Maryland IMMUNET System

HL7 – 2.5.1 Release 1.5 Transfer Specification

Application Version 10.0.0

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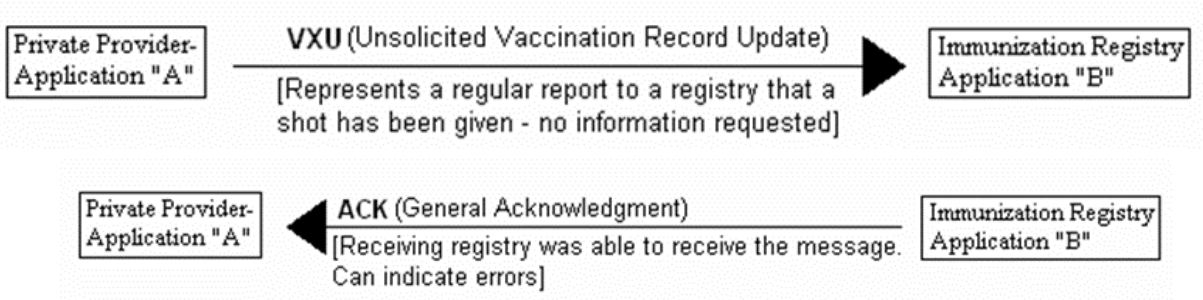
HL7 – 2.5.1 Batch & Real-time Transfer Specification

Introduction

The Maryland IMMUNET system has made available an interactive user interface on the World Wide Web for authorized Maryland users to enter, query, and update patient immunization records. The Web interface makes IMMUNET information and functions available on desktops around the state. However, some immunization providers already store and process similar data in their own information systems and may wish to keep using those systems while also participating in the statewide central repository. Others may have different billing needs and may decide they don't want to enter data into two diverse systems. IMMUNET has been enhanced to accept HL7 Version 2.5.1 release 1.5 for batch loads to submit patient and immunization information to IMMUNET.

Note: For instructions on how to do data exchange with IMMUNET, please reference Chapter 13 of the User Manual.



The Health Level Seven (HL7) Standard

The ANSI HL7 standard is widely used for data exchange in the health care industry. The full standard is quite lengthy, covering a variety of situations in patient care and health care finance and no single application is likely to use all of its content. The CDC has worked with Immunization Information Systems (IIS's) to create a set of HL7 messages that permit exchange of immunization data. This document covers the subset of HL7 that will be used for patient and immunization records exchanged between IMMUNET and outside systems.

- The basic unit transmitted in an HL7 implementation is the **message**.
- Messages are made up of several **segments**, each of which is one line of text, beginning with a three-letter code identifying the segment type.
- Segments are in turn made up of several **fields** separated by a delimiter character. Delimiters can be defined by the user in MSH-2. The recommend delimiters for immunization messages are <CR>=Segment terminator;, "|" = Field Separator, '^' =Component Separator; '&' = Sub-Component Separator; '~' Repetition Separator; and '\' = Escape Character. (See them bolded in example below.)

```
MSH|^~\&|SENDING APPLICATION NAME|036^036|IMMUNET|MD DOH|19991005032342-
400||VXU^V04^VXU_V04|682299|P^|2.5.1^^|||ER|AL|||||Z22^CDCPHINVS|036|MDDOH|
PID|||79928^^^MDA^PI|A5SMIT0071^^^^^|SMITH^MARY^T^^^^^|JOHNSON^^^^^^M^|19951212|F||||
ORC|RE||1^DCS|||||||||||||||||||||||||
RXA|0|999|19970903|19970903|^^^90701^DTP^CPT|0.5|||||||||||||CP|A|
```

The details of how HL7 messages are put together, for IMMUNET purposes, will be explained later in this document. The example above shows the essentials of what a message looks like. In this example, a message is being sent on behalf of '036' with a provider organization id of '036' to IMMUNET. The message consists of three segments. NOTE: '36' may or may not be the actual transmitter of the message. The transmitter of the message will be identified by IMMUNET from log-in information and not from an HL7 message.

- The Message Header segment (**MSH**) identifies the owner (**036**) of the information being sent and the receiver (**IMMUNET**). It also identifies the message as being of type Z22(**VXU).** The Z22(VXU) is an Unsolicited Vaccination Record Update, which is one of the message types defined by HL7.
- The Patient Identification segment (**PID**) gives the patient's name (MARY T SMITH), birth date (19951212, in YYYYMMDD format), and other identifying fields.
- The Common Order segment (ORC) tells that the filter order number is 1, the unique identifier from sending system DCS.

- The Pharmacy Administration segment (**RXA**) tells that a DTP vaccine, with CPT code 90701, was administered on September 3, 1997 (formatted as 19970903). Many fields are optional and this example may have more information included in it. Some segments can be repeated within a single message. In this example, the message could have included a second RXA segment to record another immunization given.

Note*: While not all immunization messages are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.

HL7 does not specify how messages are transmitted. It is flexible enough to be used for both real-time interaction and large batches. The standard defines file header and file trailer segments that are used when a number of messages are gathered into a batch for transmission as a file. IMMUNET will use batch files of messages to communicate with outside systems.

Scope of This Document

The General Transfer Specification (GTS) documented here supports exchange of data between the IMMUNET repository and outside systems. This allows both the patient and immunization records to be available in both systems, so as to avoid the need to enter data twice. The remainder of this document specifies how HL7 file messages are constructed for the purposes of IMMUNET. This document covers only a small subset of the very extensive HL7 standard utilized by the IMMUNET system. Files of messages constructed from the guidelines in this document will fall within the HL7 standard, but there is a wide variety of other possible HL7 messages that are outside the scope of this document.

References

- See Version 2.5.1 of the Health Level 7 standard for a full description of all messages, segments, and fields. Information regarding HL7 is at www.hl7.org.
- The National Immunization Program within the Center for Disease Control (www.cdc.gov/nip) has published an Implementation Guide for Immunization Data with the purpose of keeping the use of HL7 for immunization data as uniform as possible. IMMUNET follows the HL7 message set by adhering to the CDC's National Immunization Program's Release 1.5 – HL7 Version 2.5.1 Implementation Guide for Immunization Messaging

HL7 Message Types Used in IMMUNET Transmissions

IMMUNET uses these message types: ADT, Z22(VXU), Z23(ACK), Z34(QBP), Z32(RSP), Z44(QBP), Z42(RSP), Z31(RSP) and Z33(RSP).

The ADT is used for sending out client data without any immunizations. IMMUNET will NOT accept an ADT message (unsolicited demographic update) for a new client.
The Z22(VXU) is used for sending client data and immunizations.
The Z23(ACK) is used to acknowledge to the sender that a message has been received.
The Z34(QBP) is used to query for a client's demographic, complete immunization history.
The Z32(RSP) is a one(exact) match for the Z34(QBP), that returns a client's complete demographics and a complete immunization history.
The Z44(QBP) is used to query for a client's partial demographics(No PD1 or NK1 segments are returned). Also an Evaluated Immunization History and a Forecast are returned.
The Z42(RSP) is a one(exact) match for the Z44(QBP), that returns client's partial demographics(No PD1 or NK1 segments are returned). Also an Evaluated Immunization History and a Forecast.
The Z31(RSP), is returned, if multiple client matches have been found by the Z34(QBP) or Z44(QBP).
The Z33(RSP), is returned, if no client matches have been found by the Z34(QBP) or Z44(QBP).

The tables below show the segments that are used to construct each message type. Each segment is one line of text ending with the carriage return character. The carriage return is needed so that the HL7 messages are readable and printable. The messages may appear somewhat cryptic due to the scarcity of white space. (The standard has provisions for inclusion of binary data, but IMMUNET will not use these features.) Square brackets [ ] enclose optional segments and curly braces {} enclose segments that can be repeated. Any number of NK1 segments could be included in the message. The full HL7 standard allows additional segments within these message types, but they are unused by IMMUNET. In order to remain compliant with HL7, their use will not result in an error, but the recipient can ignore the content of the message. The segments that are documented here are sufficient to support the principal IMMUNET functions of storing data about clients and immunizations.

ADT
Update Patient Information
MSH Message Header
PID

[PD1] Patient Identification
[{NK1}] Next of Kin / Associated Parties
[{*OBX}] Observation/Result

*The only OBX segment that is valid within an ADT message is one that specifies a CONTRAINDICATION in the OBX-03 Value Type field. (i.e., 30945-0^Contraindication^LN)

Z22(VXU)
Unsolicited Vaccination Record Update
MSH Message Header
PID Patient Identification
[PD1] Patient Additional Demographic
[{NK1}] Next of Kin / Associated Parties
{ORC Common Order Segment
RXA Pharmacy / Treatment Administration
[RXR] Pharmacy / Treatment Route (Only one RXR per RXA segment)
[{OBX}]} Observation/Result*

Z23(ACK)
General Acknowledgment
MSH Message Header
MSA Message Acknowledgment
[{ERR}] Error

*The only OBX segment that is valid within an ADT message is one that specifies a CONTRAINDICATION in the OBX-03 Value Type field. (i.e., 30945-0^Contraindication^LN)

RECOMMENDATIONS:

IMMUNET will NOT accept an ADT message (unsolicited demographic update) for a new patient. ADT message is only used to update existing patient demographic information to patients existing in IMMUNET. Therefore, it is best to include the demographic information in a Z22(VXU) message whenever possible, as this message type accommodates BOTH immunization information and demographic update information. If submitting a new patient it must follow the Z22(VXU) message format for the new patient within the file.

When a VXU^V04^VXU_V04 (Unsolicited Vaccination Record Update) message type is sent with no ORC associated to a RXA segment, then the client will be rejected. Similarly, an ORC segment with no associated RXA segment will result in message rejection.

Z34(QBP)
Query by Parameter
MSH Message Header
QPD Query Parameter Definition Segment
RCP Response Control Parameter

Z44(QBP)
Query by Parameter
MSH Message Header
QPD Query Parameter Definition Segment
RCP Response Control Parameter

*Organizations send the Query By Parameter Z34(QBP) message to request a patient's complete immunization history. The patient record includes demographic and immunization information.
*Organizations send the Query By Parameter Z44(QBP) message to request a patient's evaluted immunization history and a forecast . The patient record includes partial demographics.

Z32(RSP)
Response
MSH Message Header
MSA Message Acknowledgment Segment

[ERR]	Error
QAK	Query Acknowledgment Segment
QPD	Query Parameter Definition Segment
PID	Patient Identification
PD1	Patient Additional Demographic
{NK1}	Next of Kin / Associated Parties
{ORC	Common Order Segment
RXA	Pharmacy / Immunization administration
[RXR]	Pharmacy / Treatment Route
[{OBX}]}	Observation / Result

Z42(RSP)
Response

MSH	Message Header
MSA	Message Acknowledgment Segment
[ERR]	Error
QAK	Query Acknowledgment Segment
QPD	Query Parameter Definition Segment
PID	Patient Identification
{ORC	Common Order Segment
RXA	Pharmacy / Immunization administration
[RXR]	Pharmacy / Treatment Route
[{OBX}]}	Observation / Result

Z31(RSP)
Response

MSH	Message Header
MSA	Message Acknowledgment Segment
[ERR]	Error
QAK	Query Acknowledgment Segment
QPD	Query Parameter Definition Segment
PID	Patient Identification
PD1	Patient Additional Demographic
{NK1}	Next of Kin / Associated Parties

Z33(RSP)
Response

MSH	Message Header
MSA	Message Acknowledgment Segment
[ERR]	Error
QAK	Query Acknowledgment Segment
QPD	Query Parameter Definition Segment
	Next of Kin / Associated Parties

*IMMUNET responds to QBP messages with an HL7 2.5.1 file that contains a Response (RSP) message.
Note:

In real-time processing, IMMUNET returns one of two files. One of these response files contains the Z32(RSP) message with the corresponding Z34(QBP) query, demographic and /or immunization information. The other of these response files is the Z42(RSP), with the corresponding Z44(QBP) query, limited demographics, evaluated immunization history and a forecast.

In batch file processing, IMMUNET sends two files: a response file and an outbound file. This response file only contains the query information in RSP message form. A separate outbound file relays the demographics and/or immunization history.

The RSP segments returned depend on how many IMMUNET records meet the search criteria.

- **IMMUNET finds one patien**t – When IMMUNET finds only one patient that matches the search, the Z32(RSP) message displays the requested patient's demographic and immunization information. This response can display all segments listed under Z32(RSP) Response message. Also, the Z42(RSP) message displays the requested patient's limited demographics, evaluted immunization history and forecast information. This response can display all segments listed under Z42(RSP) Response message.

  Note:

When available and when a single client is found, IMMUNET returns the SR State Registry Identifier and the PI Patient Internal Identifier (entered as any chart number) in the PID-3 Patient Identifier List field.

- **IMMUNET finds multiple patient**s – When IMMUNET finds multiple patients that match the request, the Z31(RSP) message displays only demographic information for each possible match. This allows the organization to choose the correct patient based on information like the patient's sex or address. This response can display MSH, MSA, QAK, QPD, PID, PD1, and NK1 segments.

Note:
When IMMUNET finds **Z31(RSP)** multiple candidates for an RSP Response message to a QBP Query, IMMUNET returns each patient's demographics. The requesting person must review each candidate until he/she finds the desired patient. The person then sends another QBP with the additional demographic information found during review. IMMUNET should now send a **Z32(RSP)** response for one patient, if a Z34(QBP) was sent , which includes the complete immunization history. Or IMMUNET should now send a **Z42(RSP)** response for one patient, if a Z44(QBP) was sent , which includes the patient partial demographics, evaluated immunization history and a forecast.

- **IMMUNET does not find the patient**s – When IMMUNET does not have the patient's record, the Z33(RSP) message shows that IMMUNET did not find the record. The Response message displays NF for Not Found in field QAK-2 Query Response Status. This response can display only MSH, MSA, QAK, and QPD segments.

- **IMMUNET finds too many patient**s – When IMMUNET finds more patients the organization lists in RCP-2 Quantity Limited Request, the Z31(RSP) message shows that IMMUNET found too many records. The Response message displays TM for Too Many Candidates in field QAK-2 Query Response Status. This response can display only MSH, MSA, QAK, and QPD segments. We suggest organizations modifying the query provide more information, such as client's sex, address or mother's maiden name etc.

Message Segments: Field Specifications and Usage

HL7 Segment Structure
Each segment consists of several fields that are separated by "|", which is the field separator character. The tables below define how each segment is structured and contain the following columns:

1.	**SEQ**	The ordinal position of the field in the segment. Since IMMUNET does not use all possible fields in the HL7 standard, these are not always consecutive.
2.	**LEN**	Maximum length of the field
3.	**Data Type**	HL7 data type of the field. See below for definition of HL7 data types.
4.	**Usage**	R means required by HL7 2.5.1 release 1.5. RE means required, but can be empty. Sending facilty requested to send data, if known. C(a/b) - "a" and "b" in the expression are placeholders for usage codes representing the true ("a") predicate outcome and the false ("b") predicate outcome of the condition. The condition is expressed by a conditional predicate associated with the element "a" and "b" shall be one of "R", "RE", "O" and/or "X". The values of "a" and "b" can be the same.
5.	**Cardinality**	[1..1] Element must have exactly one occurrence. [1..*] Element must appear at least once, and may repeat unlimited number of times. [0..1] Element may be omitted and can have at most, one occurrence. [0..*] Element may be omitted or repeat for an unlimited number of times.
6.	**Value Set**	The set of coded values to be used with the field. The value set attribute applies only to the data type attribute tables and the segment attribute tables. The value set may equate with an entire code system part of a code system, or codes drawn from multiple code systems.
7.	**HL7 Element Name**	HL7 descriptor of the element in the segment.
8.	**Conditional Predicate**	Logic for determining the usage of conditional usage for an element.
9.	**Comments**	Context and usage for the element. Comments applies to the message attribute table, data type attribute table and the segment attribute table.

- **HL7 data types.** Each field has an HL7 data type. Appendix A of this document lists and defines the HL7 data types needed for IMMUNET. The elemental data types Numeric (NM) and String (ST) consist of one value, while some data types, such as Extended Person Name (XPN) are composites.

- **Delimiter characters.** Field values of composite data types consist of several components separated by the **component separator**, "^". When components are further divided into sub-components, these are separated by the **sub-component separator**, "&". Some fields are defined to permit repetition separated by the **repetition character**, "~". When these special characters need to be included within text data, their special interpretations are prevented by preceding them with the **escape character**, "\".

```
MSH|^~\&| …..
XXX|field1|component1^component2^subcomponent3.1&subcomponent3.2^component4|  …..
YYY|repetition1~repetition2| …..
ZZZ|data includes escaped \|\~ special characters| …..
```

In the example above, the Message Header segment uses the field separator, "|", immediately after the "MSH" code that identifies the segment. This establishes what character serves as the field separator throughout the message. The next field, the four characters "^~\&", establishes, in order, the component separator character, the repetition character, the escape character, and the sub-component separator character that will apply throughout the message. The hypothetical "XXX" segment includes field1 with no internal structure, but the next field has several components separated by "^", and the third of these is made up of two sub-components separated by "&". The hypothetical "YYY" segment's first field permits repetition, in this example the two values "repetition1" and "repetition2". The hypothetical "ZZZ" segment's field has a text value that includes the characters "|~", and these are escaped to prevent their normal structural interpretation.

In IMMUNET, sub-components, repetition and text values requiring the escape character will be rare. Components within fields are common, since names and addresses are represented this way. Although HL7 permits the use of other delimiters IMMUNET will always use the recommended delimiters when sending files and requires their use for files received.

Rules for Sending Systems

The following rules are used by sending systems to construct HL7 messages.

- Encode each segment in the order specified in the message format.
- Begin the segment with the 3-letter segment ID (for example RXA).
- Precede each field with the data field separator ("|").
- Use HL7 recommended encoding characters ("^~\&").
- Encode the data fields in the order given in the table defining segment structure.
- Encode the data field according to its HL7 data type format.
- Do not include any characters for fields not present in the segment. Since later fields in the segment are encoded by ordinal position, fields that are not present do not reduce the number of field separators in the segment. For example, when the second and third fields are not present, the field separators maintain the ordinal position of the fourth field: |field1|||field4
- Data fields that are present but explicitly null are represented by empty double quotes "".
- Trailing separators may optionally be omitted. For example, |field1|field2||||| is equivalent to |field1|field2, when field3 and subsequent fields are not present.
- End each segment with the segment terminator (always the carriage return character, ASCII hex 0D).

The following rules are used by receiving systems to process HL7 messages.

- Treat data segments that are expected but not present as if all data fields in the segment were not present.
- Require use of HL7 recommended Field Separator |, and Encoding characters ^~\& for encoding messages.
- Ignore any data segment that is included but not expected, rather than treating it as an error. The HL7 message types used by IMMUNET may include many segments besides the ones in this document, and IMMUNET ignores them. IMMUNET will not send messages with segments not documented in this specification, but reserves the right to specify more segments at a later date. The rule to ignore unexpected segments facilitates this kind of change.
- Ignore data fields found but not expected within a segment.

The message segments below are needed to construct message types that are used by IMMUNET. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since IMMUNET does not use all the fields that HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, their field separators remain in order to indicate that the next field present is the fourth: field1|||field4 .

Columns are defined as

SEQ - Sequence of element in message
LEN – Length of field.

Data Type - Data type.
Usage - Field is required, required but can be empty or conditional by HL7 2.5.1 release 1.5.
Cardinality - Field can or canot be repeated.
Value Set - Approved corresponding code table.
Element Name –Approved HL7 name for element.
Conditional Predicate – logic to define conditional usage of element.
Comments – Additional information about the element.

ERR Segment

The ERR segment is used to add error comments to acknowledgment messages.

SEQ	LEN	Data Type	Usage	Cardinality	Value Set	ELEMENT NAME
2	18	ERL	RE	[0.. 1]		Error Location
3		CWE	R	[1.. 1]	0357	HL7 Error Code
4		ID	R	[1.. 1]	0516	Severity
5		CWE	RE	[0.. 1]	0533	Application Error Code
8		TX	RE	[0.. 1]		User Message

Field Notes:

ERR-2 A composite field with four components.

<segment ID (ST)>^<sequence (NM)>^<field position (NM)>^<field component ordinal number (NM)

The first component identifies the segment ID containing the error. The second component identifies the input file line number of the segment containing the error. The third component identifies by ordinal number the field containing the error. The fourth component identifies, by ordinal number, the field component containing the error (0 is used if not applicable) The remaining five components of the CE data type are not valued and their '^' separators are not generated. Note that error text is transmitted in field ERR-8. For example, if the NK1 segment is missing a mandatory field:

ERR|NK1^10^2^1

This error message identifies the NK1 segment occurring on line 10 of the input file whose mandatory second field (Name) is missing the mandatory 1st component (Family Name).

ERR-3 Identifies the HL7 (communications) error code. Refer to HL7 Table 0357 – Message Error Condition Codes.

ERR-4 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". The Severity code indicates if the system sending the ACK or RSP (with error) is reporting an error that caused significant error loss. For instance the message was rejected or an important segment was rejected (e.g. RXA). This allows the system that initiated the message (VXU or QBP) to alert the user that there were issues with the data sent.

ERR-5 Application specific code identifying the specific error that occurred. Refer to *User-Defined Table 0533 – Application Error Code for appropriate values.*

ERR-8 The text message to be displayed to the application user.

Example with error in PID:

ERR||PID^1^3^0|101^Required field missing^HL70357|E|3^Illogical Value Error^HL70533|||Error Code - 016: MESSAGE REJECTED - REQUIRED FIELD PID-3 MISSING.

MSA Segment

The MSA segment contains information sent while acknowledging another message.

SEQ	LEN	Data Type	Usage	Cardinality	Value Set	ELEMENT NAME
1	2..2	ID	R	[1.. 1]	0008	Acknowledgment Code
2	1..199	ST	R	[1.. 1]		Message Control ID

Field Notes:

MSA-1 Acknowledgement code giving receiver's response to a message. AA (Application Accept) means the message was processed normally. AE (Application Error) means an error prevented normal processing. AR(Application Reject) means a critical error prevented the message from being processed. An error message will be put in ERR-8, if AE or AR are in MSA-1. And for Z23(ACK) messages the optional ERR segment will be included.

MSA-2 The message control ID from MSH-10 in the message being acknowledged. This allows the sending system to associate this response with the message being responded to.

Z22(VXU)MSH Segment

This MSH segment defines the intent, source, destination and some specifics of the syntax of a Z22(VXU) message.

** Note this MSH segment definition is only for the Z22(VXU) message.

SEQ	LEN	Data Type	Usage	Cardinality	Value Set	ELEMENT NAME	Comments
1	1	ST	R	[1.. 1]		Field Separator	
2	4	ST	R	[1.. 1]		Encoding Characters	
3	180	HD	RE	[0.. 1]		Sending Application	Send if Known
4	180	HD				Sending Facility	Send if Known
4.1	180	HD	RE	[0.. 1]		Sending Org ID	
4.2	180	HD	R	[1.. 1]		Sending Org ID	
5	180	HD	RE	[0.. 1]		Receiving Application	Send if Known
6	180	HD	RE	[0.. 1]		Receiving Facility	Send If Known
7	26	TS_Z	R	[1.. 1]		Date/Time Of Message	+/-ZZZZ (Time Zone component Required)
9	15	MSG	R	[1.. 1]		Message Type	
10	20	ST	R	[1.. 1]		Message Control ID	
11	3	PT	R	[1.. 1]	0103	Processing ID	
12	60	VID	R	[1.. 1]	0104	Version ID	Constrainted to '2.5.1'.
15	2	ID	R	[1.. 1]	0155	Accept Acknowlwedgement Type	Constrained to 'ER'.
16	2	ID	R	[1.. 1]	0155	Application Acknowlwedgement Type	Constrained to 'AL'.
21		EI		[1.. 1]		Message Profiler	
21.1	1.. 199	EI	R	[1.. 1]		Entity Identifier	Constrained to 'Z22'
21.2	20	EI	R	[1.. 1]		Namespace ID	Constrained to 'CDCPHINVS"
22		XON	RE	[0.. 1]		Sending Responsible Organization	Send if Known
23		XON	RE	[0.. 1]		Receiving Resonsible Organization	Send if Known

Field Notes:

MSH-1 Determines the field separator in effect for the rest of this message. IMMUNET requires the HL7 recommended field separator of "|".

MSH-2 Determines the component separator, repetition separator, escape character, and sub-component separator in effect for the rest of this message. IMMUNET requires the HL7 recommended values of ^~\&.

MSH-3 Name of the sending application. When sending, IMMUNET will use "IMMUNET" followed by the current version number of the registry. This field is an optional convenience. See MSH-4 and MSH-6 for the fields principally used to identify sender and receiver of the message.

MSH-4 Identifies for whom the message is being sent (the owner of the message information). When sending, IMMUNET will use "IMMUNET".

When the message is being sent to IMMUNET and the Provider Organization owning the information is different than the organization transmitting the message (as in a Parent/Child or Vendor/Client relationship), you must use the IMMUNET Provider ID of the Provider ID that **owns** the information preceded by a component separator (e.g., ^36). You can add the short Provider ID in the component prior to the provider id (e.g., 36^36.) Contact the IMMUNET Help Desk for the appropriate organization ID.

Note: If the owner of the information and the transmitter of the information are the same Provider Organization, and the Provider Organization is not a member of a Parent/Child or Vendor/Client relationship, this field can be left blank. The data will be loaded with the transmitting organization as the owner of the immunization records. Since there is the potential for transmitting files under an incorrect Provider Organization, we highly encourage all users to indicate the owning provider organization id in MSH-4. This will allow the system to verify that you are transmitting from an organization that is the owner of the immunization records.

Note: For Interstate Data Exhange MSH-4 shall be alphanumeric containing state code followed by four zeros (i.e. DE0000)

MSH-5 Identifies the application receiving the message. When sending to IMMUNET this application is 'IMMUNET.'
MSH-6 Identifies the message receiver. When sending, IMMUNET will use the short Provider Organization name assigned when the provider first registers with the IMMUNET database and IMMUNET-Web interface.

Note: For Interstate Data Exhange MSH-6 shall be IMMUNET
MSH-7 Date and time the message was created. IMMUNET ignores any time component. The +/-ZZZZ (Time Zone component is required). See the TS_Z data type.
MSH-9 This is a required field. Two components of this field give the HL7 message type (see Table 0076) and the HL7 triggering event (see Table 0003). Within HL7, the triggering event is considered to be the real-world circumstance causing the message to be sent. For IMMUNET purposes, this field should have the value ADT^A31^ADT_A05 for a message conveying patient information or the value VXU^V04^VXU_V04 for a message conveying patient and immunization information. In acknowledgement messages the value Z23(ACK) is sufficient and the second component may be omitted.
MSH-10 This is a required field. Message rejection will result if nothing is received in this field. The message control ID is a string (which may be a number) uniquely identifying the message among all those ever sent by the sending system. It is assigned by the sending system and echoed back in the ACK message sent in response to identify the specific record which contains errors. *It is important to have this be an ID that the provider can use to identify the patient record.*
MSH-11 The processing ID to be used by IMMUNET is **P** for production processing. If this field is null, the message will be rejected.
MSH-12 This is a required field. For the parser, the version number that is read in the first MSH segment, of the file, will be the version assumed for the whole file. For example, use a value of "2.5.1" to indicate HL7 Version 2.5.1.
*If there is no version number found in the first MSH segment, a hard error will occur and the file will not be processed.
**For IMMUNET to PO providers, the Exchange Data screen will need to be set to the version number that the organization has selected, in which to receive their data files. Setting the version number "tells" the writer which HL7 version format to use when generating the file in (the default will be the most recent version).
MSH-15 This field identify the conditions where a system must return accept acknowledgments to this message. This is a required field and IMMUNET constrains this field to 'RE'.
MSH-16 Controls if IMMUNET creates an acknowledgment message. This field contains the conditions where IMMUNET returns application acknowledgment. This is a required field and IMMUNET constrains this field to 'AL'.
MSH-21 Contains the Z profile. For a Z22(VXU) message, MSH-21 will always be Z22^CDCPHINVS.
MSH-22 Business organization that originated and is accountable for the content of this message.
Currently, MSH provides fields to transmit both sending/receiving applications and facilities (MSH.3 – MSH.6). However, these levels of organization do not necessarily relate to or imply a legal entity such as a business organization. As such, multiple legal entities (organizations) may share a service bureau, with the same application and facility identifiers. Another level of detail is required to delineate the various organizations using the same service bureau.
MSH-23 Business organization that is the intended receiver of the message and is accountable for acting on the data conveyed by the transaction.
This field has the same justification as the Sending Responsible Organization except in the role of the Receiving Responsible Organization. The receiving organization has the legal responsibility to act on the information in the message.

PID Segment
The PID segment 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.

SEQ	LEN	Data Type	Uasage	Cardinality	Value Set	ELEMENT NAME	Conditional Predicate	Comments
1	4	SI	R	[1.. 1]		Set ID – PID		
3	20	CX	R	[1.. *]		Patient Identifier List		
3.1	15	ST	R	[1.. 1]		ID Number		
3.4	4	HD	R		0363	Assigning Authority		
3.5	3	ID	R		0203	Identifier Type		
5	48	XPN	R	[1.. 1]		Patient Name		
5.1		FN	R	[1.. 1]		Family Name		
5.2		ST	R	[1.. 1]		Given Name		
5.3		ST	RE	[1.. 1]		Second and Further Given Names or Initials Thereof		
5.7	1	ID	RE		0200	Name Type Code		
6	48	XPN_M	RE	[0.. 1]		Mother's Maiden Name		
6.1		FN	R	[1.. 1]		Family Name		
6.2		ST	RE	[0.. 1]		Given Name		
6.7	1	ID	RE	[0.. 1]	0200	Name Type Code		Constrained to 'M'
7	26	TS_NZ	R	[1.. 1]		Date of Birth		
8	1	IS	RE	[0.. 1]	0001	Administrative Sex		
10		CE	RE	[0.. 1]		Race		
10.1	1..50	ST	R	[1.. 1]		Indentifying Code		Valid Race Code from the HL70005 table
10.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		
10.3	1..20	ID	R	[1.. 1]	0005	Value Set identifier		
11		XAD	RE	[0.. 1]		Patient Address		
11.1	1..120	SAD	RE	[0.. 1]		Street Address		
11.2	1..50	ST	RE	[0.. 1]		Other Designation		
11.3	1..50	ST	RE	[0.. 1]		City		
11.4	1..50	ST	RE	[0.. 1]		State or Province		Two character USPS codes, for example: AL, AK, ME
11.5	1..12	ST	RE	[0.. 1]		Zip or Postal Code		
11.6	3..3	ST	RE	[0.. 1]		Country		Empty defaults to USA
11.7	2	ID	RE	[1.. 1]	0190	Address Type		
11.9		IS	RE	[0.. 1]	0289	County/Parish Code		Send FIPS County codes
13		XTN	RE	[0.. 1]		Phone number – home		
13.2		ID	R	[0.. 1]	0201	Telecommunication Code		
13.3	5	ID	RE	[0.. 1]	0202	Telecommunication Equipment Type		

13.4	1..199	ST	C(R/X)	[0.. 1]		Email Address	If PID-13.2 is valued 'NET', then the Email Address is Required. If not valued 'NET", then the Email Address is not supported (X).	
13.6	5	NM	C(RE/X)	[0.. 1]		Area/City Code	If PID-13.2 is not valued 'NET', the area code is 'RE'. If valued 'NET' then the area code is not supported (X).	
13.7	7	NM	C(R/X)	[0.. 1]		Local Number	If PID-13.2 is not valued 'NET', the local number is Required. If valued 'NET' then the local number is not supported (X).	
22	80	CE	RE	[0.. *]		Ethnic Group		HL70189 is supported for backwards compatability
22.1	1..50	ST	R	[1.. 1]		Indentifying Code		Valid Ethnic Code from the CDCREC table
22.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		
22.3	1..20	ID	R	[1.. 1]	CDCREC	Value Set identifier		
29	26	TS	C(RE/X)	[0.. 1]		Patient Death Date and Time	If PID-30 (Patient Death Indicator os valued 'Y'	
30	2	ID	RE	[0.. 1]	0136	Patient Death Indicator		

Field Notes:

PID-1 Set ID – PID. This field contains the number that indentifies 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.

PID-3 Sub-components 1 (ID), 4(Assigning Authority) and 5 (identifier type code) are required in the PID-3 field. When a Provider Organization is sending to IMMUNET, use the sending system's Patient ID or other identifier if available. When IMMUNET is sending to an outside system it will use the patient's IMMUNET ID and Patient ID when it is available.

PID-5 See the XPN data type. Last name and first name are required in the first two components. If the Name Type Code component is included, use L-Legal. IMMUNET does not support repetition of this field.

NOTE: The special characters ` ! ( ) { } [ ] ? " ' _ as part of the first or last name, will cause the first or last name to be rejected, resulting in the entire message being rejected.
The special characters ` ! ( ) { } [ ] ? " ' _ as part of the middle name, will cause an informational error and the middle name to not be saved(blank in the patient UI). Processing of the message will continue.

PID-6 See the XPN_M data type. In this context, where the mother's name is used for patient identification, IMMUNET uses only last name and first name. If sub-component 7(Name Type Code) is sent, 'M' is required. A mother's legal name might also appear in the context of an NK1 segment. IMMUNET does not support repetition of this field.

NOTE: The special characters ` ! ( ) { } [ ] ? " ' _ as part of the mother's name, will cause an informational error and the mother's name to not be saved(blank in the patient UI). Processing of the message will continue.

PID-7 Give the year, month, and day of birth (YYYYMMDD). IMMUNET ignores any time component.

PID-8 Use appropriate code. See Table 0001. Use F, M, or U. If blank (" ") is used, IMMUNET will default to U.

PID-10 Use appropriate code. See Table 0005. IMMUNET stores and writes "Unknown" values as null. IMMUNET does not support repetition of this field.

PID-11 See the XAD data type. |Street^PO Box^City^State^Zip^country^Address Type^^County| For example: |123 Main St^PO Box1^Abell^MD^20606^USA^H^^Saint Marys|. IMMUNET does not support repetition of this field.

PID-13 See the XTN data type. IMMUNET supports the repetition of this field. If Primary Residence Number (PRN) is specified in component 2 (**telecommunication use code (ID)** from table 0201) IMMUNET will use the 6th 7th 8th components for specification of area code, phone number, and extension. The **telecommunication equipment type (ID)** is specified in component 3 from table 202. Example:

PID|||TEL1^^^ORA^PI^||TEL^ALL^^^^^|Tel^Test^^^^^^|20101010|M|||12 TWELVE STREET^^TWELVE^WI^54212^^^^^^||^PRN^PH^^^555^1114444^55555~^PRN^CP^^^608^222111~^NET^^test@test.com^^^^|||||||||||||||||N

PID-22 Use appropriate code. See Table CDCREC. IMMUNET stores and writes "Unknown" values as null. IMMUNET supports repetition of this field.

PID-24 Use **Y** to indicate that the client was born in a multiple birth. If Y is entered in this field, you must supply the required information in PID-25.

PID-25 Relevant when patient was born in a multiple birth. Use 1 for the first born, 2 for the second, etc. This field is useful in matching patient data to existing records.

Note: You must include Y in PID-24 and indicate the birth order in PID-25 for the birth order to be loaded.

PID-29 The date of death, if patient is deceased. Give the year, month, and day (YYYYMMDD). IMMUNET ignores any time component. If a death date is sent, then the Patient Registry Status in PD1-16 must indicate a value of "P" for permanently inactive/deceased.

PID-30 This field indicates whether the patient is deceased. Refer to HL7 Table 0136 - Yes/no Indicator for valid values.

Y	the patient is deceased
N	the patient is not deceased
Empty	status is undetermined

PD1 Segment

The PD1 carries patient additional demographic information that is likely to change.

SEQ	LEN	Data Type	Usage	Cardinality	Value Set	Conditional Predicate	ELEMENT NAME
11		CE	RE	[0.. 1]	0215		Publicity Code
12		ID	RE	[0.. 1]	0136		Protection Indicator
13		DT_T	C(RE/X)	[0.. 1]		If PD1-12 (Protection Indicator) is valued.	Protection Indicator effective date
16		IS	RE	[0.. 1]	NIP006		Immunization registry status
17		DT_T	C(RE/X)	[0.. 1]		If PD1-16 (Registry Status) is valued.	Immunization registry status effective date
18		DT_T	C(RE/X)	[0.. 1]		If PD1-11 (Publicity Code) is valued.	Publicity Code effective date

Field Notes:

PD1-11 Controls whether recall/reminder notices are sent. IMMUNET will recognize "01" to indicate no recall/reminder notices or "02" recall/reminder notices any method.

PD1-12 Controls visibility of records to other organizations. Maryland law does not require patient consent from patients of any age prior to incorporating their immunization data into the Maryland ImmuNet Immunization Registry. We would like all patient immunization data to be submitted to ImmuNet, including children and adults. Again though, no consent is needed. Maryland law considers patient consent implied.
The value for PD1-12 will be always be N.
N – Do not protect access to the data. Allow sharing of immunization data.

PD1-13 Effective date for protection indicator reported in PD1-12. Format is YYYYMMDD.

PD1-16 Identifies the registry status of the patient. See table NIP006. If a code of P is specified the PID-29 segment must be filled in with Patient Death Date or record will be rejected.

PD1-17 Effective date for registry status reported in PD1-16. Format is YYYYMMDD.

PD1-18 Effective date for publicity code reported in PD1-11. Format is YYYYMMDD.

NK1 Segment

The NK1 segment contains information about the patient's other related parties. Any associated parties may be identified. Utilizing *NK1-1-set ID*, multiple NK1 segments can be sent to patient accounts.

SEQ	LEN	Data Type	Usage	Cardinality	Value Set	ELEMENT NAME	Conditional Predicate	Comments
1		SI	R	[1.. 1]		Set ID – NK1		
2		XPN	R	[1.. 1]		Name		
2.1		FN	R	[1.. 1]		Family Name		
2.2	30	ST	R	[1.. 1]		Given Name		
2.3	30	ST	RE	[0.. 1]		Second and Futher Given Names or Initials Thhere of		
3		CE	R	[1.. 1]		Relationship		
3.1	1..50	ST	R	[1.. 1]		Indentifying Code		Valid Relationship Code from the HL70063 table
3.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		
3.3	1..20	ID	R	[1.. 1]	0063	Value Set identifier		
4.1	1..120	SAD	RE	[0.. 1]		Street Address		
4.2	1..50	ST	RE	[0.. 1]		Other Designation		
4.3	1..50	ST	RE	[0.. 1]		City		
4.4	1..50	ST	RE	[0.. 1]		State or Province		
4.5	1..12	ST	RE	[0.. 1]		Zip or Postal Code		
4.6	3..3	ST	RE	[0.. 1]		Country		
4.7	1..3	ID	RE	[0.. 1]		Address Type		
4.9		IS	RE	[0.. 1]	0289	County/Parish Code		
5		XTN	RE	[0.. 1]		Phone number – home		
5.2		ID	R	[0.. 1]	0201	Telecommunicatio n Code		
5.3		ID	RE	[0.. 1]	0202	Telecommunicatio n Equipment Type		
5.4	1..199	ST	C(R/X)	[0.. 1]		Email Address	If 13.2 is valued ‘NET’, then the Email Address is Required. If not valued ‘NET”, then the Email Address is not supported (X).	
5.6	5	NM	C(RE/X)	[0.. 1]		Area/City Code	If 13.2 is not valued ‘NET’, the area code is ‘RE’. If valued ‘NET’ then the area code is not supported (X).	
5.7	7	NM	C(R/X)	[0.. 1]		Local Number	If 13.2 is not valued ‘NET’, the local number is Required. If valued ‘NET’ then the local number is not supported (X).	

Field Notes:

NK1-1 Sequential numbers. Use “1” for the first NK1 within the message, “2” for the second, and so forth. Although this field is required by HL7, IMMUNET will ignore its value, and there is no requirement that the record for the same responsible person keep the same sequence number across multiple messages, in the case that information from the same record is transmitted more than once.

NK1-2 Name of the responsible person who cares for the client. See the XPN data type. IMMUNET does not support repetition of this field.

NOTE: The special characters ` ! ( ) { } [ ] ? “ ‘ _ as part of the responsible person’s name, will cause an informational error and the responsible person’sname to not be saved(blank in the patient UI). Processing of the message will continue.

NK1-3 Relationship of the responsible person to the patient. See data type CE and Table 0063 in the HL7 tables. Use the first three components of the CE data type, for example |MTH^Mother^HL70063|.

NK1-4 Responsible person's mailing address. See the XAD data type. IMMUNET does not support repetition of this field. If responsible person is Mother the Address that is used in this field will become the patients address.

NK1-5 Responsible person's phone number. IMMUNET does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code (ID) from table 0201) IMMUNET will use the 6th 7th 8th and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, IMMUNET will assume that the phone number is specified in the first component in the [NNN] [(999)]999-9999[X99999][B99999][C any text] format.

ORC Segment

The Order Request Segment.

This segment is a new segment for IMMUNET HL7 2.5.1 and needs to be included if submitting to IMMUNET using version HL7 2.5.1 to record who entered the information, who ordered the shot and what facility ordered the shot.

Note: The "ordering" mentioned here is not related to ordering for inventory but ordering for person specific administration. Each RXA segment **must** be associated with one ORC, based on HL7 2.5.1 standard.

SEQ	LEN	Data Type	Uasage	Cardinality	Value Set	ELEMENT NAME	Conditional Predicate	Comments
1	2	ID	R	[1.. 1]	0119	Set ID – ORC		Constrained to 'RE'.
2	20	EI	RE	[0.. 1]		Place Order Number		See Guidance Below.
3		EI	R	[1.. 1]		ID Number		See Guidance Below.
10		XCN	RE	[0.. 1]		Entered By		This is the person that entered this immunization record into the system.
10.1	20	ST	C(R/RE)	[0.. 1]		ID Number	If ORC-10.2 (Family Name) and ORC-10.3 (Given Name) are not valued, then ORC-10.1 is 'R' required.	
10.2		FN	RE	[0.. 1]		Family Name		
10.3	30	ST	RE	[0.. 1]		Given Name		
10.4	30	ST	RE	[0.. 1]		Second and Further Given Names or Initials.		
10.9	5	HD	C(R/X)	[0.. 1]		Assigning Authority	If the ORC-10.1 (ID Number) is valued, then ORC-10.9 is 'R' required.	
10.10	20	ID	RE	[0.. 1]				
12		XCN	C(RE/O)	[0.. 1]		Entered By	If the first occurrence of RXA-9.1 is valued "00" and RXA-20 is valued "CP" or "PA", then ORC-12 is 'RE'.	This shall be the provider ordering the immunization. ORC-12 is expected to be empty if the immunization record is transcribed from a historical record.
12.1	1..15	ST	C(R/RE)	[0.. 1]		ID Number	If RXA-9 is Not Historical then ORC-12.1 is 'R' required.	
12.2		FN	RE	[0.. 1]		Family Name	If ORC 12.1 populated then 12.2 is validated by NPPES.	
12.3	30	ST	RE	[0.. 1]		Given Name	If ORC 12.1 populated then 12.2 is validated by NPPES.	
12.4	30	ST	RE	[0.. 1]		Second and Further Given Names or Initials.	If ORC 12.1 populated then 12.2 is validated by NPPES.	
12.9	5	HD	C(R/X)	[0.. 1]		Assigning Authority	Data no longer processed.	
12.10	20	ID	RE	[0.. 1]				
12.13	3	ID	RE	[0.. 1]		Identifier Type Code	If the ORC 12.1 (ID number) is valued, then ORC-12.13 is 'R' required.	
17	30	CE	RE	[0.. 1]		Entering Organization		This is the provider organization that entered this record/order.
17.1		ST	R	[0.. 1]		Identifier		Identifying Code.
17.2		ST	RE	[0.. 1]		Text		Human readable text that may be used to review segment content.

Field Notes:

ORC-1 Order Control. Determines the function of the order segment. The value for VXU and RSP shall be RE.

ORC-2 Placer Order Number. 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. The sending system may leave this field empty.

ORC-3 Filler Order Number. The Filler Order Number is used to identify uniquely this order among all orders sent by a provider organization that filled the order.

This field shall hold a sending system's unique immunization ID.
In the case where a historic immunization is being recorded, 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 RXA-20 is valued "NA"(Not Administered) or "RE"(Refused) conveying information about an immunization that was not given, ORC-3.1(Filler Order Number) shall be 9999.

ORC-10 Entered By. 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. This field contains the identity of the person who is responsible for creating the request (i.e, ordering physician). The National Provider Identifier (NPI) is required for each immunization. In the case where NPI number (ORC-12.1) is valued, ORC-12.13 must contain the NPI role code. 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. 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).

RXA Segment

The RXA carries pharmacy/immunization administration data. It is a repeating segment and can record unlimited numbers of vaccinations.

SEQ	LEN	Data Type	Uasage	Cardinality	Value Set	ELEMENT NAME	Conditional Predicate	Comments
1	4	NM	R	[1.. 1]		Give Sub-ID Counter4		
2	4	NM	R	[1.. 1]		Administration Sub-ID Counter		
3		TS_NZ	R	[1.. 1]		Date/Time Start of Administration		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	RE	[0.. 1]				
5		CE	R	[1.. 1]		Administered Code		
5.1	1..50	ST	R	[1.. 1]		Indentifying Code		Valid Administration Code from the CVX, CPT, WVTN or WVGC code tables or NDC number.
5.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		
5.3	1..20	ID	R	[1.. 1]	CVX, NDC, CPT, WVTN or WVGC	Value Set identifier		
7	5	CE	C(R/O)	[0.. 1]	UCUM	Administered Units	If Administered Amount is not valued “999”	
9		Varies	C(R/O)	[0.. *]	NIP001	Adminstration Notes	If RXA-20 is valued “CP” or “PA”.	If this field is used for a notes only entry, then the data type shall be CE_TX otherwise the data type shall be CE. The primary use of this field it 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	C(RE/O)	[0.. 1]		Adminstering Provider	If the first occurrence of RXA-9.1 is valued "00" and RXA-20 is valued "CP" or "PA"	This is the person who gave the administration or the vaccinator. It is not the ordering clinician.
10.1	1..15	ST	C(R/RE)	[0.. 1]		ID Number	If RXA-10.2 (Family Name) and RXA-10.3 (Given Name) are not valued, then RXA-10.1 is ‘R’ required.	
10.2		FN	RE	[0.. 1]		Family Name		
10.3	30	ST	RE	[0.. 1]		Given Name		

10.4	30	ST	RE	[0.. 1]		Second and Further Given Names or Initials.		
10.9		HD	C(R/X)	[0.. 1]		Assigning Authority	If the RXA-10.1 (ID Number) is valued, then RXA-10.9 is 'R' required to be sent.	
10.10	1	ID	RE	[0.. 1]		Name Type Code		
11		LA2	C(RE/O)	[0.. 1]		Adinistered-at Location	If the first occurrence of RXA-9.1 is valued "00" and RXA-20 is valued "CP" or "PA", then RXA-11.4 is requested to be sent.	This is the clinic/site where the vaccine was administered.
11.4		ST	R	[1.. 1]		Facility		This represents the location the service was provided. For example, that clinic name.
15		ST	C(R/O)	[0.. 1]		Substance Lot	If the first occurrence of RXA-9.1 is valued "00" and RXA-20 is valued "CP" or "PA", then RXA-15 is 'R' required to be sent.	This field is required for deduct from inventory.
16		TS_M	C(RE/O)	[0.. 1]		Substance Expiration Date	If the first occurrence of RXA-9.1 is valued "00" and RXA-20 is valued "CP" or "PA", then RXA-16 is requested to be sent.	(YYYYMM)
17		CE	C(R/O)	[0.. 1]		Substance Manufacturer Name	If the first occurrence of RXA-9.1 is valued "00" and RXA-20 is valued "CP" or "PA", then RXA-17 is 'R' required to be sent.	
17.1	1..50	ST	R	[1.. 1]		Indentifying Code		Valid Manufacture Code from the MVX table
17.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		
17.3	1..20	ID	R	[1.. 1]	MVX	Value Set identifier		
18		CE	C(R/X)	[0.. 1]		Substance/Treatment Refusal Reason	If the RXA-20 (Completion Status) is valued "RE ", then RXA-18 is required to be sent.	
18.1	1..50	ST	R	[1.. 1]		Indentifying Code		Valid Refusal Code from the NIP002 value set
18.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		
18.3	1..20	ID	R	[1.. 1]	NIP002	Value Set identifier		
20	2	ID	RE	[0.. 1]	0322	Completion Status		
21	2	ID	RE	[0.. 1]	0323	Action Code - RXA		*NOTE – See further guidance below, for RXA-21.

Field Notes:

RXA-1 Required by HL7. Use "0" for IMMUNET.

RXA-2 Required by HL7. For Provider-IMMUNET loads, Data Exchange expects incoming values of 1 for this field. Other numeric values are ignored.

IMMUNET Data Exchange sends out series information in this field, provided the system is configured to do so. For example, if a dose evaluates to (3 of 4) in the Wizard, then the system sends the number 3 in RXA-2. If the dose violates a specific Wizard rule, then the system sends 777 in RXA-2. In all other cases, the number 999 is sent in RXA-2. For combination vaccines, 1 is always sent in RXA-2, and the series count for each component antigen in the combination vaccine is sent in grouped OBX segments, which follow the RXA segment. Please see the field notes on OBX-3, OBX-4 and OBX-5.

The ability to send series information in RXA-2 only applies to HL7 Version 2.4. It applies to Batch HL7 IMMUNET-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract. Some configuration is needed to send series information in RXA-2. On the Manage Data Exchange Screen, the **Send HL7 Series/Recommend** option displays, and the user must select either "Series Only" or "Both" from the pick list. (This option is hidden if Flat File or HL7 Provider-IMMUNET is chosen.)

The Send Series/Recommend option also displays on the Organization Extract Screen when the user chooses the HL7 2.5.1 Transaction Format.

If the user configures the system so that it will **not** send series information, then the system always sends 1 RXA-2.

In the following example, the dose of Encephalitis is the 3rd dose in the series.

RXA|0|3|20010207|20010207|39^Japanese encephalitis^CVX^90735^Japanese encephalitis^CPT|1.0|||01^^^^^~32851911^IMMUNET immunization id^IMM_ID^^^||||||||||

RXA-3 Date the vaccine was given. IMMUNET ignores any time component.

RXA-4 Required by HL7. Ignored by IMMUNET, which will use the value in RXA-3.

RXA-5 This field identifies the vaccine administered. As of April, 2018 usage of the NDC number will be supported and highly desired. CVX codes should be used in the first triplet with CVX in the first component and "CVX" in the third component. The second triplet should be used to represent the same vaccine using NDC or a different coding system (i.e. CPT, WVTN, WVGC). The NDC number should be in the fourth component and "NDC" in the sixth component, (10^^CVX^49281-0860-10^^NDC). The NDC code must include the dashes. For a list of acceptable NDCs, go to https://phpa.health.maryland.gov/OIDEOR/IMMUN/Shared%20Documents/Maryland_IMMUNET_NDC_Codes.pdf

IMMUNET accepts the CVX code, NDC number, CPT code, Vaccine Trade Name, or Vaccine Group Code for the vaccine administered. If using the CVX code, give the CVX code in the first component and "CVX" in the third component. If using the CPT code, the vaccine group code or vaccine trade name, use components four through six. For example, give the CPT code in the fourth component and "CPT" in the sixth component, |^^^90700^DtaP^CPT|. If using vaccine group code, use "WVGC" as the name of the coding system. If using vaccine trade name, use "WVTN" as the name of the coding system. See the CE data type and HL7 – Table 0292 (CVX Codes), IMMUNET – Table CPT (CPT Codes), IMMUNET – Table WVGC (Vaccine Group Codes), and IMMUNET – Table WVTN (Vaccine Trade Names).

RXA-6 Dose Magnitude is the number of age appropriate doses administered. For example, a dose magnitude of 2 of a pediatric formulation would be adequate for an adult. IMMUNET and HL7 require this field to contain a value. However, a value of 1.0 will be stored in its place.

RXA-9 IMMUNET will recognize 00 to indicate New Immunization Administered/Owned by the Sending Organization or 01 to indicate Historical Record – Source Unspecified. If the source for a historical record is known, please use values 02 through 08 in Table NIP001. For outgoing IMMUNET-Provider processing, Data Exchange will write out the corresponding immunization id in the second repeating segment.

NOTE:
If this field is left blank, the immunization will be recorded as *historic* (i.e. not owned by the sending organization) in IMMUNET.
***ALL* immunizations that were *administered* in your provider office should be recorded as "00" to ensure that the record is correctly associated with your organization in IMMUNET**

|00^^^^^~9999999^IMMUNET immunization id^IMM_ID^^^|

NOTE: During Interstate Data Exchange, all immunizations exchanged from IMMUNET will be reported as historical (i.e. 01 History Record – Source Unspecified).

RXA-10 This field is intended to contain the name and provider ID of the person physically administering the pharmaceutical.

Note: previous Implementation Guide (2.3.1) overloaded this field by using local codes to indicate administering provider (VEI), ordering provider (OEI) and recording provider (REI). This is a misuse of this field and not supported in the HL7 2.5.1 release 1.5 Guidelines. The Ordering and Entering providers are indicated in the associated ORC segments (ORC 10 and 12 respectively).

Identifies the name of the administering clinician (VEI) of the immunization in IMMUNET. IMMUNET will use components 2 – 7 to record the names. Any Role code entered will be processed as 'administered by'.

For incoming loads, t is recommended that license information (LPN, RN, MD) be put in the 5th component so that it processes as the clinician suffix in IMMUNET, as in the following example:

|^GROBBERTS^DELIA^S^RN^MS^^^^^^^VEI^^~^SHAFFER^TERRENCE^P^MD^DR^^^^^^^OEI^^|

RXA-11 IMMUNET will use this field to identify the facility where the vaccine was administered. Place the facility name in component 4.

RXA-15 Manufacturer's lot number for the vaccine. IMMUNET does not support repetition of this field.

RXA-17 Vaccine manufacturer from Table 0227, for example |AB^Abbott^ MVX^^^|. The HL7 2.4 specification recommends use of the external code set MVX. "When using this code system to identify vaccines, the coding system component of the CE field should be valued as "MVX" not as "HL70227." IMMUNET does not support repetition of this field.

RXA-18 When applicable, this field records the reason the patient refused the vaccine. See table NIP002. Any entry in this field indicates that the patient did not take the substance. The vaccine that was offered should be recorded in RXA-5, with the number 0 recorded for the dose number in RXA-2. Do not record contraindications, immunities or reactions in this field. IMMUNET does not support repetition of this field.

Notes on Refusals:

a) IMMUNET only stores the fact that a refusal of a vaccine occurred, not a specific type of refusal, so all outgoing refusals will be designated as "PARENTAL DECISION." Please see the example below.

b) IMMUNET will not write out refusals which do not have an applies-to date. It will write out multiple refusals for the same vaccine on different dates for those patients who have them.

c) The IMMUNET system will accept incoming refusals of the same vaccine on different dates and file them both. However, if they both have the same applies-to date, then only one will be stored.

d) The sending organization will become the refusal owner. In general, only the organization who owns the refusal is permitted to edit it. However, in the case of parent and child organizations, the parent may edit the child's refusals and vice versa.

Here is a sample RXA segment for an MMR refusal given on the date 01/01/2007:

```
RXA|0|0|20070101|20070101|^^^MMR^MMR^WVGC|1.0||||||||||||00^PARENTAL
REFUSAL^NIP002^^^
```

RXA-20 For Batch HL7 IMMUNET-PO, Batch HL7 Bi-directional and Organizational Extract, this field records the value PA for doses which are partially administered. A partially administered dose refers to the scenario where the patient jumps and the needle breaks, resulting in an unknown quantity of vaccine entering the patient's system.

RXA-21 Additional Notes

***Deduct from Inventory**: ImmuNet currently has an Inventory Management function that maintains information such as vaccine name, trade name, lot number,and quantity on hand. Deduct from Inventory feature automates inventory transaction adjustments when processing new immunizationsvia HL7 Data Exchange. Dose deductions will be recorded on existing inventory lots when there is sufficient data provided to allow system identification of a matching vaccine lot.*

***Increment to Inventory**: This is similar but opposite to Deduct from Inventory to re-adjust inventory totals if the inventory was deducted in error. For example,a deletion of a previously submitted vaccination will result in inventory to increment by 1.*

RXA-21 Action Code.

Allows an organization to add to or delete records. If it is left empty, then IMMUNET default to "A" for additions. To delete an existing immunization in IMMUNET, specify a value of "D". The immunization can only be deleted if it is owned by the same organization requesting the delete. No more than 5% of all incoming immunizations in a batch load file can be flagged as delete requests. The total number of delete requests in a single file cannot exceed 50 total.

Note: For updates and additions, organizations shall use "A" additions in RXA-21, IMMUNET determines whether to update the record or add a new immunization, to the patient record.
For organizations that allow deduct from inventory, via Data Exchange. RXA-9 must be '00' and the lot number in RXA-15, 'Lot-123ABC' in the example below, must match an active lot in IMMUNET's inventory. IMMUNET determines which lot to use, if multiple lots in IMMUNET's inventory match what is sent in RXA-15. After IMMUNET determines which lot to use, this lot will have its Quantity on Hand, decremented by 1.

Here is a sample RXA segment for an update and addition/decrement from inventory for an immunization:

```
RXA|0|1|20050919|20050919|08^HepB-Peds^CVX^90744^HepB-Peds^CPT|1.0|mL^^UCUM||00^New
Administered^NIP001|^FamilyName^GivenName^MiddleName^^^^^NPI^L|^^^Joe's Clinic||||Lot-
123ABC|201710|SKB^GlaxoSmithKline^MVX|||CP|A|
```

Note: For deletions, organizations shall use "D" additions in RXA-21. IMMUNET determines which immunization to delete, from the patient record.

For organizations that allow increment into inventory, via Data Exchange. RXA-9 must be '00' and the lot number in RXA-15, 'Lot-123ABC' in the example below, must match an active lot in IMMUNET's inventory. IMMUNET determines which lot to use, if multiple lots in IMMUNET's inventory match what is sent in RXA-15. After IMMUNET determines which lot to use, this lot will have its Quantity on Hand, incremented by 1.

Here is a sample RXA segment for deletion from patient record/increment into inventory for an immunization:

```
RXA|0|1|20050919|20050919|08^HepB-Peds^CVX^90744^HepB-Peds^CPT|1.0|mL^^UCUM||00^New
Administered^NIP001|^FamilyName^GivenName^MiddleName^^^^^NPI^L|^^^Joe's Clinic||||Lot-
123ABC|201710|SKB^GlaxoSmithKline^MVX|||CP|D|
```

RXR Segment

The Pharmacy/Treatment Route Segment contains the alternative combination of route and site.

SEQ	LEN	Data Type	Uasage	Cardinality	Value Set	ELEMENT NAME	Conditional Predicate	Comments
1		CE	R	[1.. 1]		Administration Route		The HL70162 table is supported for backwards compatibility.
1.1	1..50	ST	R	[1.. 1]		Indentifying Code		Valid Administered Route Code from the NCIT table
1.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		
1.3	1..20	ID	R	[1.. 1]	NCIT	Value Set identifier		
2		CWE	RE	[0.. 1]		Administration Site		
2.1	1..50	ST	R	[1.. 1]		Indentifying Code		Valid Administered Site Code from the HL70163 table
2.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		
2.3	1..20	ID	R	[1.. 1]	0163	Value Set identifier		

Field Notes:

RXR-1 This is the route of administration from NCIT table. The 0162 table, is supported for backwards compatibility.

RXR-2 This is the site of the route of administration from table 0163.

Example:

```
RXR|C28161^IM^NCIT|RT^Right Thigh^HL70163<CR>
```

OBX Sement

The Observation/Result Segment is used to transmit an observation.

SEQ	LEN	Data Type	Uasage	Cardinality	Value Set	ELEMENT NAME	Conditional Predicate	Comments
1	1..4	SI	R	[1.. 1]		SET ID - OBX		
2	2..3	ID	R	[1.. 1]	0125	Value Type		
3	10	CE	R	[1.. 1]		Observation Identifier		See Guidance below.
4	1..20	ST	R	[1.. 1]		Observation Sub-ID		Constrain to positive integers.
5	5	Varies	R	[1.. 1]	Varies	Observation Value		See Guidance below.
6		CE	C(R/O)	[0.. 1]	0163	Units	If OBX-2(Value Type) is valued “NM”, then OBX-6 is required to be sent.	
11	1	ID	R	[1.. 1]	0085	Observation Result Status		
14		TS_NZ	RE	[0.. 1]		Date/Time of the Observation		
17		CE	C(RE/O)	[0.. 1]		Observation Method	If OBX-3.1 is “64994-7”	64994 “-7” is a LOINC meaning “funding program eligibility”. This field is used to distinguish between eligibility that is captured at the visit level versus at the immunization event level.
17.1	1..50	ST	R	[1.. 1]		Indentifying Code		Constained to “VCX40”
17.2	1..999	ST	RE	[0.. 1]		Human readable text that may be used to review segment content.		Constrained to “Vaccine Level”
17.3	1..20	ID	R	[1.. 1]	CDCPH INVS	Value Set identifier		Constained to “CDCPHINVS”

Field Notes:

OBX-1 Sequential numbers. Use “1” for the first OBX within the message, “2” for the second, and so forth.

OBX-2 This field contains the data type which defines the format of the observation value in OBX-5. For incoming Provider-IMMUNET data, Data Exchange accepts CE for Coded Entry. However, for IMMUNET-Provider, the system will send out values of CE, TS, NM for Coded Entry, Timestamp, and Number respectively, depending on what is actually sent in OBX-5.

OBX-3 This field contains the observation’s unique identifier. Organizations send Logical Identifier Name and LOINC Codes. The Name of Coding System in the third component must be LN for LOINC, First component and second component must report the following:

- **30945-0 Vaccination Contraindication/Precaution**, use 30945-0 in this field and enter a Contraindication, Precaution, or Immunity code (NIP004) in OBX-5.

  Example : `OBX|1|CE|30945-0^Contraindication^LN|1|21^acute illness^NIP^^^|||||F|`

- **31044-1 Reaction to Immunization**, use 31044-1 in this field and enter a Reaction code (IMMUNET001) in OBX-5.

  Example: `OBX|1|CE|31044-1^Reaction^LN|1|HYPOTON^hypotonic^IMMUNET^^^|||||F|`

- **30948-4 Vaccination Adverse Event Outcome**, use 30948-4 in this field and enter an Event Consequence code (NIP005) in OBX-5.

  Example: `OBX|1|CE|30948-4^Adverse Outcome^LN|1|E^er room^NIP^^^|||||F|`

- **64994-7 VFC Eligibility to Immunization**, use 64994-7 in this field and enter a VFC Eligibility code (from the HL7 0064 table for Financial Class) in OBX-5.

  Example:

  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^^|||||||||||||

  OBX|1|CE|64994-7^Vaccine fund pgm elig cat^LN^^^|1|V05^Underinsured^HL70064|||||F|

- **30963-3 Vaccine Funding Source to Immunization**, use 30963-3 in this field and enter a Vaccine Funding Source code (from the NIP008 table) in OBX-5.

  Example:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^|||||||||||
  OBX|1|CE|30963-3^Vaccine purchased with^LN^^^|1|PBF^Public Funds^NIP008||||||F|

- **30945-0 Vaccine Contriandication**, use 30945-0 in this field and enter a New Concept Vaccine Contriandication code (from the **Vaccination Contraindications Value Set, Located in Appendix C**) in OBX-5.

  Example-1:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^|||||||||||
  OBX|1|CE|30945^Vaccination Contriandications^LN|1|VXC18^allergy to baker's yeast^CDCPHINVS||||||F|

  Example-2:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^|||||||||||
  OBX|1|CE|30945^Vaccination Contriandications^LN|1|91930004^allergy to eggs^SCT||||||F|

- **31044-1 Vaccine Reaction**, use 31044-1 in this field and enter a New Concept Vaccine Reaction code (from the **Vaccination Reactions Value Set, Located in Appendix C**) in OBX-5.

  Example-1:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^|||||||||||
  OBX|1|CE|31044-1^Vaccination Reaction^LN|1|VXC14^Rash within 14 days of dose^CDCPHINVS||||||F|

  Example-2:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^|||||||||||
  OBX|1|CE|31044-1^Vaccination Reaction^LN|1|39579001^Anaphylaxis^SCT||||||F|

- **59785-6 Vaccine Special Indications**, use 59785-6 in this field and enter a New Concept Vaccine Special Indications code (from the **Vaccination Special Indications Value Set, Located in Appendix C**) in OBX-5.

  Example:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^|||||||||||
  OBX|1|CE|59785-6^Vaccination Indication^LN|1|VXC7^exposure to rabies^CDCPHINVS ||||||F|

- **59784-9 History of Disease as Evidence of Immunity**, use 59784-9 in this field and enter a New Concept Disease as Evidence of Immunity code (from the **History of Disease as Evidence of Immunity, Located in Appendix C**) in OBX-5.

  Example:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^|||||||||||
  OBX|1|CE|59784-9^Disease with Presumed Immunity^LN|1|16541001^Yellow fever^SCT||||||F|

- **75505-8 Serological Evidence of Immunity**, use 75505-8 in this field and enter a New Concept Serological Evidence of Immunity code (from the **Serological Evidence of Immunity, Located in Appendix C**) in OBX-5.

  Example:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^|||||||||||
  OBX|1|CE|75505-8^Serological Evidence of Immunity^LN|1|341112003^Mumps^SCT||||||F|

For Batch HL7 IMMUNET-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, the system uses this field to send the LOINC Codes for **Series information** for combination vaccines. For each component of a combination vaccine, the system sends out a grouped set of two OBX segments. The first segment identifies the component antigen, and the second segment identifies the Series count. OBX-3 is used to identify whether the component antigen or the valid series count is noted in OBX-5 respectively.

Here are the LOINC Codes that the system sends in OBX-3 for Series information for combination vaccines.

LOINC Code	Description
38890-0	Component Vaccine Type. This term is used to distinguish separate vaccine components of a multiple antigen vaccine. Included in LOINC 1/2005.
30973-2	Dose Number in Series

In the following example, the LOINC Codes are highlighted in OBX-3. These two OBX segments together express that a dose of combination vaccine counts for the 1st dose of DtaP in the DtaP series.

OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|20^DtaP^CVX^90700^DtaP^CPT||||||F|
OBX|2|NM|30973-2^Dose number in series^LN|1|1||||||F|

Please see the end of the OBX field notes for a complete example of how IMMUNET sends Series information for combination vaccines.

For Batch HL7 IMMUNET-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, the system uses this field to send the LOINC Codes for **Recommendations**. For each recommendation, the system sends a grouped set of five OBX segments. Here are the LOINC Codes that the system sends out in OBX-3 for Recommendations. The LOINC itself is sent in OBX-3 in order to identify what the value in OBX-5 represents.

LOINC Code	Description
30979-9	Vaccines Due Next
30980-7	Date Vaccine Due
30973-2	Vaccine due next dose number
30981-5	Earliest date to give
59777-3	Vaccine latest date
59778-1	Vaccine overdue date
59779-9	Immunization Schedule Used

In the following example, the LOINC Codes are highlighted in OBX-3 for a single recommendation of HepB.

OBX|11|CE|30979-9^Vaccines Due Next^LN^^^|3|45^HepB^CVX^90731^HepB^CPT||||||F|
OBX|12|DT_T|30980-7^Date Vaccine Due^LN^^^|3|20050103||||||F|
OBX|13|NM|30973-2^Vaccine due next dose number^LN^^^|3|1||||||F|
OBX|14| DT_T|30981-5^Earliest date to give^LN^^^|3|20050103||||||F|
OBX|15|CE|59779-9^Immunization Schedule Used^LN|3|VXC16^ACIP schedule^CDCPHINVS||||||F

Please see the end of the OBX field notes for a complete example of how IMMUNET sends Recommendations.

OBX-4 For sending out Series Information and Recommendations, the number in this field groups together related OBX segments. For example, a single recommendation for DTP/aP is sent in a grouped set of five OBX segments, all with the same sub-identifier in OBX-4. The sub-identifier increments sequentially.

For example, IMMUNET sends out five grouped OBX segments for each recommendation. The following is a single MMR recommendation, all sharing the same Observation sub-ID of 4 in OBX-4.

OBX|16|CE|30979-9^Vaccines Due Next^LN^^^|4|03^MMR^CVX^90707^MMR^CPT||||||F|
OBX|17|DT_T|30980-7^Date Vaccine Due^LN^^^|4|20050407||||||F|
OBX|18|NM|30973-2^Vaccine due next dose number^LN^^^|4|2||||||F|
OBX|19|DT_T|30981-5^Earliest date to give^LN^^^|4|20021105||||||F|
OBX|20|CE|59779-9^Immunization Schedule Used^LN|4|VXC16^ACIP schedule^CDCPHINVS||||||F

OBX-5 Text reporting Contraindication, Precaution, or Immunity (NIP004), Reaction (MD001), or Event Consequence (NIP005), Vaccine Funding Source (NIP008) or VFC Eligibility (HL70064). IMMUNET has imposed a CE data type upon this field. The first component of which is required.
(e.g., |PERTCONT^Pertussis contra^IMMUNET^^^|

For Batch HL7 IMMUNET-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, this field holds the value observed for series information and recommendations. The value corresponds to the LOINC in OBX-3. For example, for recommendations, the fourth OBX segment is for the Earliest date. OBX-3 contains the code 30979-9&30981-5 and OBX-5 contains the actual earliest date as follows:

OBX|4|DT_T|30981-5^Earliest date to give^LN^^^|1|20010519||||||F|

Please see the end of the OBX field notes for complete examples of how IMMUNET sends Series for combination vaccines and Recommendations.

OBX-11 Required for HL7. Use "F" for IMMUNET.
OBX-14 Records the time of the observation. IMMUNET ignores any time component.
OBX-17 Records the method or procedure by which an observation was obtained when the sending system wishes to distinguish among one measurement obtained by different methods and the distinction is not implicit in the test ID. If "64994-7" is sent in OBX-3, IMMUNET requests that OBX-17 is sent as follows:
`|VXC40^Vaccine Level^CDCPHINVS|`

NOTE 1: The only valid OBX Observation Identifier (OBX-03) for an **ADT^A31** message type is Contraindication/Precaution (30945-0).

NOTE 2: All OBX messages with an observation identifier of Vaccination Contraindication/Precaution will be returned in an outgoing file in a separate ADT message for the patient.

NOTE 3: Complete Example of IMMUNET's use of OBX to send Series Information for Combination Vaccines

A single dose of combination vaccine may have a different series dose count for each component. For Batch HL7 IMMUNET-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, the system sends a grouped set of two OBX segments for each component in a combination vaccine. For example, a single dose of Dtap-Hib is sent as below. The first and second OBX segments express the dose count of 1 for DtaP. The third and fourth OBX segments express the dose count of 3 for Hib.

RXA|0|999|19810807|19810807|50^DtaP-Hib^CVX^90721^DtaP-Hib^CPT|1.0|||01^^^^^~32851914^IMMUNET immunization id^IMM_ID^^^||||||||||
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|20^DtaP^CVX^90700^DtaP^CPT||||||F|
OBX|2|NM|30973-2^Dose number in series^LN|1|1||||||F|
OBX|3|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|17^Hib^CVX^90737^Hib^CPT||||||F|
OBX|4|NM|30973-2^Dose number in series^LN|2|3||||||F|
OBX|5|DT_T|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|2|19981216||||||F|
OBX|6|NM|30973-2^Dose number in series^LN|2|3||||||F|

NOTE 4: Complete Example of IMMUNET's use of OBX to send Recommendation Information

For Batch HL7 IMMUNET-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, a single recommendation is sent in a grouped set of five OBX-segments, which follow a place-holder RXA segment that does not represent any actual immunization administered to the patient. The five OBX segments in order express the Vaccine of the recommendation, the recommended date, the dose of the next vaccine due, the earliest date to give, and the reason for the recommendation, which is always the ACIP schedule.

ORC|RE||0
RXA|0|1|19740625|19740625|998^No Vaccine Administered^CVX|999||||||||||||||A
OBX|1|CE|30979-9^Vaccines Due Next^LN|0|^^^90592^Cholera^CPT||||||F
OBX|2|DT_T|30980-7^Date Vaccine Due^LN|0|19980123||||||F
OBX|3|NM|30973-2^Vaccine due next dose number^LN|0|2||||||F
OBX|4|DT_T|30981-5^Earliest date to give^LN|0|19980123||||||F
OBX|5|DT_T|59778-1^Vaccine Overdue Date^LN|0|19980316||||||F
OBX|6|CE|59779-9^Immunization Schedule Used^LN|0|VXC16^ACIP schedule^CDCPHINVS||||||F
OBX|7|CE|30979-9^Vaccines Due Next^LN|1|45^HepB^CVX^90731^HepB^CPT||||||F
OBX|8|DT_T|30980-7^Date Vaccine Due^LN|1|19740625||||||F
OBX|9|NM|30973-2^Vaccine due next dose number^LN|1|1||||||F
OBX|10|DT_T|30981-5^Earliest date to give^LN|1|19740625||||||F
OBX|11|DT_T|59778-1^Vaccine Overdue Date^LN|1|19740925||||||F
OBX|12|CE|59779-9^Immunization Schedule Used^LN|1|VXC16^ACIP schedule^CDCPHINVS||||||F
OBX|13|CE|30979-9^Vaccines Due Next^LN|2|88^Influenza^CVX^90724^Influenza^CPT||||||F
OBX|14|DT_T|30980-7^Date Vaccine Due^LN|2|20170705||||||F
OBX|15|NM|30973-2^Vaccine due next dose number^LN|2|3||||||F
OBX|16|DT_T|30981-5^Earliest date to give^LN|2|20160802||||||F
OBX|17|DT_T|59778-1^Vaccine Overdue Date^LN|2|20180105||||||F

OBX|18|CE|59779-9^Immunization Schedule Used^LN|2|VXC16^ACIP schedule^CDCPHINVS|||||F
OBX|19|CE|30979-9^Vaccines Due Next^LN|3|108^Meningo^CVX|||||F
OBX|20|DT_T|30980-7^Date Vaccine Due^LN|3|19940131|||||F
OBX|21|NM|30973-2^Vaccine due next dose number^LN|3|5|||||F
OBX|22|DT_T|30981-5^Earliest date to give^LN|3|19890328|||||F
OBX|23|DT_T|59777-3^Vaccine latest Date^LN|3|20300624|||||F
OBX|24|DT_T|59778-1^Vaccine Overdue Date^LN|3|19940228|||||F
OBX|25|CE|59779-9^Immunization Schedule Used^LN|2|VXC16^ACIP schedule^CDCPHINVS|||||F

The ability to send Recommendations in these grouped OBX segments applies to HL7 Version 2.5.1 It applies to Batch HL7 IMMUNET-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract. Some configuration is needed to send Recommendations in this way. On the Manage Data Exchange Screen, the **Send HL7 Series/Recommend** option displays, and the user must select either "Recommendations Only" or "Both" from the pick list. (This option is hidden if Flat File or HL7 Provider-IMMUNET is chosen.)

The Send Series/Recommend option also displays on the Organization Extract Screen when the user chooses the HL7 2.5.1 Transaction Format.

If the user configures the system so that it will **not** send recommendations, then the system will omit sending the grouped set of five OBX segments entirely.

Batch Files of HL7 Messages

The definitions above tell how to create messages containing patient and immunization data. Each message can logically stand on its own and HL7 is compatible with various methods of online and batch transmission. IMMUNET uses batch files to transmit many messages together. HL7 provides special header and footer segments to structure batch files. These segments are not part of any message, but serve to bracket the messages defined above. The structure of a batch file is as follows.

```
FHS          (file header segment)
{ BHS        (batch header segment)
 { [MSH        (zero or more HL7 messages)
      ....
      ....
      ....
] }
  BTS        (batch trailer segment)
}
FTS          (file trailer segment)
```

FHS Segment

File Header Segment

The FHS segment is used to head a file (group of batches).

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**1**	**ST**	**R**			**File Field Separator**
2	**4**	**ST**	**R**			**File Encoding Characters**
3	15	ST				File Sending Application
4	20	ST				File Sending Facility
6	20	ST				File Receiving Facility
7	26	TS				File Creation Date/Time
9	20	ST				File Name/ID
10	80	ST				File Header Comment
11	20	ST				File Control ID
12	20	ST				Reference File Control ID

Field Notes:

FHS-1 Same definition as the corresponding field in the MSH segment.
FHS-2 Same definition as the corresponding field in the MSH segment.
FHS-3 Same definition as the corresponding field in the MSH segment.
FHS-4 Same definition as the corresponding field in the MSH segment.
FHS-6 Same definition as the corresponding field in the MSH segment.
FHS-7 Same definition as the corresponding field in the MSH segment.
FHS-9 Name of the file as transmitted from the initiating system.
FHS-10 Free text, which may be included for convenience, but has no effect on processing.
FHS-11 This field is used to identify a particular file uniquely among all files sent from the sending facility identified in FHS-4.
FHS-12 Contains the value of FHS-11-file control ID when this file was originally transmitted. Not present if this file is being transmitted for the first time.

FTS Segment

File Trailer Segment

The FTS segment defines the end of a file.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**10**	**NM**	**R**			**File Batch Count**
2	80	ST				File Trailer Comment

Field Notes:

FTS-1 The number of batches contained in this file. IMMUNET normally sends one batch per file and discourages sending multiple batches per file.
FTS-2 Free text, which may be included for convenience, but has no effect on processing.

BHS Segment

Batch Header Segment

The BHS segment defines the start of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**1**	**ST**	**R**			**Batch Field Separator**
2	**4**	**ST**	**R**			**Batch Encoding Characters**
3	15	ST				Batch Sending Application
4	20	ST				Batch Sending Facility
6	20	ST				Batch Receiving Facility
7	26	TS				Batch Creation Date/Time
10	80	ST				Batch Comment
11	20	ST				Batch Control ID
12	20	ST				Reference Batch Control ID

Field Notes:

BHS-1 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 segment. IMMUNET requires | (ASCII 124).
BHS-2 This field contains the four characters in the following order: the component separator, repetition separator, escape characters and sub-component separator. IMMUNET requires ^~\&, (ASCII 94, 126, 92 and 38 respectively).
BHS-3 Same definition as the corresponding field in the MSH segment.
BHS-4 Same definition as the corresponding field in the MSH segment.

BHS-6 Same definition as the corresponding field in the MSH segment.
BHS-7 Same definition as the corresponding field in the MSH segment.
BHS-10 Free text, which may be included for convenience, but has no effect on processing.
BHS-11 This field is used to uniquely identify a particular batch. It can be echoed back in *BHS-12-reference batch control ID* if an answering batch is needed. For IMMUNET purposes, the answering batch will contain ACK messages.
BHS-12 This field contains the value of *BHS-11-batch control ID* when this batch was originally transmitted. Not present if this batch is being sent for the first time. See definition for *BHS-11-batch control ID*.

BTS Segment

Batch Trailer Segment

The BTS segment defines the end of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**10**	**ST**	**M**			**Batch Message Count**
2	80	ST				Batch Comment

Field Notes:
BTS-1 This field contains the count of the individual messages contained within the batch.
BTS-2 Free text, which can be included for convenience, has no effect on processing.

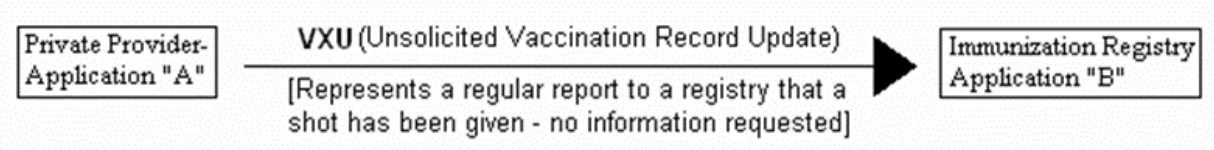
Interchange between IMMUNET and Outside Systems using the Batch user interface

The central repository of IMMUNET contains records of patients from around the state. Patient and immunization records flow both ways between IMMUNET and outside systems. Data, for a particular client, is transmitted by IMMUNET to an outside system (Provider Organization) only if the patient is identified as having an Active relationship with that Organization AND the relationship was created by transmitting the patient's record to IMMUNET or by creating the relationship via the IMMUNET-Web interface. So, an exchange of information about a given patient is always initiated by the outside system. There are three options for exchanging data with IMMUNET:

(1) The Provider Organization can send data to IMMUNET and request that no data is returned from IMMUNET, which is a Provider Organization to IMMUNET data transfer.
(2) The Provider Organization can request data from IMMUNET while not providing data to IMMUNET, which is a IMMUNET to Provider Organization data transfer.
(3) The Provider Organization can send data to IMMUNET and IMMUNET will return any updated information regarding any patients that have an Active relationship with that Provider Organization, which is a Bi-directional data transfer.

HL7 messages are always part of a two-way exchange between an initiating system and a responder. Sometimes the initial message implies specific data to be sent in a response. Other times, as is the case with IMMUNET patient and immunization data, the principal response of the responder is to process the message and post whatever it contains to its own database. For these cases, the responder provides the Z23(ACK) message type in an HL7 format, which contains no new application data, but allows the receiver to inform the initiator that the message has been received and processed successfully. If an error prevents successful processing, optional parts of the Z23(ACK) message will allow this to be communicated as well.

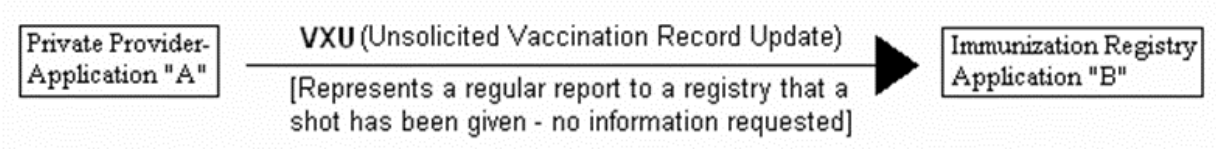
For exchanges between IMMUNET and outside systems, which is a Provider Organization to IMMUNET data transfer, it is the responsibility of the outside system to initiate the transfer of the first file, containing ADT(only for updating demographic information) and/or Z22(VXU) messages with patient and immunization data for adding or updating patient and immunization data. After processing those messages, IMMUNET responds with a response file of Z23(ACK) messages.

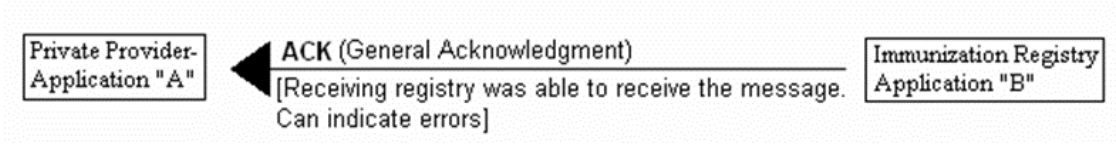


	Provider Organization	IMMUNET	
		Outgoing	**Receiving**
1.	Creates a file of patient and immunization records that are new or have changed since they were last transmitted to IMMUNET.		
2.	Transmits the file to IMMUNET through the user interface.		
3.			Processes the file received, creates a file of Z23(ACK) messages.
4.		Posts the Z23(ACK) file for the initiator to pick up via the web-interface of the original file submitted.	
5.	Processes the ACK file to confirm success of the file transmission.		

For exchanges between IMMUNET and outside systems, which is a Bi-directional data transfer, it is the responsibility of the outside system to initiate the transfer of the first file, containing ADT(only for updating demographic information) and/or Z22(VXU) messages with patient and immunization date for adding or updating patient and immunization data. After

processing those messages, IMMUNET responds with a response file of Z23(ACK) messages. At the same time or soon after, IMMUNET also creates another file of ADT and Z22(VXU) messages, containing the full patient record(if the patient was new), to send to the Provider Organization that initiated the first transfer. It is the responsibility of the Provider Organization as receiver to transmit back a file of Z23(ACK) messages.





	Provider Organization	IMMUNET	
		Outgoing	**Receiving**
1.	Creates a file of patient and immunization records that are new or have changed since they were last transmitted to IMMUNET.		
2.	Transmits the file to IMMUNET through the user interface.		
3.			Processes the file received, creates a file of Z23(ACK) messages.
4.			Creates a file of any active patient and immunization records that have changed since they were last transmitted to this Provider Organization.
5.		Posts the Z23(ACK) file for the initiator to pick up via the web-interface of the original file submitted.	
6.		Posts the file of patient and immunization records that have changed since they were last transmitted to this Provider Organization to pick up via the web-interface.	
7.	Processes the Z23(ACK) file to confirm success of the file transmission.		
8.	Processes the file of patient and immunization records that have changed since they were last transmitted to this Provider Organization.		

The 15th field, in the MSH message header segment, allows the initiator to ask that the message be acknowledged only in the case of an error and IMMUNET supports this in order to minimize the number of Z23(ACK) messages transmitted. In this case, the Z23(ACK) file contains only error messages (an optional form of the Z23(ACK) message type). The original messages, with no answering error messages, are implicitly acknowledged as successfully processed. If all messages in a batch are successful, the answering Z23(ACK) file will only contain file batch headers and footers, with no actual Z23(ACK) messages. For Step 2, in the above table, it is permissible for a Provider Organization to send a file containing only file batch headers and footers as a way of triggering the file that IMMUNET creates in Step 6. It is also possible that the file, IMMUNET creates in Step 6, will contain only file batch headers and footers if there are no records to send.

Examples

To illustrate how a IMMUNET HL7 file is put together we will document how the fictional organization, Valley Clinic (sending organization ID 036), formats patient and immunization records to be transmitted to IMMUNET. The following table displays the information to be transmitted and it is organized into HL7 segments and fields. For example, PID-3 refers to the third field in the Patient Identification segment.

Information to transmit	Data value to be entered	HL7 Format
• Patient #1		PID segment
• Chart Number (ID on Valley Clinic's system)	45LR999 MDA PI	PID-3
• Name	GEORGE M MILLER JR	PID-5
• Mother's maiden name	MARTHA OLSON	PID-6
• Birth date	February 27, 1995	PID-7
• Sex	M	PID-8
• Address	123 Main St, PO Box1, Abell MD, 20606 USA H Saint Marys	PID-11
• Multiple Birth Indicator	Y (patient was born as part of a multiple birth)	PID-24
• Birth Order	2 (second birth of a multiple birth)	PID-25
• Additional Patient Demographics		PD1 segment
• Publicity Code	02	PD1-11
• Protection Indicator	N (patient records are visible by other provider organizations)	PD1-12
• Patient Registry Status	A (client is active in the registry)	PD1-14
• Responsible Person (parent or other person who cares for patient)		NK1 segment
• Name	MARTHA MILLER	NK1-2
• Relationship to patient	MTH	NK1-3
• Address	123 Main St, PO Box 1, Abell MD, 20606 USA H Saint Marys	NK1-4
• Phone	608 123 4567	NK1-5
• Responsible Person		NK1 segment
• Name	GEORGE MILLER	NK1-2
• Relationship to patient	FTH	NK1-3
• Order Request		ORC segment
• Order Control	'RE' typically entered, but is ignored by IMMUNET.	ORC-1
• Filler Order Number	Is used to identify uniquely this order among all orders sent by a provider organization that filled the order. '1572695^GW'	ORC-3
• Entered By	This is the person who entered the immunization record into the system. 'Entered By Me'	ORC-10
• Immunization		RXA segment
• Date administered	June 21,1998	RXA-3
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Dose size	0.5	RXA-6
• Historic (not owned) Immunization	01	RXA-9
• Administering Organization	West Pediatric	RXA-11
• Completion Status	CP (Complete)	RXA-20
• Action Code	A (Add)	RXA-21
• Observation Result		OBX segment
• Set ID-OBX	1 (Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.)	OBX-1
• Value Type	CE	OBX-2

Information to transmit	Data value to be entered	HL7 Format
• Observation Identifier	64994-7 (LOINC identifying VFC Eligibility)	OBX-3
• Observation Value	V04 (VFC Eligibility code)	OBX-5
• Observation Method	VXC40	OBX-17
• Patient #2		PID segment
• Chart Number	23LK729 MDA PI	PID-3
• Name	MARIA CALIFANO	PID-5
• Mother's maiden name	ANGELICA DISTEFANO	PID-6
• Birth date	April 13, 1998	PID-7
• Sex	F	PID-8
• Order Request		ORC segment
• Order Control	'RE' typically entered, but is ignored by IMMUNET.	ORC-1
• Filler Order Number	Is used to identify uniquely this order among all orders sent by a provider organization that filled the order. '1572696^GW'	ORC-3
• Ordering Provider	This shall be the provider ordering the Immunization. It is expected to be empty if the immunization record is transcibed from a historical record. 'Johns Clinic'	ORC-12
• Entering Organization	This is the provider organization that entered this record/order 'Johns Clinic on Second Street'	ORC-17
• Immunization		RXA segment
• Date administered	July 23, 1999	RXA-3
• Vaccine	DtaP	RXA-5
• CPT Code	90700	RXA-5
• Dose size	0.5	RXA-6
• Historic Immunization	01	RXA-9
• Administering Organization	East Clinic	RXA-11
• Immunization		RXA segment
• Date administered	July 23,1999	RXA-3
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Dose size	0.5	RXA-6
• Ownership of Immunization	00	RXA-9
• Administering Provider	Dr John J Smith MD	RXA-10
• Administering Organization	Valley Clinic	RXA-11
• Lot number	BC19487	RXA-15
• Lot Manufacturer	AB (this manufacturer is Abbott - the code is found in the valid list in HL7 Table 0227.)	RXA-17
• Observation Result		OBX segment
• Set ID-OBX	1 (Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.)	OBX-1
• Value Type	CE	OBX-2
• Observation Identifier	64994-7 (LOINC identifying VFC Eligibility)	OBX-3
• Observation Value	V04 (VFC Eligibility code)	OBX-5
• Set ID-OBX	1 (Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.)	OBX-1
• Value Type	CE	OBX-2
• Observation Identifier	30963-3 (LOINC identifying VFC Funding Type)	OBX-3
• Observation Value	PBF (VFC Funding Type)	OBX-5
• Observation Method	VXC40	OBX-17
• Patient #3		PID segment

Information to transmit	Data value to be entered	HL7 Format
• Chart Number	92HG9257 MDA PI	PID-3
• Name	JOSEPH FISHER	PID-5
• Mother's maiden name	MARY LASOWSKI	PID-6
• Birth date	May 28, 1998	PID-7
• Sex	M	PID-8
• Order Request		ORC segment
• Order Control	'RE' typically entered, but is ignored by IMMUNET.	ORC-1
• Filler Order Number	Is used to identify uniquely this order among all orders sent by a provider organization that filled the order. '1572696^GW'	ORC-3
• Immunization		RXA segment
• Date administered	July 23, 1999	RXA-3
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Dose	0.5	RXA-6
• Ownership of Immunization	00	RXA-9
• Administering Provider	Dr John J Smith MD	RXA-10
• Administering Organization	Valley Clinic	RXA-11
• Lot number	AD18227	RXA-15
• Lot expiration date	December 12, 1999	RXA-16
• Lot manufacturer	FLYBYNIGHT LABORATORIES (this manufacturer is not found in the valid list in HL7 Table 0227. The message will still be accepted in IMMUNET, with the manufacturer set to unknown.)	RXA-17
• Observation Result		OBX segment
• Set ID-OBX	1 (Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.)	OBX-1
• Value Type	CE	OBX-2
• Observation Identifier	64994-7 (LOINC identifying VFC Eligibility)	OBX-3
• Observation Value	V04 (VFC Eligibility code)	OBX-5
• Observation Method	VXC40	OBX-17
• Set ID-OBX	1 (Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.)	OBX-1
• Value Type	CE	OBX-2
• Observation Identifier	30963-3 (LOINC identifying VFC Funding Type)	OBX-3
• Observation Value	PVF (VFC Funding Type)	OBX-5

In an HL7 message, each segment is a single text line, ending with the carriage return character. In the examples, long lines are broken artificially for display purposes and the carriage return character is denoted by <CR>.

```
FHS|^~\&||VALLEY CLINIC^036||IMMUNET|20170402091523||filename1.hl7|WEEKLY HL7
      UPLOAD|00009972<CR>
BHS|^~\&||VALLEY CLINIC^036||IMMUNET|20170402091523||||00010223<CR>
MSH|^~\&||036^036|SENDING APP NAME|IMMUNET|20170402091524-
      400||VXU^V04^VXU_V04|00000123|P|2.5.1|||RE|AL|||||Z22^CDCPHINVS|<CR>
PID|||45LR999^^^MDA^PI||MILLER^GEORGE^M^JR|OLSON^MARTHA|19950227|M|||123 MAIN ST^PO
      BOX 1^Abell^MD^20606^USA^H^^Saint Marys||||||||||||Y|2<CR>
PD1 ||||||||||02^REMINDER/RECALL - ANY MENTOD^HL70215|Y| |A<CR>
NK1|1|MILLER^MARTHA|MTH^Mother^HL70063|123 MAIN ST^^BALTIMORE^MD^53000^US^^^1843
      |(608)123-4567<CR>
NK1|2|MILLER^GEORGE|FTH^Father^HL70063<CR>
ORC|RE||1572695^GW|||||||Me^Entered^By||
```

```
RXA|0|999|19990723|19990621|^^^90707^MMR^CPT|0.5|||01||^^^WEST
      PEDIATRIC|||||||||CP|A|<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig
      cat^LN|1|V04^^HL70064||||||F|||19990621|||VXC40|
OBX|2|CE|30963-3^Vaccine purchased with^LN^^^||PBF^Public
      funds^NIP008^^^||||||F||||||
MSH|^~\&||036^036||IMMUNET|20170402091524-
      400||VXU^V04^VXU_V04|00000124|P|2.5.1|||ER|AL|||||Z22^CDCPHINVS|<CR>
PID|||66782^^^SR^~23LK729^^^^PI|CALIFANO^MARIA|DISTEFANO^ANGELICA|19980413|F<CR>
ORC|RE||1572696^GW|||||||||
RXA|0|1|19990723|19990723|^^^90700^DtaP^CPT|0.5|||01|VALLEY CLINIC|^^^^EAST
      CLINIC|||||||||CP|A<CR>
ORC|RE||1572697^GW|||||||||Johns Clinic|||||Johns Clinic on Second Street|
RXA|0|1|19990723|19990723|^^^90707^MMR^CPT|0.5VALLEY
      CLINIC|||00|^SMITH^JOHN^J^MD^^^^^^^OEI |^^^Valley Clinic||||BC18227|
      |AB^ABBOTT^HL70227|||CP|A|<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig
      cat^LN|1|V04^^HL70064||||||F|||19990723||||VXC40|
MSH|^~\&||VALLEY CLINIC^036||IMMUNET|19990802091526||VXU^V04|00000125|P|2.4|||ER<CR>
PID|||927389^^^^SR^~92HG9257^^^^PI|FISHER^JOSEPH|LASOWSKI^MARY|19980528|M<CR>
ORC|RE||1572697^GW|||||||||
RXA|0|1|19990729|19990729|^^^90707^MMR^CPT|0.5VALLEY
      CLINIC|||00|^SMITH^JOHN^J^MD^^^^^^^OEI|^^^Valley Clinic||||AD19487|
      19991212|ZZ^FLYBYNIGHT LABORATORIES^HL70227|||||A<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig
      cat^LN|1|V04^^HL70064||||||F|||19990729||||VXC40|
OBX|2|CE|30963-3^Vaccine purchased with^LN^^^||PVF^Private
      funds^NIP008^^^||||||F||||||
BTS|3<CR>
FTS|1<CR>
```

Note: When a patient is being introduced to IMMUNET, the Z22(VXU) message must precede the ADT message, since IMMUNET must have at least one immunization for a patient before being added to the database. Sending ADT and Z22(VXU) messages for the same patient is redundant, since the Z22(VXU) message is capable of reporting all information that is also found in the ADT.
In the example above, Valley Clinic sends a file of three HL7 messages to IMMUNET. Batch header/footer segments bracket the messages. The first message type is an ADT, which is used to send patient demographic data without including immunization information. This message type MUST follow a Z22(VXU) message for the patient if the patient is new to the IMMUNET system. IMMUNET recommends that Z22(VXU's) be used for updating both demographic and immunization information.

Patient George M Miller Jr. is identified by Valley Clinic's Patient ID, 45LR999, in his PID segment. The message could have included George's IMMUNET ID number in field PID-3, but does not have to, if it is not recorded in Valley Clinic's system. George's mother's maiden name, birth date, sex, and address also serve to identify him. Some other optional fields are not present, including some fields from the full HL7 standard not defined in this document because they are not used by IMMUNET. Fields not present do not diminish the number of "|" delimiters, so later fields can be identified by ordinal position in the segment. Two NK1 segments give some information for George's mother and father, just the minimum required for his father, with address and telephone fields for his mother.
The next two PID segments in the second and third messages give a IMMUNET patient ID in field PID-3. This must have been transmitted earlier from IMMUNET to Valley Clinic's system. In this case it is legitimate to omit more of the optional PID fields, since IMMUNET must have at least the minimum required information for these patients even to create a record. However, if there is a possibility that Valley Clinic has new or changed information to send to IMMUNET, these fields should be present, and it does no harm to repeat fields even if they have been transmitted previously.

```
FHS|^~\&|IMMUNET|IMMUNET||VALLEY
      CLINIC|19990803200106||filename2.hl7||000023479|00009972<CR>
BHS|^~\&|IMMUNET|IMMUNET||VALLEY CLINIC|19990803200116||||00004321|00010223<CR>
MSH|^~\&|IMMUNET|IMMUNET||VALLEY
      CLINIC|19990803200117||ACK^V04|00000456|P|2.5.1|||NE|NE||||||Z23^CDCPHINVS|<CR>
MSA|AA|00000123<CR>
MSH|^~\&|IMMUNET|IMMUNET||VALLEY
      CLINIC|19990803200119||ACK^V04|00000458|P|2.5.1|||NE|NE||||||Z23^CDCPHINVS|<CR>
MSA|AE|00000125|INVALID MANUFACTURER CODE<CR>
```

```
ERR|RXA^152^17^1<CR>
BTS|2|<CR>
FTS|1<CR>
```

IMMUNET answers the file from the above example with a file of ACK messages. Valley Clinic's message 00000123 (this is the record code entered in MSH-10 and used to identify the individual record) had the value AL in field MSH-15, asking for acknowledgements of all messages. The value AA in MSA-1 indicates that this message was processed without error. The next message, 00000124, uses the value ER to ask for acknowledgement only in case of errors, so this message is acknowledged implicitly by the absence of an ACK message for it. This example while legitimate is for purposes of illustration and most providers will probably prefer to follow the IMMUNET recommendation of error acknowledgements only. The last message, 00000125, did contain an error, and the ERR segment in its acknowledgement indicates the segment ID (RXA) of the segment, the line number (152) where it appears in the input file, the errant field (17)and the field component (1). . The MSA segment contains the error message. Errors will be generated for missing required data, invalid data or any other deviance from the form and content of messages as specified in this document. If all three messages in the first file above had requested error acknowledgement only and none had any errors, then the answering file from IMMUNET would contain just the FSH, BHS, BTS, and FTS segments. All the messages would be implicitly acknowledged as successfully processed.

In the sample file exchange above, the outside system initiated the exchange with the file of ADT and VXU segments and IMMUNET responded with ACK segments. The format is identical when IMMUNET sends ADT and VXU segments out and the ACK responses are similar too. In the FHS, BHS, and MSH segments, the values of the fourth and sixth fields are reversed to show sender and receiver. IMMUNET always sends its own patient identifier in the required field PID-03 and includes the outside system's identifier in PID-03 if known. Outside systems are encouraged to store IMMUNET's patient ID, and use it in PID-03 when sending to IMMUNET. This provides a firm basis for patient identification makes processing easier for the IMMUNET system and avoids errors in storing patient information, such as creation of duplicate records when an insufficiently identified patient record cannot be matched with a record already in the IMMUNET database. Though IMMUNET makes a great effort to match patient records effectively, use of the IMMUNET patient ID is the best guarantee of clean and useful data.

Real-time Processing Using SOAP and Web-Services

"Real-time" processing refers to the ability to transmit an HL7 2.5.1 formatted QBP^Q11^QBP_Q11 Message (Query for Vaccination Record) and a VXU^V04VXU_V04 Message (Unsolicited Vaccination Update) and receive from IMMUNET the resulting HL7 2.5.1 Response Message in real time.

A provider organization will query a registry to get information on a certain client (i.e. send an HL7 2.5.1 QBP^Q11^QBP_Q11 message) and will receive an HL7 2.5.1 Message Response (i.e. RSP^K11^RSP_K11 with one of three response profiles specified in MSH-21, or ACK) to that query in real time.

The RSP^K11_RSP_K11 Response Message will contain the response profile identifier in MSH-21, which will identify the response profile information that will follow in the message.

There are four (RSPs)Response Profiles (specified in MSH-21):

1. Z31^CDCPHINVS – Multiple candidate list, for both the Z34 and Z44 QBPs.
2. Z32^CDCPHINVS – Exact candidate match, for a Z34(QBP).
3. Z33^CDCPHINVS – No candidate match found in the registry, for both the Z34 and Z44 QBPs.
4. Z42^CDCPHINVS – Exact candidate match, for a Z44(QBP).

Web Services is a messaging and technology standard that provides the ability for systems to communicate across enterprise boundaries in a language neutral manner. ImmuNet now has a web-service interface that allows providers to send and receive HL7 messages in real-time. With real-time data exchange, up-to-date health information is immediately available to health care providers using ImmuNet, improving the information used in making clinical decisions.

To use web services you must have a URL to a web server and the knowledge of what messages can be received at that server. Some servers will require a username and password; additional parameters may also be required. Some software requires a wsdl this can be obtained by using the URL and concatenating "?wsdl" to the end.

When an HL7 message is created and sent to the Web-Service server, it will be processed and a message will be returned. These messages are Simple Object Access Protocol (SOAP) messages and are constructed and decoded by third party software. Each message will include a command or response. A response will typically include an optional piece called a "payload" of information.

ImmuNet Web-service Information:

ImmuNet has 2 message types that can be used:

- connectivityTest
- submitSingleMessage

The connectivityTest consists of one required parameter:

- echoBack – Will contain the message to be returned if the message was successfully received, validating the connection was successful.

The submitSingleMessage consists of 4 required parameters:

- username – Supplied by ImmuNet staff.
- password – Supplied by ImmuNet staff.
- facilityID – Supplied by ImmuNet staff.
- hl7Message – Sender supplies this information. This is an HL7 message using version v2.5.1. (Note: web-services does not accept batch files.)

The URLs used by ImmuNet are:

- UAT region: https://immunet.health.maryland.gov/mdws/client_Service?wsdl
- PRD region: https://www.mdimmunet.org/mdws/client_Service?wsdl

In order for a provider/vendor to utilize ImmuNet Web-services, they will need to contact the ImmuNet Help Desk. The ImmuNet staff will then provide the appropriate WS User Name, WS Password, facilityID, and the URL to the Web-service server. Organizations must have a program that can make web service requests. In most cases, providers will be able to utilize their current immunization software.

Note: ImmuNet cannot configure the provider's software as it is nearly impossible to have all of the knowledge needed to configure every piece of web service software made.

The following section outlines the various message types that are sent in real-time files.

Real-time files that provider organizations send to the IMMUNET can contain any of the following message types.

Real-time Process Message Types

Z22(VXU^V04^VXU_V04)
Unsolicited Vaccination Update

MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographic
[{NK1}]	Next of Kin / Associated Parties
{ORC}	Order Control
RXA	Pharmacy / Treatment Administration (at least ONE RXA is REQUIRED by IMMUNET)
[RXR]	Pharmacy / Treatment Route (Only one RXR per RXA segment)
[{OBX}]	Observation/Result

Z34 or Z44(QBP^Q11^QBP_Q11)
Query for Vaccination Record

MSH	Message Header Segment
QRD	Query Parameter Definition Segment
RCP	Response control Parameter

Z31, Z32, Z33 or Z42(RSP^K11^RSP_K11)
Response To Vaccination Query

Real-time (response) files that the IMMUNET sends to provider organizations can contain any of the following message Profiles (specified in MSH-21 of the RSP^K11^RSP_K11 Message):

Z42(RSP)
Z42^CDCPHINVS (Sent out in MSH-21 by ImmuNet)
Response To Vaccination Query Returning the Vaccination Record (Returning Exact PID Match), for a Z44(QBP).

Profile (specified in MSH-21)

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
QAK	Query Acknowledgment Segment (One per message)
QPD	Query Parameter Definition Segment (One per message)
PID	Patient Identification Segment (One per matching client)
{ORC	Order Control
RXA	Pharmacy Administration
[RXR]	Pharmacy Route
[{OBX}]	Observation/Result Contraindications or Reactions
}	

[{OBX}]	Observation/Result Vaccines Due Next

Z32(RSP)

Z32^CDCPHINVS (Sent out in MSH-21 by ImmuNet)

Response To Vaccination Query Returning the Vaccination Record (Returning Exact PID Match), for a Z34(QBP).

Profile (specified in MSH-21)

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
QAK	Query Acknowledgment Segment (One per message)
QPD	Query Parameter Definition Segment (One per message)
PID	Patient Identification Segment (One per matching client)
[PD1]	Additional Demographics
[{NK1}]	Next of Kin Segment (Optional, zero or more per matching client)
{ORC	Order Control
RXA	Pharmacy Administration
[RXR]	Pharmacy Route
[{OBX}]	Observation/Result Contraindications or Reactions
}	
[{OBX}]	Observation/Result Vaccines Due Next

Z31(RSP)

Z31^CDCPHINVS (Sent out in MSH-21 by ImmuNet)

Response To Vaccination Query (Returning Multiple PID Matches), used for both the Z34 and Z44, QBPs.

Profile (specified in MSH-21)

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
QRD	Query Definition Segment (One per message)
QRF	Query Filter Segment (One per message—required by IMMUNET)
{	
PID	Patient Identification Segment (One per matching client)
[{NK1}]	Next of Kin Segment (Optional, zero or more per matching client)
}	

Z33(RSP)

Z33^CDCPHINVS (Sent in MSH-21 by ImmuNet)

Response To Vaccination Query (No PID Match Found), used for both the Z34 and Z44, QBPs.

Profile (specified in MSH-21)

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
[ERR]	Error
[QAK]	Query Acknowledgment Segment

Z23 ACK

General Acknowledgment

MSH	Message Header Segment
MSA	Message Acknowledgment Segment
[{ERR}]	Error

Real-time Process Message Segments

The message segments below are needed to construct message types that are used by IMMUNET. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since IMMUNET does not use all the fields that HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, their field separators remain in order to indicate that the next field present is the fourth: field1|||field4.

MSH Segment
Message Header Segment

For Z22(VXU), Z34(QBP) and Z44(QBP) message types, the MSH segment must be constructed according to normal HL7 format specifications (refer to Pages 5 and 6 of this document).

1. VXU^V04^VXU_V04 (Unsolicited Vaccination Record Update)
   As stated earlier in this document, the Z22(VXU) message is used for sending client demographic and immunization specific data. This message type can be sent via Real-time. Z22(VXU) segments should be constructed according to normal HL7 format specifications (refer to pages 5-17 of this document). IMMUNET validates the version by reading the MSH-12 field. A Z22(VXU) message must contain |2.5.1| in MSH-12 and |Z22^CDCPHINVS| in MSH-21.

2. QBP^Q11_QBP^Q11 (Query for Vaccination Record, that returns a patient's complete immunization history)
   When a health care provider (participating in an immunization registry) needs to obtain a complete patient vaccination record, a Z34(QBP) (query) is sent to the immunization registry for the definitive (last updated) immunization record. The three segments that make up a Z34(QBP) message are the MSH (message header), and QPD (query parameter definition). MSH-21 must contain **Z34^CDCPHINVS**. For a Z34(QBP) message, the MSH-9 field must contain **|QBP^Q11^QBP_Q11|** and the segments must be in the following sequence order:

   MSH|^~\&|||||20100824||QBP^Q11^QBP_Q11|**MyMessageId**|P^|2.5.1^^|||ER|AL|||||**Z34^CDCPHINVS**
   QPD|Z34^Request CompleteImmunization
   History^CDCPHINVS|Qry_01|1^^^^PI^|LAST^FIRST^MIDDLE
   |MAIDEN^MOTHER|19620119|F|||

3. QBP^Q11_QBP^Q11 (Query for Vaccination Record, that returns a patient's partial demographics, evaluted immunization history and a forecst)
   When a health care provider (participating in an immunization registry) needs to obtain a complete patient vaccination record and a forecast, a Z44(QBP) (query) is sent to the immunization registry for the definitive (last updated) immunization record. The three segments that make up a Z44(QBP) message are the MSH (message header), and QPD (query parameter definition). MSH-21 must contain **Z44^CDCPHINVS**. For a Z44(QBP) message, the MSH-9 field must contain **|QBP^Q11^QBP_Q11|** and the segments must be in the following sequence order:

   MSH|^~\&|||||20100824||QBP^Q11^QBP_Q11|**MyMessageId**|P^|2.5.1^^|||ER|AL|||||**Z44^CDCPHINVS**
   QPD|Z44^Request Evaluted Immunization History and
   Forecast^CDCPHINVS|Qry_01|1^^^^PI^|LAST^FIRST^MIDDLE
   |MAIDEN^MOTHER|19620119|F|||

   The QPD are outlined in detail below.

QPD Segment
Query Parameter Definition Segment is used to define a query. The QPD segment defines the parameters of the query. This segment is intentionally very similar to the PID segment containing permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1		CE	R			Message Query Name
2	32	ST	R			Query Tag
3		CX	R	Y		Patient Identifier List
4		XPN	R			Patient Name
5		XPN				Mother's Maiden Name
6	26	TS	R			Patient Date of Birth
7	1	IS				Patient Sex
8		XAD				Patient Address
9		XTN				Patient Home Phone Number
10	1	ID				Patient Multiple Birth Indicator
11	2	NM				Patient Birth Order

Field Notes:

QPD-1

a. Use "**Z34^Request Complete Immunization History^CDCPHINVS**", for a Z34(QBP) message.

b. Use "**Z44^Request Evaluated Immunization History and Forecast^CDCPHINVS**", for a Z44(QBP) message.

QPD-2 Unique to each query message instance.

QPD-3 This is a required field. Sub-components 1 (ID) and 5 (identifier type code see **Table 0203**) are required in the QPD-3 field. When a Provider Organization is sending to IMMUNET, use the sending system's Chart Number, Medical Record Number or other identifier if available.

QPD-4 This is a required field. See the XPN data type. Last name and first name are required in the first two components. If the Name Type Code component is included, use **L-Legal**. IMMUNET does not support repetition of this field.

QPD-5 See the XPN data type. In this context, where the mother's name is used for client identification, IMMUNET uses only last name and first name. If not valued, Mother's maiden name is not considered when seeking matching clients.

QPD-6 This is a required field, contains the client's date of birth (YYYYMMDD). IMMUNET ignores any time component.

QPD-7 This field contains the client's sex. Refer to Use-defined **Table 0001** – Administrative sex for suggested values. Use **F**, **M**, or **U**.

QPD-8 This field contains the address of the client. See XAD data type. IMMUNET does not support repetition of this field.

QPD-9 This field contains the client's personal phone numbers. Refer to HL7 **Table 0201** – Telecommunication Use Code and HL7 **Table 0202** – Telecommunication Equipment Type for valid values. Ignored by IMMUNET because phone number is not one of the fields used for client matching..

QPD-10 Use **Y** to indicate that the client was born in a multiple birth.

QPD-11 Relevant when client was born in a multiple birth. Use **1** for the first born, **2** for the second, etc. This field is useful in matching client data to existing records.

Z34 - Example:

```
MSH|^~\&|||||||QBP^Q11^QBP_Q11|793543|P|2.5.1|||||||||Z34^CDCPHINVS <CR>
QPD| Z34^Request Complete Immunization History^CDCPHINVS
|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy^^^^^M|20050512|M|10 East Main
St^^Myfaircity^VA^^^L<CR>
RCP|I|5^RD^HL70126|R^real-time^HL70394<CR>
```

Z44 - Example:

```
MSH|^~\&|||||||QBP^Q11^QBP_Q11|793543|P|2.5.1|||||||||Z44^CDCPHINVS <CR>
QPD| Z44^Request Evaluated Immunization History and Forecast^CDCPHINVS
|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy^^^^^M|20050512|M|10 East Main
St^^Myfaircity^VA^^^L<CR>
RCP|I|5^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, Virginia. His medical record number with MYEHR is 123456. The most records that the requesting system wants returned if lower confidence candidates are returned is 5. Processing is expected to be "immediate".

RCP Segment

The Response Control Parameter Segment is required and used to restrict the amount of data that should be returned in response to a query. It lists the segments to be returned. In addition to fields one and two, the CDC IG includes definitions for fields three through seven. This guide does not include definitions for fields three through seven because IMMUNET does not parse/use those fields.

SEQ	LEN	Data Type	Uasage	Cardinality	Value Set	ELEMENT NAME	Conditional Predicate	Comments
1	**1**	ID	RE	[0.. 1]	0091	Query Priority		
2		CQ	RE	[0.. 1]		Quantity Limited Request		

Field Notes:

RCP-1 This field contains the time frame that the response is expected. Refer to HL7 **Table 0091** – query priority for valid values. Table values and subsequent fields specify time frames for response. Only **I** for immediate shall be used for this field. IMMUNET defaults to **I** if this field is left empty.

RCP-2 This field contains the maximum length of the response that can be accepted by the requesting system. Valid entries are numerical values (in the first component) given with the units specified in the second component. IMMUNET requires **RD** in the second component.

Note: This field is the maximum total records to return. The Version 2.5.1 standard indicates the maximum number to return in each batch. No batching of responses is permitted in this Guide.

QAK Segment

The Query Acknowledgment Segment is required and contains information sent in an RSP message. It cannot be repeated.

SEQ	LEN	Data Type	Uasage	Cardinality	Value Set	ELEMENT NAME	Conditional Predicate	Comments
1	32	ST	R	[1.. 1]		Query Tag		
2	2	ID	RE	[0.. 1]		Query Response Status		
3		CE	R	[1.. 1]		Message Query Name		

Field Notes:

QAK-1 Query Tag. Echoes the QPD-2 Query Tag query identifier sent by the Organization requesting information through a QBP message. With this value, IMMUNET matches the RSP message to the query.

QAK-2 Query Response Status. 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.

QCK-3 Message Query Name. Echoes the QPD-1 Message Query Name sent by the Organization requesting information through a QBP message.

Example: Z34^CDCPHINVS Response profile (No client match found)

```
MSH|^~\&|IMMUNET^^|IMMUNET^^|||201103301212-400||RSP^K11^RSP_K11|PHIN_QUERY01|P^|
2.5.1^^|||NE|NE|||||Z33^CDCPHINVS
MSA|AA|PHIN_QUERY01
QAK|PHIN_QUERY01|NF|Z34^Request Complete Immunization History^CDCPHINVS
QPD|Z34^Request Complete Immunization History^HL70471|PHIN_QUERY_01||Jane^Doe^^^^^L^
||20080612|||
```

Example: Z44^CDCPHINVS Response profile (No client match found)

```
MSH|^~\&|IMMUNET^^|IMMUNET^^|||20110330||RSP^K11^RSP_K11|PHIN_QUERY01|P^|
2.5.1^^|||NE|NE|||||Z33^CDCPHINVS
MSA|AA|PHIN_QUERY01
QAK|PHIN_QUERY01|NF|Z44^Request Evaluted Immunization History and Forecast^CDCPHINVS
QPD|Z44^Request Evaluted Immunization History and Forecast^CDCPHINVS
       |PHIN_QUERY_01||Jane^Doe^^^^^L^||20080612|||
```

Z23(ACK message)

Acknowledgment Messages (ACK) are generated for message rejections and for informational error messages. Four conditions that result in entire message rejection are:

1. Sequencing (i.e. a PID segment must follow an MSH segment).
2. Required segment missing.
3. Required field missing from the [1..1] must have exactly one occurrence segment (i.e. a blank MSH-9 field, MSH-9 Message Type is a required field in required segment, without valid data, message cannot be processed).
4. Required field contains invalid data from the must have exactly one occurrence segment.

An ACK is also generated when an informational error message has occurred, but it has not resulted in message rejection (i.e. NK1 segment contains no last name). In this case, the segment is ignored but the remainder of the message is processed. An ACK message is generated with a message informing the sender of the problem. The error message in this case would NOT include "Message Rejected". The ACK contains the MSH, MSA and ERR segments. The MSH segment is generated according to normal HL7 processing guidelines. The MSA and ERR segments are detailed
below:

ERR Segment
The ERR segment is used to add error comments to acknowledgment messages.

Note: ERR-1 field is not supported in Version 2.5.1.

SEQ	LEN	Data Type	Usage	Cardinality	Value Set	ELEMENT NAME
2	18	ERL	RE	[0.. 1]		Error Location
3		CWE	R	[1.. 1]	0357	HL7 Error Code
4		ID	R	[1.. 1]	0516	Severity
5		CWE	RE	[0.. 1]	0533	Application Error Code
8		TX	RE	[0.. 1]		User Message

Field Notes:

ERR-2 Error Location. 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 unable to be parsed.

ERR-3 HL7 Error Code. Identifies the HL7 error code. Refer to HL7 **Table 0357** – Message Error Condition Codes for valid values.

ERR-4 HL7 Severity Code. Identifies the HL7 serverity code. Refer to HL7 **Table -0516** – Message Serverity Codes for valid values.

ERR-5 HL7 Application Error Code. Identifies the HL7 serverity code. Refer to HL7 **Table -0533** – Application Error Codes for valid values.

ERR-8 Error Message. This optional field further describes an error condition in HL7 2.5.1 ACK message. When a message has been rejected, IMMUNET generates "Message Rejection" as the first portion of the test describing the error message. Informational messages will not contain a "Message Rejection" statement.

MSA Segment
Message Acknowledgment Segment

SEQ	LEN	Data Type	Usage	Cardinality	Value Set	ELEMENT NAME
1	2	ID	R	[1.. 1]	0008	Acknowledgment code
2	20	ST	R	[1.. 1]		Message control ID

Field Notes:

MSA-1 The acknowledgment code indicates whether the message was accepted, rejected, error, etc…This is a required field. IMMUNET generates an "**AR**" for messages resulting in informational or rejection errors. An "**AA**" is generated for processed normally.

MSA-2 The message control ID is the unique ID that is sent by the sending system. This is a required field. It allows the sending system to associate each message with a response. In a response, this will be the same as the control ID that was sent in MSH-10 by the sending system.

SOAP Examples

Z34 QBP(Query) request and Z32 RSP (Query) Response:

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:urn="urn:cdc:iisb:2011">
 <soap:Header/>
<soap:Body>
 <urn:submitSingleMessage>
<!--Optional:-->
<urn:username>blueberries</urn:username>
<!--Optional:-->
<urn:password>purpleberries</urn:password>
<!--Optional:-->
```

<urn:facilityID>161140054</urn:facilityID>
<urn:hl7Message>

MSH|^~\&|Sending Application Name |Some Org^99999999^|ac||20170616164946-
400||QBP^Q11^QBP_Q11|Query01|P^|2.5.1|||ER|AL|||||Z34^CDCPHINVS|
QPD|Z34^Request Complete Immunization
History^CDCPHINVS|Test|25555^^^^PI^|client^test^^^^L^|momma^maiden^^^^^M^|19900101|F|Address|(123)456-7890|Y|2|
RCP|I|5^RD^HL70126|R^real-time^HL70394

</urn:hl7Message>
</urn:submitSingleMessage>
</soap:Body>

</soap:Envelope>An example Z32 RSP (Response) message for the Z34 QBP message above:

<S:Envelope xmlns:S="http://www.w3.org/2003/05/soap-envelope">
<S:Body>
<submitSingleMessageResponse xmlns="urn:cdc:iisb:2011">
<return>MSH|^~\&|IMMUNET2.0.10|IMMUNET||IRPH|20170616164946-
400||RSP^K11^RSP_K11|Query01|P|2.5.1|||NE|NE|||||Z32^CDCPHINVS
MSA|AA|Query01
QAK|Query01|OK|Z34
QPD|Z34^Request Complete Immunization History^CDCPHINVS|
Query01|25555^^^^PI|client^test^^^^L|momma^maiden^^^^^M|19900101|F|Address|(123)456-7890|Y|2
PID|1||12660^^^^SR~^^^^PI||CLIENT^TEST^MIDDLE NAME|CLIENT^MOTHERFIRST|19900101|M||2076-
8|Address^City^MD^54321^^L^^MD023||^PRN^^^^321^5379085||||||||2186-5||N|0

<Complete Immunization History>

</submitSingleMessageResponse>

Z44 QBP(Query) request and Z42 RSP (Query) Response:

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:urn="urn:cdc:iisb:2011">
<soap:Header/>
<soap:Body>
<urn:submitSingleMessage>
<!--Optional:-->
<urn:username>blueberries</urn:username>
<!--Optional:-->
<urn:password>purpleberries</urn:password>
<!--Optional:-->
<urn:facilityID>161140054</urn:facilityID>
<urn:hl7Message>

MSH|^~\&|Sending Application Name |Some Org^99999999^|ac||20170616164946-
400||QBP^Q11^QBP_Q11|Query01|P^|2.5.1|||ER|AL|||||Z44^CDCPHINVS|
QPD|Z44^Request Evaluted Immunization History and
Forecast^CDCPHINVS|Test|25555^^^^PI^|client^test^^^^L^|momma^maiden^^^^^M^|19900101|F|Address|(123)456-7890|Y|2|
RCP|I|5^RD^HL70126|R^real-time^HL70394

</urn:hl7Message>
</urn:submitSingleMessage>
</soap:Body>

</soap:Envelope>An example Z42 RSP (Response) message for the Z44 QBP message above:

<S:Envelope xmlns:S="http://www.w3.org/2003/05/soap-envelope">
<S:Body>
<submitSingleMessageResponse xmlns="urn:cdc:iisb:2011">
<return>MSH|^~\&|IMMUNET2.0.10|IMMUNET||IRPH|20170616164946-
400||RSP^K11^RSP_K11|Query01|P|2.5.1|||NE|NE|||||Z42^CDCPHINVS
MSA|AA|Query01
QAK|Query01|OK|Z44
QPD|Z44^Request Evaluted Immunization History and Forecast^CDCPHINVS|
Query01|25555^^^^PI|client^test^^^^L|momma^maiden^^^^^M|19900101|F|Address|(123)456-7890|Y|2
PID|1||12660^^^^SR~^^^^PI||CLIENT^TEST^MIDDLE NAME|CLIENT^MOTHERFIRST|19900101|M||2076-
8|Address^City^MD^54321^^L^^MD023||^PRN^^^^321^5379085||||||||2186-5||N|0

<No PD1 or NK1 segments will be returned>
<Evaluted Immunization History>
<Forecast>

</submitSingleMessageResponse>

Z22 VXU(Vaccination Update) message:

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:urn="urn:cdc:iisb:2011">
  <soap:Header/>
  <soap:Body>
    <urn:submitSingleMessage>
      <!--Optional:-->
      <urn:username>chrischris</urn:username>
      <!--Optional:-->
      <urn:password>chris1chris</urn:password>
      <!--Optional:-->
      <urn:facilityID>161640023</urn:facilityID>
      <urn:hl7Message>

MSH|^~\&amp;|IMMUNET2.0.10|IMMUNET||IRPH|20170616164946-400||VXU^V04^VXU_V04|Message01|P|2.5.1|||ER|AL|||||Z22^CDCPHINVS
PID|||1^^^MDA^PI^||LastTestName^FirstTestName^ ^^^^L^|Mia^Moma^^^^^M^|20080109|F|||11c Street^Box
11^MDCity^MD^54321^^^^^^||||||||||||||||||N
PD1|||||||||||||A||||
NK1|1|LastTestName^FirstTestName^i^^^^L^|sel|11c Street^^City^MD^54321^^^^^^|||||||||||||||||||||||||||||||||
ORC|RE|ORC2|9874623|||||||ORC1010101010^OrderEntered^OEBy^OEPerson^^^^^MDA||ORC12121212^PhysicianEntered^PEBy^PEPerson^
^^^^MDA|||||Dr. Doc's  Clinic||||||||||
RXA|0|1|19900707|19900707|J0696^^CVX^^^|1.0|mL||00^New Admin^NIP001|RXA101010^FamName^GivenName^FG^^^^^MDA^L|^^^Joes
Clinic||||Lot-123ABC|20171010|AVB|||CP|A|

      </urn:hl7Message>
    </urn:submitSingleMessage>
  </soap:Body>
</soap:Envelope>
```

An example SOAP VXU (Vaccination Update) Z23(ACK) response message:

```
<S:Envelope xmlns:S="http://www.w3.org/2003/05/soap-envelope">
  <S:Body>
    <submitSingleMessageResponse xmlns="urn:cdc:iisb:2011">
      <return>MSH|^~\&amp;|IMMUNET2.0.10|IMMUNET||CTO|20140626143054-0400||ACK|103390|P|2.5.1\\NE\NE\\\\Z23^CDCPHINVS

        <If the sent message contained error(s) the will be a MSA and ERR segment for each error>
          MSA|AE|103390
          ERR||RXA^1^5^1^1|103^Table value not found^HL70357|E|5^Table value not found^HL70533|||Error Code -  021: Record
          Rejected. J0696 is an invalid CVX code
        <end error message example>

      </return>
    </submitSingleMessageResponse>
  </S:Body>
</S:Envelope>
```

Appendix A – HL7 2.5.1 Data Types

The following descriptions of HL7 data types are excerpted or adapted from the HL7 standard. See the field notes within each segment definition above on how to use data types in particular fields. Some data types have complex definitions much of which do not apply to IMMUNET usage, and for these we omit much of the HL7 definition of the data type, referring instead to the field notes in the segment definitions.

CE – Coded Element (most uses)

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (ST)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (ST)>

Example:

|F-11380^CREATININE^I9^2148-5^CREATININE^LN|

This data type transmits codes and the text associated with the code. To allow all six components of a CE data type to be valued, the maximum length of this data type must be at least 60.

- **Identifier (ST)**

  Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

- **Text (ST)**

  Name or description of the item in question. E.g., myocardial infarction or X-ray impression. Its data type is string (ST).

- **Name of Coding System (ST)**

  Each coding system is assigned a unique identifier. This component will serve to identify 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. ASTM E1238-94, Diagnostic, procedure, observation, drug ID, and health outcomes coding systems are identified in the tables in Section 7.1.4 [of the full HL7 standard], "Coding schemes." Others may be added as needed. When an HL7 table is used for a CE data type, the ***name of coding system*** component is defined as ***HL7nnnn*** where ***nnnn*** is the HL7 table number.

- **Alternate Components**

  These three components are defined analogously to the above for the alternate or local coding system. If the Alternate Text component is absent, and the Alternate Identifier is present, the Alternate Text will be taken to be the same as the Text component. If the Alternate Coding System component is absent, it will be taken to mean the locally defined system.

Note:	The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.

Note:	For HL7-defined tables which have not been adopted from some existing standard, the third component, "name of coding system," is constructed by appending the table number to the string "HL7." Thus, the field *RXR-2-site*, is a CE data type which refers to HL7 table number 0163. Its "name of coding system" component is "HL70163".

CE_TX – Coded Element (text only in RXA-9)
Free text note regarding the immunization reported in this RXA.

Components: <> ^ <text (ST)>

Example:

|^Shot was given|

CQ – Composite Quantity with Units

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

Example:
|10^RD| indicates 10 records.

- **Quantity (NM)**

  Specifies the numeric quantity or amount of an entity.

- **Units (CE)**

  Specifies the units in which the quantity is expressed.

CWE – Coded with Exceptions
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).

Components: <Identifier (ST)> ^ <text (ST) ^ <Name of Coding (ID)> ^ <Alternate Identifier (ST) ^ <Alternate Text (ST) ^ <Name of Alternate (ID)> ^ <Coding System Version ID (ST)> ^ <Alternate Coding System Version ID (ST)> ^ < Original Text (ST)>
Subcomponents of facility (HD): <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

Example:
From RXR: |C28161^IM^NCIT^IM^INTRAMUSCULAR^HL71062|

- **Identifier (ST)**

  Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

- **Text (ST)**

  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 (ST)**

  Each coding system is assigned a unique identifier. This component will serve to identify 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. ASTM E1238-94, Diagnostic, procedure, observation, drug ID, and health outcomes coding systems are identified in the tables in Section 7.1.4 [of the full HL7 standard], "Coding schemes." Others may be added as needed. When an HL7 table is used for a CE data type, the ***name of coding system*** component is defined as ***HL7nnnn*** where ***nnnn*** is the HL7 table number.

CX – Extended Composite ID with Check Digit
This data type is used for specifying an identifier with its associated administrative detail.

Components: <ID Number (ST)> ^^^ <Assigning Authority (HD) ^ <Identifier Type(ID)

Example:
From PID-3: |1234567^^^MDA^MR|

DT – Date
Specifies the century and year with optional precision to month and day.

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."

Examples:

|19880704|
|199503|
|2000|

DT_D – Date with precision to day
Specifies the century and year with optional precision to month and day.

Example:

|19880704|

DTM – Date with precision to day

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

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

Thus:

- 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.

Note that this data type will be constrained at the field level, depending on the use.

EI – Entity Identifier

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

The four EI components specify an entity in a series
<entity identifier (ST)>^<namespace ID (IS)>^<universal ID (ST)>^<universal ID type (ID)>
For example, |Z22^CDCPHINVS| in MSH-21 profile identifier.

- **Entity Identifier (ST)**
  A unique identifier from a series of identifiers.

- **Namespace ID (IS)**
  A user-defined identifier that specifies the assigning authority responsible for the data.

- **Universal ID (ST)**
  The unique Object Identifier (OID) within the defined Universal ID Type. It must follow the Universal ID Type syntactic rules. If populated, this component should be an OID.

- **Universal ID Type (ID)**
  Controller of Universal ID deciphering. If a Universal ID exists, this element should be the value ISO.

ERL – Error Location
The Error Location (ERL) data type identifies exactly where an error occurred.

The six ERL components specify where an error occurred
<segment ID (ST)>^<segment sequence (NM)>^<field position (NM)>^<field repetition (NM)>^<component number (NM)>^<sub-component number (NM)>
For example, |RXA^1^5^1^3|

- **Segment ID (ST)**

The three-letter code that names the segment category.

- **Segment Sequence (NM)**
  Identifies the specific instance of the segment where the error occurred. These numbers use 1for the first instance, 2 for the second, and so forth.

- **Field Position (NM)**
  Determines the field number within the segment. These numbers use 1 for the first field, 2 for the second, and so forth. IMMUNET leaves the field number empty when referring to the entire segment as a whole.

- **Field Repetition (NM)**
  The first instance uses 1. If the Field Position is populated, then IMMUNET values the Field Repetition.

- **Component Number (NM)**
  Determines the component number within the field. These numbers use 1 for the first component, 2 for the second, and so forth. IMMUNET leaves the Component Number empty when referring to the entire field as a whole.

- **Sub-Component Number (NM)**
  Determines the Sub-Component number within the component. These numbers use 1 for the first component, 2 for the second, and so forth. IMMUNET leaves the Component Number empty when referring to the entire field as a whole.

FN – Family Name
This data type contains a person's family name (i.e. surname).

- **Surname (ST)**
  This is the person's last name.

FT – Formatted Text
The FT data type allows use of the formatting escape sequences documented in *HL7 Version 2.5.1, Chapter 2, Section 2.7.1 - Use of Escape Sequences in Text Fields.* In this implementation guide, the only allowed escape sequences are those allowed in *HL7 Version 2.5.1, Chapter 2, Section 2.7.4 - Special Characters.* These are the escape sequences for the message delimiters (i.e., |^&~\ ).

HD – Hierarchic Designator

The Hierarchic Designator (HD) determines the organization or system responsible for managing or assigning a defined identifier set. IMMUNET uses this data type only to identify sender and receiver in Message Header (MSH) segments. See the field notes for values used for IMMUNET.

The three HD components establish the entity responsible for defined identifiers
<namespace ID (IS)>^<universal ID (ST)>^<universal ID type (ID)>

For example, |IMMUNET2.0.10|

ID – Coded Values for HL7 Defined Tables
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
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.

Example from PID-8 Administrative Sex:

LA2 – Location with Address Variation 2

The Location with Address Variation 2 (LA2) specifies a location and its address.

<^^^Facility(HD)>

For example, |^^^First Street Clinic|

MSG – Message Type

This field contains the message type, trigger event, and the message structure ID for the message in MSH-9 Message Type.

The three MSH components define the message type

<message code (ID)>^<trigger event (ID)>^<message structure (ID)>

For example, |VXU^V04^VXU_V04|

NM – Numeric

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. 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

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

<Processing ID (ID)>

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

SAD – Street Address

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

The three SAD components contain address details
<street or mailing address (ST)>^<street name (ST)>^<dwelling number (ST)>
For example, |747 ABERG^^Albany^NE^68352 |

- **Street or Mailing Address (ST)**
  For a person or institution, states the first line of a street or mailing address.

SI – Sequence ID

A non-negative integer in the form of a NM field. See the field notes in segments using this data type for specifications of SI fields.

ST – String Data

String data is left justified with trailing blanks optional. Any displayable (printable) ACSII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined delimiter characters. Example:

|almost any data at all|

To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence.

Usage note: the ST data type is intended for short strings (e.g., less than 200 characters). For longer strings the TX or FT data types should be used.

TS – Time Stamp

```
Format:  YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>
```

Contains the exact time of an event, including the date and time. The date portion of a time stamp follows the rules of a date field and the time portion follows the rules of a time field. The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

In prior versions of HL7 2.5.1, an optional second component indicates the degree of precision of the time stamp (Y = year, L = month, D = day, H = hour, M = minute, S = second). This optional time components, (i.e. HMS) is retained only for purposes of backward compatibility.

By site-specific agreement, YYYYMMDD[HHMM[SS[.S[S[S[S]]]]]][+/-ZZZZ]^<degree of precision> may be used where backward compatibility must be maintained.

In the current and future versions of HL7 2.5.1, the precision is indicated by limiting the number of digits used, unless the optional time component is present. Thus, YYYY is used to specify a precision of "year," YYYYMM specifies a precision of "month," YYYYMMDD specifies a precision of "day". The YYYYMMDD components are required.

YYYYMMDDHH is used to specify a precision of "hour," YYYYMMDDHHMM is used to specify a precision of "minute," YYYYMMDDHHMMSS is used to specify a precision of seconds, and YYYYMMDDHHMMSS.SSSS is used to specify a precision of ten thousandths of a second. In each of these cases, the time zone is an optional component. Maximum length of the time stamp is 26. Examples:

|19760704010159-0500|	1:01:59 on July 4, 1976 in the Eastern Standard Time zone.
|19760704010159-0400|	1:01:59 on July 4, 1976 in the Eastern Daylight Saving Time zone.
|198807050000|	Midnight of the night extending from July 4 to July 5, 1988 in the local time zone of the sender.
|19880705|	Same as prior example, but precision extends only to the day. Could be used for a birthdate, if the time of birth is unknown.

TS_M – Time Stamp to Month

Specifies a point in time. This data type requires a precision to the month. Precision to the day is optional.

Example:

|198807|

TS_NZ – Time Stamp no Time Zone

Specifies a point in time. This data type requires a precision to the day. No Time zone is included.

Example:

|19880705|

TS_Z – Time Stamp with Time Zone

Specifies a point in time. This data type requires a precision to the second and requires that the time zone be included.

Example:

|19880705121245-0500|

VID – Version ID

This specifies the HL7 version.

Example:

|HL7 2.5.1|

XAD – Extended Address

```
Components:  <street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^
             <zip or postal code(ST)> ^ <country (ID)> ^ < address type (ID)> ^ <other geographic
             designation (ST)>^ <county/parish code (IS)> ^ <census tract (IS)> ^ <address representation
             code (ID)>
```

Example:

123 Main St^PO Box1^Abell^MD^20606^USA^H^^24037

- **Street Address (SAD)**

  The street or mailing address of a person or institution.

- **Other designation (ST)**

  Second line of address. In general, it qualifies address. Examples: Suite 555 or Fourth Floor.

- **City (ST)**

  City address of a person or institution

- **State or Province (ST)**

  State or province should be represented by the official postal service codes for that country.

- **Zip or Postal Code (ST)**

  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 A9A-9A9.

- **Country (ID)**

  Defines the country of the address. See Table 0212.

- **Address Type (ID)**

  Address type is optional.

- **County/Parish Code (IS)**

  A code that represents the county in which the specified address resides. Refer to *user-defined table 0289 – County/parish*. 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).

XCN – Extended Composite ID Number and Name for Persons

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

Note: The ID Number component combined with the Assigning Authority (XCN.9) must uniquely identify the associated person.
Note: If XCN-2.1 (Surname) and XCN-3 (Given Name) are populated then XCN.10 (name type code) defaults to L, legal name.

Components: <ID Number (ST)> & <Family Name (FN)> ^ <Given Name (ST)> ^ <Second and Further Given Names or Initials (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^^^ <Assigning Authority (ID)>^<Name Type Code>

Examples:

|1234MyID^^^^^^^^MDA123^L|

OR

|^Smith^John^Middle^^^^^^L|

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.).

Assigning Authority (HD)

The assigning authority is a unique identifier of the system (or organization or agency or department) that creates the identifier.. 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:** User-defined Table 0363 is specified by this Implementation Guide for Assigning Authority.

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.

XON – Extended Composite Name and ID Number and Name for Organizations

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

Components: <Organizarion Name (ST)>^^^^^<Assigning Authority) (HD)> ^<Identifier Type Code>^^^<Organization Identifier (ST)>

XPN – Extended Person Name

This is used for representing a person's name.

Components: <Family Name (FN)>^ <Given Name (ST)> ^ <Second and Further Given Names or Initails Thereof(ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^^ <name type code (ID) >

Example:

```
|Smith^John^Middle^III^DR^^L|
```

- **Family Name (FN)**

  Usually the last name.

  Note: The Given Name (first name), Family Name (last name), and Second and Further Given Names or Initials Thereof cannot contain special characters. NESIIS accepts letters; spaces; and period., hyphen -, and apostrophe ' characters.

- **Given Name (ST)**

  Usually the first name.

- **Second and Further Given Names or Initials Thereof (ST)**

  Usually the middle name or initial, if available. Multiple Second and Further Given Names or Initials Theeofs 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. Table 0200 – Name type

Value	Description
A	Alias Name
L	Legal Name
D	Display Name
M	Maiden Name
C	Adopted Name

Note:	The legal name is the same as the current married name.

- **Name Representation Code (ID)**

  This component can be used when names are represented in ideographic or non-alphabetic systems. IMMUNET ignores this component.

XPN M – Extended Person Name

This is used for representing a mother's maiden name.

Components: <Family Name (FN)>^ <Given Name (ST)> ^ <Second and Further Given Names or Initails Thereof(ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^^ <name type code (ID) >

Example:

|Maiden^Momma^Middle^III^DR^^M|

- **Family Name (FN)**

  Usually the last name.

  Note: The Given Name (first name), Family Name (last name), and Second and Further Given Names or Initials Thereof cannot contain special characters. NESIIS accepts letters; spaces; and period., hyphen -, and apostrophe ' characters.

- **Given Name (ST)**

  Usually the first name.

- **Second and Further Given Names or Initials Thereof (ST)**

  Usually the middle name or initial, if available. Multiple Second and Further Given Names or Initials Theeofs 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)**

  Shall be valued 'M'.

XTN -- Extended Telecommunication Number

This contains the extended telephone number.

```
Components:  ^<telecommunication use code (ID)>^<telecommunication equipment type (ID)> ^ <email address
             (ST)> ^ <country code (NM)> ^ <area/city code (NM)> ^ <phone number (NM)> ^ <extension (NM)> ^
             <any text (ST)>
```

Example:

^ORN^FX^^^123^4567890^^

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.

Table 0201 – Telecommunication use code

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

Telecommunication equipment type (ID)

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

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

Email address (ST) Any text (ST)
Country code (NM)
Area/city code (NM)
Phone number (NM)
Extension (NM)

Appendix B – HL7/User Defined Tables

The following tables give valid values for fields in the segments defined above, in the cases where the field definitions reference an HL7 table number. The tables are considered to be part of the HL7 standard, but those tables designated as type User have values determined by IMMUNET.

Type	Table	Name	Value	Description
User-Defined	0001	Sex		
	0001		F	Female
	0001		M	Male
	0001		U	Unknown/undifferentiated
HL7	0003	Event Type		
	0003		A31	ADT/ACK - Update patient information
	0003		K11	RSP- Response to vaccination query (Real-Time)
	0003		Q11	QBP – Query for vaccination record (Real-Time)
	0003		V04	VXU – Unsolicited vaccination record update
User-defined	0004	Patient class		
	0004		E	Emergency
	0004		I	Inpatient
	0004		O	Outpatient
	0004		P	Preadmit
	0004		R	Recurring
	0004		B	Obstetrics
User-defined	0005	Race		
	0005		1002-5	American Indian or Alaska Native
	0005		2028-9	Asian
	0005		2076-8	Native Hawaiian or Other Pacific Islander
	0005		2054-5	Black or African-American
	0005		2106-3	White
	0005		2131-1	Other Race
	0005		Null	Unknown
HL7	0008	Acknowledgment Code		
	0008		AA	Application acknowledgment: Accept
	0008		AE	Application acknowledgment: Error
	0008		AR	Application acknowledgment: Reject
User-defined	0063	Relationship		
	0063		BRO	Brother
	0063		CGV	Care giver
	0063		CHD	Child
	0063		FCH	Foster Child
	0063		FTH	Father
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MTH	Mother
	0063		OTH	Other
	0063		PAR	Parent
	0063		SCH	Stepchild
	0063		SEL	Self
	0063		SIB	Sibling
	0063		SIS	Sister
	0063		SPO	Spouse
User-defined	0064	Financial class (VFC Eligibility)		
	0064	V01	Not VFC Eligible	Not VFC Eligible
	0064	V02	Medicaid (including Healthy Kids)	VFC Eligible – Medicaid (including Healthy Kids)

	0064	V03	Uninsured	VFC eligible – Uninsured
	0064	V04	American Indian/Alaskan Native	VFC eligible – American Indian/Alaskan Native
	0064	V05	Underinsured (FQHC & LHD only)	VFC Eligible – Underinsured (FQHC & LHD only)
HL7	0076	Message Type		
	0076		ACK	General acknowledgment message
	0076		ADT	ADT message
	0076		QBP	Query by Parameter
	0076		RSP	Segment pattern response
	0076		VXU	Unsolicited vaccination record update
HL7	0085	Observation result status codes		
	0085		F	Final
HL7	0103	Processing ID		
	0103		P	Production
HL7	0104	Version ID		
	0104		2.5.1	Release 2.5.1 2013
HL7	0125	Value Type		
	0125		CE	Coded Element
	0125		CE_TX	Text only CE data type
	0125		CQ	Composite Quantity with Units
	0125		CWE	Coded with Exceptions
	0125		CX	Extended Composite Id with Check Digit
	0125		DT	Date
	0125		DT_D	Date with precission to day
	0125		DT_M	Date with precistion to month
	0125		DTM	Date/Time
	0125		EI	Entity Identier
	0125		ERL	Error Location
	0125		FN	Family Name
	0125		FT	Formatted text
	0125		HD	Hierarchic Designator
	0125		ID	Coded values for HL7 Tables
	0125		IS	Coded values for User-Defined Tables
	0125		LA2	Location with Address variation 2
	0125		MSG	Message Type
	0125		NM	Numeric
	0125		PT	Processing Type
	0125		SAD	Street Address
	0125		SI	Sequence ID
	0125		ST	String
	0125		TS	Time Stamp
	0125		TS_M	Time Stamp with optional precidion to the day and no time zone
	0125		TS_NZ	Time Stamp with precision to day and no time zone
	0125		TS_Z	Time Stamp requiring time zone
	0125		VID	Version Identifier
	0125		XAD	Extended Address
	0125		XCN	Extended Composite ID Numbere and Name for Persons
	0125		XON	Extended Name and ID Number for Organizations
	0125		XPN	Extended Person Name
	0125		XPN_M	Extended Person Name – Mother's Maiden
	0125		XTN	Extended telephone number
HL7	0136	Yes/No Indicator		
	0136		Y	Yes
	0136		N	No

HL7	0155	Accept/Application Acknowledgment Conditions			
	0155		AA		Application Accept
	0155		AE		Application Error
	0155		ER		Error/reject conditions only
HL7/NCIT	0162/ (NCIT)	Route of Administration	FDA NCI Thesaurus (NCIT)	HL7-0162	NCIT values, should be used
	0162/ (NCIT)		C38238	ID	Intradermal
	0162/ (NCIT)		C28161	IM	Intramuscular
	0162/ (NCIT)		C38276	IV	Intravenous
	0162/ (NCIT)		C38288	PO	Oral
	0162/ (NCIT)		C38676	N/A	Percutaneous
	0162/ (NCIT)		C38299	SC	Subcutaneous
	0162/ (NCIT)		C38305	TD	Transdermal
	0162/ (NCIT)		N/A	MP	Multiple Puncture (Small Pox)
HL7	0163	Administrative Site			
	0163		LT		Left Thigh
	0163		LA		Left Arm
	0163		LD		Left Deltoid
	0163		LG		Left Gluteus Medius
	0163		LVL		Left Vastus Lateralis
	0163		LLFA		Left Lower Forearm
	0163		RA		Right Arm
	0163		RT		Right Thigh
	0163		RVL		Right Vastus Lateralis
	0163		RG		Right Gluteus Medius
	0163		RD		Right Deltoid
	0163		RLFA		Right Lower Forearm
HL7	0189	Ethnic Group	0189/ (CDCREC)		
	0189/ (CDCREC)		2135-2		Hispanic
	0189/ (CDCREC)		2186-5		Non-Hispanic
	0189/ (CDCREC)		Null		Unknown
HL7	0190	Address Type			
	0190		C		Current or Temporary
	0190		P		Permanent
	0190		M		Mailing
	0190		B		Firm/Business
	0190		O		Office
	0190		H		Home
	0190		N		Birth (nee)
	0190		F		Country of origin
	0190		L		Legal Address
	0190		BDL		Birth delivery location *[use for birth facility]*
	0190		BR		Residence at birth *[use for residence at birth]*

	0190		RH	Registry home
	0190		BA	Bad Address
HL7	0200	Name Type		
	0200		A	Alias
	0200		L	Legal Name
	0200		D	Display Name
	0200		M	Maiden Name
	0200		C	Adopted Name
	0200		B	Name at birth
	0200		P	Name of Partner/spouse
	0200		U	Unspecified
HL7	0201	Telecommunication use code		
	0201		PRN	Primary residence number
	0201		ORN	Other residence number
	0201		WPN	Work number
	0201		VHN	Vacation home number
	0201		ASN	Answering service number
	0201		EMR	Emergency number
	0201		NET	Newwork (email)
	0201		BPN	Beeper number
HL7	0202	Telecommunications equipment type		
	0202		PH	Telephone
	0202		FX	FAX
	0202		MD	Modem
	0202		CP	Cellular phone
	0202		BP	Beeper
	0202		Internet	Internet address: Use only if telecommunication use code is NET
	0202		X.400	X.400 email address: Use only if telecommunications use code is NET
	0202		TDD	Telecommunications Devide for the Deaf
	0202		TTY	Teletypewriter
HL7	0203	Identifier Type		
	0203		BR	Birth Registry Number
	0203		MA	Medicaid Number
	0203		MC	Medicare Number
	0203		MR	Medical Record Number
	0203		NPI	National provider identifier
	0203		PI	Patient Internal Identifier
	0203		PN	Person Number
	0203		PRN	Provider Number
	0203		PT	Patient External Identifier
	0203		RRI	Regional Registry ID
	0203		SR	State Registry Identifier
	0203		SS	Social Security Number
User	0215	Publicity Code		
	0215		01	No reminder/recall
	0215		02	Yes reminder/recall – any method
HL7	0227	Manufacturers of vaccines (code = MVX)		
	0227		AB	Abbott
	0227		ACA	Acambis, Inc
	0227		AD	Adams
	0227		AKR	Akorn, Inc
	0227		ALP	Alpha
	0227		AR	Armour (**Inactive** – use ZLB)
	0227		AVB	Aventis Behring (Inactive use ZLB)

	0227		AVI	Aviron
	0227		BA	Baxter (**Inactive** – use BAH)
	0227		BAH	Baxter Health Care
	0227		BAY	Bayer
	0227		BP	Berna **(Inactive** – use BPC)
	0227		BPC	Berna Products Corporation
	0227		BRR	Barr Laboratories, Incorporated
	0227		BTP	Biotest Pharmaceuticals
	0227		CEN	Centeon L.L.C. (**Inactive** – use ZLB)
	0227		CHI	Chiron Corporation (bought by Novartis on 4/20/2006)
	0227		CMP	Celltech Medeva Pahm (**Inactive** – use NOV)
	0227		CNJ	Cangene Corporation
	0227		CON	Connaught **(Inactive** – use PMC)
	0227		CRU	Crucell (Aquired Berna, now a J & J company)
	0227		CSL	CSL Biotherapies
	0227		DVC	DynPort Vaccine Company, LLC
	0227		DVX	Dynavax, Inc
	0227		EVN	Evans (**Inactive** – use NOV)
	0227		GEO	GeoVax Labs, INc.
	0227		GRE	Greer Laboratories, Inc.
	0227		IAG	Immuno International AG (**Inactive** – use BAH)
	0227		IDB	ID Biomedical
	0227		IM	Merieux (**Inactive** – Use PMC)
	0227		INT	Intercell Biomedical Ltd
	0227		IUS	Immuno-US
	0227		JNJ	Johnson and Johnson
	0227		JPN	The Research foundation for Microbial Diseases of Osaka U.
	0227		KGC	Korea Green Cross
	0227		LED	Became a part of WAL, now owned by Pfizer
	0227		MA	Massachusetts Public Health Biologic Laboratories
	0227		MBL	Formerly Massachusetts Public Health Biologic Laboratories
	0227		MED	MedImmune, Inc acquisitions of U.S. Bioscience in 1999 and Aviron in 2002, as well as the integration with Cambridge Antibody Technology and the strategic alignment with our new parent company, AstraZeneca, in 2007.
	0227		MIL	Miles
	0227		MIP	Emergent BioDefense Operations Lansing
	0227		MSD	Merck and Co., Inc
	0227		NAB	North American Biologicals, Inc. (NABI)
	0027		NAV	North American Vaccine, Inc. Part of Baxter
	0227		NOV	Novartis Pharmaveutical Corporation.
	0227		NVX	Novavax, Inc
	0227		NYB	New York Blood Center
	0227		ORT	Ortho-clinical Diagnostics
	0227		OTC	Organon Teknika Corporation
	0227		PD	Parkdale Pharmaceuticals
	0227		PFR	Pfizer, Inc. (Wyeth-Lederle Vaccines and Pediatrics, Wyeth Laboratories, Lederle Laboratories, and Praxis Biologics)
	0227		PMC	Sanofi Pasteur Inc. (formerly Aventis Pasteur, Pasteur Merieux Connaught; includes Connaught Laboratories and Pasteur Merieux. Acquired ACAMBIS.)
	0227		PRX	Praxis Biologics (became a part of WAL, now owned by Pfize)
	0227		PSC	Protein Sciences Corporation
	0227		PWJ	Powderject Pharmaceutical

	0227		SCL		Sclavo
	0227		SI		Swiss Serum and Vaccine Inst. (Part of Berna)
	0227		SOL		Solvay Pharmaceuticals (Part of Abbott)
	0227		SKB		GlaxoSmithKline
	0227		TAL		Talecris Biotherapeutics (includes Bayer Biologicals)
	0227		UNK		Unknown manufacturer
	0227		USA		United States Army Medical Research
	0227		VXG		VaxGen
	0227		WA		Wyeth-Ayerst (**Inactive** – use WAL)
	0227		WAL		Wyeth-Ayerst
	0227		ZLB		ZLB Behring (includes Aventis Behring and Armour Pharmaceutical Co)
	0227		OTH		Other
	0227		UNK		Unknown manufacturer
Use	0227	County/Parish (Maryland Only)	MD defiened County Codes	FIPS 6.4 County Codes	Please use FIPS 6.4 county codes
	0289		MD001	24001	Allegany
	0289		MD003	24003	Anne Arundel
	0289		MD005	24005	Baltimore
	0289		MD009	24009	Calvert
	0289		MD011	24011	Caroline
	0289		MD013	24013	Carroll
	0289		MD015	24015	Cecil
	0289		MD017	24017	Charles
	0289		MD019	24019	Dorchester
	0289		MD021	24021	Frederick
	0289		MD023	24023	Garrett
	0289		MD025	24025	Harford
	0289		MD027	24027	Howard
	0289		MD029	24029	Kent
	0289		MD031	24031	Montgomery
	0289		MD033	24033	Prince George’s
	0289		MD035	24035	Queen Anne’s
	0289		MD037	24037	Saint Mary’s
	0289		MD039	24039	Somerset
	0289		MD041	24041	Talbot
	0289		MD043	24043	Washington
	0289		MD045	24045	Wicomico
	0289		MD047	24047	Worcester
	0289		MD510	24510	Baltimore city
HL7	0322	Completion Status			
	0322		CP		Complete
	0322		RE		Refused
	0322		NA		Not Administered
	0322		PA		Partially Administered
HL7	0357	Message Error Status Codes			
	0357		0		Message Accepted
	0357		100		Segment sequence error
	0357		101		Required Field Missing
	0357		102		Data Type Error
	0357		103		Table Value Not Found
	0357		200		Unsupported message type
	0357		201		Unsupported event code
	0357		202		Unsupported processing ID
	0357		203		Unsupported version ID

	0357		204	Unknown key identlifer
	0357		205	Duplicate key identifier
	0357		206	Application record lock
	0357		207	Application internal error
	0357		999	Application error
User	0363	Assigning Authority		
	0363		AKA	Alaska
	0363		ALA	Alabama
	0363		ARA	Arkansas
	0363		ASA	American Samoa
	0363		AZA	Arizona
	0363		BAA	New York City
	0363		CAA	California
	0363		CHA	Chicago
	0363		COA	Colorado
	0363		CTA	Connecticut
	0363		DCA	District of Columbia
	0363		DEA	Delaware
	0363		FLA	Florida
	0363		FMA	Fed States Micro
	0363		GAA	Georgia
	0363		GUA	Guam
	0363		HIA	Hawaii
	0363		IAA	Iowa
	0363		IDA	Idaho
	0363		ILA	Illinois
	0363		INA	Indiana
	0363		KSA	Kansas
	0363		KYA	Kentucky
	0363		LAA	Louisianna
	0363		MAA	Massachusetts
	0363		MDA	Maryland
	0363		MEA	Maine
	0363		MHA	Rep Mars Islands
	0363		MIA	Michigan
	0363		MNA	Minnesota
	0363		MOA	Missouri
	0363		MPA	No. Marianna Island
	0363		MSA	Mississippi
	0363		MTA	Montana
	0363		NCA	North Carolina
	0363		NDA	North Dakota
	0363		NEA	Nebraska
	0363		NHA	New Hampshire
	0363		NJA	New Jersey
	0363		NMA	New Mexico
	0363		NVA	Nevada
	0363		NYA	New York State
	0363		OHA	Ohio
	0363		OKA	Oklahoma
	0363		ORA	Oregon
	0363		PAA	Pennsylvania
	0363		PHA	Philadelphia
	0363		PRA	Puerto Rico
	0363		RIA	Rhode Island
	0363		RPA	Republic Palau

	0363		SCA	South Carolina
	0363		SDA	South Dakota
	0363		TBA	San Antonio
	0363		THA	Houston
	0363		TNA	Tennessee
	0363		TXA	Texas
	0363		UTA	Utah
	0363		VAA	Virginia
	0363		VIA	Virgin Islands
	0363		VTA	Vermont
	0363		WAA	Washington
	0363		WIA	Wisconsin
	0363		WVA	West Virginia
	0363		WAY	Wyoming
USER	0396	Coding System		
	0396		CVX	Codes for Vaccines administered (Code=CVX)
	0396		HL70363	Assigning Autority
	0396		HL70125	A List of Valid Data Types
	0396		HL70190	A List of Valid Address Types
	0396		CDCREC	US Ethnicity Codes
	0396		NCIT	Route of Administration
	0396		HL70357	A List of Valid Message Errors Status Codes
	0396		HL70533	A List of Valid Application Code Errors
	0396		HL70516	A List of Valid Error Severity Codes
	0396		CDCPHINVS	PHIN VS (CDC Local Coding System)
	0396		SCT	SNOMED Clinical Terminology
	0396		LN	Logical Observation Identifier Names and Codes (LOINC)
HL7	0516	Error Severity		
	0516		I	Information
	0516		W	Warning
	0516		E	Error
User	0533	Application Error Code		
	0533		1	Illogical Date Error
	0533		2	Invalid Date
	0533		3	Illogical Value Error
	0533		4	Invalid Value
	0533		5	Table Value Not Found
	0533		6	Required observation missing
NIP	NIP001	Immunization Information Source		
	NIP001		00	New Immunization Administered (by Sending Organization)
	NIP001		01	Source Unspecified
	NIP001		02	Other Provider
	NIP001		03	Parent Written Record
	NIP001		04	Parent Recall
	NIP001		05	Other Registry
	NIP001		06	Birth Certificate
	NIP001		07	School Record
	NIP001		08	Public Agency
NIP	NIP002	Substance Refusal Reason		
	NIP002		00	Parental Refusal
	NIP002		01	Religious Exemption
	NIP002		02	Other (must add text component of the CE field with description)
	NIP002		03	Patient decision
NIP	NIP004	Contraindications, Precautions		

	NIP004		2F	Allergy (anaphylactic) to 2-phenoxyethanol
			2G	Allergy to aluminum (disorder)
			03	Allergy to baker's yeast (anaphylactic)
	NIP004		04	Allergy to egg ingestion (anaphylactic)
	NIP004		05	Allergy to gelatin (anaphylactic)
	NIP004		06	Allergy to neomycin (anaphylactic) MMR & IPV
	NIP004		1A	Allergy to previous dose of Adeno (anaphylactic)
	NIP004		1B	Allergy to previous dose of Anthrax (anaphylactic)
	NIP004		1C	Allergy to previous dose of Cholera (anaphylactic)
	NIP004		1D	Allergy to previous dose of DTAP (anaphylactic)
	NIP004		1E	Allergy to previous dose of Encephalitis (anaphylactic)
	NIP004		1F	Allergy to previous dose of HepA (anaphylactic)
	NIP004		1G	Allergy to previous dose of HepB (anaphylactic)
	NIP004		1H	Allergy to previous dose of Hib (anaphylactic)
	NIP004		1I	Allergy to previous dose of HPV (anaphylactic)
	NIP004		1J	Allergy to previous dose of Ig-RSV IgIM (anaphylactic)
	NIP004		1K	Allergy to previous dose of Influenza (anaphylactic)
	NIP004		1L	Allergy to previous dose of Measles (anaphylactic)
	NIP004		1M	Allergy to previous dose of MeningB (anaphylactic)
	NIP004		1N	Allergy to previous dose of Meningo (anaphylactic)
	NIP004		1O	Allergy to previous dose of MMR (anaphylactic)
	NIP004		1P	Allergy to previous dose of Mumps (anaphylactic)
	NIP004		1Q	Allergy to previous dose of Pertussis (anaphylactic)
	NIP004		1R	Allergy to previous dose of Plague (anaphylactic)
	NIP004		1S	Allergy to previous dose of Pneumococcal (anaphylactic)
	NIP004		1T	Allergy to previous dose of Pneumo-Poly (anaphylactic)
	NIP004		1U	Allergy to previous dose of Polio (anaphylactic)
	NIP004		1V	Allergy to previous dose of Rabies (anaphylactic)
	NIP004		1W	Allergy to previous dose of Rotavirus (anaphylactic)
	NIP004		1X	Allergy to previous dose of Rubella (anaphylactic)
	NIP004		1Y	Allergy to previous dose of Td (anaphylactic)
	NIP004		1Z	Allergy to previous dose of Tdap (anaphylactic)
	NIP004		2A	Allergy to previous dose of Tetanus (anaphylactic)
	NIP004		09	Allergy to previous dose of this vaccine (anaphylactic)
	NIP004		2B	Allergy to previous dose of Typhoid (anaphylactic)
	NIP004		2C	Allergy to previous dose of Varicella (anaphylactic)
	NIP004		2D	Allergy to previous dose of Yellow Fever (anaphylactic)
	NIP004		2E	Allergy to previous dose of Zoster (anaphylactic)
	NIP004		07	Allergy to Streptomycin (anaphylactic)
	NIP004		08	Allergy to Thimerosal (anaphylactic)
	NIP004		2H	Allergy(anaphylactic) to proteins of rodent or neural origin
	NIP004		H8	Anthrax (disorder)
	NIP004		22	Chronic illness
	NIP004		R1	Clinician has decided to repeat the DTAP series
	NIP004		R2	Clinician has decided to repeat the Hep B series
	NIP004		R9	Clinician has decided to repeat the HepA series
	NIP004		R3	Clinician has decided to repeat the HIB series
	NIP004		RX	Clinician has decided to repeat the Influenza series
	NIP004		R8	Clinician has decided to repeat the Meningococcal series
	NIP004		R5	Clinician has decided to repeat the MMR series
	NIP004		R6	Clinician has decided to repeat the Pneumococcal series
	NIP004		R4	Clinician has decided to repeat the Polio series
	NIP004		R7	Clinician has decided to repeat the Varicella series

	NIP004		21	Current acute illness, moderate to severe
	NIP004		14	Current diarrhea, moderate to severe
	NIP004		16	Current fever with moderate-to-severe illness
	NIP004		D1	Disease due to Rotavirus (disorder)
	NIP004		15	Encephalopathy within 7 days of previous dose of DTP
	NIP004		18	Guillain-Barre Syndrome (GBS) within 6 weeks after DTP/DtaP
	NIP004		H1	Hepatitis A (finding)
	NIP004		H2	Hepatitis B (finding)
	NIP004		H9	History of Arthus hypersensitivity reaction
	NIP004		H3	History of Chicken Pox/Varicella
	NIP004		2	Household condition - unspecified
	NIP004		HA	Human papilloma virus infection (disorder)
	NIP004		23	IG/Blood product received
	NIP004		8A	Immunity: Anthrax
	NIP004		24	Immunity: Diphtheria
	NIP004		25	Immunity: Haemophilus Influenzae type B (Hib)
	NIP004		C1	Immunity: Hep A
	NIP004		26	Immunity: Hepatitis B
	NIP004		8B	Immunity: HPV
	NIP004		8C	Immunity: Influenza
	NIP004		8D	Immunity: Japanese Encephalitis
	NIP004		27	Immunity: Measles
	NIP004		8E	Immunity: Meningococcal
	NIP004		28	Immunity: Mumps
	NIP004		29	Immunity: Pertussis
	NIP004		8F	Immunity: Pneumococcal
	NIP004		30	Immunity: Poliovirus
	NIP004		8G	Immunity: Rabies
	NIP004		8H	Immunity: Rotovirus
	NIP004		31	Immunity: Rubella
	NIP004		8I	Immunity: Smallpox
	NIP004		32	Immunity: Tetanus
	NIP004		8J	Immuity: Typhoid
	NIP004		33	Immunity: Varicella (chicken pox)
	NIP004		8K	Immunity: Yellow Fever
	NIP004		34	Immunodeficiency (family history)OPV & VZV
	NIP004		35	Immunodeficiency (household contact) OPV
	NIP004		36	Immunodeficiency (in recipient) OPV & MMR & VZV
	NIP004		HB	Influenza (disorder)
	NIP004		HC	Japanese encephalitis virus disease (disorder)
	NIP004		2I	Latex allergy (disorder)
	NIP004		2J	Measles (finding)
	NIP004		50	Medical Exemption – Adeno
	NIP004		51	Medical Exemption – Anthrax
	NIP004		52	Medical Exemption – BCG
	NIP004		53	Medical Exemption – Cholera
	NIP004		56	Medical Exemption – Diphtheria
	NIP004		54	Medical Exemption – DT
	NIP004		55	Medical Exemption – DTP/aP
	NIP004		57	Medical Exemption – Encephalitis
	NIP004		58	Medical Exemption – FLU H1N1-09
	NIP004		5A	Medical Exemption – HepA
	NIP004		5B	Medical Exemption – HepB
	NIP004		5C	Medical Exemption – Hib
	NIP004		59	Medical Exemption – HPV

	NIP004		5E	Medical Exemption – Ig
	NIP004		5D	Medical Exemption – IG-RSV IgIM
	NIP004		5F	Medical Exemption – Influenza
	NIP004		5G	Medical Exemption – Lyme
	NIP004		5I	Medical Exemption – Measles
	NIP004		5J	Medical Exemption – Meningo
	NIP004		5H	Medical Exemption – MMR
	NIP004		5K	Medical Exemption – Mumps
	NIP004		5M	Medical Exemption – Pertussis
	NIP004		5N	Medical Exemption – Plague
	NIP004		5P	Medical Exemption – Pneumococcal
	NIP004		5O	Medical Exemption – Pneumo-Poly
	NIP004		5Q	Medical Exemption – Polio
	NIP004		5L	Medical Exemption – PPD Test
	NIP004		5R	Medical Exemption – Rabies
	NIP004		5S	Medical Exemption – Rotavirus
	NIP004		5T	Medical Exemption – Rubella
	NIP004		5U	Medical Exemption – Smallpox
	NIP004		5V	Medical Exemption – Td
	NIP004		5W	Medical Exemption – Tetanus
	NIP004		5X	Medical Exemption – Typhoid
	NIP004		5Y	Medical Exemption – Varicella
	NIP004		5Z	Medical Exemption – Yellow Fever
	NIP004		60	Medical Exemption – Zoster
	NIP004		H7	Member of Special Group
	NIP004		HD	Meningococcal infectious disease (disorder)
	NIP004		2K	Mumps (finding)
	NIP004		37	Neurologic disorders, underlying (seizure disorder)
	NIP004		EX04.001	Other Refusal - Adeno
	NIP004		EX04.002	Other Refusal - Anthrax
	NIP004		EX04.003	Other Refusal - BCG
	NIP004		EX04.004	Other Refusal - Cholera
	NIP004		EX04.005	Other Refusal - DT
	NIP004		EX04.006	Other Refusal - DTP/aP
	NIP004		EX04.007	Other Refusal - Diphtheria
	NIP004		EX04.008	Other Refusal - Encephalitis
	NIP004		EX04.009	Other Refusal - FLU H1N1-09
	NIP004		EX04.042	Other Refusal - H5N1 Flu
	NIP004		EX04.010	Other Refusal - HPV
	NIP004		EX04.011	Other Refusal - HepA
	NIP004		EX04.012	Other Refusal - HepB
	NIP004		EX04.013	Other Refusal - Hib
	NIP004		EX04.014	Other Refusal - IG-RSV IgIM
	NIP004		EX04.015	Other Refusal - Ig
	NIP004		EX04.016	Other Refusal - Influenza
	NIP004		EX04.039	Other Refusal - JEVC
	NIP004		EX04.017	Other Refusal - Lyme
	NIP004		EX04.018	Other Refusal - MMR
	NIP004		EX04.019	Other Refusal - Measles
	NIP004		EX04.041	Other Refusal - MeningB-Bexsero
	NIP004		EX04.040	Other Refusal - MeningB-Trumenba
	NIP004		EX04.020	Other Refusal - Meningo
	NIP004		EX04.021	Other Refusal - Mumps
	NIP004		EX04.022	Other Refusal - PPD Test
	NIP004		EX04.023	Other Refusal - Pertussis
	NIP004		EX04.024	Other Refusal - Plague

	NIP004		EX04.025	Other Refusal - Pneumo-Poly
	NIP004		EX04.026	Other Refusal - Pneumococcal
	NIP004		EX04.027	Other Refusal - Polio
	NIP004		EX04.028	Other Refusal - Rabies
	NIP004		EX04.029	Other Refusal - Rotavirus
	NIP004		EX04.030	Other Refusal - Rubella
	NIP004		EX04.031	Other Refusal - Smallpox
	NIP004		EX04.032	Other Refusal - Td
	NIP004		EX04.033	Other Refusal - Tetanus
	NIP004		EX04.034	Other Refusal - Typhoid
	NIP004		EX04.044	Other Refusal - Typhus
	NIP004		EX04.035	Other Refusal - Varicella
	NIP004		EX04.036	Other Refusal - Yellow Fever
	NIP004		EX04.037	Other Refusal - Zoster
	NIP004		38	Otitis media (ear infection) moderate to severe
	NIP004		61	Parental Refusal – Adeno
	NIP004		62	Parental Refusal – Anthrax
	NIP004		63	Parental Refusal – BCG
	NIP004		64	Parental Refusal – Cholera
	NIP004		65	Parental Refusal – DT
	NIP004		66	Parental Refusal – DTP/aP
	NIP004		67	Parental Refusal – Diphtheria
	NIP004		68	Parental Refusal – Encephalitis
	NIP004		69	Parental Refusal – FLU H1N1-09
	NIP004		6A	Parental Refusal – HPV
	NIP004		6B	Parental Refusal – HepA
	NIP004		6C	Parental Refusal – HepB
	NIP004		6D	Parental Refusal – Hib
	NIP004		6E	Parental Refusal – IG-RSV IgIM
	NIP004		6F	Parental Refusal – Ig
	NIP004		6G	Parental Refusal – Influenza
	NIP004		6H	Parental Refusal – Lyme
	NIP004		6I	Parental Refusal – MMR
	NIP004		6J	Parental Refusal – Measles
	NIP004		6K	Parental Refusal – Meningo
	NIP004		6L	Parental Refusal – Mumps
	NIP004		6M	Parental Refusal – PPD Test
	NIP004		6N	Parental Refusal – Pertussis
	NIP004		6O	Parental Refusal – Plague
	NIP004		6P	Parental Refusal – Pneumo-Poly
	NIP004		6Q	Parental Refusal – Pneumococcal
	NIP004		6R	Parental Refusal – Polio
	NIP004		6S	Parental Refusal – Rabies
	NIP004		6T	Parental Refusal – Rotavirus
	NIP004		6U	Parental Refusal – Rubella
	NIP004		6V	Parental Refusal – Smallpox
	NIP004		6W	Parental Refusal – Td
	NIP004		6X	Parental Refusal – Tetanus
	NIP004		6Y	Parental Refusal – Typhoid
	NIP004		6Z	Parental Refusal – Varicella
	NIP004		70	Parental Refusal – Yellow Fever
	NIP004		71	Parental Refusal – Zoster
	NIP004		EX05.001	Patient Refusal - Adeno
	NIP004		EX05.002	Patient Refusal - Anthrax
	NIP004		EX05.003	Patient Refusal - BCG
	NIP004		EX05.004	Patient Refusal - Cholera

	NIP004		EX05.005	Patient Refusal - DT
	NIP004		EX05.006	Patient Refusal - DTP/aP
	NIP004		EX05.007	Patient Refusal - Diphtheria
	NIP004		EX05.008	Patient Refusal - Encephalitis
	NIP004		EX05.009	Patient Refusal - FLU H1N1-09
	NIP004		EX05.042	Patient Refusal - H5N1 Flu
	NIP004		EX05.010	Patient Refusal - HPV
	NIP004		EX05.011	Patient Refusal - HepA
	NIP004		EX05.012	Patient Refusal - HepB
	NIP004		EX05.013	Patient Refusal - Hib
	NIP004		EX05.014	Patient Refusal - IG-RSV IgIM
	NIP004		EX05.015	Patient Refusal - Ig
	NIP004		EX05.016	Patient Refusal - Influenza
	NIP004		EX05.039	Patient Refusal - JEVC
	NIP004		EX05.017	Patient Refusal - Lyme
	NIP004		EX05.018	Patient Refusal - MMR
	NIP004		EX05.019	Patient Refusal - Measles
	NIP004		EX05.041	Patient Refusal - MeningB-Bexsero
	NIP004		EX05.040	Patient Refusal - MeningB-Trumenba
	NIP004		EX05.020	Patient Refusal - Meningo
	NIP004		EX05.021	Patient Refusal - Mumps
	NIP004		EX05.022	Patient Refusal - PPD Test
	NIP004		EX05.023	Patient Refusal - Pertussis
	NIP004		EX05.024	Patient Refusal - Plague
	NIP004		EX05.025	Patient Refusal - Pneumo-Poly
	NIP004		EX05.026	Patient Refusal - Pneumococcal
	NIP004		EX05.027	Patient Refusal - Polio
	NIP004		EX05.028	Patient Refusal - Rabies
	NIP004		EX05.029	Patient Refusal - Rotavirus
	NIP004		EX05.030	Patient Refusal - Rubella
	NIP004		EX05.031	Patient Refusal - Smallpox
	NIP004		EX05.032	Patient Refusal - Td
	NIP004		EX05.033	Patient Refusal - Tetanus
	NIP004		EX05.034	Patient Refusal - Typhoid
	NIP004		EX05.044	Patient Refusal - Typhus
	NIP004		EX05.035	Patient Refusal - Varicella
	NIP004		EX05.036	Patient Refusal - Yellow Fever
	NIP004		EX05.037	Patient Refusal - Zoster
	NIP004		C3	Patient exposed to Rabies
	NIP004		CP	Pertussis contraindication and precautions
	NIP004		HE	Pneumococcal infectious disease (disorder)
	NIP004		H5	Polymyxin B Allergy (disorder)
	NIP004		39	Pregnancy (in recipient)
	NIP004		H6	Previous history of intussusception
	NIP004		A9	PRIOR doses OF ANTHRAX caused anaphylactic reaction
	NIP004		AJ	PRIOR doses OF CHOLERA caused anaphylactic reaction
	NIP004		AM	PRIOR doses OF DTAP caused anaphylactic reaction
	NIP004		AN	PRIOR doses OF ENCEPHALITIS caused anaphylactic reaction
	NIP004		A0	PRIOR doses OF HEPA caused anaphylactic reaction
	NIP004		A1	PRIOR doses OF HEPB caused anaphylactic reaction
	NIP004		A3	PRIOR doses OF HIB caused anaphylactic reaction
	NIP004		A4	PRIOR doses OF HUMAN PAPILLOMA VIRUS caused anaphylactic reaction
	NIP004		AK	PRIOR doses OF IG-RSV IGIM caused anaphylactic reaction

	NIP004		AO	PRIOR doses OF INFLUENZA caused anaphylactic reaction
	NIP004		A5	PRIOR doses OF MENINGO caused anaphylactic reaction
	NIP004		A6	PRIOR doses OF MMR caused anaphylactic reaction
	NIP004		10	PRIOR doses OF nonspecific vaccine GROUP caused anaphylactic reaction
	NIP004		A7	PRIOR doses OF PLAGUE caused anaphylactic reaction
	NIP004		A8	PRIOR doses OF PNEUMOCOCCAL caused anaphylactic reaction
	NIP004		AI	PRIOR doses OF PNEUMOPOLY caused anaphylactic reaction
	NIP004		AA	PRIOR doses OF POLIO caused anaphylactic reaction
	NIP004		AB	PRIOR doses OF RABIES caused anaphylactic reaction
	NIP004		AC	PRIOR doses OF ROTAVIRUS caused anaphylactic reaction
	NIP004		AE	PRIOR doses OF SMALLPOX caused anaphylactic reaction
	NIP004		AL	PRIOR doses OF TD caused anaphylactic reaction
	NIP004		AH	PRIOR doses OF TETANUS caused anaphylactic reaction
	NIP004		AD	PRIOR doses OF TYPHOID caused anaphylactic reaction
	NIP004		AF	PRIOR doses OF VARICELLA caused anaphylactic reaction
	NIP004		AG	PRIOR doses OF YELLOW FEVER caused anaphylactic reaction
	NIP004		A2	PRIOR doses OF ZOSTER caused anaphylactic reaction
	NIP004		HF	Rabies (disorder)
	NIP004		HO	Rabies exposure within previous 10 days
	NIP004		1	Recipient Condition - unspecified
	NIP004		C0	Refusal of All Childhood Vaccines
	NIP004		P1	Refusal of DT
	NIP004		P2	Refusal of DT/aP
	NIP004		PB	Refusal of HepA
	NIP004		P3	Refusal of HepB
	NIP004		P4	Refusal of Hib
	NIP004		PF	Refusal of HPV
	NIP004		PC	Refusal of Influenza
	NIP004		PD	Refusal of Meningococcal
	NIP004		P5	Refusal of MMR
	NIP004		PJ	Refusal of Novel Influenza-09
	NIP004		PG	Refusal of Pertussis
	NIP004		P6	Refusal of Pneumococcal
	NIP004		P7	Refusal of Polio
	NIP004		PE	Refusal of Rotavirus
	NIP004		C2	Refusal of Smallpox
	NIP004		P8	Refusal of Td
	NIP004		PT	Refusal of Tdap
	NIP004		P9	Refusal of Varicella
	NIP004		PK	Refusal of Zoster
	NIP004		72	Religious Exemption – Adeno
	NIP004		73	Religious Exemption – Anthrax
	NIP004		74	Religious Exemption – BCG
	NIP004		75	Religious Exemption – Cholera
	NIP004		76	Religious Exemption – DT
	NIP004		77	Religious Exemption – DTP/aP
	NIP004		78	Religious Exemption – Diphtheria
	NIP004		79	Religious Exemption – Encephalitis
	NIP004		7A	Religious Exemption – FLU H1N1-09

	NIP004		7B	Religious Exemption – HPV
	NIP004		7C	Religious Exemption – HepA
	NIP004		7D	Religious Exemption – HepB
	NIP004		7E	Religious Exemption – Hib
	NIP004		7F	Religious Exemption – IG-RSV IgIM
	NIP004		7G	Religious Exemption – Ig
	NIP004		7H	Religious Exemption – Influenza
	NIP004		7I	Religious Exemption – Lyme
	NIP004		7J	Religious Exemption – MMR
	NIP004		7K	Religious Exemption – Measles
	NIP004		7L	Religious Exemption – Meningo
	NIP004		7M	Religious Exemption – Mumps
	NIP004		7N	Religious Exemption – PPD Test
	NIP004		7O	Religious Exemption – Pertussis
	NIP004		7P	Religious Exemption – Plague
	NIP004		7Q	Religious Exemption – Pneumo-Poly
	NIP004		7R	Religious Exemption – Pneumococcal
	NIP004		7S	Religious Exemption – Polio
	NIP004		7T	Religious Exemption – Rabies
	NIP004		7U	Religious Exemption – Rotavirus
	NIP004		7V	Religious Exemption – Rubella
	NIP004		7W	Religious Exemption – Smallpox
	NIP004		7X	Religious Exemption – Td
	NIP004		7Y	Religious Exemption – Tetanus
	NIP004		7Z	Religious Exemption – Typhoid
	NIP004		80	Religious Exemption – Varicella
	NIP004		81	Religious Exemption – Yellow Fever
	NIP004		82	Religious Exemption – Zoster
	NIP004		HG	Ruebella (finding)
	NIP004		CT	Tetanus contraindication - allergic reaction
	NIP004		40	Thrombocytopenia
	NIP004		41	Thrombocytopenia purpura (history)
	NIP004		HI	Typhoid fever (disorder)
	NIP004		HJ	Vaccinia (disorder)
	NIP004		HK	Varicella (disorder)
	NIP004		HL	Varicella (finding)
	NIP004		HM	Viral hepatitis, type A (disorder)
	NIP004		HN	Yellow fever (disorder)
NIP	NIP005	Event Consequence		
	NIP005		D	Patient Died
	NIP005		L	Life threatening illness
	NIP005		E	Required emergency room/doctor visit
	NIP005		H	Required hospitalization
	NIP005		P	Resulted in prolongation of hospitalization
	NIP005		J	Resulted in permanent disability
NIP	NIP006	Patient Registry Status		
	NIP006		A	Active
	NIP006		N	Inactive
	NIP006		P	Permanently inactive – deceased
	NIP006		M	Moved or Gone Elsewhere
NIP	NIP008	VFC Funding Source		
	NIP008		PVF	Private Funding
	NIP008		PBF	Public Funding (e.g., VFC)
IMMUNET	MD001	Reaction Codes		
	MD001		PERTCONT	Pertussis allergic reaction

	MD001		TETCONT	Tetanus allergic reaction
	MD001		HYPOTON	Hypotonic-hyporesponsive collapse within 48 hours of immunization
	MD001		SEIZURE	Seizure occurring within 3 days
	MD001		CRYING	Persistent crying lasting >= 3 hours within 48 hours of immunization
	MD001		FEVER105	Temperature >= 105 (40.5 C) within 48 hours of immunization
IMMUNET	WVGC	Vaccine Group Code (WVGC)		
	WVGC		Adeno	Adeno
	WVGC		Anthrax	Anthrax
	WVGC		BCG	BCG
	WVGC		Cholera	Cholera
	WVGC		Diphtheria	Diphtheria, Antitoxin
	WVGC		DTP/aP	Diphtheria, Tetanus, Acellular Pertussis
	WVGC		Encephalitis	Encephalitis
	WVGC		Flu H1N1-09	Novel Influenza-09
	WVGC		HepA	Hepatitis A
	WVGC		HepB	Hepatitis B
	WVGC		Hib	Hib
	WVGC		HPV	Human Papilloma Virus
	WVGC		Ig	Ig
	WVGC		IG-RSV IgIM	IG-RSV IgIM
	WVGC		Influenza	Influenza
	WVGC		JEVC	JEVC
	WVGC		Lyme	Lyme
	WVGC		Measles	Measles Virus Vaccine
	WVGC		MMR	Measles, Mumps, Rubella
	WVGC		Meningo	Meningitis
	WVGC		MeningB-Bexsero	MeningBB
	WVGC		MeningB-Trumenba	MeningBT
	WVGC		Mumps	Mumps Virus Vaccine
	WVGC		Pertussis	Pertussis
	WVGC		Plague	Plague
	WVGC		Pneumococcal	Pneumonia Conjugate
	WVGC		Pneumo-Poly	Pneumonia Polysaccharide
	WVGC		Polio	Poliomyelitis
	WVGC		PPD Test	PPD Test
	WVGC		Rabies	Rabies
	WVGC		Rotavirus	Rotavirus
	WVGC		Rubella	Rubella Virus Vaccine
	WVGC		Tdap	TDAP
	WVGC		Tetanus	Tetanus
	WVGC		Td	Tetanus Diphtheria
	WVGC		Typhoid	Typhoid
	WVGC		Typhus	Tphus
	WVGC		Smallpox	Vaccinia
	WVGC		Varicella	Varicella
	WVGC		Yellow Fever	Yellow Fever
	WVGC		Zoster	Zoster
IMMUNET	WVTN	Vaccine Trade Name (WVTN)		
	WVTN		Acel-Imune	DTaP
	WVTN		ActHib	Hib-PRP-T
	WVTN		Adacel	TdaP > 7 years

	WVTN		Adeno T4	Adeno T4
	WVTN		Adeno T7	Adeno T7
	WVTN		Adenovirus type 4 and 7	Adenovirus types 4 and 7
	WVTN		AFLURIA	Influenza, seasonal, injectable
	WVTN		AFLURIA p-free	Preservative-Free Influenza
	WVTN		Afluria Quadrivalent	Influenza, injectable, Quadrivalent
	WVTN		Afluria Quad, P-free	Influenza, inject, quadrivalent, p-free
	WVTN		Agriflu p-free	Preservative-Free Influenza
	WVTN		Anthrax	Anthrax
	WVTN		Aplisol	TST-PPD intradermal
	WVTN		Attenuvax	Measles
	WVTN		BabyBIG	Botulism
	WVTN		BayTet	Tlg
	WVTN		BCG-Cancer	BCG-BC
	WVTN		BCG-TB	BCG-TB
	WVTN		Bexsero	Meningococcal B, OMV
	WVTN		Biavax II	Rubella-Mumps
	WVTN		BIG	Botulism
	WVTN		Boostrix	TdaP > 7 years
	WVTN		Botulinum-antitoxin	Botulinum-antitoxin
	WVTN		Botulism	Botulism
	WVTN		Certiva	DTaP
	WVTN		Cholera-I	Cholera-Inject
	WVTN		Cholera-O	Cholera-Oral
	WVTN		CMV-IgIV	CMV-IgIV
	WVTN		Comvax	HepB-Hib
	WVTN		DAPTACEL	DTaP,5 pertussis antigens
	WVTN		DECAVAC	Td Adult Pres-Free
	WVTN		Diphtheria	Diphtheria
	WVTN		Diphtheria-antitoxin	Diphtheria-antitoxin
	WVTN		Dryvax	Smallpox
	WVTN		DT	DT-Peds
	WVTN		DTP	DTP
	WVTN		Engerix-B Adult	HepB-Adult
	WVTN		Engerix-B dialysis	HepB-Dialysis 4 dose
	WVTN		Engerix-B Peds	HepB-Peds
	WVTN		Flebogamma	IgIV
	WVTN		FLUAD	Influenza, trivalent, adjuvanted
	WVTN		FLUBlok	Influenza, recombinant, inject, p-free
	WVTN		Flucelvax	Influenza, injectable, MDCK, p-free
	WVTN		Flucelvax Quadrivalent	Influenza, injectable, MDCK, quad
	WVTN		Flucelvax Quad, p-free	Influenza, injectable, MDCK, p-free quad
	WVTN		Flu-Unspecified	Influenza, unspecified formulation
	WVTN		Flu-Imune	Influenza, seasonal, injectable
	WVTN		Flu-Mist	FLU-Nasal
	WVTN		FluMist Quadrivalent	Influenza, live, intranasal, quadrivalent
	WVTN		Flu-Shield	Influenza, seasonal, injectable
	WVTN		Fluarix p-free	Preservative-Free Influenza
	WVTN		Fluarix, quadrivalent	Influenza, inject, quadrivalent, p-free
	WVTN		FluLaval	Influenza, seasonal, injectable
	WVTN		Flulaval quadrivalent	Influenza, injectable, quadrivalent
	WVTN		Fluogen	Influenza, seasonal, injectable
	WVTN		Fluvirin	Influenza, seasonal, injectable
	WVTN		Fluvirin p-free	Preservative-Free Influenza
	WVTN		Fluzone	Influenza, seasonal, injectable
	WVTN		Fluzone High-Dose p-free	Influenza, high-dose, seasonal, P-free

	WVTN		Fluzone Intraderm p-free	Influenza, seasonal, intradermal, P-free
	WVTN		Fluzone p-free	Preservative-Free Influenza
	WVTN		Fluzone Quad MDV	Influenza, injectable, quadrivalent
	WVTN		Fluzone Quad, P-free	Influenza, inject, quadrivalent, p-free
	WVTN		Fluzone Quad, 6-36mo	Influenza, inject, quad, p-free, peds
	WVTN		Gardasil	HPV, Quadrivalent
	WVTN		Gardasil 9	HPV9
	WVTN		Havrix-Adult	HepA-Adult
	WVTN		Havrix-Peds 2 Dose	HepA-Ped 2 Dose
	WVTN		Havrix-Peds 3 Dose	HepA-Peds
	WVTN		HBIg	HBIg
	WVTN		HEPLISAV-B	HepB-CpG
	WVTN		Hiberix	HIB-PRP-T
	WVTN		Hib-TITER	Hib-HbOC
	WVTN		H1N1 Nasal	Novel Influenza-H1N1-09, nasal
	WVTN		H1N1 P-free, CSL	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 P-free, Novartis	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 P-free, Sanofi	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 CSL	Novel Influenza-H1N1-09
	WVTN		H1N1 Novartis	Novel Influenza-H1N1-09
	WVTN		H1N1 Sanofi Pasteur	Novel Influenza-H1N1-09
	WVTN		Ig	Ig
	WVTN		IgIV	IgIV
	WVTN		Imovax Rabies ID	Rabies-ID
	WVTN		Imovax Rabies IM	Rabies-IM
	WVTN		Infanrix	DTaP
	WVTN		IPOL	Polio-Inject
	WVTN		JE-Vax	Japanese Enceph
	WVTN		Ixiaro	Japanese Encephalitis IM
	WVTN		Kinrix	DTaP-IPV
	WVTN		LYMErix	Lyme
	WVTN		M-R-VAX	Measles-Rubella
	WVTN		Measles	Measles
	WVTN		Measles-Rubella (MERU)	Measles-Rubella
	WVTN		Menactra	Meningococcal-MCV4P
	WVTN		Menhibrix	Meningococcal C/Y – HIB PRP
	WVTN		MENOMUNE	Meningococcal-MPSV4
	WVTN		Meningo MCV4	Meningococcal MCV4
	WVTN		Menveo	Meningococcal-MCV4O
	WVTN		Meruvax II	Rubella
	WVTN		MMR II, M-M-R II	MMR
	WVTN		Mumps	Mumps
	WVTN		Mumps-Rubella (MURU)	Rubella-Mumps
	WVTN		Mumpsvax	Mumps
	WVTN		OmniHib	Hib-PRP-T
	WVTN		ORIMUNE	Polio-Oral
	WVTN		Pediarix	DTAP/Polio/Hep B
	WVTN		Pentacel	DtaP-Hib-IPV
	WVTN		PedvaxHIB	Hib-OMP
	WVTN		Plague	Plague
	WVTN		Pneumovax 23	Pneumococcal 23
	WVTN		PNU-IMUNE 23	Pneumococcal 23
	WVTN		Prevnar 7	Pneumo-Conjugate Vaccine, 7 valent

	WVTN		Prevnar13	Pneumo-Conjugate Vaccine, 13 valent
	WVTN		ProHIBit	Hib-PRP-D
	WVTN		ProQuad	MMRV
	WVTN		Quadracel	DTaP-IPV
	WVTN		RabAvert	Rabies-IM
	WVTN		Recombivax Peds	HepB-Peds
	WVTN		Recombivax-Adult	HepB-Adult
	WVTN		Recombivax-Dialysis	HepB-Dialysis 4 dose
	WVTN		Rho(D)Full	Rho(D)Full
	WVTN		Rho(D)IV	Rho(D)IV
	WVTN		Rho(D)Mini	Rho(D)Mini
	WVTN		RIg	RIg
	WVTN		RIg-HT	RIg-HT
	WVTN		Rotarix	Rotavirus monovalent
	WVTN		RotaShield	Rotavirus tetravalent
	WVTN		RotaTeq	Rotavirus pentavalent
	WVTN		RSV-IgIM	RSV-IgIM
	WVTN		RSV-IgIV	RSV-IgIV
	WVTN		Rubella	Rubella
	WVTN		Td	Td (Adult), absorbed
	WVTN		TENIVAC	Td Adult Pres-Free
	WVTN		Tetramune	DTP-Hib
	WVTN		TIg	TIg
	WVTN		TriHIBit	DTaP-Hib
	WVTN		Tripedia	DTaP
	WVTN		Trumenba	Meningococcal B, recombinant
	WVTN		TT	Tetanus toxoid, adsorbed
	WVTN		Tubersol	TST-PPD intradermal
	WVTN		Twinrix	HepA-HepB Adult
	WVTN		Typhim Vi	Typhoid-ViCPs
	WVTN		Typhoid	Typhoid-HP
	WVTN		Typhoid-AKD	Typhoid-AKD
	WVTN		Vaccinia, diluted	Vaccinia (smallpox), diluted
	WVTN		Vaccinia VIG	Vaccinia immune globulin VIG
	WVTN		VAQTA-Adult	HepA-Adult
	WVTN		VAQTA-Peds 2 Dose	HepA-Ped 2 Dose
	WVTN		VAQTA-Peds 3 Dose	HepA-Ped 3 Dose
	WVTN		Varivax	Varicella
	WVTN		Vivotif Berna/Ty21a	Typhoid-Oral
	WVTN		VZIg	VZIg
	WVTN		YF-VAX	Yellow Fever
	WVTN		Zostavax	Zoster (shingles), live
	WVTN		SHINGRIX	Zoster Recombinant

CPT Codes (CPT) and CVX Codes (292)

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90476	54	Adeno	Adeno T4	Adeno T4	Adenovirus type 4, live oral	WAL
90477	55		Adeno T7	Adeno T7	Adenovirus type 7, live oral	WAL
	82		Adeno, unspecified formulation		Adeno, unspecified formulation	
	143		Adenovirus types 4 and 7	Adenovirus type 4 and 7	Adenovirus, type 4 and type 7, live, oral	BRR
90581	24	Anthrax	Anthrax	Anthrax	Anthrax	MIP
90585	19	BCG	BCG-TB	BCG-TB	Bacillus Calmette-Guerin TB	OTC
				MYCOBAX		
90586			BCG-BC	BCG-Cancer	Bacillus Calmette-Guerin bladder cancer	OTC
				TICE BCG		
90728			BCG		BCG not otherwise specified	
90725	26	Cholera	Cholera-Injectable	Cholera-I	Cholera injectable	CHI
90592			Cholera-Oral	Cholera-O	Cholera Oral	CHI
90719		Diphtheria	Diphtheria	Diphtheria	Diphtheria	PD
	20	DTP/aP	DTaP	Acel-Imune	Diphtheria, tetanus, acellular pertussis	WAL
				Certiva		BAH
				Infanrix		SKB
				Tripedia		PMC
90701	01		DTP	DTP	Diphtheria, tetanus, whole cell pertussis	PMC
90702	28		DT	DT	Diphtheria tetanus pediatric	PMC
90720	22		DTP-Hib	Tetramune	DTP – Hib combination	WAL
90721	50		DTaP-Hib	TriHIBit	DtaP-Hib combination	PMC
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB
90698	120		DtaP-Hib-IPV	Pentacel	DtaP-Hib-IPV combination	PMC
	106		DTAP, 5 pertussis antigens	DAPTACEL	Diphtheria, tetanus, acellular pertussis, 5 antigens	PMC
90700	107		DTaP, unspecified formulation		DTaP, unspecified formulation	
	102		DTP-HIB-Hep B		DTP-HIB Hep B vaccine	
90696	130		DTaP-IPV	Kinrix	DTaP-IPV	SKB
				Quadracel		PMC
	132		DTaP-IPV-HIB-HEP B, historical		Historical record of vaccine containing * diphtheria, tetanus toxoids and acellular pertussis, * poliovirus, inactivated, * Haemophilus influenzae type b conjugate, * Hepatitis B	
90663	125	Flu H1N1-09	Novel Influenza-H1N1-09, nasal	H1N1 Nasal	2009- Influenza-H1N1, nasal	MED
	126		Novel Influenza-H1N1-09, preserve-free	H1N1 p-free, CSL	2009- Influenza-H1N1, preservative free - injectable	CSL
				H1N1 p-free, Novartis		NOV
				H1N1 p-free, Sanofi		PMC
	127		Novel Influenza-H1N1-09	H1N1 CSL	2009 Influenza-H1N1, injectable	CSL
				H1N1 Novartis		NOV
				H1N1 Sanofi Pasteur		PMC
	128		Novel Influenza-H1N1-09 all formulations		2009 Influenza-H1N1, not otherwise specified	
90632	52	HepA	HepA adult	Havrix-Adult	Hepatitis A adult	SKB
				VAQTA-Adult		MSD

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90633	83		HepA ped-2 dose	Havrix-Peds 2 Dose	Hepatitis A pediatric/adolescent 2 dose	SKB
				VAQTA-Peds 2 Dose		MSD
90634	84		HepA ped-3 dose	Havrix-Peds 3 Dose	Hepatitis A pediatric/adolescent 3 dose	SKB
						MSD
				VAQTA-Peds 3 Dose		
90636	104		HepA-HepB Adult	Twinrix	Hepatitis A & Hepatitis B adult	SKB
90730	85		Hep A, unspecified formulation		Hep A, unspecified formulation	
90636	104	HepB	HepA-HepB Adult	Twinrix	Hepatitis A & Hepatitis B adult	SKB
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB
90731	45		Hep B		Hep B not otherwise specified	
90739	189		HepB-CpG	HEPLISAV-B	HEPLISAV-B 18Y 2 dose	DVX
90740	44		Hep B-dialysis 3 dose		Hepatitis B Dialysis 3 dose	
90743	43		HepB adult	Recombivax-Adult	Hepatitis B adult dose 1ml	MSD
90744	08		HepB pediatric	Recombivax Peds	Hepatitis B pediatric/adolescent .5ml	MSD
				Engerix-B Peds		SKB
90745	42		Hep B, adolescent/high risk infant		Hep B, adolescent/high risk infant	
90746	43		HepB adult	Recombivax-Adult	Hepatitis B adult dose 1ml	MSD
				Engerix-B Adult		SKB
90747	44		HepB-dialysis 4 dose	Recombivax-Dialysis	Hepatitis B Dialysis 4 dose	MSD
				Engerix-B dialysis		SKB
90748	51		HepB-Hib	Comvax	HepB-Hib Combination	MSD
90645	47	Hib	Hib-HbOC	Hib-TITER	Hemophilus influenza b HbOC 4 dose	WAL
90646	46		Hib-PRP-D	ProHIBit	Hemophilus influenza b PRP-D booster	PMC
90647	49		Hib-OMP	PedvaxHIB	Hemophilus influenza b OMP 3 dose	MSD
90648	48		Hib-PRP-T	Hiberix	Hemophilus influenza b PRP-T 4 dose	SKB
				OmniHib		PMC
				ActHib		PMC
90720	22		DTP-Hib	Tetramune	DTP – Hib combination	WAL
90721	50		DtaP-Hib	TriHIBit	DtaP-Hib combination	PMC
90737	17		Hib		Hib not otherwise specified	
90748	51		HepB-Hib	Comvax	HepB-Hib combination	MSD
90698	120		DtaP-Hib-IPV	Pentacel	DtaP-Hib-IPV combination	PMC
90644	148		Meningococcal C/Y-Hib PRP	Menhibrix	Meningococcal C/Y-Hib PRP	SKB
90650	118	HPV	HPV, bivalent	Cervarix	Human Papilloma Virus	SKB
90649	62		HPV, Quadrivalent	Gardasil	Human Papilloma Virus	MSD
90651	165		HPV9	Gardasil 9	Human Papilloma Virus	MSD
	137		HPV, uncertain fromulation			
90281	86	Ig	Ig	Ig	Ig human	
90283	87		IgIV	IgIV	Ig IV human	
				Flebogamma		
90287	27		Botulinum-antitoxin	Botulinum-antitoxin	Botulinum antitoxin equine	

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90288			Botulism	BabyBIG	Botulism Immune Globulin	
				Botulism		
				BIG		
90291	29		CMV-IgIV	CMV-IgIV	Cytomegalovirus Ig IV human	
90399	14		Ig		Unlisted immune globulin	
90296	12		Diphtheria-antitoxin	Diphtheria-antitoxin	Diphtheria antitoxin, equine	
90371	30		HBIg	HBIg	Hepatitis B Ig human	
90375	34		RIg	RIg	Rabies Ig human	
90376	34		RIg-HT	RIg-HT	Rabies Ig heat treated human	
90379	71		RSV-IgIV	RSV-IgIV	Respiratory syncytial virus Ig IV	
90384			Rho(D)Full	Rho(D)Full	Rho(D)Ig Rhlg human full-dose	
90385			Rho(D)Mini	Rho(D)Mini	Rho(D)Ig Rhlg human mini-dose	
90386			Rho(D)IV	Rho(D)IV	Rho(D)Ig Rhlg human IV	
	156		Rho(D) Immune globulin- IV or IM		Rho(D) Immune globulin- IV or IM	
	157		Rho(D) Immune globulin – IM		Rho(D) Immune globulin – IM	
	159		Rho(D) unspecified formulation		Rho(D) unspecified formulation	
90389	13		TiG	BayTet	Tetanus Ig human	
				TIg		
90393	79		Vaccinia immune globulin	Vaccinia VIG	Vaccinia Ig human	
90396	36		VZIg	VZIg	Varicella-zoster Ig human	
	117		VZIG (IND)	VariZIG		CNJ
			Varicella IG			
90378	93	IG-RSV IgIM	RSV-IgIM	Synagis	Respiratory syncytial virus Ig	
90630	166	Influenza	influenza, intradermal, quad, p-free	Fluzone Intradermal Quad	Influenza virus vaccine, quadrivalent (IIV4), split virus, preservative free, for intradermal use	PMC
90653	168		Influenza, trivalent, adjuvanted	FLUAD	Influenza, trivalent, adjuvanted	SEQ
90654	144		Influenza, seasonal, intradermal, P-free	Fluzone Intraderm P-free	Influenza, seasonal, intradermal, P-free	PMC
90655	140		Influenza, seasonal, P-Free	AFLURIA p-free	Influenza preservative free, 6-35 months	SEQ
				Agriflu p-free		NOV
				Fluarix p-free		SKB
				Flulaval p-free		IDB
				Fluvirin p-free		SEQ
				Fluzone p-free		PMC
90656				AFLURIA p-free	Influenza preservative free, 3+ years old	SEQ
				Agriflu p-free		NOV
				Fluarix p-free		SKB
				Fluvirin p-free		SEQ
				Fluzone p-free		PMC
90657	141		Influenza, seasonal, injectable	AFLURIA	Influenza split virus 6-35 months	SEQ
				Flu-Imune		WAL
				Flu-Shield		WAL
				FluLaval		SKB
				Fluogen		PD
				Fluvirin		SEQ

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
				Fluzone		PMC
90658				AFLURIA	Influenza split virus, 3+ years old	SEQ
				Flu-Imune		WAL
				Flu-Shield		WAL
				FluLaval		SKB
				Fluogen		PD
				Fluvirin		SEQ
				Fluzone		PMC
90659	16		Influenza, Whole virus		Influenza whole virus	
90660	111		Flu-nasal	Flu-Mist	Influenza live, for intranasal use	WAL
90661	153		Influenza, injectable, MDCK, p-free	Flucelvax	Influenza, injectable, MDCK, p-free	NOV
	186		Influenza, injectable, MDCK, quad	Flucelvax Quadrivalent	Influenza, injectable, MDCK, quad	SEQ
90662	135		Influenza, high dose, seasonal, P-free	Fluzone High-Dose P-free	Influenza, high dose, seasonal, P-free	PMC
90672	149		Influenza,live,intranasal, quadrivalent	FluMist Quadrivalent	Influenza virus vaccine, quadrivalent, live, for intranasal use	MED
90673	155		Influenza, recombinant, inject, p-free	FLUBlok	Influenza, recombinant, inject, p-free	PSC
90674	171		Influenza, injectable, MDCK, p-free quad	Flucelvax Quad, p-free	Influenza, injectable, MDCK, p-free quad	SEQ
90685	161		Influenza, inject, quad, p-free, peds	Fluzone Quad, 6-36mo	Influenza virus vaccine, quadrivalent, split virus, preservative free, when administered to children 6-35 months of age, for intramuscular use.	PMC
90686	150		Influenza, inject, quadrivalent, p-free	Afluria Quad, P-free	Influenza virus vaccine, quadrivalent, split virus, preservative free, when administered to individuals 3 years of age and older, for intramuscular use	SEQ
				Fluarix, quadrivalent		SKB
				Flulaval quad p-free		IDB
				Fluzone Quad, P-free		PMC
90687	158		Influenza, injectable, quadrivalent	Flulaval quadrivalent	Influenza virus vaccine, quadrivalent, split virus, when administered to children 6-35 months of age, for intramuscular use	SKB
				Fluzone Quad MDV		PMC
90688				Afluria Quadrivalent	Influenza virus vaccine, quadrivalent, split virus, when administered to individuals 3 years of age and older, for intramuscular use	SEQ
				Flulaval quadrivalent		SKB
				Fluzone Quad MDV		PMC
	151		influenza nasal, unspecified formulation			
90724	88		FLU	Flu-Unspecified	Influenza, unspecified formulation	
90665	66	Lyme	Lyme	LYMErix	Lyme disease	SKB
90735	39	Encephalitis	Japanese encephalitis	JE-Vax	Japanese encephalitis	JPN
90738	134	JEVC	Japanese Encephalitis IM	Ixiaro	Japanese encephalitis virus vaccine, inactivated, for intramuscular use	INT
	129		Japanese Encephalitis, unspecified formulation		Japanese Encephalitis, unspecified formulation	
90705	05	Measles	Measles	Measles	Measles live 1964-1974 (Eli Lilly)	MSD
				Attenuvax	Measles live	MSD
90708	04		Measles-Rubella	M-R-VAX	Measles and rubella live	MSD
				Measles-Rubella (MERU)		MSD
90704	07	Mumps	Mumps	Mumps	Mumps 1950-1978	MSD
				Mumpsvax	Mumps live	MSD

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90709			Rubella-Mumps		Rubella and Mumps not otherwise specified	
	38		Rubella-Mumps	Biavax II	Rubella and mumps live	MSD
				Mumps-Rubella (MURU)		MSD
90707	03	MMR	MMR	MMR II	Measles, mumps and rubella live	MSD
90710	94		MMRV	Proquad	Measles, mumps, rubella, varicella live	MSD
90733	32	Meningo	Meningococcal-MPSV4	MENOMUNE	Meningococcal-MPSV4	PMC
	114		Meningococcal-MCV4P	Menactra	Meningococcal-MCV4P	PMC
	136		Meningococcal-MCV4O	Menveo	Meningococcal-MCV4O	SKB
90734	147		Meningococcal-MCV4	Meningo MCV4	Meningococcal-MCV4	
	108		Meningococcal, unspecified formulation		Meningococcal, unspecified formulation	
90644	148		Meningococcal C/Y-Hib PRP	Menhibrix	Meningococcal C/Y-Hib PRP	SKB
90620	163		Meningococcal B, OMV	Bexsero	Meningococcal recombinant protein and outer membrane vesicle vaccine, serogroup B, 2 dose schedule, for intramuscular	SKB
90621	162		Meningococcal B, recombinant	Trumenba	Meningococcal recombinant lipoprotein vaccine, serogroup B, 3 dose schedule, for intramuscular use	PFA
90715	115	Pertussis	TdaP > 7 Years	Adacel	TdaP > 7 years	PMC
				Boostrix		SKB
90712	02	Polio	Polio oral	ORIMUNE	Poliovirus OPV live oral	WAL
90713	10		Polio injectable	IPOL	Poliovirus inactivated IPV	PMC
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB
90698	120		DtaP-Hib-IPV	Pentacel	DtaP-Hib-IPV combination	PMC
	89		Polio, unspecified formulation		Polio, unspecified formulation	
90696	130		DTaP-IPV	Kinrix	DTaP-IPV	SKB
				Quadracel		PMC
90727	23	Plague	Plague	Plague	Plague	GRE
90732	33	Pneumo-Poly	Pneumococcal 23	PNU-IMUNE 23	Pneumococcal polysaccharide 23 valent	WAL
				Pneumovax 23		MSD
90669	100	Pneumococcal	Pneumo-conjugate 7	Prevnar 7	Pneumococcal conjugate vaccine7 valent	WAL
	109		Pneumococcal, unspecified formulation		Pneumococcal, unspecified formulation	
90670	133		Pneumo-conjugate 13	Prevnar13	Pneumococcal conjugate vaccine 13 valent	PFR
	152		Pneumococcal Conjugate, unsp formulation		Pneumococcal Conjugate, unspecified formulation	
86580	96	PPD Test	TST-PPD intradermal	Aplisol	TST-PPD intradermal	JHP
				Tubersol	TST-PPD intradermal	PMC
	95		TST-OT Tine Test		TST-OT Tine Test	
	97		TST-PPD Tine Test		TST-PPD Tine Test	
	98		TST unspecified formulation		TST unspecified formulation	
90675	18	Rabies	Rabies-intramuscular	RabAvert	Rabies intramuscular	CHI
				Imovax Rabies IM		PMC
90676	40		Rabies-intradermal	Imovax Rabies ID	Rabies intradermal	PMC
90726	90		Rabies		Rabies not otherwise specified	

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90680	74	Rotavirus	Rotavirus, Tet	RotaShield	Rotavirus tetravalent live oral (removed on 10/16/1999)	WAL
	116		Rotavirus, Pent	RotaTeq	Rotavirus pentavalent (after 02/02/2006)	MSD
90681	119		Rotavirus, monovalent	Rotarix	Rotavirus monovalent	SKB
	122		Rotavirus		Rotavirus not otherwise specified	
90706	06	Rubella	Rubella	Rubella	Rubella live	MSD
				Meruvax II		MSD
90708	04		Measles-Rubella	Measles-Rubella (MERU)	Measles and rubella live	MSD
				M-R-VAX		MSD
90709			Rubella-Mumps		Rubella-Mumps not otherwise specified	
	38		Rubella-Mumps	Mumps-Rubella (MURU)	Rubella and mumps live	MSD
				Biavax II		MSD
	75	Smallpox	Smallpox	Dryvax	Vaccinia(Smallpox) dry	WAL
	105		Vaccinia (Smallpox), diluted	Vaccinia, diluted	Vaccinia (smallpox), diluted	
90718	09	Td	Td (Adult), adsorbed	Td	Td (Adult), adsorbed	PMC
						MBL
	113		Td Adult Pres-Free	DECAVAC	Td Adult Preservative Free – CPT code is effective 7/1/2005	PMC
				TENIVAC	Td Adult Preservative Free	PMC
90715	115		TdaP > 7 Years	Adacel	TdaP > 7 years	PMC
				Boostrix		SKB
	138		Td (Adult), not adsorbed		Td (Adult), not adsorbed	
	139		Td (Adult) unspecified formulation		Td (Adult) unspecified formulation	
90714	196		Td (Adult), adsorbed PF, Lf unspecified		Td (Adult), adsorbed PF, Lf unspecified	
90703	35	Tetanus	Tetanus toxoid, adsorbed	TT	Tetanus toxoid, adsorbed	PMC
	112		Tetanus toxoid, unspecified formulation		Tetanus toxoid, unspecified formulation	
	142		Tetanus toxoid, not adsorbed		Tetanus toxoid, not adsorbed	
90690	25	Typhoid	Typhoid-oral	Vivotif Berna/Ty21a	Typhoid oral	CRU
90691	101		Typhoid-ViCPs	Typhim Vi	Typhoid VI capsular polysaccharide	PMC
90692	41		Typhoid-H-P	Typhoid	Typhoid heat and phenol inactivated	
90693	53		Typhoid-AKD	Typhoid-AKD	Typhoid acetone-killed, dried (military)	
	91		Typhoid		Typhoid not otherwise specified (after 7/1/2005, no CPT code is associated with this vaccine group)	
90710	94	Varicella	MMRV	ProQuad	Measles, mumps, rubella, varicella live	MSD
90716	21		Varicella	Varivax	Varicella live	MSD
90717	37	Yellow Fever	Yellow Fever	YF-VAX	Yellow Fever live	PMC
90736	121	Zoster	Zoster (shingles), live	Zostavax	Zoster (shingles), live	MSD
90750	187		Zoster Recombinant	SHINGRIX	Zoster (shingles) vaccine (HZV), recombinant, sub-unit, adjuvanted, for intramuscular use	SKB
	188		Zoster, unspecified formulation		Zoster, unspecified formulation	

Appendix C – HL7 2.5.1 Release 1.5 CDC Value Sets

Value Set Name – Vaccination Contraindications:

Value Set Code: PHVS_VaccinationContraindication_IIS

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
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
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	CDCPHINVS	

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value NIP004
		administered < 10 yrs previously		
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

Value Set Name – Vaccination Reaction:

Value Set Code: PHVS_VaccinationReaction_IIS

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	

Value Set Name – Vaccination Special Indications:

Value Set Code: PHVS_VaccinationSpecialIndications_IIS

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	

Value Set Name – History of Disease as Evidence of Immunity_IIS:

Value Set Code: PHVS_ EvidenceofImmunity_IIS

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 diphteria 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	
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	

Value Set Name – Serological Evidence of Immunity_IIS:

Value Set Code: PHVS_ SerologicalEvidenceofImmunity_IIS

Concept Code	Concept Name	Definition	HL7 Table 0396 Code	V 2.3.1 Value NIP004
341112003	Mumps (finding)	Serology confirmed mumps	SCT	
278968001	Rubella (finding)	Serology confirmed rubella	SCT	
371111005	Measles (finding)	Serology confirmed measles	SCT	
371113008	Varicella (finding)	Serology confirmed varicella	SCT	
271511000	Hepatitis B (finding)	Serology confirmed hepatitis B	SCT	
278971009	Hepatitis A (finding)	Serology confirmed hepatitis A	SCT	
341112003	Mumps (finding)	Serology confirmed mumps	SCT	