

MINI-SENTINEL PRISM

HL7 VERSION 2.5.1 IMPLEMENTATION GUIDE FOR HEALTH PLANS AND IMMUNIZATION INFORMATION SYSTEMS

July 2012

Mini-Sentinel is a pilot project sponsored by the [U.S. Food and Drug Administration \(FDA\)](#) to inform and facilitate development of a fully operational active surveillance system, the Sentinel System, for monitoring the safety of FDA-regulated medical products. Mini-Sentinel is one piece of the [Sentinel Initiative](#), a multi-faceted effort by the FDA to develop a national electronic system that will complement existing methods of safety surveillance. Mini-Sentinel Collaborators include Data and Academic Partners that provide access to health care data and ongoing scientific, technical, methodological, and organizational expertise. The Mini-Sentinel Coordinating Center is funded by the FDA through the Department of Health and Human Services (HHS) Contract number HHSF223200910006I.

HL7 Version 2.5.1 Implementation Guide For Health Plans and Immunization Information Systems

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A list of changes may be found at the end of Implementation Guide.

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In 2009, the Department of Health and Human Services created the new Post-Licensure Rapid Immunization Safety Monitoring (PRISM) program, which used data from national health insurance plans and immunization registries to monitor the safety of the H1N1 influenza vaccine. PRISM has now been integrated into the FDA's Mini-Sentinel pilot program. It strengthens the federal vaccine safety enterprise in two important ways. First, PRISM monitors the largest US general population cohort designated for active surveillance of vaccine safety. Second, PRISM links data from health plans with data from state and city immunization registries, which were a crucial source of exposure data in the H1N1 vaccine assessment. The Mini-Sentinel data that support PRISM are updated quarterly, and PRISM can conduct medical record review for validation of computerized data.

The FDA has structured PRISM as a program that includes specific vaccine assessments, development of an operational framework to guide the design of vaccine safety assessments, and development of new statistical methods. A human papillomavirus vaccine, Gardasil, and two rotavirus vaccines, RotaTeq and Rotarix, have been chosen for surveillance in the current cycle because their assessments would benefit most from PRISM's large cohort size.

The PRISM system is distinctive among these other federal systems by virtue of its size and geographic diversity. PRISM will use the Mini-Sentinel Distributed Dataset, which is the largest general population cohort available for active vaccine surveillance in the USA. PRISM's large population size enables more rapid assessment of rare adverse events such as GBS and also permits stratified analyses that can potentially identify risks in subpopulations. Moreover, PRISM data are likely to be sufficiently representative of the US population to make its inferences fully generalizable.

In addition to its population size and characteristics, the PRISM program is uniquely strengthened by the inclusion of data from state immunization registries. The PRISM H1N1 Project initiated the first nationwide effort to integrate immunization registries data into vaccine safety surveillance. The success

of these efforts was due to the close collaboration between the participating health plans and registries. These data were an important source of information for H1N1 influenza vaccination, and are potential sources of information about other vaccine types, especially those which are administered outside of traditional healthcare settings. Of the first 3 million doses of H1N1 vaccine monitored by PRISM, more than 60% were identified via immunization registry data alone and would not have been captured through health plan data. Building upon the success of the H1N1 experience, at least seven immunization information systems have renewed their commitment to the second year of the PRISM program (Florida, Michigan, Minnesota, New York State, New York City, Pennsylvania, and Wisconsin), and we are actively recruiting additional participants. The incorporation of immunization registry data is part of a wider effort to enrich claims data with complementary data sources. FDA is actively assessing the value and feasibility of such data sources to supplement the existing exposures, outcomes, and covariates in PRISM.

I. CHAPTER 1—INTRODUCTION

The PRISM program creates important opportunities by offering a robust, responsive new surveillance program with features complementary to existing systems. Methodological and logistical lessons can be shared among PRISM and other surveillance systems, offering potential synergies. FDA and PRISM will work to maximize the program's unique strengths and contributions to a unified federal vaccine safety enterprise.

Health Level Seven (HL7) is a nationally recognized standard for electronic data exchange between systems housing health care data. The HL7 standard is a key factor that supports this two-way exchange of information because it defines a syntax or grammar for formulating the messages that carry this information. It further describes a standard vocabulary that is used in these messages. It does not depend on specific software, that is, it is platform independent.

A. SCOPE

This document will give specifications for a standard message structure and constrained, structured vocabulary that will allow designated health plans to:

- request immunization histories for their patients/members
- receive these histories from an IIS for their members with records in that IIS
- receive acknowledgement of these requests and feedback on problems with the request

It will allow designated IIS to:

- receive requests for immunization histories from health plans
- return to a health plan complete immunization histories for their members with records in the IIS
- return acknowledgement of the request and feedback on problems with the request
- return a standard HL7 Version 2.5.1 response (RSP) that will contain an immunization history for an individual

The Implementation Guide is not intended to specify other issues such as

1. send or receive unsolicited immunization histories
2. send or receive unsolicited patient demographics
3. register patients in Master Person Indexes (MPI)
4. retrieve identifiers from an MPI
5. local business rules, which are not implicit in HL7, applied when creating a message
6. local business rules, which are not implicit in HL7, applied when processing a received message
7. the standard transport layer (how one system connects to another)
8. the search process used when responding to a query

These issues need to be documented and agreed on and may be different from one jurisdiction to another. Issues 1 – 4 are documented elsewhere.¹

¹ HL7 Version 2.5.1 Implementation Guide for Immunization Messaging is the source for immunization related transactions. Profiles by Integrating the Health Environment (IHE) documents the demographic and MPI messaging profiles.

In order to minimize the efforts to implement these messages, this document follows the most recent *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging, Release 1.3*. In some cases it may tighten constraints on the needed support and usage for segments, components and sub-components. In no case will it loosen usage of these. It will indicate which data elements will be ignored if received. This means that an IIS can populate a standard RSP message with any data element, as usual. The health plan system will ignore data elements that are not of interest.

This document will be reasonably self-contained, but reference to the published Implementation Guide is advised. This document will highlight important information required for supporting this effort.

This Guide makes the following assumptions²:

- Infrastructure is in place to allow accurate and secure information exchange between information systems.³
- Privacy and security has been implemented at an appropriate level.
- Legal and governance issues regarding data access authorizations, data ownership and data use are outside the scope of this document.
- The immunization record and demographic record for each patient contains sufficient information for the sending system to find the person and construct the immunization and demographic message properly.
- External business rules are assumed to be documented locally.

B. ORGANIZATION OF THIS DOCUMENT

The first chapter will describe the tasks that need to be accomplished and illustrate the flow of activities that will occur. It will utilize some modeling techniques based on Unified Modeling Language (UML) to illustrate these activities.⁴ These include use case and sequence diagrams. The following chapters will provide specification of the messages and their components that are needed to accomplish these tasks. They will indicate both the required data elements and those that will be ignored by the receiving system.

1. Actor and Use Case Diagrams

Actors are information systems or components of information systems that produce, manage, or act on categories of information required by operational activities in the enterprise. In our context, **use cases** are tasks or goals that actors use to communicate the required information through standards-based messages.

2. Sequence Diagrams

The descriptions of the use cases that follow include sequence diagrams that illustrate how the use case is accomplished as a sequence of transactions between relevant actors.

² Some business related assumptions are documented below in appropriate sections.

³ This infrastructure is not specified in this document, but is a critical element to successful messaging. Trading partners must select a methodology and should specify how it is used.

⁴ Readers unfamiliar with these modeling techniques may gain some insight by reviewing their descriptions in the Immunization Messaging Implementation Guide.

These diagrams are intended to provide an overview so the transactions can be seen in the context of the participating institution's workflows. These diagrams are not intended to present the only possible scenario, just those required to accomplish the goals of communicating between information systems.

3. Actors

There are 2 primary actors interested in this implementation guide:

- Immunization history suppliers
- Immunization history consumers

Immunization history suppliers are the source of consolidated immunization histories. At present, most are Immunization Information Systems (IIS). Immunization history consumers are systems that need consolidated immunization histories. In the present context, these are health plans. We have generalized the actors to allow for alternate architectures, such as Health Information Exchanges (HIE), which may play the role of an intermediary immunization history supplier.

C. HIGH-LEVEL VIEW OF USE CASES

We can map these actors and their messaging goals to use cases Figure 1 maps these goals to use cases. These use cases will be defined below. Note that some of these use cases are logically related. For instance, *Request Immunization History* is paired with *Return Immunization History*. These use cases are not intended to be the basis of a software design process. There are HL7 messages for these and they may be found in the Implementation Guide that is the foundation of this document.

There are a number of activities which could be of interest such as sending unsolicited updates of immunization information, sending demographic data and registering a person in an information system. These are not within the scope of this document.

Figure 1 shows that an immunization history consumer will use the request immunization history use case, while the immunization supplier will use the receive request use case. Each may use Acknowledge message use case. The immunization history supplier will return an immunization history and the immunization history consumer will receive that immunization history. An important function that is not within the scope of this Implementation Guide is the Find Person with Immunization History use case.

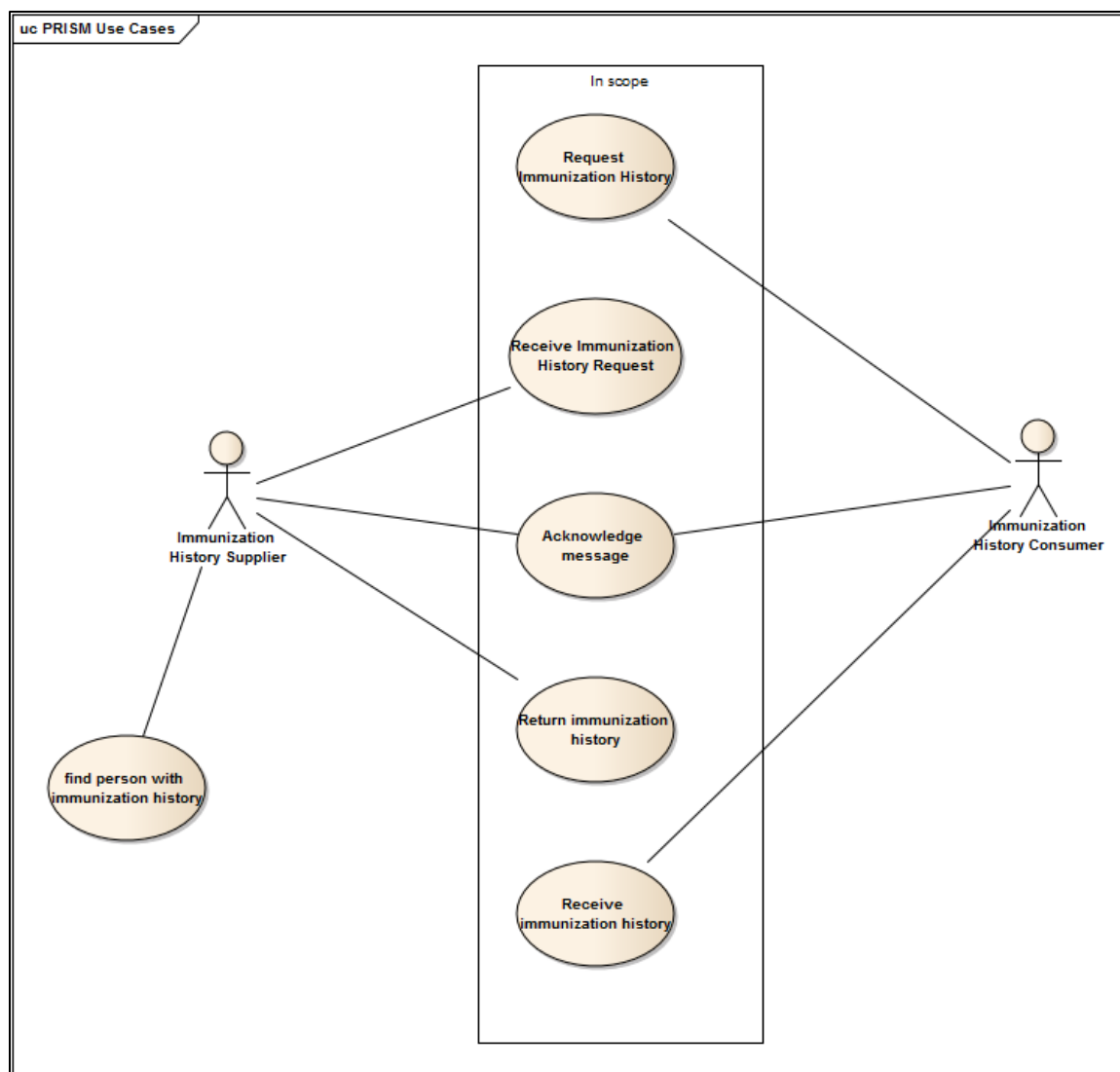


Figure 1: High Level View of Use Cases

Request Immunization History Use Case:

Goal: The goal of the Request Immunization History Use Case is to send a request to an immunization history supplier.

Preconditions:

1. The query message requesting a specific person’s immunization history has been composed with the appropriate parameters and in the appropriate format.
2. The requesting system has authorization to connect with the receiving system and request an immunization history.

Post-conditions:

1. A query for an individual member has been sent to the immunization history supplier by the immunization history consumer.

2. Receive Immunization History Request Use Case:

Goal: the goal of this use case is to receive the request and parse it.

Preconditions:

1. The query message has been sent via appropriate transport.⁵

Post-conditions:

1. The immunization history supplier has received and parsed a request immunization history query from an immunization history consumer.

Acknowledge Message Use Case:

Goal: The goal of this use case is to reply to the sending system. It may merely indicate successful receipt or it may indicate a problem. It may include information about errors in the message. An acknowledgement may indicate that no exact matches were found.⁶

Preconditions:

1. The receiving system has received the message and parsed it. It may have processed business rules.

Post-conditions:

1. The receiving system has created and sent an acknowledgment.

Find Person with Immunization History Use Case:

Goal: The goal of this use case is to find a person of interest in the immunization history supplier system. It is not within the scope of this document but must be included in the use cases. The request for immunization history must contain the necessary parameters to support this use case.

Preconditions:

1. The receiving system has parsed the requesting query message and has the needed parameters for searching.

There are three possible pre-conditions that have an impact on the success and ease of the request.

- 1. The IIS has the member number already associated with the member. This implies that the plan has “registered” the member in the IIS.**
- 2. The plan has the IIS client id. This may be from a prior query requesting the id or from a prior response file that carried the IIS id.**
- 3. The plan does not know the IIS id and the IIS does not know the plan member number. In this case the find patient effort uses only those parameters that are included in the query.**

⁵ In most cases, this request will be electronic, but there is no reason why it could not be received as physical media such as CD.

⁶ While there are 2 actions here (send acknowledgement and receive acknowledgement), we focus on the ability to send acknowledgment.

The first two require work up front, but will be much more reliable than the third approach.

Post-conditions:

1. One of the following has occurred:
 - a. Exactly one person has been found and their immunization history has been gathered.
 - b. No one exact match has been found. This could mean that no such person exists in the immunization history supplier or that more than one person matched the query parameters.
 - c. Exactly one person has been found, but does not permit sharing of their data.

Return Immunization History Use Case:

Goal: The goal of this use case is to return a complete immunization history for a specific person in response to a query.

Preconditions:

1. The immunization history for an exact match has been gathered and formatted into an appropriate message.

Post-conditions:

1. The message containing the immunization history has been sent.

Receive Immunization History Use Case:

Goal: the goal of this use case is to receive the requested immunization history message and parse it.

Preconditions:

1. The response message has been sent via appropriate transport.⁷

Post-conditions:

1. The immunization history consumer has received and parsed a request immunization history response from an immunization history supplier.

D. SEQUENCE DIAGRAMS:

The following sequence diagrams illustrate the messaging pathways for 3 cases:

1. An exact match is found.
2. No exact match is found.
3. The query message has errors

⁷ In most cases, this request will be electronic, but there is no reason why it could not be received as physical media such as CD.

PRISM Sequence Diagrams--Find Exact Match - (Sequence diagram)

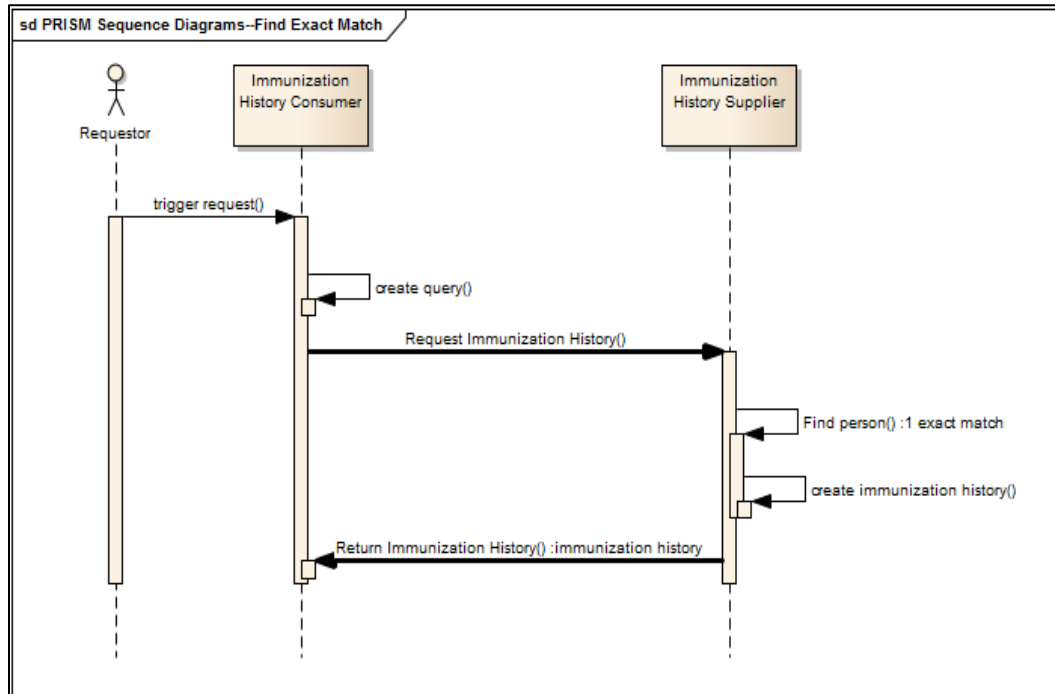


Figure 2

In Figure 2 we see the successful request and response. Someone or some system initiates a request for an immunization history for a specific person. The immunization history consumer system gathers the parameters for the request and creates the query. It sends the Request Immunization History message to the Immunization history provider system. The Immunization History Supplier receives the Request Immunization History message and parses it. It finds the person's records and creates an immunization history. It returns this Immunization History. The bold arrow signifies the intersystem communication of a message. This guide will be focused on these intersystem messages.

PRISM Sequence Diagrams--No Exact Match - (Sequence diagram)

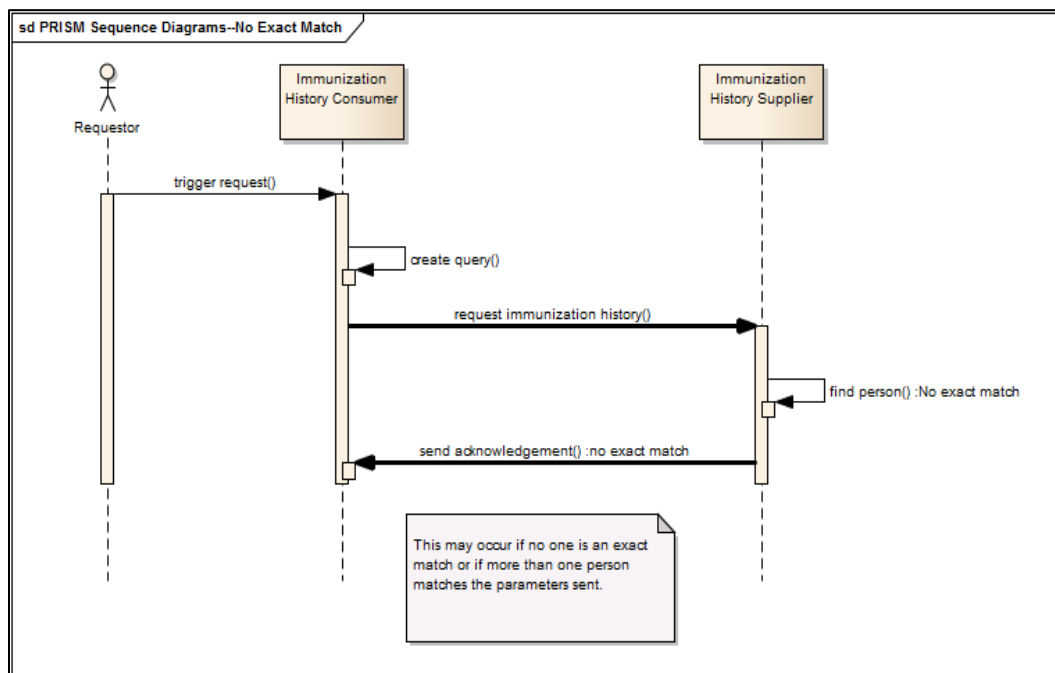


Figure 3

In this sequence diagram we see that the process starts the same way, but no exact matches are found. This may occur because more than one person matched the requested member or it may occur if no one in the system matches the requested member.

The following sequence diagram shows the interactions which occur when there is an error in processing the message. This may occur when the message is malformed or when some business rules are not satisfied. For instance, if a member id is required but not present in the query, the Immunization History Supplier may reject the message.

PRISM Sequence Diagrams--Error in Query request - (Sequence diagram)

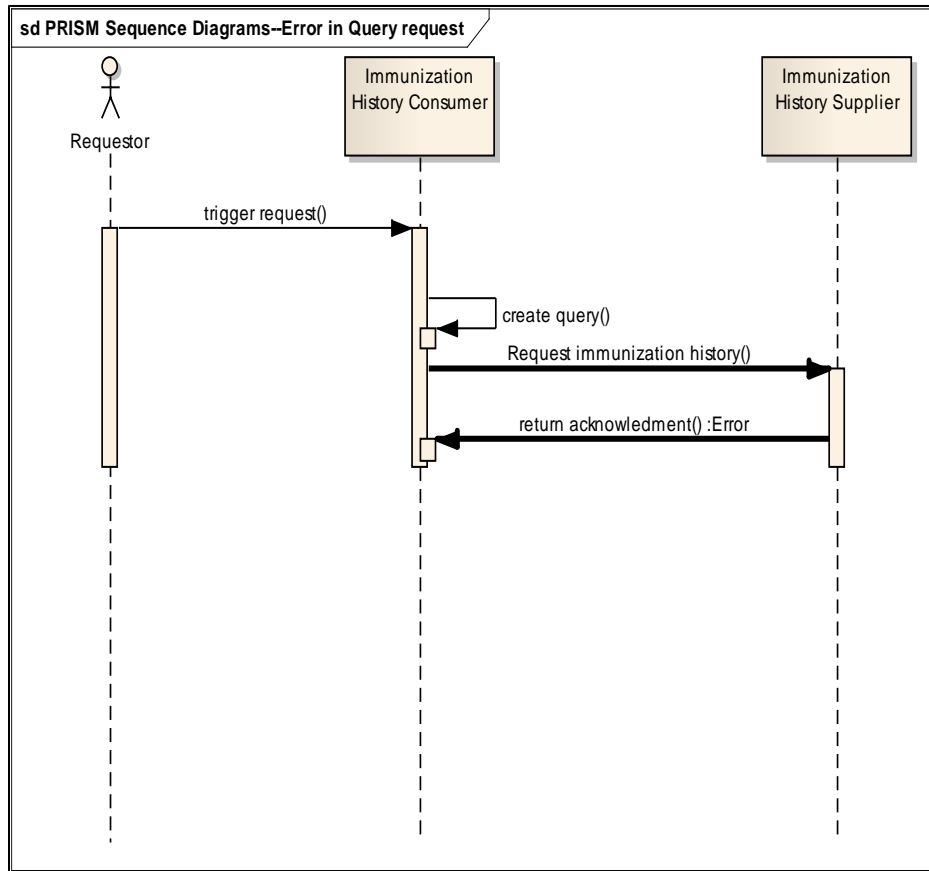


Figure 4

II. CHAPTER 2—MESSAGES AND MESSAGING INFRASTRUCTURE

A. INTRODUCTION

This chapter describes each of the messages used to accomplish the use cases described in previous chapters. These messages are built from the segments described in Chapter 3, Segments and Message Details. The Segments are built using the Data Types specified in Chapter 4. Readers are referred to these chapters for specifics on these components. Issues related to segments and fields, which are message specific, will be addressed in this chapter.

B. HL7 MESSAGING INFRASTRUCTURE

This section will contain a basic description of the terms and definitions, which are used in this document in order to understand the Health Level 7 standard as it applies to immunization information systems. More detail may be found in the HL7 2.5.1 standard in Chapters 1, 2 and 2A.

C. HL7 DEFINITIONS

The terms below are organized to move from the message to subsequently more granular components.

Message: A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a sequence defined by the message specifications. These specifications are based on constraints to the HL7 specifications, as described in an Implementation Guide.

Segment: A segment is a logical grouping of data fields. Segments within a defined message may be required or optional, may occur only once, or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique three-character code.

Example:

```
PID|||12322^^^Assigning authority^MR^||Savage^Robert^^^^L^|
```

This PID segment includes a medical record number and a person's name.

Field: A field is a string of characters and is of a specific data type. Each field is identified by the segment it is in and its position within the segment; e.g., PID-5 is the fifth field of the PID segment. A maximum length of the field is stated as normative information. Exceeding the listed length should not be considered an error. A field is bounded by the | character.

Component: A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are required to be valued.

Example: RXA-5 administered code is composed of six components.

```
Code 1^text 1^code set 1^alternate code 2^alt text 2^alt code set 2
```

Item number: Each field is assigned a unique item number. Fields that are used in more than one segment will retain their unique item number across segments.

Null and empty fields: The null value is transmitted as two double quote marks ("""). A null-valued field differs from an empty field. An empty field should not overwrite previously entered data in the field, while the null value means that any previous value in this field should be overwritten.

Value in Field	Meaning
"" ""	Nullify the value recorded in the receiving system data base.
<empty field> 	Make no changes to the record in the receiving data base. The sending system has no information on this field.

Null fields should not be sent in immunization messages. Systems which will send null fields (""") must specify their use in local implementation guides. Systems which will accept and process null fields, as described above, must specify their use in local implementation guides.

Data type: A data type restricts the contents and format of the data field. Data types are given a two- or three-letter code. Some data types are coded or composite types with several components. The applicable data type is listed and defined in each field definition.

Code Sets/Systems: Most data elements will have associated lists of acceptable values in tables supported by a standards organization such as HL7 or CDC. These code sets will include definitions to support common usage.

Delimiters: Delimiter characters are used to separate segments, fields and components in an HL7 message. The delimiter values are given in MSH-2 and used throughout the message. Applications must use agreed upon delimiters to parse the message. Messages used in this Guide shall use the following delimiters:

<CR> = Segment Terminator;
 | = Field Separator;
 ^ = Component Separator;
 & = Sub-Component Separator;
 ~ = Repetition Separator;
 \ = Escape Character.

Message syntax: Each message is defined in special notation that lists the segment three-letter identifiers in the order they will appear in the message. Braces, {}, indicate that one or more of the enclosed group of segments may repeat, and brackets, [], indicate that the enclosed group of segments is optional. Note that segments may be nested within the braces and brackets. This will indicate that the nested segments are units within a subgroup of segments. Their Usage is relative to the parent segment in the group.

D. BASIC MESSAGE CONSTRUCTION RULES

1. *Encoding Rules for Sending*

1. Encode each segment in the order specified in the abstract message format.
2. Place the Segment ID first in the segment.
3. Precede each data field with the field separator.
4. Encode the data fields in the order and data type specified in the segment definition table.
5. End each segment with the segment terminator.
6. Components, subcomponents, or repetitions that are not valued at the end of a field need not be represented by component separators. The data fields below, for example, are equivalent:

|^XXX&YYY&&^| is equal to|^XXX&YYY^|

|ABC^DEF^^| is equal to|ABC^DEF|

7. Components, subcomponents, or repetitions that are not valued, but precede components, subcomponents or repetitions that are valued must be represented by appropriate separators. For example, the following CE data type element has the first triplicate empty and a populated second triplicate:

|^^^ABC^Text^Codesystem|

8. If a field allows repetition (Cardinality maximum > 1), then the length of the field applies to EACH repetition.

2. *Encoding Rules for Receiving*

1. If a data segment that is expected is not included, treat it as if all data fields within were not present.
2. If a data segment is included that is not expected, ignore it; this is not an error.
3. If data fields are found at the end of a data segment that are not expected, ignore them; this is not an error.

3. *Implications of the Encoding Rules*

The following **table** lists the expected outcome implied by the encoding rules above.

Table 1. Outcome of Encoding Rule Breaches

Condition	Immediate Outcome	Secondary Outcome
Required segment not present.	Message rejected.	Error message returned to sending system.
Segments not in correct order	Out of sequence segment ignored.	If this segment is required, then message rejected.
Segment not expected	Segment is ignored	
Non-repeating segment is repeated	Repeated segment is ignored. First segment is processed normally.	Information in the repeated segment is lost to receiving system.
Required segment has required fields that are not present or rejected due to errors	Message is rejected.	Error message returned to sending system.
Optional segment has required field that is not present or rejected due to errors.	Segment is ignored	Message is not rejected because of this error. Error message returned.
Required field is not present.	Segment is ignored/rejected.	If segment is required, then message is rejected. If segment is not required, the information in the segment is lost to receiving system.
Required field is rejected due to errors.	Segment is ignored/rejected.	If segment is required, then message is rejected. If segment is not required, the information in the segment is lost to receiving system.
Incoming data value is not in the list of expected values for a field that is constrained to a list of values.	Incoming data are treated as empty.	

Note that all errors in processing a message should be communicated back to the sending system unless the initiating system has indicated that no response is desired.

4. *Determining Usage of Segments, Fields and Components*

Many fields and segments in HL7 are optional. This guide tightens constraints on some fields to support functionality required from meaningful use of immunization data. The following list the rules applied to the decisions used to determine usage in this Guide.

1. Any segment, field, or component that is required by the *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging* is required.

2. Any field or component that is a required but may be empty by *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging* is required but may be empty⁸.
3. Any segment, field, or component that is conditional but may be empty in the *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging* shall be conditional or conditional but may be empty in this Guide, unless this conflicts with 2 or 3 above.
4. Any field designated as required by PRISM is required (See PRISM usage table below).
5. All other fields will ignored by PRISM systems.

Table 2.Usage Code Interpretations for Fields, Components and Sub-components

Usage Code	Interpretation	Comment
R	Required	<p>A conforming sending application shall populate all “R” elements with a non-empty value.</p> <p>Conforming receiving application shall process or ignore the information conveyed by required elements.</p> <p>A conforming receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element.</p>

⁸ In some cases they may not be empty. Client name may never be empty or null, for instance. The NVAC core data elements are listed in the beginning of Appendix B.

Usage Code	Interpretation	Comment
RE	Required but may be empty	<p>The element may be missing from the message, but must be sent by the sending application if there is relevant data.</p> <p>A conforming sending application should be capable of providing all "RE" elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then that element may be omitted.</p> <p>Receiving applications will be expected to process or ignore data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be generated because the element is missing).</p>
C	Conditional	<p>This usage has an associated condition predicate. This predicate is an attribute within the message. If the predicate is satisfied:</p> <p>A conformant sending application must always send the element.</p> <p>A conformant receiving application must process or ignore data in the element. It may raise an error if the element is not present.</p> <p>If the predicate is NOT satisfied:</p> <p>A conformant sending application must NOT send the element.</p> <p>A conformant receiving application must NOT raise an error if the condition predicate is false and the element is not present, though it may raise an error if the element IS present.</p>

Usage Code	Interpretation	Comment
CE	Conditional but may be empty	<p>This usage has an associated condition predicate. This predicate is an attribute within the message.</p> <p>If the predicate is satisfied: If the conforming sending application knows the required values for the element, then the application must send the element.</p> <p>If the conforming sending application does not know the values required for this element, then the element shall be omitted. The conforming sending application should be capable of knowing the element (when the predicate is true) for all 'CE' elements.</p> <p>If the element is present, the conformant receiving application shall process or ignore the values of that element. If the element is not present.</p> <p>The conformant receiving application shall not raise an error due to the presence or absence of the element.</p> <p>If the predicate is not satisfied: The conformant sending application shall not populate the element.</p> <p>The conformant receiving application may raise an application error if the element is present.</p>
O	Optional	<p>This element may be present if specified in local profile. Local partners may develop profiles that support use of this element. In the absence of a profile, conformant sending applications will not send the element.</p> <p>Conformant receiving applications will ignore the element if it is sent, unless local profile specifies otherwise. Conformant receiving applications may not raise an error if it receives an unexpected optional element.</p>
X	Not Supported	<p>The element is not supported. Sending applications should not send this element. Receiving applications should ignore this element if present. A receiving application may raise an error if it receives an unsupported element. Any profile based on this Guide should not specify use of an element that is not supported in this Guide.</p>

Elements that are optional or are not supported for use in immunization messages will be noted in the element table, but not in the element definition text that follow.

Table3. Usage Code Interpretation for Segments

Usage Code	Interpretation	Comment
R	Required	<p>A conforming sending application shall include all “R” segments.</p> <p>Conforming receiving application shall process all required segments.</p> <p>A conforming receiving application must process all required segments. It should raise an error due to the absence of a required segment.</p>
RE	Required but may be empty	<p>The segment may be missing from the message, but must be sent by the sending application if there is relevant data.</p> <p>A conforming sending application must be capable of providing all "RE" segments. If the conforming sending application has data for the required segment, then it must send that segment.</p> <p>Receiving applications will be expected to process the data contained in the segment. It must be able to successfully process the message if the segment is omitted (no error message should be generated because the segment is missing).</p>
O	Optional	<p>This segment may be present if specified in local profile. Local partners may develop profiles that support use of this segment. In the absence of a profile, conforming sending applications will not send the element. Conformant receiving applications will ignore the element if it is sent, unless local profile specifies otherwise.</p>
X	Not Supported	<p>The segment is not supported. Sending applications should not send this element. Receiving applications should ignore this element if present. Any profile based on this Guide should not specify use of an element that is not supported in this Guide.</p>

Table 4. Usage Code Interpretation specific to PRISM Project

PRISM Usage Code	Receiving System Action
P_R	Required by PRISM system.
P_RE	Required by PRISM system, but may be empty.
P_C	Required by PRISM system if condition is true.
P_I	Ignored by PRISM system.

PRISM will accept any RSP message which conforms to the *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging*. It will ignore any data elements and segments which it is not interested in. These will be specified in the segment tables below.

E. MESSAGE ATTRIBUTES COMMON TO ALL MESSAGES

The following describe how message specifications will be illustrated in this Guide. These terms will be used in the tables specifying messages throughout this Guide.

Table 5. Message Attributes

Message Attributes	
Attribute	Description
Segment	<p>Three-character code for the segment and the abstract syntax (i.e., the square and curly braces)</p> <p>[XXX] Optional { XXX } Repeating XXX Required (not inside any braces) [{ XXX }] Optional and Repeating</p> <p>[XXX [YYY]]</p> <p>YYY is nested within the segment block starting with XXX. It is an optional sub-segment to XXX⁹. The whole block is optional.</p> <p>Note that for Segment Groups there will not be a segment code present, but the square and curly braces will still be present.</p>
Name	Name of the Segment or Segment group element.
Usage	Usage of the segment. Indicates if the segment is required, optional, or not supported in a message. See table with Usage Code Interpretation

⁹ YYY may only be included if XXX is present. XXX may be present without YYY.

Message Attributes	
Attribute	Description
	above.
Cardinality	<p>Indicator of the minimum and maximum number of times the element may appear.</p> <p>[0..0] Element never present.</p> <p>[0..1] Element may be omitted and it can have at most, one occurrence.</p> <p>[1..1] Element must have exactly one Occurrence.</p> <p>[0..n] Element may be omitted or may repeat up to n times.</p> <p>[1..n] Element must appear at least once, and may repeat up to n times.</p> <p>[0..*] Element may be omitted or repeat for an unlimited number of times.</p> <p>[1..*] Element must appear at least once, and may repeat unlimited number of times.</p> <p>[m..n] Element must appear at least m and, at most, n times.</p>

F. SEGMENT ATTRIBUTES COMMON TO ALL SEGMENTS

The abbreviated terms and their definitions, as used in the segment table headings, are as follows:

Table 6. Segment Attributes

Abbreviation	Description
Seq	Sequence of the elements (fields) as they are numbered in the segment
Len	<p>Recommended maximum length of the element. Lengths are provided only for primitive data types.</p> <p>Lengths should be considered recommendations, not absolutes. The receiver may truncate fields, components, and sub-components longer than the recommended length. The receiver should not fail to process a message simply because fields, components, or sub-components are too long.</p>
Data Type	Data type used for HL7 element. Data type specifications can be found in Chapter 4.
Usage	<p>Indicates whether the field is supported in this Guide. Indicates if the field, component, or subcomponent is required, optional, or conditional in the corresponding segment, field, or component. See Usage Code Interpretation, above.</p> <p>Note: A required field in an optional segment does not mean the segment must be present in the message. It means that if the segment is present, the required fields within that segment must be populated. The same applies to required components of optional fields. If the field is populated, then the required component must be populated. The same applies to required sub-components of optional components. If a component is populated, the required sub-components of that component must also be populated.</p>
Cardinality	<p>Indicator of the minimum and maximum number of times the element may appear.</p> <p>[0..0] Element never present.</p> <p>[0..1] Element may be omitted and can have at most, one occurrence.</p> <p>[1..1] Element must have exactly one occurrence.</p> <p>[0..n] Element may be omitted or may repeat up to n times.</p> <p>[1..n] Element must appear at least once, and may repeat up to n times.</p> <p>[0..*] Element may be omitted or repeat for an unlimited number of times.</p> <p>[1..*] Element must appear at least once, and may repeat unlimited number of times.</p> <p>[m..n] Element must appear at least m and, at most, n times.</p>
Item #	Unique item identifier in HL7
HL7 Element Name	HL7 descriptor of the element in the segment.
Comment	Lists any constraints imposed and other comments in this Guide

The following messages are the only specified in this Implementation Guide.

Table 7. Supported Messages

Message	Purpose	Related Messages	Associated Profiles
QBP	Request Request Immunization History	RSP	Z34^CDC
RSP	Respond to Request for Immunization Record	QBP	Z32^CDC
ACK	Send Message Acknowledgement	QBP	

G. SENDING MESSAGES IN A BATCH

Systems may choose to send messages in batches. A batch begins with a batch header statement (BHS) and ends with a Batch Trailer Segment (BTS). Batches may in turn be batched into files of batches using File Header Statement (FHS) and File Trailer statement (FTS). If a system is sending a single batch, the FHS/FTS is not necessary. A stream of messages may be sent without use of either BHS or FHS.

The generic layout of a batch message is as follows:

```
BHS
QBP
QBP
...
BTS
```

Similarly, a file of batches is laid out as follows:

```
FHS
BHS
QBP
QBP
...
BTS
BHS
QBP
QBP
...
BTS
...
FTS
```

H. ACKNOWLEDGING A MESSAGE--ACK

The ACK returns an acknowledgement to the sending system. This may indicate errors in processing. It is useful for tracking the success of individual queries and for problem solving if queries are not working correctly.

Table 8. Message Acknowledgement Segment (ACK)

Segment	Cardinality	Usage	Comment
MSH	(1..1)	R	
{{SFT}}	(0..1)	X	Not anticipated for use in immunization messages.
MSA	(1..1)	R	
{{ERR}}	(0..*)	RE	Include if there are errors.

Note: For the general acknowledgment (ACK) message, the value of MSH-9-2-Trigger event is equal to the value of MSH-9-2-Trigger event in the message being acknowledged. The value of MSH-9-3-Message structure for the general acknowledgment message is always ACK.

I. REQUESTING AN IMMUNIZATION HISTORY – QBP MESSAGE

Readers who wish general information about the QBP message should refer to the *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging*. The query profile that follows is a constraint on the query profile in that Implementation Guide.

J. REQUEST IMMUNIZATION HISTORY QUERY PROFILE –Z34^CDCPHINVS

The following query profile supports request of an individual member’s immunization history. Implicit in this profile is identity resolution.

Identity resolution is easier and more successful, if the member id is already known to the Immunization History Supplier or if the Immunization History Supplier id is known by the Immunization History Consumer. These may be included in the Patient ID list in the query.

1. Request Immunization History Query Profile

Table 9. Request Immunization History Query Profile

Query Statement ID (Query ID=Z34):	Z34
Type:	Query
Query Name:	Request Immunization History
Query Trigger (= MSH-9):	QBP^Q11^QBP_Q11
Query Mode:	Both
Response Trigger (= MSH-9):	RSP^K11^RSP_K11
Query Characteristics:	<p>The query parameters may include demographic and address data. No sorting is expected.</p> <p>This profile does not specify the logic used when searching for matching clients/patients. The query parameter contents may be used for simple query or as input for probabilistic search algorithms. The search methodology should be specified by local implementations.</p>
Purpose:	The purpose is to request a complete immunization history for one client.
Response Characteristics:	<ul style="list-style-type: none"> • In the case where no candidates are found, the response will indicate that no exact matches were found. This may occur when a query finds more than one match. • In the case where exactly one high-confidence candidate is found, an immunization history may be returned. • In the case where receiving system can't process the query, the receiving system will indicate an error.
Based on Segment Pattern:	NA

The Immunization History Supplier will not return a member's record if the person has elected not to allow sharing of their record. (Protection Indicator = Y)

Query Grammar

Table 10. Query Grammar

<u>QBP^Q11^QBP Q11</u>	<u>Query Grammar: QBP Message</u>	<u>HL7 Usage</u>	<u>PRISM Usage</u>	<u>Comment</u>
MSH	Message Header Segment	R	P_R	The MSH indicates who sent the message and gives other information about the message.
[[SFT]]	Software Segment	O	P_I	Ignored
QPD	Query Parameter Definition	R	P_R	This segment contains the query parameters.
RCP	Response Control Parameter	R	P_R	This segment contains the expected format of the response to the query.
[DSC]	Continuation Pointer	O	P_I	Ignored

See the Message segments in the next chapter for specifics of the segments in this message.

Response Grammar

Table 11. Response Grammar to Different Outcomes

Outcome of Query	Response Message
No exact match found ¹⁰	Response indicates that message was successfully processed and that no clients matched the criteria that were sent in the query.
Exactly one high confidence match found ¹¹	Response includes a complete immunization history as specified below. <i>See Profile Return Immunization History.</i>
Message is not well formed and has fatal errors or conflicts with local business rules.	Response indicates that the message was not successfully processed and may indicate errors.

¹⁰ This includes the case where more than one match is found.

¹¹ Definition of match is left to local business rules. These rules should be documented in a local implementation guide. For example, a system may only return an immunization history when the match is exact, returning a list of 1 if one person for a lower probability match.

The response grammar below is a constraint on the Z34 query profile. Readers who wish to see the Response Grammar of the parent profile should consult the appropriate profile in *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging*.

K. RETURN AN IMMUNIZATION HISTORY – Z32^CDCPHINVS

1. HL7 Version 2.5.1 Message Profile for Returning an Immunization History

Introduction:

A key task that must be accomplished for immunization messaging is requesting an immunization history from another information system. One component of that process is returning an immunization history. This profile constrains the QBP Query, Request Immunization History Query Z34 that is specified above. That query profile specifies the query for requesting an immunization history and is intended to support two types of response. One response returns a list of candidate client/patients to be the basis of further selection. This response will not be included in this implementation guide. The second is a response that returns an immunization history. This second is the focus of this message profile. The goal of this profile is to constrain the response specified in the Request Immunization History query profile to a single immunization history. In all other aspects it conforms completely with the specifications described in the implementation Guide for this query profile.

Static Definition

a. Response Grammar RSP^K11 Constrained by This Profile

This profile constrains the Request for Immunization Query Response Grammar by changing the cardinality of the response to one repetition.

b. Response Grammar RSP^K11

The following table documents the grammar of the RSP^K11 (Z32 profile id) response

Table 12. Return Immunization History Response Grammar

Segment	PRISM Usage	Cardinality	Comment
MSH	P_R	[1..1]	
MSA	P_R	[1..1]	
[ERR]	P_C	[0..*]	If errors exist, then this segment is populated.
QAK	P_R	[1..1]	
QPD	P_R	[1..1]	Query Parameter Definition Segment ¹²
[[0..1]	--- Response control parameter begin In the case of an error this section is not returned.
			Begin patient identifier
PID	P_R	(1..1)	
[PD1]	P_I	(0..1)	
[[NK1]]	P_I	(0..*)	
			End Patient Identifier
[Begin patient visit
PV1	P_I	(0..1)	
]			
[Begin Insurance
IN1	P_I	(0..1)	
]			End Insurance
[[(0..*)	Begin Order
ORC	P_R	[1..1]	Required if client has immunization records (RXA). There is one ORC for each RXA
			Begin Pharmacy Administration
RXA	P_R	(1..1)	
[RXR]	P_I	(0..1)	
[[P_I	(0..*)	Begin Observation
OBX	P_I	(1..1)	
[[NTE]]	P_I	(0..*)	
}}			End observation
]]			End Pharmacy Administration End Order

¹² Matches the information in the requesting QBP message.

Segment	PRISM Usage	Cardinality	Comment
]		---	Response control parameter end

This profile indicates that only one repetition of an entire immunization history shall be returned. It shall be identified in MSH-21 by its profile identifier, Z32^CDCPHINVS.

Dynamic Definition

a. Sequence Diagram

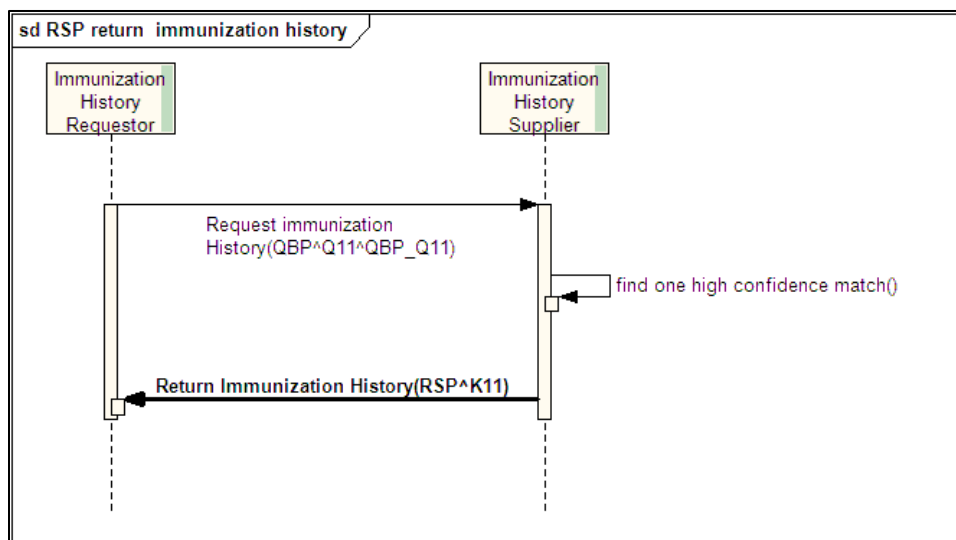


Figure 5. Return Immunization History Sequence Diagram

This diagram illustrates the context of the message. The message specified in this profile is in Bold and labeled Return Immunization History(RSP^K11).

Acknowledgement Responsibilities

Application level acknowledgement is allowed, but not required.

III. CHAPTER 3 – SEGMENTS AND FIELDS

This chapter will specify only the segments and fields of interest for the PRISM project. Segments which are not described below may be found in the *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging*. The segments below include:

- BHS – Batch Header Segment
- BTS – Batch Trailer Segment
- ERR – Error segment
- FHS – File Header Segment
- FTS – File Trailer Segment
- MSH - Message Segment Header for Query
- MSH – Message Segment Header for Response
- PID – Person Identifier Segment
- ORC – Order Segment
- QAK – Query acknowledgement Segment
- QPD – Query parameter segment
- RCP – Response Control segment
- RXA – Medication Administered segment (immunization event record)

A. BHS—BATCH HEADER SEGMENT

Table 13. Batch Header Segment (BHS)

SEQ	LEN	Data Type	Cardinality	Value set	ITEM #	ELEMENT NAME	Usage	PRISM Usage	Constraint
1	1	ST	[1..1]		00081	Batch Field Separator	R	P_R	The BHS.1 field shall be
2	3	ST	[1..1]		00082	Batch Encoding Characters	R	P_R	The BHS.2 field shall be ^~\&
3		HD	[0..1]		00083	Batch Sending Application	O	P_I	
4		HD	[0..1]		00084	Batch Sending Facility	O	P_I	
5		HD	[0..1]		00085	Batch Receiving Application	O	P_I	
6		HD	[0..1]		00086	Batch Receiving Facility	O	P_I	
7		TS	[0..1]		00087	Batch Creation Date/Time	O	P_I	
8	40	ST	[0..1]		00088	Batch Security	O	P_I	
9	20	ST	[0..1]		00089	Batch Name/ID/Type	O	P_I	
10	80	ST	[0..1]		00090	Batch Comment	O	P_I	
11	20	ST	[0..1]		00091	Batch Control ID	O	P_I	
12	20	ST	[0..1]		00092	Reference Batch Control ID	O	P_I	

1. BHS field definitions

BHS-1 Batch Field Separator (ST) 00081

Definition: This field contains the separator between the segment ID and the first real field, BHS-2-batch encoding characters. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. The required value is |,(ASCII 124). Note that this field is different from other fields and immediately follows the Segment name code.

BHS|

↑

separator

BHS-2 Batch Encoding Characters (ST) 00082

Definition: This field contains the four characters in the following order: the component separator, repetition separator, escape characters, and subcomponent separator. The required values are ^~\& (ASCII 94, 126, 92, and 38, respectively).

B. BTS—BATCH TRAILER SEGMENT

Table 14. Batch Trailer Segment (BTS)

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	ELEMENT NAME	Usage	PRISM Usage	Constraint
1	10	ST	[0..1]		00093	Batch Message Count	O	P_I	
2	80	ST	[0..1]		00090	Batch Comment	O	P_I	
3	100	NM	[0..1]		00095	Batch Totals	O	P_I	

Example: BTS||

C. ERR—ERROR SEGMENT

Table 15. Error Segment (ERR)

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	ELEMENT NAME	Usage	PRISM Usage	Constraint
1		ELD	[0..0]		00024	Error Code and Location	X	P_I	Not supported for Version 2.5 and above.
2	18	ERL	[0..1] ¹³		01812	Error Location	RE		If an error involves the entire message (e.g. the message is not parse-able.) then location has no meaning. In this case, the field is left empty.
3		CWE	[1..1]	0357	01813	HL7 Error Code	R	P_R	
4	2	ID	[1..1]	0516	01814	Severity	R	P_R	
5		CWE	[0..1]	0533	01815	Application Error Code	O	P_I	
6	80	ST	[0..1]		01816	Application Error Parameter	O	P_I	
7	2048	TX	[0..1]		01817	Diagnostic Information	O	P_I	
8	250	TX	[0..1]		01818	User Message	O		This field may contain free text that may be displayed to a user. It is not intended for any further processing.
9	20	IS	[0..1]	0517	01819	Inform Person Indicator	O		
10		CWE	[0..1]	0518	01820	Override Type	O		
11		CWE	[0..1]	0519	01821	Override Reason Code	O		
12		XTN	[0..1]		01822	Help Desk Contact Point	O		

¹³ This Guide does not support repeat of this field. It assumes that each error will be contained in one ERR segment. If the same error occurs more than once, there will be one ERR for each.

1. *ERR field definitions:*

Note that ERR-1 is not supported for use in messages starting with version 2.5.

ERR-2 Error Location (ERL) 01812

Definition: Identifies the location in a message related to the identified error, warning or message. Each error will have an ERR, so no repeats are allowed on this field. This field may be left empty if location is not meaningful. For example, if it is unable to be parsed, an ERR to that effect may be returned.

ERR-3 HL7 Error Code (CWE) 01813

Definition: Identifies the HL7 (communications) error code. Refer to HL7 Table 0357 – Message Error Condition Codes for valid values.

ERR-4 Severity (ID) 01814

Definition: Identifies the severity of an application error. Knowing if something is Error, Warning or Information is intrinsic to how an application handles the content. Refer to HL7 Table 0516 - Error severity for valid values. If ERR-3 has a value of "0", ERR-4 will have a value of "I".

ERR-5 Application Error Code (CWE) 01815

Definition: Application specific code identifying the specific error that occurred. Refer to User-Defined Table 0533 – Application Error Code for suggested values.

If the message associated with the code has parameters, it is recommended that the message be indicated in the format of the java .text.MessageFormat approach¹⁴. This style provides information on the parameter type to allow numbers, dates and times to be formatted appropriately for the language.

ERR-6 Application Error Parameter (ST) 01816

Definition: Additional information to be used, together with the Application Error Code, to understand a particular error condition/warning/etc. This field can repeat to allow for up to 10 parameters.

ERR-8 User Message (TX) 01818

Definition: The text message to be displayed to the application user. This is not intended to be processed further by the receiving system.

Example with error in PID:

```
ERR|PID^1^5|101^Required field missing^HL70357^^^|E|
```

¹⁴ Details on Message Format can be found at <http://java.sun.com/products/jdk/1.2/docs/api/java/text/MessageFormat.html>.

MSH - MESSAGE HEADER SPECIFICATION

Table 16. MSH Specification for Request Immunization History Query

SEQ	LEN	Data Type	Cardinality	Value set	ITEM #	ELEMENT NAME	HL7 Usage	PRISM Usage	Constraint
1	1	ST	[1..1]		00001	Field Separator	R	P_R	The MSH.1 field shall be
2	4	ST	[1..1]		00002	Encoding Characters	R	P_R	The MSH.2 field shall be ^~\&
3		HD	[0..1]	0361	00003	Sending Application	RE	P_R	This is the system that created this message.
4		HD	[0..1]	0362	00004	Sending Facility	RE	P_R	This is the Immunization History Consumer.
5		HD	[0..1]	0361	00005	Receiving Application	RE	P_R	This is the system that is receiving this message.
6		HD	[0..1]	0362	00006	Receiving Facility	RE	P_R	This is the Immunization History Consumer or the Immunization History supplier, depending on the message.
7	26	TS	[1..1]		00007	Date/Time Of Message	R	P_R	The degree of precision must be at least to the second, and the time zone must be included (format YYYYMMDDHH MMSS[.S[S[S[S]]]+/-ZZZZ).
8	40	ST	[0..1]		00008	Security	O	P_I	
9	15	MSG	[1..1]		00009	Message Type	R	P_R	QBP^Q11^QBP_Q11

SEQ	LEN	Data Type	Cardinality	Value set	ITEM #	ELEMENT NAME	HL7 Usage	PRISM Usage	Constraint
10	20	ST	[1..1]		00010	Message Control ID	R	P_R	
11	3	PT	[1..1]		00011	Processing ID	R	P_R	
12		VID	[1..1]		00012	Version ID	R	P_R	2.5.1
13	15	NM	[0..1]		00013	Sequence Number	O	P_I	
14	180	ST	[0..1]		00014	Continuation Pointer	O	P_I	
15	2	ID	[0..1]	0155	00015	Accept Acknowledgment Type	RE	P_I	NE-Never
16	2	ID	[0..1]	0155	00016	Application Acknowledgment Type	RE	P_I	AL-Always
17	3	ID	[0..1]	0399	00017	Country Code	O	P_I	blank
18	16	ID	[0..1]	0211	00692	Character Set	O	P_I	blank
19		CE	[0..1]		00693	Principal Language Of Message	O	P_I	blank
20	20	ID	[0..1]	0356	01317	Alternate Character Set Handling Scheme	O	P_I	blank
21		EI	[1..1]		01598	Message Profile Identifier	R	P_R	Z34^ CDCPHINVS

MSH - MESSAGE HEADER SPECIFICATION

Table 17. MSH Specification for Request Immunization History Response

SEQ	LEN	Data Type	Cardinality	Value set	ITEM #	ELEMENT NAME	HL7 Usage	PRISM Usage	Constraint
1	1	ST	[1..1]		00001	Field Separator	R	P_R	The MSH.1 field shall be
2	4	ST	[1..1]		00002	Encoding Characters	R	P_R	The MSH.2 field shall be ^~\&
3		HD	[0..1]	0361	00003	Sending Application	RE	P_R	This is the system that created this message.
4		HD	[0..1]	0362	00004	Sending Facility	RE	P_R	This is the Immunization History Consumer or the Immunization History supplier, depending on the message.
5		HD	[0..1]	0361	00005	Receiving Application	RE	P_R	This is the system that is receiving this message.
6		HD	[0..1]	0362	00006	Receiving Facility	RE	P_R	This is the Immunization History Consumer or the Immunization History supplier, depending on the message.
7	26	TS	[1..1]		00007	Date/Time Of Message	R	P_R	The degree of precision must be at least to the second, and the time zone must be included (format YYYYMMDDHH MMSS[.S[S[S]]] +/-ZZZZ).
8	40	ST	[0..1]		00008	Security	O	P_I	

SEQ	LEN	Data Type	Cardinality	Value set	ITEM #	ELEMENT NAME	HL7 Usage	PRISM Usage	Constraint
9	15	MSG	[1..1]		00009	Message Type	R	P_R	RSP^K11^RSP_K11
10	20	ST	[1..1]		00010	Message Control ID	R	P_R	
11	3	PT	[1..1]		00011	Processing ID	R	P_R	
12		VID	[1..1]		00012	Version ID	R	P_R	2.5.1
13	15	NM	[0..1]		00013	Sequence Number	O	P_I	
14	180	ST	[0..1]		00014	Continuation Pointer	O	P_I	
15	2	ID	[0..1]	0155	00015	Accept Acknowledgment Type	RE	P_I	NE-Never
16	2	ID	[0..1]	0155	00016	Application Acknowledgment Type	RE	P_I	AL-Always
17	3	ID	[0..1]	0399	00017	Country Code	O	P_I	blank
18	16	ID	[0..1]	0211	00692	Character Set	O	P_I	blank
19		CE	[0..1]		00693	Principal Language Of Message	O	P_I	blank
20	20	ID	[0..1]	0356	01317	Alternate Character Set Handling Scheme	O	P_I	blank
21		EI	[1..1]		01598	Message Profile Identifier	R	P_R	Z32^CDCPHINVS

D. ORC—ORDER REQUEST SEGMENT

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.

Table 18. Common Order Segment (ORC)

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM#	ELEMENT NAME	Usage	PRISM Usage	Comment
1	2	ID	[1..1]	0119	00215	Order Control	R	P_R	use RE
2		EI	[0..1]		00216	Placer Order Number	RE	P_I	See Guidance below.
3		EI	[1..1]		00217	Filler Order Number	R	P_R	See Guidance below.
4		EI	[0..1]		00218	Placer Group Number	O	P_I	
5	2	ID	[0..1]	0038	00219	Order Status	O	P_I	
6	1	ID	[0..1]	0121	00220	Response Flag	O	P_I	
7		TQ	[0..0]		00221	Quantity/Timing	X	P_I	
8		EIP	[0..1]		00222	Parent	O	P_I	
9		TS	[0..1]		00223	Date/Time of Transaction	O	P_I	
10		XCN	[0..1]		00224	Entered By	RE	P_I	This is the person that entered this immunization record into the system.
11		XCN	[0..1]		00225	Verified By	O	P_I	
12		XCN	[0..1]		00226	Ordering Provider	RE	P_R	This shall be the provider ordering the immunization. It is expected to be empty if the immunization record is transcribed from a historical record.
13		PL	[0..1]		00227	Enterer's Location	O	P_I	
14		XTN	[0..1]		00228	Call Back Phone Number	O	P_I	
15		TS	[0..1]		00229	Order Effective Date/Time	O	P_I	
16		CE	[0..1]		00230	Order Control Code Reason	O	P_I	

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM#	ELEMENT NAME	Usage	PRISM Usage	Comment
17		CE	[0..1]		00231	Entering Organization	O	P_I	This is the provider organization that entered this record/order.
18		CE	[0..1]		00232	Entering Device	O	P_I	
19		XCN	[0..1]		00233	Action By	O	P_I	
20		CE	[0..1]		01310	Advanced Beneficiary Notice Code	O	P_I	
21		XON	[0..1]		01311	Ordering Facility Name	O	P_I	
22		XAD	[0..1]		01312	Ordering Facility Address	O	P_I	
23		XTN	[0..1]		01313	Ordering Facility Phone Number	O	P_I	
24		XAD	[0..1]		01314	Ordering Provider Address	O	P_I	
25		CWE	[0..1]		01473	Order Status Modifier	O	P_I	
26		CWE	[0..1]		01641	Advanced Beneficiary Notice Override Reason	O	P_I	
27		TS	[0..1]		01642	Filler's Expected Availability Date/Time	O	P_I	
28		CWE	[0..1]		00615	Confidentiality Code	O	P_I	
29		CWE	[0..1]		01643	Order Type	O	P_I	
30		CNE	[0..1]		01644	Enterer Authorization Mode	O	P_I	
31		CWE	[0..1]		02286	Parent Universal Service Identifier	O	P_I	

1. *ORC field definitions*

ORC-1 Order Control (ID) 00215

Definition: Determines the function of the order segment.

The value for VXU and RSP shall be RE.

Placer Order Number (ORC-2) and Filler Order Number (ORC-3) are unique identifiers from the system where an order was placed and where the order was filled. They were originally designed for managing lab orders. These fields have a usage status of Conditional in Version 2.5.1. The condition for each is that they must be present in either the OBR or ORC of a message. There has been confusion about usage for these fields. The Orders and Observations workgroup has addressed this confusion. In the context that ORC will be used in Immunization messaging either ORC-2 or ORC-3 must be populated. They may both be populated.

In the immunization context, it is not common to have one system placing and one filling an immunization order. In some cases neither is known. The use case that these have supported is to allow a system that sent an immunization record to another system to identify an immunization that needs to be changed using the Filler Order Number it had sent.

This Guide specifies that Placer Order Number is RE (required, but may be empty). The Filler Order Number SHALL be the unique immunization id of the sending system.

ORC-2 Placer Order Number (EI) 00216

The placer order number is used to uniquely identify this order among all orders sent by a provider organization.

ORC-2 is a system identifier assigned by the placer software application. The Placer Order Number and the Filler Order Number are essentially foreign keys exchanged between applications for uniquely identifying orders and the associated results across applications.

In the case where the ordering provider organization is not known, the sending system may leave this field empty.

ORC-3 Filler Order Number (EI) 00217

The filler order number is used to uniquely identify this order among all orders sent by a provider organization that filled the order.

This shall be the unique identifier of the sending system in a given transaction. In the case where system A sends the record to system B and system B then forwards to system C, system B will send its' own unique identifier.

Use of this foreign key will allow the initiating system to accurately identify the previously sent immunization record, facilitating update or deletion of that record.

In the case where a historic immunization is being recorded (i.e. from an immunization card), the sending system SHALL assign an identifier as if it were an immunization administered by a provider associated with the provider organization owning the sending system.

In the case where an RXA is conveying information about an immunization which was not given (e.g. refusal) the filler order number shall be 9999.

Note that the receiving system will need to store this value in addition to its own internal id in order for this to be used.

ORC-10 Entered By (XCN) 00224

Definition: This identifies the individual that entered this particular order. It may be used in conjunction with an RXA to indicate who recorded a particular immunization.

ORC-12 Ordering Provider (XCN) 00226

Definition: This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician). In the case where this segment is associated with a historic immunization record and the ordering provider is not known, then this field should not be populated.

ORC-17 Entering Organization (CE) 00231

Definition: 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. The person who entered the request is defined in ORC-10 -entered by.

ORC-21 Ordering Facility Name (XON) 01311

Definition: This field contains the name of the facility placing the order. It is the organization sub-unit that ordered the immunization. (i.e. the clinic)

ORC-22 Ordering Facility Address (XAD) 01312

Definition: This field contains the address of the facility requesting the order.

ORC-23 Ordering Facility Phone Number (XTN) 01312

Definition: This field contains the phone number of the facility requesting the order.

ORC-24 Ordering Provider Address (XAD) 01314

Definition: This field contains the address of the care provider requesting the order.

E. PID-PATIENT IDENTIFIER SEGMENT

The PID is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

Table 19. Patient Identifier Segment (PID)

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	Element Name	PRISM Usage	Usage	Constraint
1	4	SI	[0..1]		00104	Set ID - PID	P_I	RE	
2		CX	[0..0]		00105	Patient ID	P_I	X	
3		CX	[1..*]		00106	Patient Identifier List		R	
4		CX	[0..0]		00107	Alternate Patient ID - 00106	P_I	X	
5		XPN	[1..*]		00108	Patient Name	P_R	R	The first repetition shall contain the legal name. Multiple given names or initials are separated by spaces.
6		XPN	[0..1]		00109	Mother's Maiden Name	P_RE	RE	
7		TS	[1..1]		00110	Date/Time of Birth	P_R	R	Required, must have month, day and year.
8	1	IS	[0..1]	0001	00111	Administrative Sex	P_R	RE	M= male, F = female, U = not determined/unspecified/unknown.
9		XPN	[0..0]		00112	Patient Alias	P_I	X	This field should not be used. It was supported in earlier implementations.

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	Element Name	PRISM Usage	Usage	Constraint
10		CE	[0..*]	0005	00113	Race	P_I	RE	The first triplet is to be used for the alpha code. The second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) should be used for governmentally assigned numeric codes (####-#).
11		XAD	[0..*]		00114	Patient Address	P_RE	RE	The first repetition should be the primary address.
12	4	IS	[0..0]	0289	00115	County Code	P_I	X	County belongs in address field.
13		XTN	[0..*]		00116	Phone Number - Home	P_RE	RE	The first instance shall be the primary phone number. Only one item is allowed per repetition.
14		XTN	[0..*]		00117	Phone Number - Business	P_I	O	
15		CE	[0..1]	ISO0639	00118	Primary Language	P_I	O	Use ISO 639.
16		CE	[0..1]	0002	00119	Marital Status	P_I	O	
17		CE	[0..1]	0006	00120	Religion	P_I	O	
18		CX	[0..1]		00121	Patient Account Number	P_I	O	
19	16	ST	[0..0]		00122	SSN Number - Patient	P_I	X	
20		DLN	[0..0]		00123	Driver's License	P_I	X	

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	Element Name	PRISM Usage	Usage	Constraint
						Number - Patient			
21		CX	[0..0]		00124	Mother's Identifier	P_I	X	
22		CE	[0..1]	0189	00125	Ethnic Group	P_I	RE	First triplet shall contain H,N,U if populated. Second triplet shall contain government issued code from table xxx, if populated. If both are populated, they must match logically.
23	60	ST	[0..1]		00126	Birth Place	P_I	O	Use may be specified locally.
24	1	ID	[0..1]	0136	00127	Multiple Birth Indicator	P_I	RE	The acceptable values are Y and N. If the status is undetermined, then field shall be empty.
25	2	NM	[0..1]		00128	Birth Order	P_I	CE	If Multiple Birth Indicator is populated with Y, then this field should contain the number indicating the person's birth order, with 1 for the first child born and 2 for the second.
26		CE	[0..1]	0171	00129	Citizenship	P_I	O	
27		CE	[0..1]	0172	00130	Veterans Military Status	P_I	O	
28		CE	[0..1]	0212	00739	Nationality	P_I	O	
29		TS	[0..1]		00740	Patient Death	P_I	RE	

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	Element Name	PRISM Usage	Usage	Constraint
						Date and Time			
30	1	ID	[0..1]	0136	00741	Patient Death Indicator	P_I	CE	If patient death date is populated, then this field should be populated.
31	1	ID	[0..1]	0136	01535	Identity Unknown Indicator	P_I	O	
32	20	IS	[0..1]	0445	01536	Identity Reliability Code	P_I	O	
33		TS	[0..1]		01537	Last Update Date/Time	P_I	O	May be locally specified.
34		HD	[0..1]		01538	Last Update Facility	P_I	O	Use is locally specified.
35		CE	[0..1]	0446	01539	Species Code	P_I	O	
36		CE	[0..1]	0447	01540	Breed Code	P_I	O	
37	80	ST	[0..1]		01541	Strain	P_I	O	
38		CE	[0..1]	0429	01542	Production Class Code	P_I	O	
39		CWE	[0..1]	0171	01840	Tribal Citizenship	P_I	O	

1. PID field definitions

PID-1 Set ID - PID (SI) 00104

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc. In this profile it shall always be one.

PID-3 Patient Identifier List (CX) 00106

Definition: This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.).

PID-5 Patient Name (XPN) 00108

Definition: This field contains the names of the patient, the primary or legal name of the patient is reported first. Therefore, the name type code in this field should be “L - Legal”. Refer to HL7 Table 0200 - Name Type for valid values.

PID-6 Mother's Maiden Name (XPN) 00109

Definition: This field contains the family name under which the mother was born (i.e., before marriage). It is used to distinguish between patients with the same last name.

PID-7 Date/Time of Birth (TS) 00110

Definition: This field contains the patient's date and time of birth.

PID-8 Administrative Sex (IS) 00111

Definition: This field contains the patient's sex. Refer to User-defined Table 0001 - Administrative Sex for suggested values.

PID-10 Race (CE) 00113

Definition: This field refers to the patient's race. Refer to User-defined Table 0005 - Race for suggested values. The second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes.

PID-11 Patient Address (XAD) 00114

Definition: This field contains the mailing address of the patient. Address type codes are defined by HL7 Table 0190 - Address Type. Multiple addresses for the same person may be sent in the following sequence: The primary mailing address must be sent first in the sequence (for backward compatibility); if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence.

This field is used for any type of address that is meaningfully associated with the client/patient. For instance Birth State is the state of the address of the birthing location, address type = BDL.

A person's address may be sent in this field or in the NK1 segment with a relationship code indicating Self. Local implementations should clarify how these addresses will be handled.

PID-13 Phone Number - Home (XTN) 00116

Definition: This field contains the patient's personal phone numbers. All personal phone numbers for the patient are sent in the following sequence. The first sequence is considered the primary number (for backward compatibility). If the primary number is not sent, then a repeat delimiter is sent in the first sequence. Each type of telecommunication shall be in its' own repetition. For example, if a person has a phone number and an email address, they shall each have a repetition. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

PID-22 Ethnic Group (CE) 00125

Definition: This field further defines the patient’s ancestry. Refer to User-defined Table 0189 - Ethnic Group. The second triplet of the CE data type for ethnic group (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes.

F. QAK—QUERY ACKNOWLEDGEMENT SEGMENT

Table 20. Query Acknowledgement Segment

SEQ	LEN	Data Type	Cardinality	Value set	ITEM#	ELEMENT NAME	Usage	PRISM Usage	Comment
1	32	ST	[1..1]		00696	Query Tag	R	P_R	
2	2	ID	[0..1]	0208	00708	Query Response Status	O	P_RE	
3		CE	[0..1]	0471	01375	Message Query Name	O	P_I	
4	10	NM	[0..1]		01434	Hit Count	O	P_I	
5	10	NM	[0..1]		01622	This payload	O	P_I	
6	10	NM	[0..1]		01623	Hits remaining	O	P_I	

1. QAK field definitions

QAK-1 Query Tag (ST) 00696

Definition: This field contains the value sent in QPD-2 (query tag) by the initiating system, and will be used to match response messages to the originating query. The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

QAK-2 Query Response Status (ID) 00708

Definition: This field allows the responding system to return a precise response status. It is especially useful in the case where no data is found that matches the query parameters, but where there is also no error. It is defined with HL7 Table 0208 - Query Response Status.

QAK-3 Message Query Name (CE) 01375

Definition: This field contains the name of the query. This shall mirror the QPD-1 (Message Query Name) found in the query message that is being responded to.

G. QPD INPUT PARAMETER SPECIFICATION

Table 21. QPD Input Parameter Specification

Field Seq (Query ID=Z34)	Name	LEN	TYPE	Op t	Rep	PRIS M Usage	Segmen t Field Name	Element Name or Value
1	MessageQueryName		CE	R		P_R		Z34^Request Immunization History^HL70471
2	QueryTag	32	ST	R		P_R		
3	PatientList		CX	RE	Y	P_R	PID.3	PID-3: Patient Identifier List ¹⁵
4	PatientName		XPN	RE		P_R	PID.5	PID-5: Patient Name
5	PatientMotherMaidenName		XPN	RE		P_RE	PID.6	PID-6: Mother's maiden name
6	Patient Date of Birth	26	TS	RE		P_R	PID.7	PID-7: Patient date of birth
7	Patient Sex	1	IS	RE		P_R	PID.8	PID-8: Patient sex
8	Patient Address		XAD	RE		P_RE	PID.11	PID-11: Patient Address
9	Patient home phone		XTN	RE		P_RE	PID.13	PID-13: Patient home phone
10	Patient multiple birth indicator	1	ID	RE		P_I	PID-24	PID-24: Patient multiple birth indicator
11	Patient birth order	2	NM	RE		P_I	PID-25	PID-25: Patient birth order
12	Client last updated date		TS	RE		P_I	PID-33	PID-33: Patient last update date
13	Client last update facility		HD	RE		P_I	PID-34	PID-34: Patient last update facility

¹⁵ The Patient Identifier List should contain the member number or the IIS identifier.

1. QPD Input Parameter Field Description and Commentary

Table 22. QPD Input Parameter Field Description and Commentary

Input Parameter (Query ID=Z34)	Comp. Name	DT	Description
MessageQueryName		CE	Z34^Request Immunization History^HL70471
QueryTag		ST	Unique to each query message instance. System generated.
PatientList		CX	The combination of values for Patientlist.ID, patientlst.identifiercode and Patientlist.AssigningAuthority are intended to allow unique identification of a client, if the data are found in the responding system.
	ID	ST	If this field, PID.3.1, is not valued, PatientList is not considered when seeking matching clients.
	Assigning Authority	HD	If this field, PID.3.4, is not valued, PatientList is not considered when seeking matching clients.
	IdentifierTypeCode	IS	If this field, PID.3.5, is not valued, PatientList is not considered when seeking matching clients.
PatientName		XPN	If this field, PID.5, is not valued, then the query will return an error, since this is a required field.
	Family Name	FN	If this field, PID.5.1, is not valued, then patient name is considered to contain no value.
	Given Name	ST	If this field, PID.5.2, is not valued, then patient name is considered to contain no value. Given name is required.
	Second or further names	ST	If this field, PID.5.3, is not valued, then all values for this field are considered a match.
	Suffix	ST	If this field, PID.5.4, is not valued, then all values for this field are considered a match.
Mother's Maiden Name		XPN	If this field, PID.6, is not valued, Mother's maiden name is not considered when seeking matching clients.
	Family Name	FN	If this field, PID.6.1, is not valued, then mother's maiden name is considered to contain no value.
	Given Name	ST	If this field, PID.6.2, is not valued, then all values for this field are considered a match.
DateOfBirth		TS	If this field, PID.7, is not valued to an accuracy of at least day, then this field is considered not valued.
Sex		IS	If this field, PID.8, is not valued, then all values for this field are considered a match.
Address		XAD	If this field, PID.11, is not valued, then address will not be considered when seeking matching clients.

Input Parameter (Query ID=Z34)	Comp. Name	DT	Description
	Street Address	SAD	If this field, PID.11.1, is not valued, then all values for this field are considered a match.
	City	ST	If this field, PID.11.3, is not valued, then address is considered to contain no value.
	State	ST	If this field, PID.11.4, is not valued, then address is considered to contain no value.
	ZIP	ST	If this field, PID.11.5, is not valued, then all values for this field are considered a match.
	Address Type	IS	If this field, PID.11.7 is not valued, then it shall default to L, legal address.
Phone		XTN	This field will be considered the Home phone. If this field, PID.13, is not valued, then phone number is not considered when seeking matching clients.
	Area code	NM	If this field, PID.13.6, is not valued, then all values for this field shall be considered matches.
	Local number	NM	If this field, PID.13.7, is not valued, then address is considered to contain no value.
Multiple Birth Indicator		ID	If this field, PID.24, is not valued, then Multiple Birth Indicator is not considered when seeking matching clients.
Birth Order		NM	If this field, PID.25, is not valued, then birth order is not considered when seeking matching clients.
Client last updated date		TS	If this field, PID.33, is not valued, then client last updated date is not considered when seeking matching clients.
Client last update facility		TS	If this field, PID.34, is not valued, then client last updating facility is not considered when seeking matching clients.

H. RCP RESPONSE CONTROL PARAMETER FIELD DESCRIPTION AND COMMENTARY

Table 23. RCP Response Control Parameter Field Description and Commentary

Field Seq (Query ID=Z34)	Name	Component Name	LEN	DT	Description
1	Query Priority		1	ID	If this field is not valued then it shall default to I . The only value permitted is I .
2	Quantity Limited Request		10	CQ	
		Quantity		NM	The maximum number of patients that may be returned. This shall be valued as 1 (one) .
		Units		CWE	This value shall be RD (records)
3	Response Modality		60	CWE	Real time or Batch . Default is R .
7	Segment group inclusion		256	ID	This field shall be empty.

I. RXA-- PHARMACY/TREATMENT ADMINISTRATION SEGMENT

The RXA segment carries pharmacy administration data. It is a child of an ORC segment, which a repeating segment in the RSP and. Because ORC are allowed to repeat an unlimited numbers of vaccinations may be included in a message. Each RXA must be preceded by an ORC.¹⁶

¹⁶ The HL7 Version 2.5.1 document clearly indicates that any RXA must be associated with an ORC. In the case of immunization, each immunization will have its own ORC.

Table 24. Pharmacy/Treatment Administration (RXA)

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	ELEMENT NAME	Usage	PRISM Usage	Comment
1	4	NM	[1..1]		00342	Give Sub-ID Counter	R	P_R	Constrain to 0 (zero)
2	4	NM	[1..1]		00344	Administration Sub-ID Counter	R	P_R	Constrain to 1
3		TS	[1..1]		00345	Date/Time Start of Administration	R	P_R	This segment may be used in cases where a vaccine has not been administered. For instance a patient may refuse a vaccination or the sending system may be forecasting a next dose due. See notes below for guidance on the relevant date to include here.
4		TS	[0..1]		00346	Date/Time End of Administration	RE	P_R	If populated, this should be the same as Start time (RXA-3)
5		CE	[1..1]	0292	00347	Administered Code	R	P_R	CVX code is strongly preferred.
6	20	NM	[1..1]		00348	Administered Amount	R		If administered amount is not recorded, use 999.
7		CE	[0..1]		00349	Administered Units	CE		If previous field is populated by any value except 999, it is required.
8		CE	[0..1]		00350	Administered Dosage Form	O		

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	ELEMENT NAME	Usage	PRISM Usage	Comment
9		CE	[0..*]	NIP 0001	00351	Administration Notes	RE	P_R	The primary use of this field is to convey if this immunization record is based on a historical record or was given by the provider recording the immunization. All systems should be able to support this use. Other uses of this field are permitted, but need to be specified locally.
10		XCN	[0..1]		00352	Administering Provider	RE		This is the person who gave the administration or the vaccinator. It is not the ordering clinician.
11		LA2	[0..1]		00353	Administered-at Location	RE		
12	20	ST	[0..1]		00354	Administered Per (Time Unit)	O		
13	20	NM	[0..1]		01134	Administered Strength	O		
14		CE	[0..1]		01135	Administered Strength Units	O		
15	20	ST	[0..*]		01129	Substance Lot Number	RE		
16		TS	[0..1]		01130	Substance Expiration Date	CE		If the lot number is populated, this field should be valued.

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	ELEMENT NAME	Usage	PRISM Usage	Comment
17		CE	[0..*]	0227	01131	Substance Manufacturer Name	RE	P_R	
18		CE	[0..*]	NIP002	01136	Substance /Treatment Refusal Reason	C		If the Completion status is RE, then this shall be populated
19		CE	[0..1]		01123	Indication	O		
20	2	ID	[0..1]	0322	01223	Completion Status	RE		If this field is not populated, it is assumed to be CP or complete. If the Refusal reason is populated, this field shall be set to RE.
21	2	ID	[0..1]	0323	01224	Action Code - RXA	RE		
22		TS	[0..1]		01225	System Entry Date/Time	O		
23	5	NM	[0..1]		01696	Administered Drug Strength Volume	O		
24		CWE	[0..1]		01697	Administered Drug Strength Volume Units	O		
25		CWE	[0..1]		01698	Administered Barcode Identifier	O		
26	1	ID	[0..1]	0480	01699	Pharmacy Order Type	O		

1. *RXA field definitions*

RXA-1 Give Sub-ID Counter (NM) 00342

Definition: This field is used to match an RXA and RXG. Not a function under IIS.

Constrain to 0 (zero).

RXA-2 Administration Sub-ID Counter (NM) 00344

Definition: This field is used to track multiple RXA under an ORC. Since each ORC has only one RXA in immunization messages, constrain to 1. This should not be used for indicating dose number, which belongs in an OBX.

Note that the previous Implementation Guide suggested that this be used for indicating dose number. This use is no longer supported.

RXA-3 Date/Time Start of Administration (TS) 00345

Definition: The date this vaccination occurred. In the case of refusal or deferral, this is the date that the refusal or deferral was recorded. In the case of a forecast dose, this is the date the forecast was made.

RXA-4 Date/Time End of Administration (If Applies) (TS) 00346

Definition: In the context of immunization, this is equivalent to the Start date/time. If populated it should be = RXA-3. If empty, the date/time of *RXA-3-Date/Time Start of Administration* is assumed.

RXA-5 Administered Code (CE) 00347

Definition: This field identifies the medical substance administered. If the substance administered is a vaccine, CVX codes should be used in the first triplet to code this field (see HL7 Table 0292 - Codes for vaccines administered). The second set of three components could be used to represent the same vaccine using a different coding system, such as Current Procedural Terminology (CPT). CVX code is the strongly preferred code system.

RXA-6 Administered Amount (NM) 00348

Definition: This field records the amount of pharmaceutical administered. The units are expressed in the next field, RXA-7. Registries that do not collect the administered amount should record the value "999" in this field.

RXA-7 Administered units (CE) 00349

Definition: This field is conditional because it is required if the administered amount code does not imply units. This field must be in simple units that reflect the actual quantity of the

substance administered. It does not include compound units. This field is not required if the previous field is populated with 999.

RXA-9 Administration Notes (CE) 00351

Definition: This field is used to indicate whether this immunization record is based on a historical record or was given by the reporting provider. It should contain the information source (see *NIP-defined Table 0001 - Immunization Information Source*). The first component shall contain the code, the second the free text and the third shall contain the name of the code system. (NIP001) Sending systems should be able to send this information. Receiving systems should be able to accept this information.

This field may be used for other notes if specified locally. The first repetition shall be the information source. If other notes are sent when information source is not populated, then the first repetition shall be empty.

Other notes may include text only in component 2 of the repeat. Acceptance of text only is by local agreement only.

Information source is an NVAC core data element. It speaks to the reliability of the immunization record. IIS rely on this information.

RXA-10 Administering Provider (XCN) 00352

Definition: This field is intended to contain the name and provider ID of the person physically administering the pharmaceutical.

Note that previous Implementation Guide (2.3.1) overloaded this field by using local codes to indicate administering provider, ordering provider and recording provider. This is a misuse of this field and not supported in this Guide. The ordering and entering providers are indicated in the associated ORC segment.

RXA-11 Administered-at Location (LA2) 00353

Definition: The name and address of the facility that administered the immunization. Note that the components used are:

Component 4: The facility name/identifier.

Subcomponent 1: identifier¹⁷

Subcomponent 2: Universal ID This shall be an OID, if populated. Note that this should not be a local code, but rather a universal id code.

Subcomponent 3: Universal ID type (specify which universal id type)

¹⁷ This value should uniquely identify a specific facility. Systems may choose to publish a table with local values.

Note that if subcomponent 1 is populated, 2 and 3 should be empty. If subcomponent 2 is populated with an OID, subcomponent 3 must be populated with ISO.

Component 9-15: Facility address.

Components not specifically mentioned here are not expected in immunization messages.

RXA-15 Substance Lot Number (ST) 01129

Definition: This field contains the lot number of the medical substance administered. It may remain empty if the dose is from a historical record.

Note: The lot number is the number printed on the label attached to the container holding the substance and on the packaging which houses the container. If two lot numbers are associated with a product that is a combination of different components, they may be included in this field. The first repetition should be the vaccine.

RXA-16 Substance Expiration Date (TS) 01130

Definition: This field contains the expiration date of the medical substance administered. It may remain empty if the dose is from a historical record.

Note: Vaccine expiration date does not always have a "day" component; therefore, such a date may be transmitted as YYYYMM.

RXA-17 Substance Manufacturer Name (CE) 01131

Definition: This field contains the manufacturer of the medical substance administered.

Note: For vaccines, code system MVX should be used to code this field.

RXA-18 Substance/Treatment Refusal Reason (CE) 01136

Definition: This field contains the reason the patient refused the medical substance/treatment. Any entry in the field indicates that the patient did not take the substance. If this field is populated RXA-20, Completion Status shall be populated with RE.

RXA-20 Completion Status (ID) 01223

This field indicates if the dose was successfully given. It must be populated with RE if RXA-18 is populated with NA. If a dose was not completely administered or if the dose were not potent this field may be used to label the immunization. If this RXA has a CVX of 998 (no vaccine administered) then this shall be populated with NA.

RXA-21 Action Code – RXA (ID) 01224

This field indicates the action expected by the sending system. It can facilitate update or deletion of immunization records. This field has a usage of RE. If it is left empty, then the receiving systems should assume that the action code is A.

ORC-3, Placer order number, may be used to link to a specific immunization if the system receiving the request has recorded this from the initial order. Local implementers should specify its' use in a local implementation guide.

The action code U (Update system) is used to indicate to a subordinate receiver that a previously sent immunization should be changed. Most IIS have specific criteria for determining whether to add or update an immunization that does not rely directly on this field. For this reason it is common practice to indicate action as Add even if this vaccination has been previously reported. It is important to not assume that Updates will be or need to be specifically indicated.

RXA-22 System Entry Date/Time (TS) 01225

This field records the date/time that this record was created in the originating system. Local implementations should specify its' use.

IV. CHAPTER 4—DATA TYPES AND VALUE SETS

Data types are the building blocks that are the foundation of successful interoperability. Each field, component or subcomponent has a data type. Conforming systems agree to adhere to the data type assigned to each component, assuring smooth communication. For example, dates may be formatted in many ways, but to assure interoperability, these need to be constrained and defined. HL7 specifies several formats, but these are compatible with each other. They allow dates to be as granular as needed. The format allows for just a year (YYYY) or for month, day, year, hour, minute, second, etc.

A. DATA TYPES FOR IIS USE

Data types specify the format and type of data used. A data type may be as simple as a numeric data type, which allows a number. It may be a more complex coded entry that requires a specific set of code values and the name of the code system. Data types may contain subcomponents that are specified by data types.

The following list of data types only includes those that are used by fields that are anticipated for use by the PRISM project messages. Data types for fields that are not used in this Guide are not included, even if they are part of segment that is used.

Table 25. Data Types

Data type	Data Type Name
CE	Coded element
CQ	Composite Quantity with Units
CWE	Coded with Exceptions
CX	Extended Composite Id with Check digit
EI	Entity Identifier
ERL	Error Location
FN	Family Name
HD	Hierarchic Designator
ID	Coded Values for HL7 Tables
IS	Coded value for User-Defined Tables
LA2	Location with address variation 2
MSG	Message Type
NM	Numeric
PT	Processing Type
SAD	Street Address
ST	String
TS	Time Stamp
VID	Version Identifier
XAD	Extended Address
XCN	Extended Composite ID Number and Name for Persons
XPN	Extended Person Name
XTN	Extended telephone number

1. *CE -- Coded Element (most uses)*

Definition: This data type transmits codes and the text associated with the code.

Table 26. Coded Element (CE)

SEQ	LEN	Data Type	Usage	Value Set	Component Name	Comments
1	999	ST	RE		Identifier	Identifying Code.
2	999	ST	CE		Text	Human readable text that is not further used. If Sequence 1 is populated, this should also be populated.
3	20	ID	C	0396	Name of Coding	If sequence 1 is populated, this field must be populated.
4	999	ST	RE		Alternate Identifier	Alternate Identifying coded.
5	999	ST	CE		Alternate Text	Human readable text that is not further used. If Sequence 4 is populated, this should also be populated.
6	20	ID	C	0396	Name of Alternate	If sequence 4 is populated, this field must be populated.

Note: Sequence 1,2, and 3 are one triplet that are treated as a unit. The other triplet is a separate unit. Either may be populated, but should mean the same thing if both are populated.

The order of the contents is not specified. In the previous guide, the first triplet was reserved for CVX codes in RXA-5. This is no longer true, based on HL7 usage of CE data type.

Identifier (ST)

Definition: Sequence of characters (the code) that uniquely identifies the item being referenced. Different coding schemes will have different elements here.

Text (ST)

Definition: The descriptive or textual name of the identifier, e.g., DTaP. This is not used by the sending or receiving system, but rather facilitates human interpretation of the code.

Name of Coding System (ID)

Definition: Identifies the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier.

Alternate Identifier (ST)

Definition: An alternate sequence of characters (the code) that uniquely identifies the item being referenced. See usage note in section introduction.

Alternate Text (ST)

Definition: The descriptive or textual name of the alternate identifier, e.g., DTaP. This is not used by the sending or receiving system, but rather facilitates human interpretation of the code.

Name of Alternate Coding System (ID)

Definition: Identifies the coding scheme being used in the alternate identifier component.

Example usage:

From RXA 5, Administered Code:

|50^DTAP-HIB^CVX^90721^DTAP-HIB^C4|

2. CQ -- Composite Quantity with Units

Definition: This data type carries a quantity and attendant units. Its' primary use in this Guide will be for indicating the maximum number of records to return in a query response.

Table 27. Composite Quantity with Units (CQ)

SEQ	LE N	Data Type	Usage	Value set	COMPONENT NAME	COMMENTS
1	16	NM	R		Quantity	The value shall be a positive integer.
2		CE	R	0126	Units	The value shall be RD (records).

Maximum Length: 500

Note: CQ cannot be legally expressed when embedded within another data type. Its use is constrained to a segment field.

Examples:

|10^RD| 10 records

Quantity (NM)

Definition: This component specifies the numeric quantity or amount of an entity.

Units (CE)

Definition: This component species the units in which the quantity is expressed. Field-by-field, default units may be defined within the specifications. When the quantity is measured in the default units, the units need not be transmitted. If the quantity is recorded in units different from the default, the units must be transmitted.

CWE -- Coded With Exceptions

Definition: Specifies a coded element and its associated detail. The CWE data type is used when 1) more than one table may be applicable **or** 2) the specified HL7 or externally defined table may be extended with local values **or** 3) when text is in place, the code may be omitted.

Table 28. Coded with Exceptions (CWE)

SEQ	LEN	Data Type	Usage	Value Set	Component Name	Comments
1	999	ST	RE		Identifier	Identifying Code.
2	999	ST	CE		Text	Human readable text that is not further used. If Sequence 1 is populated, this should also be populated.
3	20	ID	CE	0396	Name of Coding	If sequence 1 is populated, this field must be populated.
4	999	ST	RE		Alternate Identifier	Alternate Identifying code.
5	999	ST	CE		Alternate Text	Human readable text that is not further used. If Sequence 4 is populated, this should also be populated.
6	20	ID	CE	0396	Name of Alternate	If sequence 4 is populated, this field must be populated.
7	10	ST	O		Coding System Version Id	
8	10	ST	O		Alternate Coding System Version Id	
9	199	ST	O		Original Text	

Note: Sequences 1,2 and 3 are one triplet that are treated as a unit. The other triplet is a separate unit. Either may be populated, but should mean the same things if both are populated.

The order of the contents is not specified.

Identifier (ST)

Definition: Sequence of characters (the code) that uniquely identifies the item being referenced. Different coding schemes will have different elements here.

Text (ST)

Definition: The descriptive or textual name of the identifier, e.g., DTaP. This is not used by the sending or receiving system, but rather facilitates human interpretation of the code.

Name of Coding System (ID)

Definition: Identifies the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier.

Alternate Identifier (ST)

Definition: An alternate sequence of characters (the code) that uniquely identifies the item being referenced. See usage note in section introduction.

Alternate Text (ST)

Definition: The descriptive or textual name of the alternate identifier, e.g., DTaP. This is not used by the sending or receiving system, but rather facilitates human interpretation of the code.

Name of Alternate Coding System (ID)

Definition: Identifies the coding scheme being used in the alternate identifier component.

Example usage:

From RXR: |C28161^IM^NCIT^IM^INTRAMUSCULAR^HL70162|

3. CX -- Extended Composite ID with Check Digit

Table 29. Extended Composite ID with Check Digit(CX)

SEQ	LE N	Data Type	Usage	Value set	COMPONENT NAME	COMMENTS
1	15	ST	R		ID Number	
2	1	ST	O		Check Digit	
3	3	ID	CE	0061	Check Digit Scheme	If sequence 2 is populated, then this sequence must be populated.
4		HD	R	0363	Assigning Authority	
5	5	ID	R	0203	Identifier Type Code	
6		HD	O		Assigning Facility	
7	8	DT	O		Effective Date	
8	8	DT	O		Expiration Date	
9		CWE	O		Assigning Jurisdiction	
10		CWE	O		Assigning Agency or Department	

Definition: This data type is used for specifying an identifier with its associated administrative detail.

Maximum Length: 1913

Note: The check digit and check digit scheme are empty if ID is alphanumeric.

Example:

|1234567^^^ME129^MR|

ID (ST)

Definition: The value of the identifier itself.

Check Digit (ST)

This component should be valued empty.

Check Digit Scheme (ID)

This component should be valued if Check digit is populate, otherwise it should be empty.

Assigning Authority (HD)

The assigning authority is a unique name of the system (or organization or agency or department) that creates the data. . Refer to User-defined Table 0363 – Assigning authority for suggested values. This table shall be maintained by each IIS. The first component shall be used for this unique name. The second and third may be used if OIDs¹⁸ are recorded.

Identifier Type Code (ID)

A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the “Assigning authority” component. Refer to HL7 Table 0203 - Identifier type for suggested values.

DT -- Date

Definition: Specifies the century and year with optional precision to month and day.

Table 30. Date (DT)

SEQ	LEN	Data Type	Usage	Value Set	Component Name	Comments
1	8		R		Date	

As of v 2.3, the number of digits populated specifies the precision using the format specification YYYY(MM[DD]). Thus:

- Four digits are used to specify a precision of "year"
- Six are used to specify a precision of "month"
- Eight are used to specify a precision of "day."

¹⁸ OIDs are object identifiers. According to wikipedia: “Health Level Seven (HL7), a standards-developing organization in the area of electronic health care data exchange, is an assigning authority at the 2.16.840.1.113883 (joint-iso-itu-t.country.us.organization.hl7) node. HL7 maintains its own OID registry, and as of January 1, 2008 it contained almost 3,000 nodes, most of them under the HL7 root. The Centers for Disease Control and Prevention has also adopted OIDs to manage the many complex values sets or "vocabularies" used in public health. The various OIDs are available in the Public Health Information Network (PHIN) Vocabulary Access and Distribution System (VADS).”

Examples:

|19880704|

|199503|

|2000|

DTM -- Date/Time

Table 31. Date/Time (DTM)

SEQ	LEN	Data Type	Usage	Value Set	Component Name	Comments
	24		R		Date/time	

The number of characters populated (excluding the time zone specification) specifies the precision.

Format: YYYY[MM[DD[HH[MM[SS[.S[S[S]]]]]]]][/-ZZZZ].

Thus:

- Four digits are used to specify a precision of "year"
- Six are used to specify a precision of "month"
- Eight are used to specify a precision of "day."
- the first ten are used to specify a precision of "hour"
- the first twelve are used to specify a precision of "minute"
- the first fourteen are used to specify a precision of "second"
- the first sixteen are used to specify a precision of "one tenth of a second"
- the first nineteen are used to specify a precision of "one ten thousandths of a second"

When the time zone is not included, it is presumed to be the time zone of the sender.

Example: |199904| specifies April 1999.

EI -- Entity Identifier

Definition: The entity identifier defines a given entity within a specified series of identifiers.

Table 32. Entity Identifier (EI)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	199	ST	RE		Entity Identifier	
2	20	IS	C	0363	Namespace ID	If Universal Id is not populated, then this field shall be populated.
3	199	ST	CE		Universal ID	If Namespace ID is not populated, then this field shall be populated. When populated, it shall be an OID.
4	6	ID	C	0301	Universal ID Type	If Universal Id is populated, this field must also be populated. When populated, it shall be constrained to ISO.

Maximum Length: 427

Entity Identifier (ST)

The first component, <entity identifier>, is defined to be unique within the series of identifiers created by the <assigning authority>, defined by a hierarchic designator, represented by component 2.

Namespace ID (IS)

The assigning authority is a unique identifier of the system (or organization or agency or department) that creates the data. Refer to User-defined Table 0363 – Assigning authority for suggested values.

Universal ID (ST)

This is a universal id associated with this entity. It must be linked to the Universal Id Type below. If populated, it shall be an OID.

Universal ID Type (ID)

This universal id type is drawn from HL7 Table 0301. If populated, it shall be ISO.

Example:

From MSH 21 profile identifier:
|Z34^CDCPHINVS|

4. ERL -- Error Location

Table 33. Error Location (ERL)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	3	ST	R		Segment ID	The 3-character name for the segment (i.e. PID)
2	2	NM	R		Segment Sequence	
3	2	NM	RE		Field Position	This should not be populated if the error refers to the whole segment.
4	2	NM	RE		Field Repetition	This should be populated whenever Field Position is populated.
5	2	NM	RE		Component Number	Should be populated ONLY when a particular component cause the error.
6	2	NM	RE		Sub-Component Number	Should be populated ONLY when a particular sub-component cause the error.

Definition:
This data type identifies the segment and

its constituent where an error has occurred.

Maximum Length: 18

Segment ID (ST)

Definition: Specifies the three-letter name for the segment.

Segment Sequence (NM)

Definition: Identifies the segment occurrence within the message. That is, for the first instance of the segment in the message the number shall be 1.

Field Position (NM)

Definition: Identifies the number of the field within the segment. The first field is assigned a number of 1. Field number should not be specified when referring to the entire segment.

Field Repetition (NM)

Definition: Identifies the repetition number of the field. The first repetition is counted as 1. If a Field Position is specified, but Field Repetition is not, Field Repetition should be assumed to be 1. If Field Position is not specified, Field Repetition should not be specified.

Component Number (NM)

Definition: Identifies the number of the component within the field. The first component is assigned a number of 1. Component number should not be specified when referring to the entire field.

Sub-Component Number (NM)

Definition: Identifies the number of the sub-component within the component. The first sub-component is assigned a number of 1. Sub-component number should not be specified when referring to the entire component.

Example:

|RXA^1^5^1^3|

5. FN -- Family Name

Definition: This data type contains a person's family name or surname.

Table 34. Family Name

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	50	ST	R		Surname	
2	20	ST	O		Own Surname Prefix	
3	50	ST	O		Own Surname	
4	20	ST	O		Surname Prefix From Partner/Spouse	
5	50	ST	O		Surname From Partner/Spouse	

Surname (ST)

This is the person's last name.

Example from PID: |Anyperson|

HD -- Hierarchic Designator

Definition: HD identifies an (administrative or system or application or other) entity that has responsibility for managing or assigning a defined set of instance identifiers (such as placer or filler number, patient identifiers, provider identifiers, etc.). This entity could be a particular health care application such as a registration system that assigns patient identifiers, a governmental entity such as a licensing authority that assigns professional identifiers or drivers' license numbers, or a facility where such identifiers are assigned.

Table 35. Hierarchical Designator (HD)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	20	IS	CE	0300 0361 0362 0363	Namespace ID	This field is used for a locally defined name/id. It may be used as previous version 2.3.1 Implementation Guide specified. If the field or component is required, then this field shall be populated if components 2 and 3 are not populated. The value set used depends on usage.
2	199	ST	CE		Universal ID	This field shall be populated if component 3 is populated. This field must be populated if field 1 is empty. This field shall used OID if populated
3	6	ID	CE	0301	Universal ID Type	This field shall be populated if component 2 is populated. If populated the value is constrained to ISO

IS -- Namespace ID

User-defined Table 0300/0361/0362/0363 - Namespace ID is used as the HL7 identifier for the user-defined table of values for this component.

Note: When the HD is used in a given segment (either as a field or as a component of another data type) this table may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment.

Tables 0361-0363 are preferred for most instances. For instance for identifying the assigning authority, use 0363.

Universal ID (ST)

The HD's second component, <universal ID> (UID), is a string formatted according to the scheme defined by the third component, <universal ID type> (UID type). The UID is intended to be unique over time within the UID type. It is rigorously defined. Each UID must belong to one of the specifically enumerated schemes for constructing UIDs (defined by the UID type). The UID (second component) must follow the syntactic rules of the particular universal identifier scheme (defined by the third component). Note that these syntactic rules are not defined within HL7 but are defined by the rules of the particular universal identifier scheme (defined by the third component).

Universal ID Type (ID)

The third component governs the interpretation of the second component of the HD. If the third component is a known UID refer to HL7 Table 0301 - Universal ID type for valid values, then the second component is a universal ID of that type. Since the second component is constrained to OID, then the value of component 3 shall be ISO, when populated.

Example from MSH:

|CA12^^|

ID -- Coded Values for HL7 Tables

Definition: This data type is used for coded values from an HL7 table.

The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. There shall be an HL7 table number associated with ID data types. An example of an ID field is PID 24 –Multiple Birth Indicator. This data type should be used only for HL7 tables (see Appendix A).

Example from PID Multiple Birth Indicator:

|Y|

IS -- Coded Values for User Defined Tables

Definition: This data type is used for codes from User-defined Tables.

Table 36. Coded Values for User Defined Tables (IS)

SEQ	Length	Data Type	Usage	Value Sets	COMPONENT NAME	COMMENTS
	20 (Max.)				Coded Value for User-Defined Tables	

Maximum Length: 20

The value of such a field follows the formatting rules for a ST field except that it is drawn from a site-defined (or user-defined) table of legal values. There shall be an HL7 table number associated with IS data types. This data type should be used only for user-defined tables (see Section 2.5.3.6 - Table).

Example from PID Sex:

|F|

LA2 -- Location with Address Variation 2

Definition: Specifies a location and its address.

Table 37. Location with Address Variation

SEQ	LEN	Data Type	Usage	Value Sets	COMPONENT NAME	COMMENTS
1	20	IS	O	0302	Point of Care	This represents the location within a facility that the service was provided. This is not the clinic site where an event occurred.
2	20	IS	O	0303	Room	
3	20	IS	O	0304	Bed	
4		HD	RE		Facility	This represents the location that the service was provided. For example the clinic.
5	20	IS	O	0306	Location Status	
6	20	IS	O	0305	Patient Location Type	
7	20	IS	O	0307	Building	
8	20	IS	O	0308	Floor	

SEQ	LEN	Data Type	Usage	Value Sets	COMPONENT NAME	COMMENTS
9	120	ST	O		Street Address	
10	120	ST	O		Other Designation	
11	50	ST	O		City	
12	50	ST	O		State or Province	
13	12	ST	O		Zip or Postal Code	
14	3	ID	O	0399	Country	
15	3	ID	O	0190	Address Type	
16	50	ST	O		Other Geographic Designation	

Maximum Length: 790

Note: Replaces the CM data type used in 4.14.5.13 RXD-13, 4.14.6.11 RXG-11 and 4.14.7.11 RXA-11 as of V 2.5.

MSG -- Message Type

Definition: This field contains the message type, trigger event, and the message structure ID for the message.

Table 38. Message Type (MSG)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	3	ID	R	0076	Message Code	
2	3	ID	R	0003	Trigger Event	
3	7	ID	R	0354	Message Structure	

Maximum Length: 15.

Note: Replaces the CM data type used in 2.16.9.9 MSH-9 as of v 2.5.

Message Code (ID)

Definition: Specifies the message type code. Refer to HL7 Table – Message Type in section 2.17.1 for valid values.

This table contains values such as ACK, ADT, ORU etc.

See section 2.5.1- Messages for further discussion.

Trigger Event (ID)

Definition: Specifies the trigger event code. Refer to HL7 Table – Event Type in section 2.17.2 for valid values.

This table contains values like A01, V01, R01 etc.

Message Structure (ID)

Definition: Specifies the abstract message structure code. Refer to HL7 Table 0354.

Example from MSH:

|VXU^V04^VXU_V04|

NM -- Numeric

Definition: A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.

Table 39. Numeric (NM)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
	16				Numeric	

Maximum Length: 16

Examples:

|999|

|-123.792|

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, "01.20" and "1.2," are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

PT -- Processing Type

Definition: This data type indicates whether to process a message as defined in HL7 Application (level 7) Processing rules.

Table 40 Processing Type (PT)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	1	ID	R	0103	Processing ID	
2	1	ID	X	0207	Processing Mode	Constrain to empty, which implies current processing.

Maximum Length: 3

Processing ID (ID)

A value that defines whether the message is part of a production, training, or debugging system. Refer to HL7 Table 0103 - Processing ID for valid values.

SAD -- Street Address

Definition: This data type specifies an entity's street address and associated detail.

Table 41. Street Address (SAD)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	120	ST	R		Street or Mailing Address	
2	50	ST	O		Street Name	
3	12	ST	O		Dwelling Number	

Maximum Length: 184

Note: Appears ONLY in the XAD data type

Street or Mailing Address (ST)

Definition: This component specifies the street or mailing address of a person or institution.

SI -- Sequence Id

Definition: A non-negative integer in the form of a NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it appears.

Table 42. Sequence Id (SI)

SEQ	LEN	Data Type	Usage	Value set	COMPONENT NAME	COMMENTS
	4				Sequence ID	

Maximum Length: 4. This allows for a number between 0 and 9999 to be specified.

TS -- Time Stamp

Definition: Specifies a point in time.

Table 43. Time Stamp (TS)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	24	DTM	R		Time	
2	1	ID	X	0529	Degree of Precision	

Maximum Length: 26

Time (DTM)

Definition: The point in time.

VID -- Version Id

Definition: This specifies the HL7 version.

Table 44. Version ID (VID)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	5	ID	R	0104	Version ID	
2		CE	O	0399	Internationalization Code	
3		CE	O		International Version ID	

Maximum Length: 973

Version ID (ID)

Used to identify the HL7 version. Refer to HL7 Table 0104 – Version ID in section 2.15.9.12 for valid values.

XAD -- Extended Address

Definition: This data type specifies the address of a person, place or organization plus associated information.

Table 45. Extended Address (XAD)

SEQ	LEN	Data Type	Usage	Value Sets	COMPONENT NAME	COMMENTS
1		SAD	RE		Street Address	
2	120	ST	RE		Other Designation	
3	50	ST	RE		City	
4	50	ST	RE		State or Province	
5	12	ST	RE		Zip or Postal Code	
6	3	ID	O	0399	Country	Empty defaults to USA
7	3	ID	R	0190	Address Type	

SEQ	LEN	Data Type	Usage	Value Sets	COMPONENT NAME	COMMENTS
8	50	ST	O		Other Geographic Designation	
9	20	IS	O	0289	County/Parish Code	
10	20	IS	O	0288	Census Tract	
11	1	ID	O	0465	Address Representation Code	
12		DR	X		Address Validity Range	deprecated as of v 2.5
13		TS	O		Effective Date	
14		TS	O		Expiration Date	

Maximum Length: 631

Example of usage for US:

|1000 Hospital Lane^Ste. 123^Ann Arbor ^MI^99999^^B|

This would be formatted for postal purposes as

1000 Hospital Lane
 Ste. 123
 Ann Arbor MI 99999

Street Address (SAD)

Definition: This is the street address.

Other Designation (ST)

Definition: Second line of address. In US usage, it qualifies address. Examples: Suite 555 or Fourth Floor. This can be used for dwelling number.

City (ST)

Definition: This component specifies the city, or district or place where the addressee is located depending upon the national convention for formatting addresses for postal usage.

State or Province (ST)

Definition: This component specifies the state or province where the addressee is located. State or province should be represented by the official postal service codes for that country.

Zip or Postal Code (ST)

Definition: This component specifies the zip or postal code where the addressee is located. Zip or postal codes should be represented by the official codes for that country. In the US, the zip code takes the form 99999[-9999], while the Canadian postal code takes the form A9A9A9, and the Australian Postcode takes the form 9999.

Country (ID)

Definition: This component specifies the country where the addressee is located. HL7 specifies that the 3-character (alphabetic) form of ISO 3166 be used for the country code. Refer to HL7 Table 0399 – Country code in section 2.15.9.17 for valid values.

Address Type (ID)

Definition: This component specifies the kind or type of address. Refer to HL7 Table 0190 - Address type for valid values.

County/Parish Code (IS)

A code that represents the county in which the specified address resides. User-defined Table 0289 - County/parish is used as the HL7 identifier for the user-defined table of values for this component. When this component is used to represent the county (or parish), component 8 <other geographic designation> should not duplicate it (i.e., the use of <other geographic designation> to represent the county is allowed only for the purpose of backward compatibility, and should be discouraged in this and future versions of HL7).

Allowable values: codes defined by government.

Effective Date (TS)

Definition: The first date, if known, on which the address is valid and active.

Expiration Date (TS)

Definition: The last date, if known, on which the address is valid and active.

XCN - Extended Composite ID Number and Name for Persons

Definition: This data type identifies a person using a unique id and name. The ID is associated with an entity such as an organization, which assigns the ID.

Table 46. Extended Composite ID Number and Name (XCN)

SEQ	LEN	DT	Usage	TBL#	COMPONENT NAME	COMMENTS
1	15	ST	C		ID Number	If name fields below are not populated, then this field must be populated.
2		FN	RE		Family Name	
3	30	ST	RE		Given Name	
4	30	ST	RE		Second and Further Given Names or Initials Thereof	
5	20	ST	O		Suffix (e.g., JR or III)	
6	20	ST	O		Prefix (e.g., DR)	
7	5	IS	X	036 0	Degree (e.g., MD)	Use Professional suffix in sequence 21.
8	4	IS	O	029 7	Source Table	Since we are requiring assigning authority, this field may be left empty.
9		HD	C	036 3	Assigning Authority	If the id field is populated, then this field must be populated.
10	1	ID	O	020 0	Name Type Code	If the name fields are populated and this is empty, then the type defaults to L, legal name.
11	1	ST	O		Identifier Check Digit	
12	3	ID	C	006 1	Check Digit Scheme	If check digit identifier is populated, then this field must indicate the check digit scheme.
13	5	ID	O	020 3	Identifier Type Code	Constrain to values in the published HL7 table 0203 only.
14		HD	O		Assigning Facility	

SEQ	LEN	DT	Usage	TBL#	COMPONENT NAME	COMMENTS
15	1	ID	O	046 5	Name Representation Code	
16		CE	O	044 8	Name Context	
17		DR	X		Name Validity Range	
18	1	ID	X	044 4	Name Assembly Order	
19		TS	O		Effective Date	
20		TS	O		Expiration Date	
21		ST	O		Professional Suffix	
22		CWE	O		Assigning Jurisdiction	
23		CWE	O		Assigning Agency or Department	

Maximum Length: 3002

This data type is used where there is a need to specify the ID number and name of a person.

ID number (ST)

This string refers to the coded ID assigned by the assigning authority.

Family Name (FN)

This component contains the person's surname.

Given Name (ST)

First name.

Second and Further Given Names or Initials Thereof (ST)

Multiple middle names may be included by separating them with spaces.

Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

Source Table (IS)

User-defined Table 0297 – CN ID source is used as the HL7 identifier for the user-defined table of values for this component. Used to delineate the first component.

Assigning Authority (HD)

The assigning authority is a unique identifier of the system (or organization or agency of department) that creates the data. User-defined Table 0363 – Assigning authority is used as the HL7 identifier for the user-defined table of values for the first sub-component of the HD component, <namespace ID>.

Note: When HD data type is used as a component of another data type, its components are demoted to subcomponents. This means that each component is separated by & rather than ^. For example:

Name space id^some OID^ISO becomes Name space id&some OID&^ISO

Note: When the HD data type is used in a given segment as a component of a field of another data type, User-defined Table 0300 - Namespace ID (referenced by the first sub-component of the HD component) may be re-defined (given a different user-defined table number and name) by the technical committee responsible for that segment. User-defined Table 0363 is specified by this Implementation Guide for Assigning Authority.

By site agreement, implementers may continue to use User-defined Table 0300 – Namespace ID for the first sub-component.

Name Type Code (ID)

A code that represents the type of name. Refer to HL7 Table 0200 - Name type for valid values. If the field is not populated then the value is assumed to be L.

Identifier Check Digit (ST)

The check digit in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued empty.

Check Digit Scheme (ID)

Definition: Contains the code identifying the check digit scheme employed.

Refer to HL7 Table 0061 - Check digit scheme for valid values.

Identifier Type Code (IS)

A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the <assigning authority> component. Refer to HL7 Table 0203 - Identifier type for suggested values.

Professional Suffix (ST)

Definition: Used to specify an abbreviation, or a string of abbreviations denoting qualifications that support the person's profession, (e.g., licenses, certificates, degrees, affiliations with professional societies, etc.). The Professional Suffix normally follows the Family Name when the Person Name is used for display purposes. Please note that this component is an unformatted string and is used for display purposes only.

Extended Person Name (XPN)

Definition: This is used for representing a person's name.

Table 47. Extended Person Name (XPN)

SEQ	LEN	Data Type	Usage	Value Sets	COMPONENT NAME	COMMENTS
1		FN	R		Family Name	
2	30	ST	R		Given Name	
3	30	ST	RE		Second and Further Given Names or Initials Thereof	
4	20	ST	O		Suffix (e.g., JR or III)	
5	20	ST	O		Prefix (e.g., DR)	
6	6	IS	X	0360	Degree (e.g., MD)	Use Professional suffix in sequence 14
7	1	ID	RE	0200	Name Type Code	
8	1	ID	O	0465	Name Representation Code	
9		CE	O	0448	Name Context	
10		DR	X		Name Validity Range	
11	1	ID	O	0444	Name Assembly Order	
12		TS	O		Effective Date	
13		TS	O		Expiration Date	
14	199	ST	O		Professional Suffix	

Maximum Length: 1103

Note: Replaces PN data type as of v 2.3.

Family Name (FN)

This is the person's surname or family name.

Given Name (ST)

First name.

Second and Further Given Names or Initials Thereof (ST)

Multiple middle names may be included by separating them with spaces.

Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

Name Type Code (ID)

A code that represents the type of name. Refer to HL7 Table 0200 - Name type for valid values.

Note: The content of Legal Name is country specific. In the US the legal name is the same as the current married name.

Professional Suffix (ST)

This is the person's professional suffix. Replaces degree above.

XTN - Extended Telecommunication Number

Definition: This contains the extended telephone number.

Table 48.XTN Extended Telecommunication Number (XTN)

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
1	199	ST	X		Telephone Number	Deprecated as of 2.3
2	3	ID	R	0201	Telecommunication Use Code	
3	8	ID	RE	0202	Telecommunication Equipment Type	
4	199	ST	CE		Email Address	If the telecommunication type code is NET, then this field shall be populated.
5	3	NM	O		Country Code	

SEQ	LEN	Data Type	Usage	Value Set	COMPONENT NAME	COMMENTS
6	5	NM	CE		Area/City Code	If the telecommunication type code is not NET, then this field shall be populated.
7	9	NM	CE		Local Number	If the telecommunication type code is not NET, then this field shall be populated.
8	5	NM	O		Extension	
9	199	ST	O		Any Text	
10	4	ST	O		Extension Prefix	
11	6	ST	O		Speed Dial Code	
12	199	ST	O		Unformatted Telephone number	

Maximum Length: 850

Note: Components five through nine reiterate the basic function of the first component in a delimited form that allows the expression of both local and international telephone numbers. As of 2.3, the recommended form for the telephone number is to use the delimited form rather than the unstructured form supported by the first component .

The old implementation guide (2.3.1) allowed the first component to be used for phone number. This is not supported by this Guide.

Note: Replaces TN data type as of v 2.3

Example: A primary residence number

`^PRN^PH^^^734^6777777`

Telecommunication Use Code (ID)

A code that represents a specific use of a telecommunication number. Refer to HL7 Table 0201 - Telecommunication use code for valid values.

Telecommunication Equipment Type (ID)

A code that represents the type of telecommunication equipment. Refer to HL7 Table 0202 - Telecommunication equipment type for valid values.

Email Address (ST)

The email address for the entity.

Area/city Code (NM)

The telephone area code for the entity.

Phone Number (NM)

The phone number for the entity.

Extension (NM)

The extension to the phone.

V. CHAPTER 5—CODE TABLES

NOTE: Where only selected values are listed for HL7 tables, please refer to the HL7 Standard for complete listings. In this appendix, values are selected from standard code sets where available. The Value Sets are maintained in the PHIN VADS for use in Public Health. The main purpose of PHIN VADS is to distribute vocabulary subsets needed in Public Health. The latest version of value sets referenced in this Implementation Guide can be obtained from PHIN VADS at (<http://phinvads.cdc.gov>). Search using keyword “immunization”.

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A. USER-DEFINED TABLE 0001 - SEX

This code reflects the self reported gender. Use in PID-8, NK1-15

Value set OID: 2.16.840.1.113883.1.11.1

Value	Description	Definition
F	Female	Person reports that she is female.
M	Male	Person reports that he is male.
U	Unknown/undifferentiated	No assertion is made about the gender of the person.

B. HL7-DEFINED TABLE 0003 - EVENT TYPE

Only selected values listed Use in MSH-9, second component

This code indicates the trigger event. Refer to Chapter 3, Version 2.5.1 for further information on HL7 event triggers.

Value	Description
A28	ADT/ACK - Add person information
A08	ADT/ACK – Update person information
A04	ADT/ACK – Register a patient
Q11	QBP - Query by parameter requesting an RSP segment pattern response (Query for

Value	Description
	vaccination record)
K11	RSP - Segment pattern response in response to QBP^Q11 (Response to vaccination query)
V04	VXU - Unsolicited vaccination record update

C. USER-DEFINED TABLE 0004 - PATIENT CLASS

Use in PV1-2.

This code categorizes the patient in the current event. The only value supported is R for recurring patient. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

D. USER-DEFINED TABLE 0005 – RACE

These values are consistent with the OMB Notice of revised categories for collection of race and ethnicity data—the combined format. Use in PID-10, NK1-35.

This code represents the client’s self-reported race.

Value set OID: 2.16.840.1.114222.4.11.836

US race codes	Description
1002-5	American Indian or Alaska Native
2028-9	Asian
2076-8	Native Hawaiian or Other Pacific Islander
2054-5	Black or African-American
2106-3	White
2131-1	Other Race
<empty field>	Unknown/undetermined

The following table is included for reference. The NIP original race codes are still accepted for backwards compatibility. The numeric code US race codes should be used.

US race codes	Description	NIP original race codes	Description
1002-5	American Indian or Alaska Native	I	American Indian or Alaska Native
2028-9	Asian	A	Asian or Pacific Islander
2076-8	Native Hawaiian or Other Pacific Islander	A	Asian or Pacific Islander
2054-5	Black or African-American	B	Black or African-American
2106-3	White	W	White
2131-1	Other Race	O	Other
	Unknown	U	Unknown

E. HL7-DEFINED TABLE 0008 - ACKNOWLEDGMENT CODE

Use in MSA-1.

This code indicates the type of acknowledgement expected.

Value	Description
AA	Original mode: Application Accept Enhanced mode: Application acknowledgment: Accept
AE	Original mode: Application Error Enhanced mode: Application acknowledgment: Error
AR	Original mode: Application Reject Enhanced mode: Application acknowledgment: Reject
CA	Enhanced mode: Accept acknowledgment: Commit Accept
CE	Enhanced mode: Accept acknowledgment: Commit Error
CR	Enhanced mode: Accept acknowledgment: Commit Reject

F. USER-DEFINED TABLE 0010 - PHYSICIAN ID

Use in all XCN data types; including PV1-7,8,9,17, RXA-10.

Each registry should establish a system of coding its reporting physicians. The National Provider Identifier (NPI) adopted for the HIPAA legislation may be used for this purpose.

G. HL7-DEFINED TABLE 0061 - CHECK DIGIT SCHEME

Use in all CX data types; including PID-2,3,4,18,21.

Value	Description
M10	Mod 10 algorithm
M11	Mod 11 algorithm
ISO	ISO 7064: 1983
NPI	Check digit algorithm in the US National Provider Identifier

H. USER-DEFINED TABLE 0063 – RELATIONSHIP

Use in NK1-3, IN1-17

Value	Description
BRO	Brother
CGV	Care giver
FCH	Foster child
FTH	Father
GRD	Guardian
GRP	Grandparent
MTH	Mother
OTH	Other
PAR	Parent
SCH	Stepchild
SEL	Self
SIB	Sibling
SIS	Sister
SPO	Spouse

I. USER-DEFINED TABLE 0064 - FINANCIAL CLASS

Use in OBX-5 for client eligibility for a funding program at the dose administered level. Financial class references a client's eligibility status at the time of vaccine administration. It is the eligibility of the client for the vaccine administered. The values in this table relate to eligibility for the Vaccine for Children (VFC) program.

Local implementations may define and document local codes. Each state immunization program may have locally specified funding programs for immunizations. In order to assure that each is unique across states, codes should be created that begin with the grantee assigning authority code from table 0363 in the Implementation Guide for Immunization Messaging, release 1.3. This would be followed by sequential number, left padded to a length of 2. For example if Alaska had a funding program, they would create a code of AKA01 for the first program. It is incumbent on the state or other jurisdiction to

clearly describe the requirements that qualify a person for that funding program. For instance if the hypothetical funding program in Alaska covered people who were too old for VFC program but would otherwise qualify because they were Medicaid eligible, then they would define the code as: “Client is currently on MEDICAID and is older than 19 years old.”

Note that funding source for a specific immunization is different from client eligibility for funding program (Financial Class).

Code	Label	Definition
V01	Not VFC eligible	Client does not qualify for VFC because they do not have one of the statuses below. (V02-V05)
V02	VFC eligible- Medicaid/Medicaid Managed Care	Client is currently on Medicaid or Medicaid managed care and < 19 years old and the vaccine administered is eligible for VFC funding.
V03	VFC eligible- Uninsured	Client does not have private insurance coverage and < 19 years old and the vaccine administered is eligible for VFC funding.
V04	VFC eligible- American Indian/Alaskan Native	Client is a member of a federally recognized tribe and < 19 years old and the vaccine administered is eligible for VFC funding.
V05	VFC eligible-Federally Qualified Health Center Patient (under-insured)	Client has insurance, but insurance does not cover vaccines, limits the vaccines covered, or caps vaccine coverage at a certain amount and so client is eligible for VFC coverage at a Federally Qualified Health Center. The client must be receiving the immunizations at the FQHC or a FQHC designated clinic and < 19 years old and the vaccine administered is eligible for VFC funding.
V06	Deprecated [VFC eligible- State specific eligibility (e.g. S-CHIP plan)]	Do not use this code. State specific funding should either use V07 or a state generated code.
V07	Local-specific eligibility	Client is eligible for state supplied vaccine based on local specific rules and the vaccine administered is eligible for state- funding. It should only be used if the state has not published local codes for these programs.
V08	Deprecated [Not VFC eligible-underinsured]	Do not use this code. The MIROW effort determined that persons in this situation are V01, not VFC eligible. It is not necessary to differentiate this sub-class of Not VFC eligible.

J. HL7-DEFINED TABLE 0076 - MESSAGE TYPE

Only selected values listed. Use in MSH-9, first component.

Value	Description	Usage in this guide
ACK	General acknowledgment	Supported
ADT	ADT message	Supported
QBP	Query by Parameter	Supported
RSP	Response to Query by parameter	Supported
VXU	Unsolicited vaccination record update	Supported

K. HL7-DEFINED TABLE 0078 - ABNORMAL FLAGS

Use in OBX-8.

Fields using this code set are expected to be empty. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

L. HL7-DEFINED TABLE 0085 - OBSERVATION RESULT STATUS CODES INTERPRETATION

Use in OBX-11.

Fields using this code set are expected to be F for Final. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

M. HL7-DEFINED TABLE 0091 - QUERY PRIORITY

Fields using this code set are expected to be I or empty, which indicates Immediate processing is expected. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

N. HL7-DEFINED TABLE 0102 - DELAYED ACKNOWLEDGMENT TYPE

Use in MSA-5.

Fields using this code set are expected to be empty. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

O. HL7-DEFINED TABLE 0103 - PROCESSING ID

Use in MSH-11.

Value	Description
D	Debugging
P	Production
T	Training

P. HL7-DEFINED TABLE 0104 - VERSION ID

Use in MSH-12.

Value	Description
2.1	Release 2.1
2.2	Release 2.2
2.3	Release 2.3 March 1997
2.3.1	Release 2.3.1 May 1999
2.4	Release 2.4 October 2000
2.5.1	Release 2.5.1 April 2007

Q. HL7-DEFINED TABLE 0105 - SOURCE OF COMMENT

Use in NTE-2.

Fields using this code set are expected to be empty. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

R. HL7-DEFINED TABLE 0119 – ORDER CONTROL CODES

Use in ORC-1.

Value	Description	Usage
OK	Order accepted & OK	Not supported
RE	Observations to follow	Supported

S. HL7-DEFINED TABLE 0126 - QUANTITY LIMITED REQUEST

Use in RCP-2.

Fields using this code set are expected to be set to RD for records. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

T. HL7-DEFINED TABLE 0136 - YES/NO INDICATOR

Use in PID-24,30; PD1-12

Value	Description
Y	Yes
N	No

In fields that may be empty, such as PD1-12 no value should be entered if the value is not Y or N. In HL7 "" means remove the previous value. If the field is empty, then it means do nothing to existing values.

Note on Null and Empty in HL7

Note that in the previous Implementation Guide, the undetermined state was signified by "" (HL7 null). This has a specific meaning in HL7. It means "change the state in the receiving system to null". The empty field means that the existing state should remain unchanged in the receiving system.

Value in Field	Meaning
"" ""	Nullify the value recorded in the receiving system data base.
<empty field> 	Make no changes to the record in the receiving data base. The sending system has no information on this field.

U. HL7-DEFINED TABLE 0155 - ACCEPT/APPLICATION ACKNOWLEDGMENT CONDITIONS

Use in MSH-15 and 16

Value	Description
AL	Always
NE	Never
ER	Error/Reject conditions only
SU	Successful completion only

V. HL7-DEFINED TABLE 0162 - ROUTE OF ADMINISTRATION

Only selected values included. Use in RXR-1.

Note that HITSP has specified the use of the FDA route of administration. The following table maps these to the HL7 table 0162 values.

FDA NCI Thesaurus (NCIT)	HL7-0162	Description	Definition
C38238	ID	Intradermal	within or introduced between the layers of the skin
C28161	IM	Intramuscular	within or into the substance of a muscle
C38284	NS	Nasal	Given by nose
	IN	Intranasal	{Do not use this older code}
C38276	IV	Intravenous	administered into a vein
C38288	PO	Oral	administered by mouth
	OTH	Other/Miscellaneous	
C38676		Percutaneous	made, done, or effected through the skin.
C38299	SC	Subcutaneous	Under the skin or between skin and muscles.
C38305	TD	Transdermal	describes something, especially a drug, that is introduced into the body through the skin

Example

|C28161^Intramuscular^NCIT|

/SC^Subcutaneous^HL70162/

W. HL7-defined Table 0163 - Administrative site

Only selected values listed. Use in RXR-2.

HITSP has recommended the use of SNOMED codes. At this point not all of these concepts have pre-coordinated SNOMED codes. The post-coordinated are longer than the nominal length of the first component of the CE data type. Therefore, this guide will continue to support the HL7 0163 codes.

SNOMED	HL7 0163	Description
	LT	Left Thigh
	LA	Left Arm
	LD	Left Deltoid
	LG	Left Gluteous Medius
	LVL	Left Vastus Lateralis
	LLFA	Left Lower Forearm
	RA	Right Arm
	RT	Right Thigh
	RVL	Right Vastus Lateralis
	RG	Right Gluteous Medius
	RD	Right Deltoid
	RLFA	Right Lower Forearm

X. USER-DEFINED TABLE 0189 - ETHNIC GROUP

These values are consistent with the OMB Notice of revised categories for collection of race and ethnicity data and with HL7's Version 2.4 Use in PID-22, NK1-28.

US ethnicity codes	HL7 Version 2.4 ethnicity codes	Description
2135-2	H	Hispanic or Latino
2186-5	N	not Hispanic or Latino
	U	Unknown

Y. HL7-DEFINED TABLE 0190 - ADDRESS TYPE

Use in all XAD data types; including PID-11)

Value	Description
C	Current or temporary
P	Permanent
M	Mailing
B	Firm/Business
O	Office
H	Home
N	Birth (nee)
F	Country of origin
L	Legal address
BDL	Birth delivery location [<i>use for birth facility</i>]
BR	Residence at birth [<i>use for residence at birth</i>]
RH	Registry home
BA	Bad address

Recording of Birth State uses the BDL, birth delivery location code.

Z. HL7-defined Table 0200 - Name type

Use in all XCN, XPN data types; including PID-5, 6, 9

Value	Description	Definition
A	Alias name	This is a nickname or other assumed name.
L	Legal name	This a person's official name. It is the primary name recorded in the IIS.
D	Display name	This is the preferred name displayed on a user interface.
M	Maiden name	This is a woman's name before marriage.
C	Adopted name	This is the name of a person after adoption.
B	Name at birth	This is name recorded at birth (prior to adoption).
P	Name of partner/spouse	This is the name of the partner or spouse.
U	Unspecified	This is a name of unspecified type.

AA.HL7-defined Table 0201 - Telecommunication use code

Use in all XTN data types including PID-13, 14

Value	Description
PRN	Primary residence number
ORN	Other residence number
WPN	Work number
VHN	Vacation home number
ASN	Answering service number
EMR	Emergency number
NET	Network (email) address
BPN	Beeper number

BB. HL7-DEFINED TABLE 0202 - TELECOMMUNICATION EQUIPMENT TYPE

Use in all XTN data types; including PID-13,14

Value	Description
PH	Telephone
FX	Fax
MD	Modem
CP	Cellular phone
BP	Beeper
Internet	Internet address: Use only if telecommunication use code is NET
X.400	X.400 email address: Use only if telecommunication use code is NET
TDD	Telecommunications Device for the Deaf
TTY	Teletypewriter

CC. USER-DEFINED TABLE 0203 - IDENTIFIER TYPE

Values suggested by HL7; with CDC-suggested additions. Use in all CX, XCN type codes; including PID-2,3,4,18,21 and RXA-10

HL7 Table 0203 - Identifier type

Value	Description	Comment
AN	Account number	An identifier that is unique to an account.
ANON	Anonymous identifier	An identifier for a living subject whose real identity is protected or suppressed Justification: For public health reporting purposes, anonymous identifiers are occasionally used for protecting patient identity in reporting certain results. For instance, a state health department may choose to use a scheme for generating an anonymous identifier for reporting a patient that has had a positive human immunodeficiency virus antibody test. Anonymous identifiers can be used in PID 3 by replacing the medical record number or other non-anonymous identifier. The assigning authority for an anonymous identifier would be the state/local health department.
ANC	Account number Creditor	Class: Financial A more precise definition of an account number: sometimes two distinct account numbers must be transmitted in the same message, one as the creditor, the other as the debtor.
AND	Account number debtor	Class: Financial A more precise definition of an account number: sometimes two distinct account numbers must be transmitted in the same message, one as the creditor, the other as the debtor.

Value	Description	Comment
ANT	Temporary Account Number	Class: Financial Temporary version of an Account Number. Use Case: An ancillary system that does not normally assign account numbers is the first time to register a patient. This ancillary system will generate a temporary account number that will only be used until an official account number is assigned.
APRN	Advanced Practice Registered Nurse number	An identifier that is unique to an advanced practice registered nurse within the jurisdiction of a certifying board
BA	Bank Account Number	Class: Financial
BC	Bank Card Number	Class: Financial An identifier that is unique to a person's bank card. Replaces AM, DI, DS, MS, and VS beginning in v 2.5.
BR	Birth registry number	
CC	Cost Center number	Class: Financial Use Case: needed especially for transmitting information about invoices.
CY	County number	
DDS	Dentist license number	An identifier that is unique to a dentist within the jurisdiction of the licensing board

Value	Description	Comment
DEA	Drug Enforcement Administration registration number	An identifier for an individual or organization relative to controlled substance regulation and transactions. Use case: This is a registration number that identifies an individual or organization relative to controlled substance regulation and transactions. A DEA number has a very precise and widely accepted meaning within the United States. Surprisingly, the US Drug Enforcement Administration does not solely assign DEA numbers in the United States. Hospitals have the authority to issue DEA numbers to their medical residents. These DEA numbers are based upon the hospital's DEA number, but the authority rests with the hospital on the assignment to the residents. Thus, DEA as an Identifier Type is necessary in addition to DEA as an Assigning Authority.
DFN	Drug Furnishing or prescriptive authority Number	An identifier issued to a health care provider authorizing the person to write drug orders Use Case: A nurse practitioner has authorization to furnish or prescribe pharmaceutical substances; this identifier is in component 1.
DL	Driver's license number	
DN	Doctor number	
DPM	Podiatrist license number	An identifier that is unique to a podiatrist within the jurisdiction of the licensing board.
DO	Osteopathic License number	An identifier that is unique to an osteopath within the jurisdiction of a licensing board.
DR	Donor Registration Number	
EI	Employee number	A number that uniquely identifies an employee to an employer.
EN	Employer number	
FI	Facility ID	
GI	Guarantor internal identifier	Class: Financial
GL	General ledger number	Class: Financial

Value	Description	Comment
GN	Guarantor external identifier	Class: Financial
HC	Health Card Number	
JHN	Jurisdictional health number (Canada)	Class: Insurance 2 uses: a) UK jurisdictional CHI number; b) Canadian provincial health card number:
IND	Indigenous/Aboriginal	A number assigned to a member of an indigenous or aboriginal group outside of Canada.
LI	Labor and industries number	
LN	License number	
LR	Local Registry ID	
MA	Patient Medicaid number	Class: Insurance
MB	Member Number	An identifier for the insured of an insurance policy (this insured always has a subscriber), usually assigned by the insurance carrier. Use Case: Person is covered by an insurance policy. This person may or may not be the subscriber of the policy.
MC	Patient's Medicare number	Class: Insurance
MCD	Practitioner Medicaid number	Class: Insurance
MCN	Microchip Number	
MCR	Practitioner Medicare number	Class: Insurance
MD	Medical License number	An identifier that is unique to a medical doctor within the jurisdiction of a licensing board. Use Case: These license numbers are sometimes used as identifiers. In some states, the same authority issues all three identifiers, e.g., medical, osteopathic, and physician assistant licenses all issued by one state medical board. For this case, the CX data type requires distinct identifier types to accurately interpret component 1. Additionally, the distinction among these license types is critical in most health care settings (this is not to convey full licensing information, which requires a segment to support all related attributes).

Value	Description	Comment
MI	Military ID number	A number assigned to an individual who has had military duty, but is not currently on active duty. The number is assigned by the DOD or Veterans' Affairs (VA).
MR	Medical record number	An identifier that is unique to a patient within a set of medical records, not necessarily unique within an application.
MRT	Temporary Medical Record Number	Temporary version of a Medical Record Number Use Case: An ancillary system that does not normally assign medical record numbers is the first time to register a patient. This ancillary system will generate a temporary medical record number that will only be used until an official medical record number is assigned.
NE	National employer identifier	In the US, the Assigning Authority for this value is typically CMS, but it may be used by all providers and insurance companies in HIPAA related transactions.
NH	National Health Plan Identifier	Class: Insurance Used for the UK NHS national identifier. In the US, the Assigning Authority for this value is typically CMS, but it may be used by all providers and insurance companies in HIPAA related transactions.
NI	National unique individual identifier	Class: Insurance In the US, the Assigning Authority for this value is typically CMS, but it may be used by all providers and insurance companies in HIPAA related transactions.

Value	Description	Comment
NII	National Insurance Organization Identifier	Class: Insurance In Germany a national identifier for an insurance company. It is printed on the insurance card (health card). It is not to be confused with the health card number itself.
NIIP	National Insurance Payor Identifier (Payor)	Class: Insurance Use case: a subdivision issues the card with their identifier, but the main division is going to pay the invoices.
NNxxx	National Person Identifier where the xxx is the ISO table 3166 3-character (alphabetic) country code	
NP	Nurse practitioner number	An identifier that is unique to a nurse practitioner within the jurisdiction of a certifying board.
NPI	National provider identifier	Class: Insurance In the US, the Assigning Authority for this value is typically CMS, but it may be used by all providers and insurance companies in HIPAA related transactions.
OD	Optometrist license number	A number that is unique to an individual optometrist within the jurisdiction of the licensing board.
PA	Physician Assistant number	An identifier that is unique to a physician assistant within the jurisdiction of a licensing board
PCN	Penitentiary/correctional institution Number	A number assigned to individual who is incarcerated.
PE	Living Subject Enterprise Number	An identifier that is unique to a living subject within an enterprise (as identified by the Assigning Authority).
PEN	Pension Number	
PI	Patient internal identifier	A number that is unique to a patient within an Assigning Authority.
PN	Person number	A number that is unique to a living subject within an Assigning Authority.
PNT	Temporary Living Subject Number	Temporary version of a Living Subject Number.

Value	Description	Comment
PPN	Passport number	A unique number assigned to the document affirming that a person is a citizen of the country. In the US this number is issued only by the State Department.
PRC	Permanent Resident Card Number	
PRN	Provider number	A number that is unique to an individual provider, a provider group or an organization within an Assigning Authority. Use case: This allows PRN to represent either an individual (a nurse) or a group/organization (orthopedic surgery team).
PT	Patient external identifier	
QA	QA number	
RI	Resource identifier	A generalized resource identifier. Use Case: An identifier type is needed to accommodate what are commonly known as resources. The resources can include human (e.g. a respiratory therapist), non-human (e.g., a companion animal), inanimate object (e.g., an exam room), organization (e.g., diabetic education class) or any other physical or logical entity.
RPH	Pharmacist license number	An identifier that is unique to a pharmacist within the jurisdiction of the licensing board.
RN	Registered Nurse Number	An identifier that is unique to a registered nurse within the jurisdiction of the licensing board.
RR	Railroad Retirement number	
RRI	Regional registry ID	
SL	State license	

Value	Description	Comment
SN	Subscriber Number	Class: Insurance An identifier for a subscriber of an insurance policy which is unique for, and usually assigned by, the insurance carrier. Use Case: A person is the subscriber of an insurance policy. The person's family may be plan members, but are not the subscriber.
SR	State registry ID	
SS	Social Security number	
TAX	Tax ID number	
U	Unspecified identifier	
UPIN	Medicare/CMS (formerly HCFA)'s Universal Physician Identification numbers	Class: Insurance
VN	Visit number	
WC	WIC identifier	
WCN	Workers' Comp Number	
XX	Organization identifier	

DD. USER-DEFINED TABLE 0204 - ORGANIZATIONAL NAME TYPE

Values suggested by HL7 Use in all XON data types

Value	Description
L	Legal name
D	Display name

EE. HL7-DEFINED TABLE 0207 - PROCESSING MODE

Use in MSH-11

Fields using this code set are expected to be empty. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

FF. USER-DEFINED TABLE 0208 - QUERY RESPONSE STATUS

Values suggested by HL7. Use in QAK-2)

Value	Description
OK	Data found, no errors (this is the default)
NF	No data found, no errors
AE	Application error
AR	Application reject
TM	Too many candidates found

GG. HL7-DEFINED TABLE 0211 - ALTERNATE CHARACTER SETS

Use in MSH-18

Fields using this code set are expected to be empty. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

HH. USER-DEFINED TABLE 0215 - PUBLICITY CODE

Values suggested by CDC. (use in PD1-11)

Value	Description
01	<i>No reminder/recall</i>
02	<i>Reminder/recall - any method</i>
03	<i>Reminder/recall - no calls</i>
04	<i>Reminder only - any method</i>
05	<i>Reminder only - no calls</i>
06	<i>Recall only - any method</i>
07	<i>Recall only - no calls</i>
08	<i>Reminder/recall - to provider</i>
09	<i>Reminder to provider</i>
10	<i>Only reminder to provider, no recall</i>
11	<i>Recall to provider</i>
12	<i>Only recall to provider, no reminder</i>

II. USER-DEFINED TABLE 0220 - LIVING ARRANGEMENT

Fields using this code set are expected to be empty. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

JJ. HL7-DEFINED TABLE 0227 - MANUFACTURERS OF VACCINES (CODE = MVX)

(use in RXA-17) The table below represents the February 2010 version of the MVX code set. The CDC's National Center for Immunization and Respiratory Diseases (NCIRD) maintains the HL7 external code set MVX. <http://www2a.cdc.gov/nip/IIS/IISStandards/vaccines.asp?rpt=mvx>¹⁹

NOTE: The MVX table reflects name changes and changes in corporate status. Where there have been company mergers/acquisitions, the affected old codes have been labeled "inactive. The inactive manufacturer codes are retained to allow manufacturer to be identified for historic immunization records. They should not be used for current immunizations. Inactive codes should not be cross-walked to the code for the current manufacturer.

alphabetized by manufacturer name

MVX CODE	Manufacturer Name	Notes	Status
AB	Abbott Laboratories	includes Ross Products Division, Solvay	Active
ACA	Acambis, Inc	acquired by sanofi in sept 2008	Inactive
AD	Adams Laboratories, Inc.		Active
ALP	Alpha Therapeutic Corporation		Active
AR	Armour	part of CSL	Inactive
AVB	Aventis Behring L.L.C.	part of CSL	Inactive
AVI	Aviron	acquired by Medimmune	Inactive
BA	Baxter Healthcare Corporation- inactive		Inactive
BAH	Baxter Healthcare Corporation	includes Hyland Immuno, Immuno International AG, and North American Vaccine, Inc./acquired some assets from alpha therapeutics	Active
BAY	Bayer Corporation	Bayer Biologicals now owned by Talecris	Inactive
BP	Berna Products		Inactive
BPC	Berna Products Corporation	includes Swiss Serum and Vaccine Institute Berne	Active
BTP	Biotest Pharmaceuticals Corporation	New owner of NABI HB as of December 2007, Does NOT replace NABI Biopharmaceuticals in this code list.	Active
MIP	Emergent BioDefense Operations Lansing	Bioport renamed. Formerly Michigan Biologic Products Institute	Active
CSL	CSL Behring, Inc	CSL Biotherapies renamed to CSL Behring	Active

¹⁹ This link is current as of 2/15/2011.

CNJ	Cangene Corporation		Active
CMP	Celltech Medeva Pharmaceuticals	Part of Novartis	Inactive
CEN	Centeon L.L.C.		Inactive
CHI	Chiron Corporation	Part of Novartis	Inactive
CON	Connaught	acquired by Merieux	Inactive
DVC	DynPort Vaccine Company, LLC		Active
EVN	Evans Medical Limited	Part of Novartis	Inactive
GEO	GeoVax Labs, Inc.		Active
SKB	GlaxoSmithKline	includes SmithKline Beecham and Glaxo Wellcome	Active
GRE	Greer Laboratories, Inc.		Active
IAG	Immuno International AG	Part of Baxter	Inactive
IUS	Immuno-U.S., Inc.		Active
INT	Intercell Biomedical		Active
KGC	Korea Green Cross Corporation		Active
LED	Lederle	became a part of WAL, now owned by Pfizer	Inactive
MBL	Massachusetts Biologic Laboratories	formerly Massachusetts Public Health Biologic Laboratories	Active
MA	Massachusetts Public Health Biologic Laboratories		Inactive
MED	MedImmune, Inc.	acquired U.S. Bioscience in 1999 and Aviron in 2002, integrated with Cambridge Antibody Technology strategic alignment with new parent company, AstraZeneca, in 2007.	Active
MSD	Merck & Co., Inc.		Active
IM	Merieux	Part of sanofi	Inactive
MIL	Miles		Inactive
NAB	NABI	formerly North American Biologicals, Inc.	Active
NYB	New York Blood Center		Active
NAV	North American Vaccine, Inc.	part of Baxter	Inactive
NOV	Novartis Pharmaceutical Corporation	includes Chiron, PowderJect Pharmaceuticals, Celltech Medeva Vaccines and Evans Limited, Ciba-Geigy Limited and Sandoz Limited	Active
NVX	Novavax, Inc.		Active
OTC	Organon Teknika Corporation		Active
ORT	Ortho-clinical Diagnostics	a J & J company (formerly Ortho Diagnostic Systems, Inc.)	Active
PD	Parkedale Pharmaceuticals	no website and no news articles (formerly Parke-Davis)	Inactive

PWJ	PowderJect Pharmaceuticals	See Novartis	Inactive
PRX	Praxis Biologics	became a part of WAL, now owned by Pfizer	Inactive
JPN	The Research Foundation for Microbial Diseases of Osaka University (BIKEN)		Active
PMC	sanofi pasteur	formerly Aventis Pasteur, Pasteur Merieux Connaught; includes Connaught Laboratories and Pasteur Merieux. Acquired ACAMBIS.	Active
SCL	Sclavo, Inc.		Active
SOL	Solvay Pharmaceuticals	Part of Abbott	Inactive
SI	Swiss Serum and Vaccine Inst.	Part of Berna	Inactive
TAL	Talecris Biotherapeutics	includes Bayer Biologicals	Active
USA	United States Army Medical Research and Material Command		Active
VXG	VaxGen	acquired by Emergent Biodefense Operations Lansing, Inc	Inactive
WA	Wyeth-Ayerst	became WAL, now owned by Pfizer	Inactive
WAL	Wyeth	acquired by Pfizer 10/15/2009	Active
ZLB	ZLB Behring	acquired by CSL	Inactive
OTH	Other manufacturer		Active
UNK	Unknown manufacturer		Active
AKR	Akorn, Inc		Active
PFR	Pfizer, Inc	includes Wyeth-Lederle Vaccines and Pediatrics, Wyeth Laboratories, Lederle Laboratories, and Praxis Biologics,	Active
BRR	Barr Laboratories	Subsidiary of Teva Pharmaceuticals	Active

KK. USER-DEFINED TABLE 0288 - CENSUS TRACT

Use in all XAD; including PID-11

Fields using this code set are expected to be empty. For a current list of HL7 values please reference the HL7 version 2.5.1 documents.

LL. USER-DEFINED TABLE 0289 - COUNTY/PARISH

Use in all XAD; including PID-11

A complete list of FIPS 6-4 county codes is available at <http://www.itl.nist.gov/div897/pubs/fip6-4.htm>. According to the FIPS guidance, the 2-letter state code (available at <http://www.itl.nist.gov/div897/pubs/fip5-2.htm>) plus the numeric county code should be used (e.g., AZ001 represents Apache County, Arizona and AL001 represents Autauga County, Alabama).

MM. HL7-DEFINED TABLE 0292 - CODES FOR VACCINES ADMINISTERED (CODE=CVX)

Use in RXA-5

The table below represents the August 2011 version of the CVX code set. New codes are added as needed; therefore, see the most current version of this code set at the website Web site:

<http://www2a.cdc.gov/nip/IIS/IISStandards/vaccines.asp?rpt=cvx>²⁰

The CDC's National Center for Immunization and Respiratory Diseases (NCIRD) maintains the HL7 external code set CVX.

CVX – Vaccines Administered

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
99	RESERVED - do not use	RESERVED - do not use	Code 99 will not be used in this table to avoid confusion with code 999.	Inactive
998	no vaccine administered	no vaccine administered	Code 998 was added for use in VXU HL7 messages where the OBX segment is nested with the RXA segment, but the message does not contain information about a vaccine administration. An example of this use is to report the vaccines due next for a patient when no vaccine administration is being reported.	Inactive
999	unknown	unknown vaccine or immune globulin	This CVX code has little utility and should rarely be used.	Inactive
143	Adenovirus types 4 and 7	Adenovirus, type 4 and type 7, live, oral	This vaccine is administered as 2 tablets.	Active
54	adenovirus, type 4	adenovirus vaccine, type 4, live, oral		Inactive

²⁰ Link is current as of 8/1/2011.

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
55	adenovirus, type 7	adenovirus vaccine, type 7, live, oral		Inactive
82	adenovirus, unspecified formulation	adenovirus vaccine, unspecified formulation	This CVX code is intended to allow reporting of adenovirus vaccinations where the formulation is not known. For example, this may occur if a historic record of an adenovirus vaccination is recorded from a vaccination card.	Inactive
24	anthrax	anthrax vaccine		Active
19	BCG	Bacillus Calmette-Guerin vaccine		Active
27	botulinum antitoxin	botulinum antitoxin		Active
26	cholera	cholera vaccine		Inactive
29	CMVIG	cytomegalovirus immune globulin, intravenous		Active
56	dengue fever	dengue fever vaccine		Never Active
12	diphtheria antitoxin	diphtheria antitoxin		Active
28	DT (pediatric)	diphtheria and tetanus toxoids, adsorbed for pediatric use		Active
20	DTaP	diphtheria, tetanus toxoids and acellular pertussis vaccine		Active
106	DTaP, 5 pertussis antigens	diphtheria, tetanus toxoids and acellular pertussis vaccine, 5 pertussis antigens		Active
107	DTaP, unspecified formulation	diphtheria, tetanus toxoids and acellular pertussis vaccine, unspecified formulation	This CVX code is intended to allow reporting of DTAP vaccinations where the formulation is not known. For example, this may occur if a historic record of an DTAP vaccination is recorded from a vaccination card.	Inactive
110	DTaP-Hep B-IPV	DTaP-hepatitis B and poliovirus vaccine		Active

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
50	DTaP-Hib	DTaP-Haemophilus influenzae type b conjugate vaccine		Active
120	DTaP-Hib-IPV	diphtheria, tetanus toxoids and acellular pertussis vaccine, Haemophilus influenzae type b conjugate, and poliovirus vaccine, inactivated (DTaP-Hib-IPV)		Active
130	DTaP-IPV	Diphtheria, tetanus toxoids and acellular pertussis vaccine, and poliovirus vaccine, inactivated		Active
132	DTaP-IPV-HIB-HEP B, historical	Historical record of vaccine containing <ul style="list-style-type: none"> * diphtheria, tetanus toxoids and acellular pertussis, * poliovirus, inactivated, * Haemophilus influenzae type b conjugate, * Hepatitis B (DTaP-Hib-IPV) 		Inactive
01	DTP	diphtheria, tetanus toxoids and pertussis vaccine		Inactive
22	DTP-Hib	DTP-Haemophilus influenzae type b conjugate vaccine		Inactive
102	DTP-Hib-Hep B	DTP- Haemophilus influenzae type b conjugate and hepatitis b vaccine		Inactive
57	hantavirus	hantavirus vaccine		Never Active
30	HBIG	hepatitis B immune globulin		Active
52	Hep A, adult	hepatitis A vaccine, adult dosage		Active
83	Hep A, ped/adol, 2 dose	hepatitis A vaccine, pediatric/adolescent dosage, 2 dose schedule		Active

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
84	Hep A, ped/adol, 3 dose	hepatitis A vaccine, pediatric/adolescent dosage, 3 dose schedule	This vaccine formulation is inactive and should not be used, except to record historic vaccinations with this formulation.	Inactive
31	Hep A, pediatric, unspecified formulation	hepatitis A vaccine, pediatric dosage, unspecified formulation	Do NOT use this code. If formulation is unknown, use CVX 85. There is only one formulation of Hep A, peds.	Inactive
85	Hep A, unspecified formulation	hepatitis A vaccine, unspecified formulation	This CVX code is intended to allow reporting of Hep A vaccinations where the formulation is not known. For example, this may occur if a historic record of an Hep A vaccination is recorded from a vaccination card.	Inactive
104	Hep A-Hep B	hepatitis A and hepatitis B vaccine		Active
08	Hep B, adolescent or pediatric	hepatitis B vaccine, pediatric or pediatric/adolescent dosage	This code applies to any standard pediatric formulation of Hepatitis B vaccine. It should not be used for the 2-dose hepatitis B schedule for adolescents (11-15 year olds). It requires Merck's Recombivax HB® adult formulation. Use code 43 for that vaccine.	Active
42	Hep B, adolescent/high risk infant	hepatitis B vaccine, adolescent/high risk infant dosage	As of August 27, 1998, Merck ceased distribution of their adolescent/high risk infant hepatitis B vaccine dosage. Code 42 should only be used to record historical records. For current administration of hepatitis B vaccine, pediatric/adolescent dosage, use code 08.	Inactive

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
43	Hep B, adult	hepatitis B vaccine, adult dosage	As of September 1999, a 2-dose hepatitis B schedule for adolescents (11-15 year olds) was FDA approved for Merck's Recombivax HB® adult formulation. Use code 43 for the 2-dose. This code should be used for any use of standard adult formulation of hepatitis B vaccine.	Active
44	Hep B, dialysis	hepatitis B vaccine, dialysis patient dosage		Active
45	Hep B, unspecified formulation	hepatitis B vaccine, unspecified formulation	This CVX code is intended to allow reporting of hepatitis B vaccinations where the formulation is not known. For example, this may occur if a historic record of a Hep B vaccination is recorded from a vaccination card.	Inactive
58	Hep C	hepatitis C vaccine		Never Active
59	Hep E	hepatitis E vaccine		Never Active
60	herpes simplex 2	herpes simplex virus, type 2 vaccine		Never Active
47	Hib (HbOC)	Haemophilus influenzae type b vaccine, HbOC conjugate		Inactive
46	Hib (PRP-D)	Haemophilus influenzae type b vaccine, PRP-D conjugate		Inactive
49	Hib (PRP-OMP)	Haemophilus influenzae type b vaccine, PRP-OMP conjugate		Active
48	Hib (PRP-T)	Haemophilus influenzae type b vaccine, PRP-T conjugate		Active
17	Hib, unspecified formulation	Haemophilus influenzae type b vaccine, conjugate unspecified formulation		Inactive

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
51	Hib-Hep B	Haemophilus influenzae type b conjugate and Hepatitis B vaccine		Active
61	HIV	human immunodeficiency virus vaccine		Never Active
118	HPV, bivalent	human papilloma virus vaccine, bivalent		Active
62	HPV, quadrivalent	human papilloma virus vaccine, quadrivalent		Active
137	HPV, unspecified formulation	HPV, unspecified formulation	This CVX code is intended to allow reporting of HPV vaccinations where the formulation is not known. For example, this may occur if a historic record of an HPV vaccination is recorded from a vaccination card.	Inactive
86	IG	immune globulin, intramuscular		Active
14	IG, unspecified formulation	immune globulin, unspecified formulation		Inactive
87	IGIV	immune globulin, intravenous		Active
123	influenza, H5N1-1203	influenza virus vaccine, H5N1, A/Vietnam/1203/2004 (national stockpile)		Inactive
135	Influenza, high dose seasonal	influenza, high dose seasonal, preservative-free		Active
111	influenza, live, intranasal	influenza virus vaccine, live, attenuated, for intranasal use	Seasonal Influenza	Active
141	Influenza, seasonal, injectable	Influenza, seasonal, injectable	This is one of two codes replacing CVX 15, which is being retired.	Active
140	Influenza, seasonal, injectable, preservative free	Influenza, seasonal, injectable, preservative free	This vaccine code is one of two which replace CVX 15, influenza, split virus.	Active
144	influenza, seasonal, intradermal, preservative free	seasonal influenza, intradermal, preservative free		Active

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
15	influenza, split (incl. purified surface antigen)	influenza virus vaccine, split virus (incl. purified surface antigen)-retired CODE	This code is being retired. It will still be found in older immunization records. It included both preservative free and non-preservative free.	Inactive
88	influenza, unspecified formulation	influenza virus vaccine, unspecified formulation	This CVX code is intended to allow reporting of seasonal flu vaccinations where the formulation is not known. For example, this may occur if a historic record of an seasonal flu vaccination is recorded from a vaccination card.	Inactive
16	influenza, whole	influenza virus vaccine, whole virus		Inactive
10	IPV	poliovirus vaccine, inactivated		Active
134	Japanese Encephalitis IM	Japanese Encephalitis vaccine for intramuscular administration		Active
39	Japanese encephalitis SC	Japanese Encephalitis Vaccine SC		Active
129	Japanese Encephalitis, unspecified formulation	Japanese Encephalitis vaccine, unspecified formulation	This CVX code is intended to allow reporting of JE vaccinations where the formulation is not known. For example, this may occur if a historic record of an JE vaccination is recorded from a vaccination card.	Inactive
63	Junin virus	Junin virus vaccine		Never Active
64	leishmaniasis	leishmaniasis vaccine		Never Active
65	leprosy	leprosy vaccine		Never Active
66	Lyme disease	Lyme disease vaccine		Inactive
04	M/R	measles and rubella virus vaccine		Inactive
67	malaria	malaria vaccine		Never Active

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
05	measles	measles virus vaccine		Inactive
68	melanoma	melanoma vaccine		Never Active
103	meningococcal C conjugate	meningococcal C conjugate vaccine		Inactive
136	Meningococcal MCV4O	meningococcal oligosaccharide (groups A, C, Y and W-135) diphtheria toxoid conjugate vaccine (MCV4O)		Active
114	meningococcal MCV4P	meningococcal polysaccharide (groups A, C, Y and W-135) diphtheria toxoid conjugate vaccine (MCV4P)		Active
32	meningococcal MPSV4	meningococcal polysaccharide vaccine (MPSV4)		Active
108	meningococcal, unspecified formulation	meningococcal vaccine, unspecified formulation	This CVX code is intended to allow reporting of meningococcal vaccinations where the formulation is not known. For example, this may occur if a historic record of meningococcal vaccination is recorded from a vaccination card.	Inactive
03	MMR	measles, mumps and rubella virus vaccine		Active
94	MMRV	measles, mumps, rubella, and varicella virus vaccine		Active
07	mumps	mumps virus vaccine		Active
127	Novel influenza-H1N1-09	Novel influenza-H1N1-09, injectable		Inactive

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
128	Novel Influenza-H1N1-09, all formulations	Novel influenza-H1N1-09, all formulations	This code is used whenever the actual formulation is not determined or when aggregating all Novel H1N1 Influenza-09 immunizations for reporting to CRA. It should not be used for seasonal influenza vaccine that is not otherwise specified. (NOS)	Inactive
125	Novel Influenza-H1N1-09, nasal	Novel Influenza-H1N1-09, live virus for nasal administration		Inactive
126	Novel influenza-H1N1-09, preservative-free	Novel influenza-H1N1-09, preservative-free, injectable		Inactive
02	OPV	poliovirus vaccine, live, oral		Inactive
69	parainfluenza-3	parainfluenza-3 virus vaccine		Inactive
11	pertussis	pertussis vaccine		Inactive
23	plague	plague vaccine		Active
133	Pneumococcal conjugate PCV 13	pneumococcal conjugate vaccine, 13 valent		Active
100	pneumococcal conjugate PCV 7	pneumococcal conjugate vaccine, 7 valent		Active
33	pneumococcal polysaccharide PPV23	pneumococcal polysaccharide vaccine, 23 valent		Active
109	pneumococcal, unspecified formulation	pneumococcal vaccine, unspecified formulation	This CVX code is intended to allow reporting of pneumococcal vaccinations where the formulation is not known. For example, this may occur if a historic record of an pneumococcal vaccination is recorded from a vaccination card.	Inactive
89	polio, unspecified formulation	poliovirus vaccine, unspecified formulation		Inactive
70	Q fever	Q fever vaccine		Never Active

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
40	rabies, intradermal injection	rabies vaccine, for intradermal injection		Active
18	rabies, intramuscular injection	rabies vaccine, for intramuscular injection		Active
90	rabies, unspecified formulation	rabies vaccine, unspecified formulation		Inactive
72	rheumatic fever	rheumatic fever vaccine		Never Active
73	Rift Valley fever	Rift Valley fever vaccine		Never Active
34	RIG	rabies immune globulin		Active
119	rotavirus, monovalent	rotavirus, live, monovalent vaccine		Active
116	rotavirus, pentavalent	rotavirus, live, pentavalent vaccine		Active
74	rotavirus, tetravalent	rotavirus, live, tetravalent vaccine		Inactive
122	rotavirus, unspecified formulation	rotavirus vaccine, unspecified formulation		Inactive
71	RSV-IGIV	respiratory syncytial virus immune globulin, intravenous		Active
93	RSV-MAb	respiratory syncytial virus monoclonal antibody (palivizumab), intramuscular		Active
06	rubella	rubella virus vaccine		Active
38	rubella/mumps	rubella and mumps virus vaccine		Inactive
76	Staphylococcus bacterio lysate	Staphylococcus bacteriophage lysate		Inactive
138	Td (adult)	tetanus and diphtheria toxoids, not adsorbed, for adult use	Note that this Td is not adsorbed.	Active
113	Td (adult) preservative free	tetanus and diphtheria toxoids, adsorbed, preservative free, for adult use		Active
09	Td (adult), adsorbed	tetanus and diphtheria toxoids, adsorbed, for adult use	Note that this vaccine name has changed. See also Td (adult). It is not adsorbed.	Active

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
139	Td(adult) unspecified formulation	Td(adult) unspecified formulation	This CVX code is intended to allow reporting of Td vaccinations where the formulation is not known. For example, this may occur if a historic record of an Td vaccination is recorded from a vaccination card.	Inactive
115	Tdap	tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine, adsorbed		Active
35	tetanus toxoid, adsorbed	tetanus toxoid, adsorbed		Active
142	tetanus toxoid, not adsorbed	tetanus toxoid, not adsorbed		Active
112	tetanus toxoid, unspecified formulation	tetanus toxoid, unspecified formulation		Inactive
77	tick-borne encephalitis	tick-borne encephalitis vaccine		Inactive
13	TIG	tetanus immune globulin		Active
98	TST, unspecified formulation	tuberculin skin test; unspecified formulation	TB Skin test is not vaccine.	Inactive
95	TST-OT tine test	tuberculin skin test; old tuberculin, multipuncture device	TB Skin test is not vaccine.	Inactive
96	TST-PPD intradermal	tuberculin skin test; purified protein derivative solution, intradermal	TB Skin test is not vaccine.	Inactive
97	TST-PPD tine test	tuberculin skin test; purified protein derivative, multipuncture device	TB Skin test is not vaccine.	Inactive
78	tularemia vaccine	tularemia vaccine		Inactive
25	typhoid, oral	typhoid vaccine, live, oral		Active
41	typhoid, parenteral	typhoid vaccine, parenteral, other than acetone-killed, dried		Active
53	typhoid, parenteral, AKD (U.S. military)	typhoid vaccine, parenteral, acetone-killed, dried (U.S. military)		Active
91	typhoid, unspecified formulation	typhoid vaccine, unspecified formulation		Inactive

CVX Code	Short Description	Full Vaccine Name	Note	Vaccine Status
101	typhoid, ViCPs	typhoid Vi capsular polysaccharide vaccine		Active
131	typhus, historical	Historical record of a typhus vaccination		Inactive
75	vaccinia (smallpox)	vaccinia (smallpox) vaccine		Active
105	vaccinia (smallpox) diluted	vaccinia (smallpox) vaccine, diluted		Inactive
79	vaccinia immune globulin	vaccinia immune globulin		Active
21	varicella	varicella virus vaccine		Active
81	VEE, inactivated	Venezuelan equine encephalitis, inactivated		Inactive
80	VEE, live	Venezuelan equine encephalitis, live, attenuated		Inactive
92	VEE, unspecified formulation	Venezuelan equine encephalitis vaccine, unspecified formulation		Inactive
36	VZIG	varicella zoster immune globulin		Active
117	VZIG (IND)	varicella zoster immune globulin (Investigational New Drug)		Inactive
37	yellow fever	yellow fever vaccine		Active
121	zoster	zoster vaccine, live		Active

NN. USER-DEFINED TABLE 0296 - LANGUAGE

ISO 639 shall be used for Language. It is available from PHIN-VADS at:

<http://phinvas.cdc.gov/vads/ViewValueSet.action?id=43D34BBC-617F-DD11-B38D-00188B398520#>

The code used from HL70396 table is ISO6392.

Example codes are found in the table below.

Value	Description
ara	Arabic
arm	Armenian
cat	Catalan; Valencian
chi	Chinese
dan	Danish
eng	English

Value	Description
fre	French
ger	German
hat	Haitian; Haitian Creole
heb	Hebrew
hin	Hindi
hmn	Hmong
jpn	Japanese
kor	Korean
rus	Russian
som	Somali
spa	Spanish; Castilian
vie	Vietnamese

OO. USER-DEFINED TABLE 0297 - CN ID SOURCE

Use in all XCN data types. [locally-defined]

PP. USER-DEFINED TABLE 0300 - NAMESPACE ID

Use in all EI, HD data types
[locally-defined]

See tables 0361-0363 for Application Identifier, Facility Identifier, and Assigning Authority. These tables are more specific than 0300 and are preferred.

QQ. HL7-DEFINED TABLE 0301 - UNIVERSAL ID TYPE

Use in all HD data types

Value	Description
DNS	An Internet dotted name -- either in ASCII or as integers.
GUID	Same as UUID.
HCD	The CEN Healthcare Coding Scheme Designator. (Identifiers used in DICOM follow this assignment scheme.)
HL7	Reserved for future HL7 registration schemes.
ISO	An International Standards Organization Object Identifier.
L,M,N	These are reserved for locally defined coding schemes.
Random	Usually a base64 encoded string of random bits. The uniqueness depends on the length of the bits. Mail systems often generate ASCII string "unique names," from a combination of random bits and system names. Obviously, such identifiers will not be

Value	Description
	constrained to the base64 character set.
UUID	The DCE Universal Unique Identifier.
x400	An X.400 MHS format identifier.
x500	An X.500 directory name.

RR. HL7-DEFINED TABLE 0322 - COMPLETION STATUS

Use in RXA-20

Value	Description
CP	Complete
RE	Refused
NA	Not Administered
PA	Partially Administered

SS. HL7-DEFINED TABLE 0323 - ACTION CODE

Use in RXA-21

Value	Description
A	Add
D	Delete
U	Update

TT. HL7-DEFINED TABLE 0354 - MESSAGE STRUCTURE

Use in MSH-9, third component. [Only selected values listed]

Value	Events
ACK	ACK
QBP_Q11	QBP
RSP_K11	RSP
VXU_V04	VXU

UU. HL7-DEFINED TABLE 0356 - ALTERNATE CHARACTER SET HANDLING SCHEME

Use in MSH-20

Fields using this code set are expected to be empty. For a current list of HL7 values please reference the HL7 version 2.5.1 document

VV.HL7-DEFINED TABLE 0357 - MESSAGE ERROR STATUS CODES

Use in ERR-3

Status code	Status text	Description/Comment
<i>Success</i>		
0	Message accepted	Success. Optional, as the AA conveys this. Used for systems that must always return a status code.
<i>Error status codes</i>		
100	Segment sequence error	The message segments were not in the proper order or required segments are missing.
101	Required field missing	A required field is missing from the segment.
102	Data type error	The field contained data of the wrong data type, e.g., an NM field contained letters of the alphabet.
103	Table value not found	A field of data type ID or IS was compared against the corresponding table, and no match was found.
<i>Rejection status codes</i>		
200	Unsupported message type	The Message type is not supported.
201	Unsupported event code	The Event Code is not supported.
202	Unsupported processing ID	The Processing ID is not supported.
203	Unsupported version ID	The Version ID is not supported.
204	Unknown key identifier	The ID of the patient, order, etc. was not found. Used for transactions <i>other</i> than additions, e.g., transfer of a non-existent patient.
205	Duplicate key identifier	The ID of the patient, order, etc. already exists. Used in response to addition transactions (Admit, New Order, etc.).
206	Application record locked	The transaction could not be performed at the application storage level, e.g., database locked.
207	Application internal error	A catchall for internal errors not explicitly covered by other codes.

WW. USER-DEFINED TABLE 0360 – DEGREE

Selected values suggested by HL7. ; (use in all XPN data types, including PID-5, 6, 9)

Value	Description
PN	Advanced Practice Nurse
AA	Associate of Arts
AS	Associate of Science

Value	Description
BA	Bachelor of Arts
BN	Bachelor of Nursing
BS	Bachelor of Science
<i>BSN</i>	<i>Bachelor of Science in Nursing</i>
CER	Certificate
<i>CANP</i>	<i>Certified Adult Nurse Practitioner</i>
<i>CMA</i>	<i>Certified Medical Assistant</i>
<i>CNP</i>	<i>Certified Nurse Practitioner</i>
<i>CNM</i>	<i>Certified Nurse Midwife</i>
<i>CNA</i>	<i>Certified Nurse's Assistant</i>
<i>CRN</i>	<i>Certified Registered Nurse</i>
<i>CNS</i>	<i>Certified Nurse Specialist</i>
<i>CPNP</i>	<i>Certified Pediatric Nurse Practitioner</i>
DIP	Diploma
PHD	Doctor of Philosophy
MD	Doctor of Medicine
DO	Doctor of Osteopathy
<i>EMT</i>	<i>Emergency Medical Technician</i>
<i>EMT-P</i>	<i>Emergency Medical Technician – Paramedic</i>
<i>FNP</i>	<i>Family Practice Nurse Practitioner</i>
HS	High School Graduate
JD	Juris Doctor
<i>LPN</i>	<i>Licensed Practical Nurse</i>
MA	Master of Arts
MBA	Master of Business Administration
<i>MPH</i>	<i>Master of Public Health</i>
MS	Master of Science
<i>MSN</i>	<i>Master of Science – Nursing</i>
<i>MDA</i>	<i>Medical Assistant</i>
<i>MT</i>	<i>Medical Technician</i>
NG	Non-Graduate
<i>NP</i>	<i>Nurse Practitioner</i>
<i>PharmD</i>	<i>Doctor of Pharmacy</i>
<i>PA</i>	<i>Physician Assistant</i>
<i>PHN</i>	<i>Public Health Nurse</i>
<i>RMA</i>	<i>Registered Medical Assistant</i>
<i>RN</i>	<i>Registered Nurse</i>
<i>RPH</i>	<i>Registered Pharmacist</i>
SEC	Secretarial Certificate
TS	Trade School Graduate

XX. USER-DEFINED TABLE 0361 – APPLICATION

No suggested values defined.

YY. USER-DEFINED TABLE 0362 – FACILITY

No suggested values defined.

ZZ. USER-DEFINED TABLE 0363 – ASSIGNING AUTHORITY

Local implementations will need to add codes to this table to identify local assigning authorities. The values in this table are intended to be used by state and regional immunization programs.

Code	Grantee
AKA	ALASKA
ALA	ALABAMA
ARA	ARKANSAS
ASA	AMERICAN SAMOA
AZA	ARIZONA
BAA	NEW YORK CITY
CAA	CALIFORNIA
CHA	CHICAGO
COA	COLORADO
CTA	CONNECTICUT
DCA	DISTRICT OF COLUMBIA
DEA	DELAWARE
FLA	FLORIDA
FMA	FED STATES MICRO
GAA	GEORGIA
GUA	GUAM
HIA	HAWAII
IAA	IOWA
IDA	IDAHO
ILA	ILLINOIS
INA	INDIANA
KSA	KANSAS
KYA	KENTUCKY
LAA	LOUISIANA
MAA	MASSACHUSETTS
MDA	MARYLAND

Code	Grantee
MEA	MAINE
MHA	REP MARS ISLANDS
MIA	MICHIGAN
MNA	MINNESOTA
MOA	MISSOURI
MPA	NO. MARIANA ISLAND
MSA	MISSISSIPPI
MTA	MONTANA
NCA	NORTH CAROLINA
NDA	NORTH DAKOTA
NEA	NEBRASKA
NHA	NEW HAMPSHIRE
NJA	NEW JERSEY
NMA	NEW MEXICO
NVA	NEVADA
NYA	NEW YORK STATE
OHA	OHIO
OKA	OKLAHOMA
ORA	OREGON
PAA	PENNSYLVANIA
PHA	PHILADELPHIA
PRA	PUERTO RICO
RIA	RHODE ISLAND
RPA	REPUBLIC PALAU
SCA	SOUTH CAROLINA
SDA	SOUTH DAKOTA
TBA	SAN ANTONIO
THA	HOUSTON
TNA	TENNESSEE
TXA	TEXAS
UTA	UTAH
VAA	VIRGINIA
VIA	VIRGIN ISLANDS
VTA	VERMONT
WAA	WASHINGTON
WIA	WISCONSIN
WVA	WEST VIRGINIA
WYA	WYOMING

AAA. USER-DEFINED TABLE 0396 – CODING SYSTEM

[only selected values listed] See Version 2.5.1 Table 0396 for other values. Use in CE data types to denote the coding system used for coded values

Value	Description
99zzz or L	Local general code (where z is an alphanumeric character)
ART	WHO Adverse Reaction Terms
C4	CPT-4
C5	CPT-5
CDCA	CDC Analyte Codes
CDCM	CDC Methods/Instruments Codes
CDCPHINVS	PHIN VS (CDC Local Coding System)
CDS	CDC Surveillance
CPTM	CPT Modifier Code
CST	COSTART
CVX	CDC Vaccine Codes
E	EUCLIDES
E5	Euclides quantity codes
E6	Euclides Lab method codes
E7	Euclides Lab equipment codes
ENZC	Enzyme Codes
HB	HIBCC
HCPCS	HCFA Common Procedure Coding System
HHC	Home Health Care
HL7nnnn	HL7 Defined Codes where nnnn is the HL7 table number
HPC	HCFA Procedure Codes (HCPCS)
I10	ICD-10
I10P	ICD-10 Procedure Codes
I9	ICD9
I9C	ICD-9CM
ISOnnnn	ISO Defined Codes where nnnn is the ISO table number
LB	Local billing code
LN	Logical Observation Identifier Names and Codes (LOINC [®])
MCD	Medicaid
MCR	Medicare
MEDR	Medical Dictionary for Drug Regulatory Affairs (MEDDRA)
MVX	CDC Vaccine Manufacturer Codes
NDC	National drug codes
NCIT	NCI Thesaurus
NPI	National Provider Identifier
SNM	Systemized Nomenclature of Medicine (SNOMED [®])
SCT	SNOMED Clinical Terminology
SCT2	SNOMED Clinical Terms alphanumeric codes
SNM3	SNOMED International
SNT	SNOMED topology codes (anatomic sites)
UML	Unified Medical Language
UPC	Universal Product Code

Value	Description
UPIN	UPIN
W1	WHO record # drug codes (6 digit)
W2	WHO record # drug codes (8 digit)
W4	WHO record # code with ASTM extension
WC	WHO ATC

BBB. USER-DEFINED TABLE 0441 - IMMUNIZATION REGISTRY STATUS

Use in PD1-16.

Value	Description
A	Active
I	Inactive--Unspecified
L	Inactive-Lost to follow-up (cannot contact)
M	Inactive-Moved or gone elsewhere (transferred)
P	Inactive-Permanently inactive (do not re-activate or add new entries to this record)
U	Unknown

The code O (Other) has been removed, do not use

CCC.USER-DEFINED TABLE 0471 – QUERY NAME

Value	Description
Z34	Request Immunization History

DDD. HL7 TABLE 0516 - ERROR SEVERITY (USE IN ERR-4)

Value	Description	Comment
W	Warning	Transaction successful, but there may be issues. These may include non-fatal errors with potential for loss of data.
I	Information	Transaction successful, but includes returned information.
E	Error	Transaction was not successful.

EEE. USER-DEFINED TABLE 0533 – APPLICATION ERROR CODE

There are no suggested values for this code. Local implementations need to create a table of local application error codes.

FFF. CDC-DEFINED NIP001 - IMMUNIZATION INFORMATION SOURCE

Use in RXA-9

Value	Description
00	New immunization record
01	Historical information - source unspecified
02	Historical information - from other provider
03	Historical information - from parent's written record
04	Historical information - from parent's recall
05	Historical information - from other registry
06	Historical information - from birth certificate
07	Historical information - from school record
08	Historical information - from public agency

GGG. CDC-DEFINED NIP002 - SUBSTANCE REFUSAL REASON

Use in RXA-18

Value	Description
00	Parental decision
01	Religious exemption
02	Other (must add text component of the CE field with description)
03	Patient decision

HHH. CDC-DEFINED NIP003 - OBSERVATION IDENTIFIERS

Use in OBX-3)²¹

LOINC® Code ²²	Description	Corresponding data type (indicate in OBX-2)	Corresponding observation value EXAMPLE OR code table to use (value in OBX-5)
Vaccine Funding Program Eligibility Category —Use in OBX-3 to indicate that OBX-5 will contain the funding program eligibility category for a given immunization.			
64994-7	Vaccine funding program eligibility category	(CE)	HL70064
Vaccine Type Identifier			
30956-7	Vaccine Type (Vaccine group or family)	(CE)	HL70292 (CVX codes – use the codes described as “unspecified formulation” as needed.)
38890-0	Component Vaccine Type	(CE)	HL70292 (CVX codes – use the codes described as “unspecified formulation” as needed.)
Contraindications, Precautions, Indications and Immunities			

²¹ All VAERS-only items removed.

²² This material contains content from LOINC® (<http://loinc.org>). The LOINC table and LOINC codes are copyright © 1995-2010, Regenstrief Institute, Inc. and the Logical Observation Identifiers Names and Codes (LOINC) Committee.

LOINC® Code ²²	Description	Corresponding data type (indicate in OBX-2)	Corresponding observation value <i>EXAMPLE</i> OR code table to use (value in OBX-5)
30946-8	Vaccination contraindication/precaution effective date	(DT)	19970522
30944-3	Vaccination temporary contraindication/precaution expiration date	(DT)	19990523
30945-0	Vaccination contraindication/precaution	(CE)	Value Set OID - 2.16.840.1.114222.4.11.3288 Value Set Code:: PHVS_VaccinationContraindication_IIS
31044-1	Reaction	(CE)	Value Set OID - 2.16.840.1.114222.4.11.3289 Value Set Code:: PHVS_VaccinationReaction_IIS
59784-9	Disease with presumed immunity	(CE)	Value Set OID - 2.16.840.1.114222.4.11.3293 Value Set Code:: PHVS_EvidenceOfImmunity_IIS
59785-6	Indications to immunize	(CE)	Value Set OID - 2.16.840.1.114222.4.11.3290 Value Set Code:: PHVS_VaccinationSpecialIndications_IIS
Vaccine Information Statement (VIS) Dates			
29768-9	Date Vaccine Information Statement Published	(TS)	19900605
29769-7	Date Vaccine Information Statement Presented	(TS)	199307311615
Forecasting and Evaluating Immunizations			

LOINC® Code ²²	Description	Corresponding data type (indicate in OBX-2)	Corresponding observation value <i>EXAMPLE</i> OR code table to use (value in OBX-5)
30973-2	30973-2 -- Dose number in series	(NM)	2
30979-9	Vaccines due next	(CE)	HL70292 (CVX)
30980-7	30980-7 – Date vaccine due	(TS)	19980526
30981-5	30981-5 – Earliest date to give	(TS)	19980522
30982-3	30982-3 – Reason applied by forecast logic to project this vaccine	(CE) or (ST)	Codes for forecast logic reason locally defined.
59779-9	Immunization Schedule used	CE	Value Set OID - 2.16.840.1.114222.4.11.3291 Value Set Code:: PHVS_ImmunizationScheduleIdentifier_IIS
59780-7	Immunization Series name	CE	Locally Defined
59782-3	Number of doses in primary series	NM	2
59781-5	Dose validity	ID	Y, N or empty
59783-1	Status in immunization series	CE	Locally defined value set
Smallpox Take Read: These codes allow information about assessment of a smallpox vaccination, called the take response.			
46249-9	VACCINATION TAKE-RESPONSE TYPE	(ST)	Major Take, Equivocal, Not Available
46250-7	VACCINATION TAKE-RESPONSE DATE	(TS)	20091221

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The following CDC defined tables are not included in this Guide. They support VAERS reporting, which not within the scope of this Guide.

- **NIP 005 – Event Consequences**
- **NIP 007 – Vaccinated at Location**
- **NIP 008 – Vaccine purchased with Funds**
- **NIP 009 – Adverse event previously reported**
- **NIP 010 – Report type**

The following value sets replace a number of CDC defined tables. These have been registered in the CDC local value set, CDCPHINVS. Where appropriate, existing codes are used. For example SNOMED codes are used for some contraindications. Local codes (VXCxx) will be replaced as new SNOMED codes are published.

III.CDC-DEFINED NIP004 - CONTRAINDICATIONS, PRECAUTIONS, AND IMMUNITIES

This table has been replaced by separate tables for contraindications, indications, reactions and immunities

JJJ. VALUE SET NAME – VACCINATION CONTRAINDICATIONS

Used in OBX- 5

Value Set OID - 2.16.840.1.114222.4.11.3288

Value Set Code:: PHVS_VaccinationContraindication_IIS

Value set definition: indicates a contraindication to vaccination.

Code Set OID:

SNOMED: 2.16.840.1.113883.6.96

CDCPHINVS: 2.16.840.1.114222.4.5.274

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value NIP004
VXC30	allergy (anaphylactic) to proteins of rodent or neural origin	allergy (anaphylactic) to proteins of rodent or neural origin	CDCPHINVS	
VXC17	allergy (anaphylactic) to 2-phenoxyethanol	allergy (anaphylactic) to 2-phenoxyethanol	CDCPHINVS	
VXC18	allergy to baker's yeast (anaphylactic)	allergy to baker's yeast (anaphylactic)	CDCPHINVS	03
91930004	Allergy to eggs (disorder)	allergy to egg ingestion (anaphylactic)	SCT	04
294847001	Gelatin allergy (disorder)	allergy to gelatin (anaphylactic)	SCT	05
294468006	Neomycin allergy (disorder)	allergy to neomycin (anaphylactic)	SCT	06

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value NIP004
294466005	Streptomycin allergy (disorder)	allergy to streptomycin (anaphylactic)	SCT	07
VXC19	allergy to thimerosal (anaphylactic)	allergy to thimerosal (anaphylactic)	CDCPHINVS	08
VXC20	allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)	allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)	CDCPHINVS	09
402306009	Allergy to aluminum (disorder)	allergy (anaphylactic) to alum	SCT	
300916003	Latex allergy (disorder)	allergy (anaphylactic) to latex	SCT	
294530006	Polymyxin B allergy (disorder)	allergy (anaphylactic) to polymycin B	SCT	
VXC21	Previous history of intussusception	Previous history of intussusception	CDCPHINVS	
VXC22	encephalopathy within 7 days of previous dose of DTP or DTaP	encephalopathy within 7 days of previous dose of DTP or DTaP	CDCPHINVS	15
VXC23	current fever with moderate-to-severe illness	current fever with moderate-to-severe illness	CDCPHINVS	16
VXC24	current acute illness, moderate to severe (with or without fever) (e.g., diarrhea, otitis media, vomiting)	current acute illness, moderate to severe (with or without fever) (e.g., diarrhea, otitis media, vomiting)	CDCPHINVS	21
27624003	Chronic disease (disorder)	chronic illness (e.g., chronic gastrointestinal disease)	SCT	22

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value NIP004
VXC25	History of Arthus hypersensitivity reaction to a tetanus-containing vaccine administered < 10 yrs previously	History of Arthus hypersensitivity reaction to a tetanus-containing vaccine administered < 10 yrs previously	CDCPHINVS	
VXC26	underlying unstable, evolving neurologic disorders, (including seizure disorders, cerebral palsy, and developmental delay)	underlying unstable, evolving neurologic disorders, (including seizure disorders, cerebral palsy, and developmental delay)	CDCPHINVS	37
VXC27	immunodeficiency due to any cause, including HIV (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppressive therapy, including steroids)	immunodeficiency due to any cause, including HIV (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppressive therapy, including steroids)	CDCPHINVS	36
77386006	Patient currently pregnant (finding)	pregnancy (in recipient)	SCT	39
302215000	Thrombocytopenic disorder (disorder)	thrombocytopenia	SCT	40
161461006	History of - purpura (situation)	thrombocytopenic purpura (history)	SCT	41

Examples:

|VXC18^allergy to bakers yeast^CDCPHINVS|

|77386006^patient currently pregnant^SCT|

KKK. VALUE SET NAME – VACCINATION REACTION - IIS

Used in OBX- 5

Value Set OID - 2.16.840.1.114222.4.11.3289

Value Set Code:: PHVS_VaccinationReaction_IIS

Value set definition: indicates a reaction or adverse event associate in time with an immunization.

Code Set OID:

SNOMED: 2.16.840.1.113883.6.96

CDCPHINVS: 2.16.840.1.114222.4.5.274

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value NIP004
39579001	Anaphylaxis (disorder)	Anaphylaxis	SCT	
81308009	Disorder of brain (disorder)	Encephalopathy	SCT	
VXC9	persistent, inconsolable crying lasting > 3 hours within 48 hours of dose	persistent, inconsolable crying lasting > 3 hours within 48 hours of dose	CDCPHINVS	
VXC10	collapse or shock-like state within 48 hours of dose	collapse or shock-like state within 48 hours of dose	CDCPHINVS	
VXC11	convulsions (fits, seizures) within 72 hours of dose	convulsions (fits, seizures) within 72 hours of dose	CDCPHINVS	
VXC12	fever of >40.5C (105F) within 48 hours of dose	fever of >40.5C (105F) within 48 hours of dose	CDCPHINVS	
VXC13	Guillain-Barre syndrome (GBS) within 6 weeks of dose	Guillain-Barre syndrome (GBS) within 6 weeks of dose	CDCPHINVS	
VXC14	Rash within 14 days of dose	Rash within 14 days of dose	CDCPHINVS	
VXC15	Intussusception within 30 days of dose	Intussusception within 30 days of dose	CDCPHINVS	

Examples:

|39579001^anaphylaxis^SCT|

|VXC14^Rash within 14 days^CDCPHINVS|

LLL. VALUE SET NAME – VACCINATION SPECIAL INDICATIONS - IIS

Used in OBX- 5

Value Set OID - 2.16.840.1.114222.4.11.3290

Value Set Code:: PHVS_VaccinationSpecialIndications_IIS

Value set definition: Describes a factor about the client which may impact forecasting of next dose of vaccine needed.

Code Set OID:

CDCPHINVS: 2.16.840.1.114222.4.5.274

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value
VXC7	Rabies exposure within previous 10 days.	Rabies exposure within previous 10 days.	CDCPHINVS	
VXC8	Member of special group	Member of special group	CDCPHINVS	

Example:

|VXC7^Rabies exposure^CDCPHINVS|

MMM.VALUE SET NAME – IMMUNIZATION PROFILE IDENTIFIERS - IIS

Used in MSH-21

Value Set OID - 2.16.840.1.114222.4.11.3291

Value Set Code:: PHVS_ImmunizationProfileIdentifier_IIS

Value set definition: Identifies the profile used by the message.

Code Set OID:

CDCPHINVS: 2.16.840.1.114222.4.5.274

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value
Z31	Return Candidate Clients	Return Candidate Clients	CDCPHINVS	

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value
Z32	Return Immunization History	Return Immunization History	CDCPHINVS	
Z34	Request Immunization History	Request Immunization History	CDCPHINVS	

Example:

[Z34^ CDCPHINVS]

NNN. VALUE SET NAME – IMMUNIZATION SCHEDULE IDENTIFIERS - IIS

Used in OBX-5

Value Set OID - 2.16.840.1.114222.4.11.3292

Value Set Code:: PHVS_ImmunizationScheduleIdentifier_IIS

Value set definition: Identifies the schedule used for immunization assessment and forecast.

Code Set OID:

CDCPHINVS: 2.16.840.1.114222.4.5.274

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value
VXC16	ACIP Schedule	This indicates that the current ACIP Schedule of recommendations were used to forecast next doses due.	CDCPHINVS	

Example:

[VXC16^ACIP Schedule^CDCPHINVS]

Local Implementations may add local codes for local schedules. In order to do this, the local implementation guide should publish the code in a local table. The code system identifier (CDCPHINVS use above is an example) needs to be included in a local copy of Table 0396. See first row for example. The local schedule code should be recorded as follows:

[yourLocalcode^your schedule name here^99xxx]

The 99xxx is the local code table identifier. xxx are alpha characters.

OOO. VALUE SET NAME – EVIDENCE OF IMMUNITY - IIS

Used in OBX- 5

Value Set OID - 2.16.840.1.114222.4.11.3293

Value Set Code:: PHVS_EvidenceOfImmunity_IIS

Value set definition: Evidence of immunity indicates that a person has plausible evidence that they have already developed immunity to a particular disease. The definition of plausible evidence is a local decision, but best practice would suggest that serological evidence of immunity is the strongest indicator of immunity.

Code Set OID:

SNOMED: 2.16.840.1.113883.6.96

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value NIP004
409498004	Anthrax (disorder)	History of anthrax infection.	SCT	
397428000	Diphtheria (disorder)	History of diphtheria infection.	SCT	24
76902006	Tetanus (disorder)	History of tetanus infection.	SCT	32
27836007	Pertussis (disorder)	History of pertussis infection.	SCT	29
40468003	Viral hepatitis, type A (disorder)	History of Hepatitis A infection.	SCT	
66071002	Type B viral hepatitis (disorder)	History of Hepatitis B infection.	SCT	26
91428005	Haemophilus influenzae infection (disorder)	History of HIB infection.	SCT	25
240532009	Human papilloma virus infection (disorder)	History of HPV infection.	SCT	
6142004	Influenza (disorder)	History of influenza infection.	SCT	
52947006	Japanese encephalitis virus disease (disorder)	History of Japanese encephalitis infection.	SCT	

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value NIP004
14189004	Measles (disorder)	History of measles infection.	SCT	27
36989005	Mumps (disorder)	History of mumps infection.	SCT	28
36653000	Rubella (disorder)	History of rubella infection.	SCT	31
23511006	Meningococcal infectious disease (disorder)	History of meningococcal infection.	SCT	
16814004	Pneumococcal infectious disease (disorder)	History of pneumococcal infection.	SCT	
398102009	Acute poliomyelitis (disorder)	History of polio infection.	SCT	30
14168008	Rabies (disorder)	History of rabies infection.	SCT	
18624000	Disease due to Rotavirus (disorder)	History of rotavirus infection.	SCT	
4834000	Typhoid fever (disorder)	History of typhoid infection.	SCT	
111852003	Vaccinia (disorder)	History of vaccinia infection.	SCT	
38907003	Varicella (disorder)	History of Varicella infection.	SCT	
16541001	Yellow fever (disorder)	History of yellow fever infection.	SCT	
271511000	Hepatitis B immune (finding)	Immunity to hepatitis B	SCT	

Examples:

|38907003^Varicella infection^SCT

VI. CHAPTER 6 – EXAMPLES

A. SEND REQUEST FOR VACCINE HISTORY (QBP/RSP)

1. Process for requesting Immunization History

Requesting an immunization history is a key function supported by messaging. A complete immunization history includes all the information needed for evaluating what immunizations have been received and what ones are needed next. The requesting system sends a request with some combination of demographic and identifier information.

This Guide and Appendix does NOT prescribe the search methods, so these should be described in a local profile or implementation guide.

In addition, this guide does not define the meaning of exact matches. This needs to be specified locally.

2. Using QBP to request an immunization history

A Request Immunization History query (QBP^Q11^QBP_Q11) is sent. It has an MSH-21, profile id of Z34^CDCPHINVS. A Return Immunization History response is returned (profile id of Z32^CDCPHINVS). The following diagram illustrates the process of requesting and returning a response. Note that for this Implementation Guide if a search finds more than one person, it is treated as if no match is found.

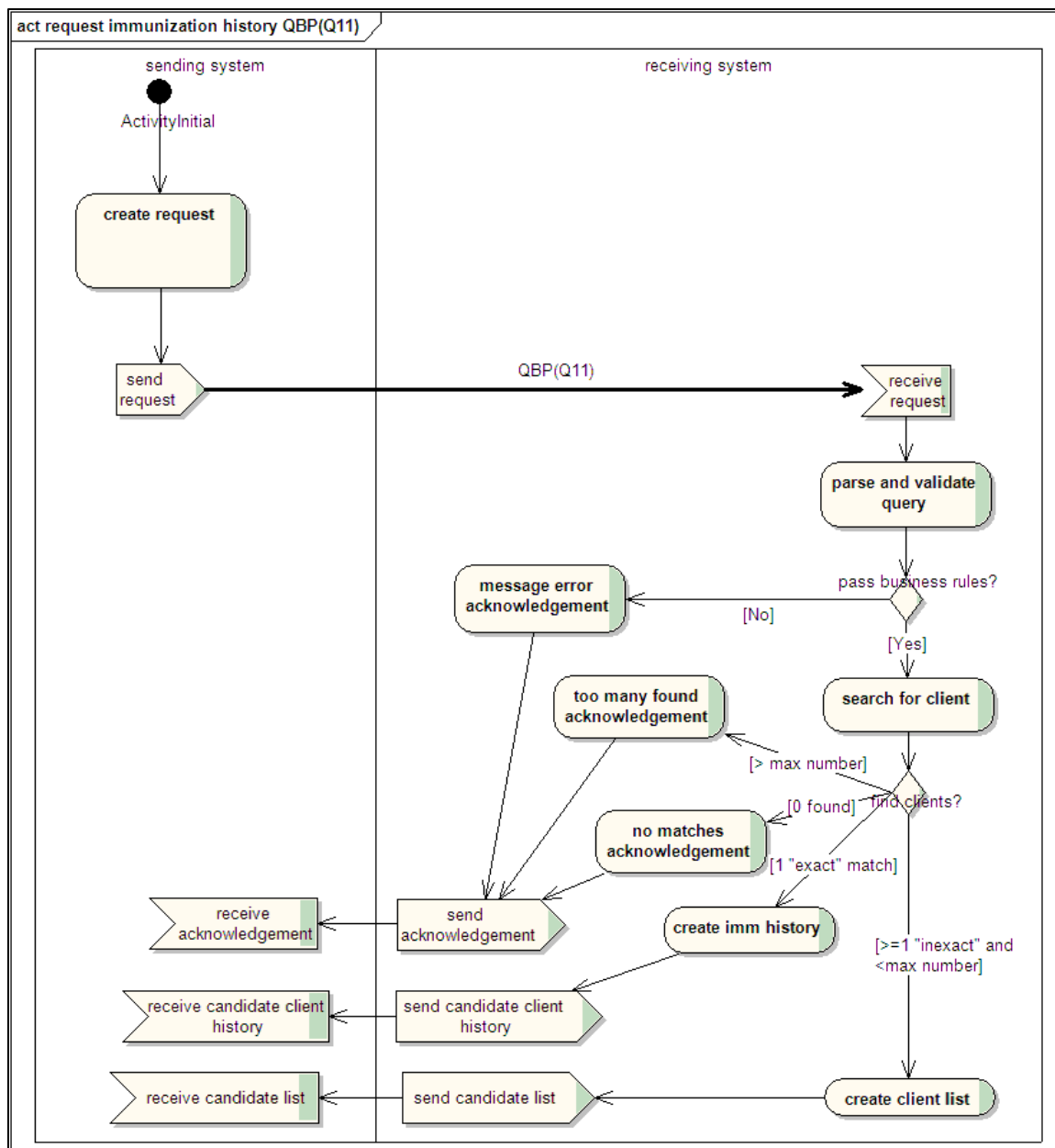


Figure 6--Request Immunization History

1. The process for sending a query requesting an Immunization history begins with the sending system building the message.
2. The sending system connects to the receiving system and sends the query message.
3. The receiving system accepts the message.
4. The receiving system parses the message and validates.
 - a. Determine if message meets HL7 rules
 - b. Validate based on local business rules

5. Seek matching client in receiver data base²³
 - a. No match is found or some inexact matches are found
 - b. Exactly one match is found.
 - c. One or more clients are found, but they do not want their records shared.
6. The receiving system responds (see below).

When a client is does not want his/her data shared and is found, local business rules need to be applied. For instance, some applications may behave as if the client record does not exist in the system. That is, it would respond with a “no records found” message. The exception to this would be if the requesting provider were the one who set the protection indicator. In this case, the person may be a candidate that is returned. Another response might be to send limited information notifying the requesting system that the person exists, but wants his/her records protected.

The sending system must deal with the returned messages. While it is outside the scope of this implementation guide, there are some logical actions. These actions should be documented locally. The following indicate some of the possibilities. The list is neither prescriptive nor complete.

- One candidate immunization history is returned.
 - User reviews and accepts
 - User reviews and rejects
 - Requesting system accepts and marks for review.

The following is an example query using the QBP^Q11 query profile specified in the Implementation Guide.

```
MSH|^~\&|||QBP^Q11^QBP_Q11|793543|P|2.5.1|||Z34^CDCPHINVS <CR>
```

```
QPD| Z34^Request Immunization History^CDCPHINVS
|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy^^^^M|20050512|M|10 East
Main St^^Myfaircity^GA^^^L<CR>
```

```
RCP|||1^RD^HL70126|R^real-time^HL70394<CR>
```

This query is being sent from a system with a name space identifier of MYEHR. It is requesting an immunization history for a person named Bobbie Q Child. His mother’s maiden name was Suzy Que. He was born 5/12/2005 and lives at 10 East Main St, Myfaircity, Georgia. His medical record number with MYEHR is 12345. The most records that the requesting system wants returned if lower confidence candidates are returned is 1. Processing is expected to be “immediate”.

²³ Each case will be detailed below. Note that this is an area that should clearly be documented by each system in a local profile or implementation guide.

Local implementations will specify which fields are required in the QPD. All fields have a usage of RE (required, but may be empty). This means that sending systems may populate any or all of these fields. Receiving systems must accept values in any of these fields, but may specify which are required and which will be ignored.

3. *Returning an immunization history in response to a Request for Immunization History query*

When the Request Immunization History query finds one high-confidence match, the matching client's immunization history is returned in the response. The following example message shows a simple response.

```
MSH||MYIIS|MyStateIIS||MYEHR|20091130||RSP^K11^RSP_K11|7731029|P|2.5.1|||||||Z32^CDC
PHINVS<CR>
```

```
MSA|AA|793543<CR>
```

```
QAK|37374859|OK| Z34^Request Immunization History^CDCPHINVS <CR>
```

```
QPD| Z34^Request Immunization History^CDCPHINVS
|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy^^^^M|20050512|M|10 East
Main St^^Myfaircity^GA^^^^L<CR>
```

```
PID|1||123456^^^MYEHR^MR||Child^Robert^Quenton^^^^L|Que^Suzy^^^^M||||10 East Main
St^^Myfaircity^GA<CR>
```

```
PD1|||||||||N|20091130<CR>
```

```
NK1|1|Child^Suzy^^^^L|MTH^Mother^HL70063<CR>
```

```
PV1||R|||||||||V03^20091130<CR>
```

```
ORC|RE||142324567^YOUR_EHR|||||^Shotgiver^Fred||^Orderwriter^Sally^^^^^^^^^^^^^^^^M
D<CR>
```

```
RXA|0|1|20050725||03^MMR^HL70292|0.5|ML^ISO+||^New Immunization Record^NIP001<CR>
```

```
RXR|SC^^HL70162<CR>
```

Note that the response returned the medical record number from the MYEHR system. It could also have returned the IIS id. This is a policy decision set locally.

4. *Acknowledging a Query that finds no candidate clients*

A well-formed query may find no matching candidates. This is not an error, but should be acknowledged in a response message. The following example message shows how this may be done. Note that the

Malformed Query:

Initiating Query:

```
MSH|^~\&|||||QBP^Q11^QBP_Q11|793543|P|2.5.1|||||||Z34^CDCPHINVS.<CR>
```

```
QPD|Z34^Request Immunization
```

```
History^CDCPHINVS||123456^^^MYEHR^MR|Child^Bobbie^Q^^^L|Que^Suzy^^^M|20050512|M|
10 East Main St^^Myfaircity^GA^^L<CR>
```

Note that only the MSH and QPD segments will be displayed above. The QPD does not have data in a required field, the Query Tag field (QPD-2).

```
MSH|^~\&|MYIIS|MyStateIIS||MYEHR|20091130||RSP^K11^RSP_K11|7731029|P|2.5.1|||||||
Z34^Request Immunization History^CDCPHINVS<CR>
```

```
MSA|AE|7731029<CR>
```

```
ERR||QPD^1^2|101^required field missing^HL70357|E<CR>
```

```
QAK||AE|Z34^request Immunization history^CDCPHINVS<CR>
```

```
QPD|Z34^Request Immunization History^CDCPHINVS
```

```
||123456^^^MYEHR^MR|Child^Bobbie^Q^^^L|Que^Suzy^^^M|20050512|M|10 East Main
St^^Myfaircity^GA^^L<CR>
```

Note that QAK-1 Query tag is empty in this case, because it was missing in the initiating query.

Malformed message

When a malformed message is received, the response is an ACK with AR in the MSA-1 (Acknowledgement Code)

```
MSH|^~\&|MYIIS|MyStateIIS||MYEHR|20091130||ACK||P<CR>
```

```
MSA|AR|<CR>
```

This message indicates that the application rejected the message.

Receiving System Business Rule Errors

Fatal Error:

Date sent in a required field is not legitimate (February 30, 2009)

Non-fatal error:

No Match Is Found

If no match is found, then the receiving system sends a response that indicates that the message was accepted and found no data. Note that this might occur if one client was found, but does not want his/her data shared with a different provider.

MSH|^~\&|MYIIS|MyStateIIS||MYEHR|20091130||RSP^K11^RSP_K11|7731029|P|2.5.1|||||||
MSA|AA|7731029<CR>

QAK|37374859|NF|Z34^request Immunization history^PHINVS<CR>

QPD|Z34^Request Immunization
History^HL70471|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^L|Que^Suzy^^^M|200505
12|M|10 East Main St^^Myfaircity^GA^^L<CR