immunities. Because the newer v2.5.1 IG no longer uses NIP004, that value set is not being maintained.

The HL7 2.5.1 IG Rel. 1.5 uses the PHVS_VaccinationContraindication_IIS value set for contraindications/precautions and documents different LOINC codes for Presumed Immunity (59784-9) and Serological Immunity (75505-8) with their own value sets of PHVS_EvidenceOfImmunity_IIS and PHVS_SerologicalEvidenceOfImmunity_IIS respectively. The NIP004 value set is not part of the HL7 2.5.1 messaging standard. However, if a system is not yet using most recent v2.5.1 IG needs to exchange concepts not included in NIP004, local codes may be added to expand the NIP004 value set.

IIS that have not yet updated to HL7 2.5.1 IG should consider pre-adopting newer code sets to support current HL7 messaging standards.

How are LOINC codes described in NIP003 supposed to be used with respect to individual profiles?

AIRA has published Guidance on Detailed Message Structure and Use of Specific LOINC Codes describing in more detail the message structure of VXU and RSP messages including guidance on LOINC codes which are appropriate to use in different sections of the message.

Does the CVX value set include a code for animal Rabies vaccines?

The CVX value set only covers human vaccines.

How should foreign vaccines be handled?

CVX codes exist for several vaccine which are not available in the United States but may be part of a patient's history. Receiving systems should be prepared to support receipt of these foreign vaccines as they may be included in messages as part of a patient's immunization record.

- Pentavalente is a vaccine available in Mexico. In 2007, the formulation of the vaccine changed from DTP/HEP B/Hib to DTaP/Polio/Hib (Pentavalente Acellular). Separate CVX codes exist for each formulation (102 and 170 respectively).
- Hep A, live attenuated vaccine (CVX code 169) is never recommended by ACIP and does not count towards Hep A completion.
- Two versions of a killed, oral cholera vaccine now have CVX codes (172 and 173).
- PCV10 (CVX code 177) is valid but recommendations are that all patients have at least one dose of PCV13.
- Several new CVX codes (178 and 179) have been created for bivalent and monovalent OPV vaccines. The trivalent formation is no longer available as of April 2016. Bivalent and monovalent OPV vaccines do not count towards polio completion.

In the HL7 2.5.1 Rel. 1.5 IG there are 6 concept codes for Serologic Evidence of Immunity. Are there concept codes for any additional diseases, specifically Polio, Hib and Tetanus?

Concept codes for these three diseases do not exist because ACIP does not recognize evidence of immunity for these diseases. If a provider claimed these, there would be no effect on the recommendations. The patient would still need to be vaccinated if they haven't been.

How should an IIS process NDC and CVX when they don't match?

The HL7 2.5.1 Rel. 1.5 IG does not give direction on which code to give priority or whether the IIS should accept this data or not. The order of the codes in the CE data type do not signify which concept should be given priority. They should be describing the same concept, although one code might be more specific than the other and thus carry more detail. The receiver of the data can read either code to understand the concept. Two community guides give further guidance on processing this data in an IIS:

- https://repository.immregistries.org/resource/iis-functional-guide/
- https://repository.immregistries.org/resource/iis-data-quality-practices-to-monitor-and-evaluate-data-at-rest/

What is the correct Concept Code for Mumps (finding)?

Value Set Error Corrections in HL7 2.5.1 Release 1.5

- Value Set Name – Serological Evidence of Immunity - IIS
    - 371112003 is the correct Concept Code for Mumps Finding *(not 341112003 as noted in previous documentation).*

Scope Definition

Are TB test results in scope?

The Immunization Guide does not cover TB test results. At one time a CVX code was created for PPD because it is injected like vaccinations, but the use case of reporting this via VXU is not supported by the current guide. Similarly, PPD is not a vaccine and not supported for sending to IIS.

If a patient does not consent to share their immunization data, what should be sent to the IIS? Should a message still be sent with PD1-12 populated to indicate that the patient data should be protected, or should a message not be sent at all?

The appropriate course of action is going to depend on local policy and regulations. Some jurisdictions will accept messages with PD1-12 populated appropriately while others may request that messages be suppressed in this scenario. Be sure to discuss this topic with your trading partners to understand the local requirements.

When should a submitting system trigger a VXU message?

See the HL7 2.5.1 Rel 1.5 IG for information on trigger events.

Populating a Message

General

What should a sending system do if a message triggering event is hit but the system does not have enough data to build a fully conformant message?

If key data elements such are vaccine type, administration date and a link to a patient are available, it is permissible to send the message and let the receiving system determine if it is willing to accept a non-conformant message. The sending system may still populate MSH-21 with the profile ID they are intending to meet even if the message itself is not conformant with the profile.
In general, the following principles should be followed:

- Non-conformance should not stop the exchange of usable data.
- Local business rules still determine if the data is usable.
- It is OK to put a profile in MSH-21 even if the sending system knows the message is not conformant.

Is it reasonable to expect a submitting EHR to populate PID-3 with a State Registry Number (with PID-3.5 equal to SR)?

While this method would be supported by the guide, it is not specifically defined in the HL7 2.5.1 Rel. 1.5 IG and EHR certification is not testing EHR systems for the ability to behave in this way. In addition, certification does not require EHR systems to be able to store or report the state registry ID. Many IIS require the Medical Record Number to be sent in PID-3 and most (if not all) EHR systems are able to do this.

Is a patient's Social Security Number (SSN) an acceptable patient identifier to use?

The answer to this is going to depend largely on local regulations, laws and policies. Some IIS do still collect SSN and use it for patient matching, but there is at least one IIS that forbids EHR's from sending SSN. The HL7 2.5.1 Rel 1.5 IG does not require that SSN specifically be used as a patient identifier. The general trend is to go away from the use of SSN.

What is the meaning of a Completion Status (RXA-20) of PA (Partially Administered)?

A status of PA is used to indicate that less than a fully potent dose of vaccine was administered. It could mean that less than the full volume of a potent dose was administered (e.g. the patient moved unexpectedly and only a portion of the dose was actually administered) or it could mean that the dose was sub-potent (e.g. there was a manufacturing issue or a cold-chain break). Different IIS have different requirements for sending partial administrations so talk to your trading partner to determine their expectations. Regardless, it is important to include partially administered doses in any testing workflows to ensure that both systems deal with the PA completion status appropriately. It is important that partially administered doses do NOT get counted as full doses. This applies to both VXU and RSP messages. This topic will be elaborated on more fully in future versions of the implementation guide.

When submitting an NDC code or lot number, should the VXU message contain the Unit of Sale (package) or Unit of Use (vial/syringe) value?

The HL7 IG is silent on this topic, but the CDC has indicated that a provider may capture the NDC or lot number on the Unit of Use OR Unit of Sale, depending on the established clinical workflow. Note that "recording" and "sending" are different; a provider could record the Unit of Use in the EHR and send the Unit of Sale if the sending system maintains a mapping. The IIS should be prepared to receive either Unit of Use or Unit of Sale value.

Many IIS need the Unit of Sale for inventory reconciliation purposes; however, it is not always possible to derive the Unit of Sale from the Unit of Use (some vaccines such as Prevnar 13 use the same Unit of Use NDC for different packaging). Therefore, if the Unit of Sale is not sent, not all of the IIS functionality may be available to the EHR users. We do recommend, that when documenting administered vaccines requiring reconstitution, that the sending system record and send the NDC from the lyophilized vaccine even when the vaccine contains an antigen containing diluent (such as Menveo or Pentacel).

For EHR certification all possible NDC codes for a vaccine are considered valid. Note that for a Vaqta and Engerix-B certification, limited it to NDCs for pediatric formulations because of the age of the patient. Guidance clarifying these points was sent out by the CDC in June, 2017 and can be found in the AIRA repository.

When sending multiple immunities (either presumed or serological) in a single message, how should they be grouped underneath the ORC/RXA segments? Does there need to be a separate ORC/RXA pair of segments for each immunity or can multiple immunity OBX segments be grouped under a single ORC/RXA pair?

AIRA has published a new guidance document, Guidance on Detailed Message Structure and the Use of Specific LOINC Codes, describing in more detail the message structure of VXU and RSP messages including guidance on how to message immunities within the message.

How should free text comments be messaged?

First, it is important to note that only clinically relevant comments that can't be messaged discretely elsewhere in the message should be part of the HL7 message. For example, don't send patient immunity data as a free text comment, rather send it as an observation using the appropriate LOINC code. Release 1.5 indicates that free text comments can be sent as an occurrence of RXA-9 (Administration Notes), however, given that this field is also used to transmit the Information Source (i.e. new or historical vaccination event), the SISC has reconsidered this approach and will recommend in future versions of the implementation guide to send free text comments in an OBX segment using LOINC code 48767-8 (Annotation Comment).

How should I implement time zone in MSH-7?

Sending systems can express time in any time zone

- Not required that sending system use correct time zone
- Offset indicates difference from UTC

Receiving system

- Must read time zone offset when reading/understanding time
- Should not require a time zone to be used
- IIS may require that messages should be created in the future

Consider having some leeway to account for

- Minor differences in exact time set (at least 1 minute?)
- Mistakes in using time zone (at least 65 minutes?)

Demographics Only

What is the right way to transmit demographic data about a patient when there is no associated immunization event?

The HL7 2.5.1 Rel. 1.5 IG includes demographics only messages as a use case but doesn't fully elaborate on how to accomplish the use case. One option is to send a VXU message without an Order Group (the Order group has a cardinality of [0..*] which indicates that it is valid to send a VXU message without any ORC/RXA/RXR/OBX segments). Alternatively, in other interoperability domains, ADT messages are typically used to transmit patient demographic data. Based on discussions by SISC, future versions of the implementation guide will provide guidance on using an ADT message in this use case. However, be sure to discuss this use case with your trading partners to agree upon a message format as well as an understanding of the events that should trigger a demographics only message.

Administration

How do I populate an HL7 message to indicate that a particular dose needs privacy protection?

The HL7 2.5.1 Rel. 1.5 IG describes how to use PD1-12 to send a Protection Indicator to message the patient's privacy preference (to share data or not). The IG does not indicate how to override the patient level Protection Indicator for specific doses of vaccine. For example, a teen may wish to apply privacy protection to a dose of HPV. While several options exist, there is not currently any community agreement on how to message this. Discussions are ongoing in this area.

How widespread is the usage of ORC-14 (Provider Call Back Phone Number) by IIS?

From what we know about IIS, in most cases this field is completely ignored. There may be IIS that store this data but certainly no IIS we have looked at expects data to be sent here. We have also heard no discussion of this data by IIS and the current national IG only mentions the field but does not provide additional description (which is done for all fields IIS normally care about.) So, there is little evidence that this field is used by IIS today.

Is it possible to send both CVX and NDC codes in RXA-5 (Administered Code)?

RXA-5 has 2 triplets of components. RXA-5.1 is one code, RXA-5.4 can be another code. The codes must be essentially equivalent, so you can send CVX in one and NDC in the other. Each triplet consists of a code, free text and a code system identifier. If the code is populated, you must indicate the code system. The national IG does not have a preference for the order in which the codes are sent. Receiving systems should rely on the code system (in RXA-5.3 and RXA-5.6) to determine the nature of the code and not assume that code types will always appear in a consistent order.

When and how should RXA-18 (Substance/ Treatment Refusal Reason) be populated?

If RXA-20 (Completion Status) is indicated as “RE”, then RXA-18 is required. Use table NIP002 as the value set.

When should OBXs containing VIS data be included in a VXU message?

There is a conformance statement (IZ-24) and value set (in appendix A) that covers this. Basically, IZ-24 says that if the CVX code in RXA-5 is in the PHVS_VISVaccine_IIS value set, then VIS OBX segments are required (there are a couple of other requirements), otherwise, no VIS OBX are expected.
Note that this is going to get a bit sticky when NDCs come into play for MU stage 3 if that is all being sent because the value set references CVX codes. Either you’ll have to map the NDC codes to CVX codes and then consult the value set (you may need to do this anyway) or still require the CVX to be sent along with the NDC code. Depending on which type(s) of codes you are getting (NDC and/or CVX), you may need to adjust the logic to look in RXA-5.4 (the conformance statement references RXA-5.1) depending on where the sending system is putting the NDC and CVX codes.

RXA-20 (Completion Status) has a usage of RE. What happens if a VXU message does not include a value for this data element?

The system generating the RXA should typically be able to determine the appropriate value for RXA-20, however most IIS assumes a default value of CP (Complete) when RXA-20 is empty. Please note that several Conformance Statements and Conditional Predicates in the IG reference the value of RXA-20 making it important that the sending system populate the field.

Query/Response

What data should be used to populate patient demographics in an RSP response message?

When generating an RSP message, the IIS should echo back the QPD segment received in the QBP query message. This is the patient demographic data sent by the querying system and it should be returned as it was sent. Other segments in the RSP (PID, PD1, NK1) should be populated with data from the responding system's database. Querying systems may use this data to validate patient selection. Demographic data sent by the querying system in the QPD segment should not be used to populate the PID, PD1 or NK1 segments. The patient ID in QPD-3 should echo what was submitted in the query, but PID-3 can repeat so it can be populated with more than one identifier including:

- The querying system's MR for the patient.
- The IIS ID using a value of "SR" in PID-3.5

Is it permitted to send an ERR segment and an MSA-1 value of AE within a Z31, Z32 or Z42 message?

The IG lists the usage of ERR as RE (required but may be empty) in all profiles, including the Z42 profile required by Meaningful Use. This is at odds with Figures 41 and 44 in the national IG which appear to constrain MSA-1 to AA in the absence of serious errors. The figures were not meant to indicate message constraints (although that is not clear from the figures) and we feel it's acceptable for Z31, Z32 and Z42 messages to support both the AE and the AA values in MSA-1. One could conceive of a situation where a trivial error would not prevent a response but could warrant an error message along with a value of AE in MSA-1. We suspect that this would be relatively rare and unimportant. We do agree that a usage of RE in the Z31, Z32 and Z42 profiles is probably more than we need and may change the usage in future releases to O (Optional). Until that time though, the ERR segment should be supported in all profiles. AIRA has published a new guidance document describing in more detail allowed values for MSA-1, QAK-2 and ERR-4. Please consult this document for additional guidance.

The RSP message only allows for a single ERR segment. What should I do if more than one error is generated?

The HL7 base standard only allows a single ERR segment in an RSP^K11 message. We have worked with HL7 to submit a proposal to allow ERR to repeat, however, this will not be available in the base standard until version 2.9. In the meantime, we don't have required guidance on how to prioritize errors but recommend that your local business rules prioritize errors according to severity and return the most severe error found.

How should ORC-3 (Filler Order Number) be populated in the RSP message?

For a given dose in the IIS, there are really three types of "immunizations ID" an IIS might know about for a particular immunization:

- **Querying System Immunization ID**
  - This is the ID sent in the VXU (if the querying system has sent a message for dose) and is the unique identifier for the dose from the system querying the IIS.
- **Other External System Immunization ID**
  - This is the ID sent in the VXU but was from a different provider. That is, this immunization was reported by someone other than the system who is doing the query.
- **IIS Immunization ID**
  - This is the IIS internal ID (usually automatically assigned upon insert into the DB (e.g., the primary key)

When replying to a query:

- ORC-3 should be the Querying System Immunization ID when known
  - This ID may not be known with UI entry or in the case where the immunization was submitted by someone other than the querying system.
  - Otherwise the IIS Immunization ID
- ORC-3 should not be the Other External System Immunization ID

e.g., The IIS wouldn't return Dr. Alpha's Immunization ID in Dr. Beta's RSP.

How should ORC-17 (Entering Organization) be populated if the administration was entered into the IIS by IIS staff from a paper record? Should it reflect the organization who submitted the paper record or the IIS who entered it?

The HL7 base standard defines ORC-17 as "This field identifies the organization that the enterer belonged to at the time he/she enters/maintains the order, such as medical group or department." It is possible that this could refer to any number of organizations including the one that gave the dose, the one that reported it electronically to the IIS (which may not be the one that gave it), the one that reported it via paper to the IIS or the IIS itself if they are the first to electronically capture the data.
At this time there is no clear answer, but discussions are ongoing in SISC.

Which of the three different LOINC codes for "vaccine type" (30956-7, Vaccine Type; 30979-9, Vaccines Due Next; or 38890-0, Component Vaccine Type) should be used when constructing an RSP message?

The HL7 2.5.1 Rel. 1.5 IG notes that 30956-7 is preferred over 38890-0. 30956-7 is what is used in 2015 EHR certification testing. To ensure consistency, we recommend using 30956-7 over both 38890-0 and 30979-9. Future versions of the implementation guide will provide additional guidance on which LOINC codes are appropriate in a given context.

When transmitting a recommendation, should the RSP contain the CVX code for the vaccine group or for a specific vaccine?

This is an area where "just enough Information" is likely better than prescriptive "give exactly this product". That said, there are times where giving more information is warranted because the ACIP schedule dictates a specific vaccine should be given based on previous administrations. In those cases, you may want to get more prescriptive. From a conformance perspective, any CVX is technically legal.

What is the best way to handle a scenario where the database does not contain discrete or parseable Administered Amount data with which to populate RXA-6 and RXA-7?

Particularly when dealing with older data or data being submitted by organizations which do not adhere to HL7 2.5.1. Rel 1.5 IG requirements for VXU messages, it may possible to have data that can't be used to populate the administered amount (RXA-6) and unites (RXA-7) in a reliable manner. In this case, rather than sending questionable data in the RSP message, we recommend that RXA-6 be populated with 999 and RXA-7 be left blank. This is how these fields will be populated for historical vaccination events. We don't think that a lack of data in these fields will be a serious impediment to quality patient care on the part of the clinician receiving the RSP message.

How many patients can be returned in a query response?

In response to a Z34 query, if the jurisdiction is allowed by local regulation, law and policy to indicate that multiple patients were found, the maximum number allowed to be returned using the Z31 profile is the lower of the maximum number requested (via RCP-2 in the query message) and the maximum number that the receiving system is capable of returning.

In response to a Z44 query, only a single patient may be returned using the Z42 response profile. This is because RCP-2 is fixed to a value of 1 record. If multiple matching patients are found, the Z33 profile is used to indicate that a single high threshold match was not found.

Should a responding system ever filter the doses returned in a query response?

We strongly recommend that IIS do NOT filter the query response in any way. The response to a query is intended to include the complete patient history as recorded in the IIS. Filtering doses out would conflict with the goal and intent of the query message. Additionally, filtering doses returned in a query response could be interpreted by some receiving systems as the patient not being up-to-date.

Typically, EHRs display the results of the query allowing a provider to manually reconcile new dose information into the EHR with a few clicks. When this reconciliation is done automatically it must recognize doses already in the local system and not duplicate those in the patient history.

Should the IIS filter administrations returned as part of a query response such that for protected patients only doses submitted by the querying system are returned?

We strongly recommend that IIS do NOT filter the query response in any way. Returning a partial history for a patient is problematic for many reasons. Special care should be taken if local policy requires any kind of filtering of immunization history. See related information in previous question.

When would a refusal be sent in an RSP message?

Refusals can be returned in an RSP message. However, consideration of the following is recommended:

- CDS engines should not consider refusals
- Doses due will continue to be forecasted regardless of previous refusals
- IIS should work closely with trading partners to ensure that, if sent, refusals will be handled appropriately by the receiving system

How should I submit a re-query after Z31 RSP?

When a provider queries for a patient, the IIS might return a Z31 (Return Candidate Clients) if the IIS is unsure exactly who the provider is looking for. Note: Not all jurisdictional policies allow for multiple patients to be returned.
The provider selects the proper patient from the Z31 and issues a re-query to the IIS:

- The EHR should re-query with data found in Z31 RSP, NOT with data from EHR
- IIS should leverage the SR ID to improve the matching score

Further guidance on queries and managing multiple matches can be found in the IIS Functional Guide, Vol.1: Query and Response.
NOTE: This is NOT a patient matching problem where the provider believes the IIS hasn't properly merged. The two+ records presented to the provider are indeed unique people.

How do I indicate disease with presumed immunity when full observation date is not known

When sending on OBX with history of disease (LOINC 59784-9) OBX-14 is required if the date of the observation is known. A recent decision by SISC clarifies this as "If the appropriate value is not known, OBX-14 should remain empty – it is an RE field and is not required in every message instance." If the sender does not know the full date, and only knows the year and month, there are two options:

1. Do not send a value in OBX-14, leave it blank
2. Send only the YYYYMM in OBX-14

Option #2 is technically a conformance violation but may be done if the submitter wishes to allow systems that are able to accept a partial data to receive this information. Receiving systems that cannot accept this value should continue to process the message as OBX-14 is an RE field. A conformance issue here should cause that system to treat this field as a blank.

Transport

With the CDC WSDL, should the same endpoint be used for both VXU/ACK and QBP/RSP messages or should there be two separate end points?

The HL7 2.5.1 Rel. 1.5 IG is completely silent on the transport mechanism, but we recommend implementing the CDC WSDL. Having a single endpoint is the most common arrangement but either architecture is allowed.

Which webservice protocol is recommended, REST or SOAP?

In 2011, a panel of industry experts concluded that SOAP Web Services was the best fit for meeting the needs of transmitting immunization data via HL7 messaging. The experts also defined a WSDL for all trading partners to implement, with the goal that all trading partners implement at least the nationally specified WSDL. This doesn't preclude IIS and others from supporting additional transport layers.

CDC documentation here:

- https://www.cdc.gov/vaccines/programs/iis/technical-guidance/soap/services.html

Additional guidance on SOAP as a web services protocol can be found on the AIRA Repository here:

- Transport 101
- SOAP WSDL 101

Constraining Local Profiles

Where can I find guidance for local guide authors about how R, RE, O, and X usages can be changed in a local IG?

Some basic rules for constraining the national IG are documented in the conformance chapter (Chapter 2B starting in version 2.6) of the HL7 base standard. While Chapter 2B makes its first appearance in version 2.6, the content is applicable to all versions of HL7. We recommend you look at the most recent version (2.8.2) when reading Chapter 2B. In general, a local IG is only allowed to add constraints to the national IG, not loosen them. For example, an RE (required but allowed to be empty) usage can be tightened to be R (Required) but cannot be loosened to O (Optional).

When expanding value sets used in a local IG, consider the following:

- Where possible be very specific about which values in a value set you require to be supported by a trading partner.
- Consider any functional implications for the new value(s). Some new values may impose a new requirement for functionality or workflow in the trading partner system.
- If the concept being added to the value set is already represented by a permitted value in the value set that permitted value must be used.
- A local code cannot be added to an open value set to represent an explicitly excluded concept already listed in the value set.
- Once a value is included in a value set, it cannot be redefined. For instance, once B is defined as Blue, it cannot be redefined as Baby Blue. A new code must be created for the new concept.

Can a derived specification use data elements with an Optionality of B (backwards compatible) or W (withdrawn)?

Per Chapter 2b (Conformance) of the base standards, derived specifications can still use Backwards Compatible data elements (they can be assigned a Usage of R, RE, O or C (a/b)).
Elements in the base standards with an Optionality of W (withdrawn) can only be given a Usage of X in a derived specification.

Is it permitted to respond with a Z42 message in response to either a Z34 or Z44 query and let the Provider decide whether to consume the forecast or not?

This approach isn't standard per the HL7 2.5.1 Rel 1.5 IG. The IG defines a set of transactions related (see tables 7-2 and 11-2). Responding with a Z32 message upon receiving a Z42 message is inconsistent with the national IG and should be avoided. Because the national IG does not exclude particular LOINC codes from a given profile, a forecast may be included in both Z32 and Z42 messages so they – in essence – overlap, but each meet the requirements of their respective profiles. To support providers participating in Promoting Interoperability (Meaningful Use Stage 3), EHRs will be required to consume and display a Z42 response. IIS will need to declare readiness for returning a Z42.

Profile Z31 in the HL7 2.5.1 Rel 1.5 IG provides information about what needs to be done in case there are a list of potential matches for a query. Is there any standard for the threshold of the maximum number of potential matches that an IIS sends?

No, the IIS maximum is a local policy decision. Keep in mind that the sending system also uses RCP-2 to set an upper limit on the number of candidates it will accept in response to a query. It expects that a responding system will send no more candidates that this number. The maximum number of candidate patients should be no more than the lower of these two numbers.

Evaluating Conformance

When should the receiving system apply Conformance Statements and other requirements from the HL7 2.5.1 Rel. 1.5 IG?

The receiving system should only validate that a message conforms with a particular standard when the message is claiming conformance to a specific profile via MSH-21. Messages should not be put through conformance validation if MSH-21 is not populated. It is a local trading partner decision as to whether the receiving system will accept a message does not claim conformance to a particular profile.

What is the meaning of the warning messages generated by the NIST tool?

The NIST Immunization Test Suite HL7 Context-free conformance checker (located here: https://hl7v2-iz-r1.5-testing.nist.gov/iztool/#/cf) can verify if immunization HL7 messages conform to the requirements of the Implementation Guide. In addition to conformance "Errors" NIST also identifies "Warnings". Many IIS require submitters to demonstrate the ability to generate test data without conformance errors, and some have wondered if they should not also extend this to warnings. However, this is not the intended use of these warnings.

NIST warnings are intended as a signal to indicate areas that cannot be verified in the message provided for testing and that additional test messages will need to be generated to test a specific scenario. For example, the patient phone number is an RE field which means that if the submitter knows the phone number they must populate it, but if it is unknown then it should be left blank. The NIST testing system does not know if the submitter knows the patient phone number and so if this field is not populated it will generate a warning to indicate to the tester that it was unable to verify that phone number can be supported.

Properly formatted production data, and the ideal examples provided by NIST, will generate these types of warnings. IIS should expect that properly functioning certified EHR systems will generate messages that cause warnings in NIST tools. IIS should have testing processes and procedures to look at large batches of data and verify support for critical functions as recommended by the NIST warnings.

Questions about this FAQ?
Contact the AIRA Technical Assistance Team
Using either this weblink, or email info@immregistries.org.
