

# ImmTrac2

## Implementation Guide for Immunization Messaging

HL7 Version 2.5.1  
January 25, 2017



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Based on the Implementation Guide for Immunization Data Transactions using Version 2.5.1 of the Health Level Seven (HL7) Standard Protocol Implementation Guide, Version 1.4, developed by the National Immunization Program of the Centers for Disease Control and Prevention (CDC).

For comments or questions about this document, please contact:

ImmTrac2  
Infectious Disease Control Unit  
Texas Department of State Health Services (DSHS)  
1100 West 49th Street  
PO Box 149347, MC 1946  
Austin, Texas 78714-9347  
Email: [ImmTrac2@dshs.texas.gov](mailto:ImmTrac2@dshs.texas.gov)  
Phone: 800-252-9152

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## OVERVIEW

This guide provides specifications and standards used to create HL7 2.5.1 messages for submission to the Texas Immunization Registry (ImmTrac2). Additionally, this guide includes examples that demonstrate how the elements connect and form complete demographic and immunization messages.

Immunization Information Systems (IIS) receive and share data about individual patients. An IIS may exchange information with other systems, including Electronic Health Record Systems (EHR). In order for the different systems to exchange information, the data's syntax and vocabulary must follow the same standard. ImmTrac2 uses a local implementation of The Health Level Seven (HL7) Standard, the national standard for health care data exchange.

Although registered users throughout the state can use ImmTrac2's World Wide Web application to update their clients' immunization histories in the registry in real time using manual data entry, some immunization providers already store and process similar data in their own Electronic Health Record (EHR) systems. ImmTrac2's HL7 interface is designed to allow those providers to use their own information systems to generate and submit the required data regarding immunizations administered to Texas children younger than 18 years of age and adults to ImmTrac2 within the 30 day period as required by Texas statute electronically. DSHS has developed a process that provides ease of use, efficiency, and a cost-effective approach to allow providers to submit immunization information in an HL7 format.

## INTENDED AUDIENCE

This document is intended for technical staff from provider and clinic partners, EHR systems, and other entities supporting providers' data submission to ImmTrac2, Texas Immunization Registry. The reader of this state Implementation Guide (IG) should have a solid HL7 foundation and be very familiar with the contents of the CDC *HL7 2.5.1: Implementation Guide for Immunization Messaging, Release 1.4*, located on the [CDC's HL7 Implementation Guidance web page](#). Chapters 2 and 3 of the CDC IG provide HL7 foundational concepts and set the stage for this state IG. The goal of the state IG is to provide an unambiguous specification for creating and interpreting messages exchanged between providers and DSHS through ImmTrac2.

## MEANINGFUL USE

The Centers for Medicare and Medicaid Services (CMS) have the Medicare and Medicaid Electronic Health Record Incentive Programs (EHR Incentive Programs), designed to provide incentives to Eligible Providers, Eligible Hospitals, and Critical Access Hospitals for the adoption and utilization of EHR systems. To receive an incentive payment, participants must demonstrate "meaningfully use" of certified EHR technology by meeting measurement criteria such as recording certain patient information and reporting information to public health.

More information about the EHR incentive programs may be found on CMS web page, [Electronic Health Records Incentive Programs](#).

Information about the Medicaid EHR Incentive Program in Texas may be found on the Texas Medicaid & Healthcare Partnership's web page, [Electronic Health Records Incentive Program Overview](#). Information about submitting data to DSHS registries and systems to meet EHR Incentive Program requirements may be found at [Texas DSHS Support for Meaningful Use of Electronic Health Records](#).

## DATA EXCHANGE REQUIREMENTS

In order for the sending partner (i.e., the provider, EHR) to engage in data exchange with ImmTrac2, the organization will need to ensure that they:

- Are a registered entity with ImmTrac2
- Have a current ImmTrac2 Site Agreement on record
- Ensure that all associated facilities in their organizational hierarchy is accurate
- Have a valid and active ImmTrac2 user account
- Have the ability to send patient immunization data by constructing a valid HL7 version 2.5.1 message
- Have the ability to interface with ImmTrac2 using one of the available file transport options listed below

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## TRANSPORT OPTIONS FOR DATA EXCHANGE

There are a few different transport methods for providers to securely submit immunization data, formatted as HL7 messages, to ImmTrac2. The preferred method of submitting HL7 messages is SOAP/Web Services. This is based on guidance from the CDC for reporting of immunization data from EHR systems to immunization information systems such as ImmTrac2.

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### REAL-TIME WEB SERVICE INTERFACE (SOAP)

Web Services is a standards-based method of allowing one computer to access functions in another computer through the Internet. Functions are called using Simple Object Access Protocol (SOAP) requests, which are formatted as eXtensible Markup Language (XML) messages. This is a secure method which uses the same ports as Internet browsers and uses existing web application protocols.

ImmTrac2's Web Service protocol is designed for "real-time" single messaging. Organizations should avoid sending numerous instances of individual messages at a single given instance. Organizations submitting large volumes of messages that need to be processed should create batch message files and submit them via the ImmTrac2 batch process method which utilizes a secure File Transport Protocol (sFTP) interface.

For more information regarding this interface, please refer to the ***ImmTrac2 Web Service (SOAP) Specifications for Data Exchange*** which will be made available upon request.

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## SECURE FILE TRANSPORT PROTOCOL (SFTP)

Secure FTP encrypts the connection between the provider and ImmTrac2, through which the HL7 messages are submitted. Providers have the option to use SSL (FTPS) or SSH (SFTP) as their secure connection to the ImmTrac2 FTP server. Providers submitting batch immunization files should always use the secure FTP method (sFTP).

For more information regarding this interface, please refer to the *ImmTrac2 Secure File Transport Protocol (sFTP) Specifications for Data Exchange* which will be made available upon request

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## WEB TRANSFER CLIENT (SFTP)

If the provider chooses not to use their own software-based FTP client, the provider could use the ImmTrac2 secure FTP WTC (web transfer client). The ImmTrac2 WTC is a secure web-based FTP client for manual uploads only, whereas secure FTP client software can allow the provider to automate their file uploads to the ImmTrac2 secure FTP server on a scheduled basis.

## SCOPE

The HL7 standard is used for data exchange by many entities in the healthcare industry. The complete standard covers a variety of situations in patient care, ImmTrac2 supports a specific subset of HL7 pertaining to client and immunization records. This HL7 IG covers the format and content requirements for exchanging HL7 messages with ImmTrac2. Messages constructed using the framework in this document will fall within the standard for exchanging messages with ImmTrac2.

This guide is intended to facilitate the exchange of immunization records between EHR systems or other health information systems. This includes:

- Sending and receiving immunization histories for individuals
- Sending and receiving demographic information about the individuals
- Requesting immunization histories for individuals
- Responding to requests for immunization histories by returning immunization histories
- Acknowledging receipt of immunization histories and requests for immunization histories
- Reporting errors in the messaging process
- Sending observations about an immunization event (this may include patient eligibility for a funding program, reactions, forecasts and evaluations).

## ACTORS, GOALS, AND MESSAGING TRANSACTIONS

Use cases and goals supported by ImmTrac2 are:

Table 1: Use Case and Goal

Use Case	Goal
Send Immunization History	To send an immunization history for an individual client from one system to another. In addition to EHR and IIS, other systems such as vital record systems or billing systems could use this message to send immunization histories.
Receive Immunization History	To receive an unsolicited immunization history. These messages may be an update or a new record.
Request Immunization History	To request an immunization history from another system.
Return Immunization History	To return an immunization history to another system.
Accept Requested History	To accept an immunization history in response to a query for an immunization history from another system.
Send Demographic Data	To send demographic data about an individual. These messages may be an update or a new record.
Accept Demographic Data	To accept demographic data about an individual. These messages may be an update or a new record.
Acknowledge Receipt	To acknowledge receipt of a message. This can be an immunization history, request for immunization history, demographic update, observation report or request for person id. It may indicate success or failure. It may include error messages.
Report Error	To send error messages related to submitted messages. These errors could result in rejection of message or parts of the message.

# HL7 MESSAGING INFRASTRUCTURE

This section will contain a basic description of the terms and definitions, which are used in this document in order to understand the HL7 standard as it applies to immunization information systems.

## HL7 DEFINITIONS

The terms below are organized to move from the message to subsequently more granular components. The details of how HL7 messages are structured for ImmTrac2 purposes will be explained later in this document.

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### MESSAGE

A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a sequence defined by the message specifications.

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### SEGMENT

A segment is a logical grouping of data fields. Segments within a defined message may be required or optional, may occur only once, or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique 3-character code.

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### FIELD

A field is a string of characters delimited by field separators (|). Each field has an element name and is identified by the segment it is in and its position within the segment; e.g., PID-5 is the fifth field of the PID segment.

---

### COMPONENT

A component is an element within a composite field and is delimited within the field by component separators (^). Within a field having several components, not all components may be required. Leading empty components must be represented by a delimiter (^); trailing empty components may be eliminated from the field. A component is referenced by the 3-character segment code, followed by the field position, and the component position with that field; e.g., OBX-5.2 denotes the second component of the fifth field of the OBX segment.

---

### NULL AND EMPTY FIELDS

The null value is transmitted as two double quote marks "". A null-valued element differs from an empty element. The null value means that the receiving system voids any previous value. An empty element remains unchanged. The empty element does not overwrite previously entered data.

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### DATA TYPE

A data type restricts the contents and format of the data field. Data types are given a 2- or 3-letter code that is specified by HL7. Some data types are coded or composite types with several components. The

applicable HL7 data type is listed and defined in each field definition. Data type specifications can be found in [HL7 Data Types](#).

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## CODE SETS

ImmTrac2 associates most data elements with a list of acceptable values. This guide lists code values expected by ImmTrac2 in Appendix A. In some cases, HL7 gives a larger set of permitted values. ImmTrac2 does not use all the HL7 permitted values and may return errors if unrecognized values appear in critical fields with constrained values.

---

## DELIMITERS

Delimiter characters are used to separate segments, fields and components in an HL7 message. The delimiter values are given in MSH-2 and used throughout the message.

	Field Separator (ASCII 124)
^	Component Separator (ASCII 094)
&	Sub-component Separator (ASCII 038)
~	Repetition Separator (ASCII 126)
\	Escape Character (ASCII 091)

---

## MESSAGE SYNTAX

Several segments form each message. Each segment begins with a three-letter code that identifies the segment category. Segments must be a single line and end with a segment terminator. Square brackets, [ ], enclose required but may be empty segments. Braces, { }, enclose segments that may be repeated.

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## SEGMENT TERMINATOR

Only the ASCII 013 carriage return is allowed. Throughout this document, this character is represented as <CR>. This value cannot be changed by implementers.

## RULES FOR SENDING SYSTEMS

The following rules are used by sending systems to construct HL7 messages for submission to ImmTrac2.

- 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 the HL7 recommended encoding characters (“^~\&”).
- Encode the data fields in the order given in the table defining the segment’s 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; as in  
MSG|field1|||field4
- Represent data fields that are present but explicitly null by empty double quotes “”. ImmTrac2 does not expect that any patient or vaccination fields will be sent as null. All patient and vaccination fields should be sent every time.
- Trailing separators may optionally be omitted. For example, |field1|field2 is equivalent to |field1|field2|||, when field3 and all subsequent fields are not present.
- End each segment with the default HL7 segment terminator, carriage return character (ASCII hex 0D).

## FILE NAMING CONVENTION

Files should be named according to the following convention: <TXIISIDYYDDD.h17>

**TXIIS ID:** The Texas Immunization Information System Identifier is the unique ImmTrac2 assigned code for the site representing the ‘parent facility’ for the organization, which identifies the entity that owns the information in the message. The entity must be registered in ImmTrac2 under this identifier in order for the file to be accepted.

**YY:** This value represents the last two digits of the current year. For example, ‘16’ would be used for the year 2016.

**DDD:** This value represents the Ordinal Date or current day of the year of when the file was created by the sending system. For example, if the file was created on April 4, 2016, then the three-digit ordinal date would be ‘095’ (95<sup>th</sup> day of 2016).

.hl7: This is the required filename extension suffix to be used for all HL7 formatted files submitted.

## FIELD SPECIFICATIONS & USAGE

A key attribute to HL7 fields, components, and sub-components is the usage code. In the table below are the acceptable usage codes.

### SEQ

The ordinal position of the field in the segment. Since ImmTrac2 does not use all possible fields in the HL7 standard, these are not always consecutive. When datum values are provided for fields NOT in this guide, ImmTrac2 will ignore and NOT retain the datum value.

### LEN

Maximum length of the field.

### DT

HL7 data type of the field

### USAGE

A key attribute to HL7 fields, components, and sub-components is the Usage Code. In the table below are the acceptable Usage Codes used in this IG.

Table 2, Usage Codes

Usage Code	Interpretation	Comment
R	Required	A conforming sending application (e.g., EHR) shall populate all "R" elements with a non-empty value.  The absence of a required element will result in an error.
RE	Required but may be empty	A conforming sending application should be capable of providing all "RE" elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then that element will be omitted.

Usage Code	Interpretation	Comment
C(a/b)	Conditional	<p>This usage has an associated condition predicate that determines the operational requirements (usage code) of the element.</p> <p><b>If the predicate is satisfied:</b> Follow the rules for <b>a</b> which SHALL be one of “R”, “RE”, “O” or “X”.</p> <p><b>If the predicate is NOT satisfied:</b> Follow the rules for <b>b</b> which shall be one of “R”, “RE”, “O” or “X”.</p> <p><b>a</b> and <b>b</b> can be the same</p>
O	Optional	This element may be present if specified in local profile. In the absence of a profile, conforming sending applications should not send the element.
X	Not Supported	The element is not supported. Sending applications should not send this element. A receiving application may raise an error if it receives an unsupported element.

**CARDINALITY**

Indicator of the minimum and maximum number of times the element may appear.

- [0..0] Element never present.
- [0..1] Element may be omitted or exist, at most, one occurrence.
- [0..n] Element may be omitted or repeat up to n times.
- [0..\*] Element may be omitted or repeat an unlimited number of times.
- [1..1] Element must have exactly one occurrence.
- [1..n] Element must appear at least once and may repeat up to n times.
- [1..\*] Element must appear at least once and may repeat an unlimited number of times.
- [m..n] Element must appear at least m times and may repeat up to n times.

## HL7 DATA TYPES

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

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

### CE – CODED ELEMENT (MOST USES)

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

**NOTE:** The following specifications apply to all uses of CE data type **except** RXA-9, Administration Notes. That field may use this specification or the specification that follows this section.

Table 3, Coded Element (CE)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..50	ST	Identifier	R		Identifying Code
2	1..999	ST	Text	RE		Human readable text that is not further used.
3	1..20	ID	Name of Coding System	R	<a href="#">HL70396</a>	
4	1..50	ST	Alternate Identifier	RE		Alternate identifying code
5	1..999	ST	Alternate Text	RE		Human readable text that is not further used.
6	1..20	ID	Name of Alternate Coding System	C(R/X)	<a href="#">HL70396</a>	If CE-4 is valued

#### IDENTIFIER (ST)

Sequence of characters (the code) that uniquely identifies the item being referenced. 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 system or receiving system, but rather facilitates human interpretation of the code.

### NAME OF CODING SYSTEM (ID)

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

### ALTERNATE IDENTIFIER (ST)

An alternate sequence of characters (the code) that uniquely identifies the item being referenced.

### ALTERNATE TEXT (ST)

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

### NAME OF ALTERNATE CODING SYSTEM (ID)

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

**Example:** |50^DTAP-HIB^CVX^90721^DTAP-HIB^C4|

## CE\_TX – CODED ELEMENT (TEXT ONLY IN RXA-9)

This data type may be used to transmit text only notes.

**NOTE:** The following specifications apply to use of CE data type for RXA-9, Administration Notes **only**.

Table 4, Coded Element (CE\_TX)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1		ST	Identifier	X		
2	999	ST	Text	R		Human readable text that is not further processed.
3		ID	Name of Coding System	X		
4		ST	Alternate Identifier	X		
5		ST	Alternate Text	X		
6		ID	Name of Alternate Coding System	X		

### TEXT (ST)

Free text note regarding the immunization reported in this RXA.

## CQ – COMPOSITE QUANTITY WITH UNITS

This data types 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*

Table 5, Composite Quantity with Units (CQ)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	16	NM	Quantity	R		
2		CE	Units	R	<a href="#">HL70126</a>	

### QUANTITY (NM)

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

### UNITS (CE)

Specifies the units in which the quantity is expressed.

#### IZ-1 CONFORMANCE STATEMENT

CQ-1 (Quantity) shall be a positive integer.

#### IZ-2 CONFORMANCE STATEMENT

CQ-2 (Units) shall be the literal value 'RD'.

## CWE – CODED WITH EXCEPTIONS

This data type transmits a coded element and its associated detail. It includes the nine CWE components.

**Example:** |C28161^IM^NCIT^IM^INTRAMUSCULAR^HL70162|

Table 6, Coded with Exceptions (CWE)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..999	ST	Identifier	RE		Identifying Code
2	1..999	ST	Text	RE		Human readable text that is not further used.
3	1..20	ID	Name of Coding System	C(R/X)	<a href="#">HL70396</a>	If CWE.1 is valued
4	1..999	ST	Alternate Identifier	RE		Alternate identifying code
5	1..999	ST	Alternate Text	C(RE/X)		If CWE.4 is valued. Human readable text that is not further used.
6	1..20	ID	Name of Alternate Coding System	C(R/X)	<a href="#">HL70396</a>	If CWE.4 is valued
7		ST	Coding System Version ID	O		
8		ST	Alternate Coding System Version ID	O		
9		ST	Original Text	O		

## 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)

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

## ALTERNATE IDENTIFIER (ST)

An alternate sequence of characters (the code) that uniquely identifies the item being referenced.

## ALTERNATE TEXT (ST)

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

## NAME OF ALTERNATE CODING SYSTEM (ID)

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

## CX – EXTENDED COMPOSITE ID WITH CHECK DIGIT

This data type is used for specifying an identifier with its associated administrative detail. ImmTrac2 uses this data type only for patient identification in Patient Identification (PID) segments. See the field notes for values used for ImmTrac2.

**Example:** |1234567^^^ME129^MR|

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

Table 7, Extended Composite ID with Check Digit (CX)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	15	ST	ID Number	R		
2		ST	Check Digit	O		
3		ID	Check Digit Scheme	C(O/X)	HL70061	If CX.2 is valued
4		HD	Assigning Authority	R	HL70363	
5	2..5	ID	Identifier Type Code	R	<a href="#">HL70203</a>	
6		HD	Assigning Facility	O		
7		DT	Effective Date	O		
8		DT	Expiration Date	O		

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
9		CWE	Assigning Jurisdiction	O		
10		CWE	Assigning Agency or Department	O		

### ID (ST)

The value of the identifier itself.

### CHECK DIGIT (ST)

This component should be valued empty.

### CHECK DIGIT SCHEME (ID)

This component should be valued if Check Digit is populated, otherwise it should be empty.

### ASSIGNING AUTHORITY (HD)

The assigning authority is a unique name of the system (or organization or agency or department) that creates the data. The first component shall be used for this unique name. The second and third may be used if OIDs are recorded.

### IDENTIFIER TYPE CODE (ID)

A code corresponding to the type of identifier. In some cases, this code may be used as a qualifier to the Assigning Authority component.

## DT – DATE

This data type gives the century and year with optional precision to the month and day.

**Examples:**      *Four digits specify the year*      |2015|  
                          *Six digits specify the month*      |201504|  
                          *Eight digits specify the day*      |20150404|

Table 8, Date (DT)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	4..8		Date	R		

## DTM – DATE/TIME

This data type gives the date with optional precision to the time of day. ImmTrac2 ignores any time component.

Table 9, Date/Time (DTM)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
	4..24		Date/Time	R		

## EI – ENTITY IDENTIFIER

This data type defines an entity within a specific series. The four components specify an entity in a series

**Example:** | Z31^CDCPHINVS |

Table 10, Entity Identifier (EI)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..199	ST	Entity Identifier	R		
2	20	IS	Namespace ID	C(R/O)	HL70363	If EI.3 is not valued
3	199	ST	Universal ID	C(R/O)		If EI.1 is not valued
4	6	ID	Universal ID Type	C(R/X)	<a href="#">HL70301</a>	If EI.3 is valued

### ENTITY IDENTIFIER (ST)

The first component is defined to be unique within the series of identifiers created by the Assigning Authority, defined by a hierarchic designator, represented by component 2.

### NAMESPACE ID (IS)

The Assigning Authority is a unique identifier of the system (or organization or agency or department) that creates the data.

### UNIVERSAL ID (ST)

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

### UNIVERSAL ID TYPE (ID)

This universal id type is drawn from HL7 [Table 0301](#). If populated, it shall be ISO.

### IZ-3 CONFORMANCE STATEMENT

If populated EI.3 (Universal ID), it shall be valued with an ISO-compliant OID.

### IZ-4 CONFORMANCE STATEMENT

If populated EI.4 (Universal ID Type), it shall contain the value 'ISO'.

## ERL – ERROR LOCATION

This data type identifies exactly where an error occurred.

**Example:** |RXA^1^5^1^3|

Table 11, Error Location (ERL)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	3..3	ST	Segment ID	R		The 3-character name for the segment (i.e., PID)
2	1.2	NM	Segment Sequence	R		
3	2	NM	Field Position	RE		This should not be populated if the error refers to the whole segment.
4	2	NM	Field Repetition	C(R/X)		If ERL.3 is valued
5	2	NM	Component Number	RE		Should be populated only when a particular component caused the error.
6	2	NM	Sub-Component Number	RE		Should be populated only when a particular sub-component caused the error.

### SEGMENT ID (ST)

Specifies the 3-letter name for the segment.

### SEGMENT SEQUENCE (NM)

Identifies the segment occurrence within the message. For the first instance of the segment in the message, the number shall be '1'.

### FIELD POSITION (NM)

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

### FIELD REPETITION (NM)

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

### COMPONENT NUMBER (NM)

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

## SUB-COMPONENT NUMBER (NM)

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

## FN – FAMILY NAME

This data type contains a person's family name or surname. The five components specify surname prefix and root information.

**Example:** | SMITH |

Table 12, Family Name (FN)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..50	ST	Surname	R		
2		ST	Own Surname Prefix	O		
3		ST	Own Surname	O		
4		ST	Surname Prefix from Partner/Spouse	O		
5		ST	Surname from Partner/Spouse	O		

## SURNAME (ST)

This is the person's last name.

## HD – HIERARCHIC DESIGNATOR

This data type determines the organization or system responsible for managing or assigning a defined identifier set.

**NOTE:** The Health Information Standards Panel (HITSP) recommends using Object Identifiers (OIDs) in the second component, Universal ID.

Table 13, Hierarchic Designator (HD)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..20	IS	Namespace ID	C(R/O)	HL70300 HL70361 HL70362 HL70363	This field is used for locally defined name/id.
2	1..199	ST	Universal ID	C(R/O)		If the HD.1 is not valued
3	1..6	ID	Universal ID Type	C(R/X)	<a href="#">HL70301</a>	If the HD.2 is valued

## IZ-5 CONFORMANCE STATEMENT

If populated, HD.2 (Universal ID), it shall be valued with an ISO-compliant OID.

## IZ-6 CONFORMANCE STATEMENT

If populated, HD.3 (Universal ID Type), it shall be valued the literal value 'ISO'.

## ID – CODED VALUES FOR HL7 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.

Table 14, Coded Values for HL7 Tables (ID)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..15		Coded Value for HL7-defined Tables	R		

## IS – CODED VALUES FOR USER-DEFINED TABLES

This data type is used for coded values from a user-defined table. The value of such a field follows the formatting rules for an ST field except that it is drawn from a user-defined table of legal values.

Table 15, Coded Values for User-Defined Tables (IS)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..20		Coded Value for User-Defined Tables			

## LA2 – LOCATION WITH ADDRESS VARIATION 2

This data type specifies a location and its address. The sixteen LA2 components specify a location.

**Example:** |^^^1234^^^13^101 MAIN STREET^^METROPOLIS^TX|

Table 16, Location with Address Variation 2 (LA2)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1		IS	Point of Care	O		This represents the location within a facility that the service was provided. This is not the clinic site where an event occurred.
2		IS	Room	O		
3		IS	Bed	O		

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
4		HD	Facility	R		This represents the location that the service was provided. For example, the clinic.
5		IS	Location Status	O		
6		IS	Patient Location Type	O		
7		IS	Building	O		
8		IS	Floor	O		
9		IS	Street Address	O		
10		IS	Other Designation	O		
11		IS	City	O		
12		IS	State or Province	O		
13		IS	Zip or Postal Code	O		
14		IS	Country	O		
15		IS	Address Type	O		
16		IS	Other Geographic Designation	O		

## 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.

**Example:** |VXU^V04^VXU\_V04|

Table 17, Message Type (MSG)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	3..3	ID	Message Code	R	<a href="#">HL70076</a>	
2	3..3	ID	Trigger Event	R	<a href="#">HL70003</a>	
3	3..7	ID	Message Structure	R	<a href="#">HL70354</a>	

## NM – NUMERIC

A number represented by a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the number, 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| or |-123.792|

Table 18, Numeric (NM)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..16		Numeric	R		

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.

Table 19, Processing Type (PT)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..1	ID	Processing ID	R	<a href="#">HL70103</a>	
2		ID	Processing Mode	O		

## SAD – STREET ADDRESS

The street address (SAD) specifies an entity's street address and associated details. The SAD data type only appears within the XAD Extended Address data type. The three components contain address details

**Example:** |1100 West 49th Street^^Austin^TX^78752|

**NOTE:** Appears only in the XAD data type.

Table 20, Street Address (SAD)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..120	ST	Street or Mailing Address	R		
2		ST	Street Name	O		
3		ST	Dwelling Number	O		

## SI – SEQUENCE ID

A non-negative integer in NM form. These sequential numbers use '1' for the first message field, '2' for the second, and so forth.

Table 21, Sequence ID (SI)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..4		Sequence ID	R		

## ST – STRING DATA

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

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

**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

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 rule of a time field. The specific data representations used in the HL7 encoding rules are compatible with International Organization for Standardization (ISO) 8824-1987(E). The first component of the Timestamp data type is the DTM data type.

## VID – VERSION ID

This specifies the HL7 version.

Table 22, Version ID (VID)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	5..5	ID	Version ID	R	<a href="#">HL70104</a>	
2			Internationalization Code	C(O/O)		
3			International Version ID	C(O/O)		

## IZ-7 CONFORMANCE STATEMENT

VID-7 (Version ID) shall be valued with the literal ‘2.5.1’

## XAD – EXTENDED ADDRESS

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

Table 23, Extended Address (XAD)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1		SAD	Street Address	RE		
2	1..120	ST	Other Designation	RE		
3	1..50	ST	City	RE		

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
4	1..50	ST	State or Province	RE	US Postal Service State Codes	Two character USPS codes
5	1..12	ST	Zip or Postal Code	RE		
6	3..3	ID	Country	RE	<a href="#">HL70399</a>	Empty defaults to 'USA'
7	1..3	ID	Address Type	R	<a href="#">HL70190</a>	
8		ST	Other Geographic Designation	O		
9		IS	County/Parish Code	O		
10		IS	Census Tract	O		
11		ID	Address Representation Code	O		
12		DR	Address Validity Range	X		
13		TS	Effective Date	O		
14		TS	Expiration Date	O		

---

### STREET ADDRESS (ST)

The street or mailing address of a person or institution.

---

### OTHER DESIGNATION (ST)

Second line of address. Examples: Suite 555 or Fourth Floor.

---

### CITY (ST)

City address of a person or institution.

---

### STATE OR PROVINCE (ST)

The state or province should be represented by the official postal service codes for that country. In the US it SHALL be the 2 character state codes (i.e. TX, NM, OK).

---

### ZIP OR POSTAL CODE (ST)

Zip or postal codes should be represented by the official codes for that country. In the US, zip code takes the form 99999[-9999], while Canadian postal code takes the form A9A-9A9.

---

### COUNTRY (ID)

Defines the country where the addressee is located. HL7 specifies that the 3-character form of ISO 3166-1 be used for the country code. See Appendix A, [Table 0399 – Country Code](#).

---

### ADDRESS TYPE (ID)

Address type gives codes for information like home, office, mailing, etc.

## COUNTY/PARISH CODE (IS)

A code that represents the county in which the specified address resides. Refer to Appendix A, [Table 0289 – County](#).

## 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.

Table 24, Extended Composite ID and Name for Persons (XCN)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1	1..15	ST	ID Number	<b>C(R/RE)</b>		If XCN.2.1 and XCN.3 are not valued
2		FN	Family Name	<b>RE</b>		
3	30	ST	Given Name	<b>RE</b>		
4	30	ST	Second and Further Given Names or Initials Thereof	<b>RE</b>		
5		ST	Suffix (e.g., JR or III)	O		
6		ST	Prefix (e.g., DR)	O		
7		IS	Degree (e.g., MD)	X		Use Professional suffix in Sequence 21.
8		IS	Source Table	O		
9		HD	Assigning Authority	<b>C(R/X)</b>	HL70363	If the XCN.1 is valued
10	1	ID	Name Type Code	<b>RE</b>	<a href="#">HL70200</a>	
11		ST	Identifier Check Digit	O		
12		ID	Check Digit Scheme	<b>C(O/X)</b>		If XCN.11 is valued
13		ID	Identifier Type Code	O		
14		HD	Assigning Facility	O		
15		ID	Name Representation Code	O		
16		CE	Name Context	O		
17		DR	Name Validity Range	X		
18		ID	Name Assembly Order	X		
19		TS	Effective Date	O		
20		TS	Expiration Date	O		
21		ST	Professional Suffix	O		

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
22		CWE	Assigning Jurisdiction	O		
23		CWE	Assigning Agency or Department	O		

## XPN – EXTENDED PERSON NAME

This data type is used for representing a person’s name. The XPN components include name specifics

**Example:** |Smith&St^John^J^III^DR^PHD^L|

Table 25, Extended Person Name (XPN)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1		FN	Family Name	R		
2	30	ST	Given Name	R		
3	30	ST	Second and Further Given Names or Initials Thereof	RE		
4		ST	Suffix (e.g., JR or III)	O		
5		ST	Prefix (e.g., DR)	O		
6		IS	Degree (e.g., MD)	X		Use Professional suffix in Sequence 14.
7	1	ID	Name Type Code	RE	<a href="#">HL70200</a>	
8		ID	Name Representation Code	O		
9		CE	Name Context	O		
10		DR	Name Validity Range	X		
11		ID	Name Assembly Order	X		
12		TS	Effective Date	O		
13		TS	Expiration Date	O		
14		ST	Professional Suffix	O		

### FAMILY NAME (FN)

This is usually the person’s surname or family name.

### GIVEN NAME (ST)

This is the person’s 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 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.).

## DEGREE (ST)

Used to specify an educational degree (e.g., MD).

## NAME TYPE CODE (ID)

A code that represents the type of name. Refer to Appendix A, [Table 0200 – Name Type](#) for valid values.

## XTN – EXTENDED TELECOMMUNICATION NUMBER

This data type contains the extended telephone number, fax or email address.

**Example:** | ^PRN^PH^^^734^5552630~^NET^^myemail@host.com^^^|

Table 26, Extended Telecommunication Number (XTN)

SEQ	Len	Data Type	Component Name	Usage	Value Set	Conditional Predicate/Comment
1		ST	Telephone Number	X		
2		ID	Telecommunication Use Code	R	<a href="#">HL70201</a>	
3		ID	Telecommunication Equipment Type	RE	<a href="#">HL70202</a>	
4	1..199	ST	Email Address	C(R/X)		If XTN.2 is valued 'NET'
5		NM	Country Code	O		
6	5	NM	Area/City Code	C(RE/X)		If XTN.2 is not valued 'NET'
7	9	NM	Local Number	C(R/X)		If XTN.2 is not valued 'NET'
8		NM	Extension	O		
9		ST	Any Text	O		
10		ST	Extension Prefix	O		
11		ST	Speed Dial Code	O		
12		ST	Unformatted Telephone Number	O		

## HL7 SEGMENTS AND MESSAGE DETAILS

This chapter will contain specifications for each segment used. It will indicate which fields are supported or required and describe any constraints on these fields.

**Table 27, HL7 Segments and Message Details**

Segment	Definition	Message Usage	CDC IG Usage	ImmTrac2 Usage	Note
<b>BHS</b> (Batch Header Segment)	The BHS segment wraps a group of 1 or more messages. This segment is not required for real-time messaging.	Any	Optional	O	Used at the beginning of any batch of messages.
<b>BTS</b> (Batch Trailer Segment)	The BTS segment defines the end of a batch. It is required if the message has a matching BHS.	Any	Required if message starts with BHS.	C	Used to mark the end of any batch of messages. If the batch of messages start with BHS, then this segment is required.
<b>ERR</b> (Error Segment)	The ERR segment reports information about errors in processing the message. The segment may repeat. Each error will have its own ERR segment.	ACK, RSP	Ability to create and process is required for conformant systems.	R	Used to return information about errors.
Segment	Definition	Message Usage	CDC IG Usage	ImmTrac2 Usage	Note

<b>EVN</b> (Event Segment)	The EVN segment is used to communicate necessary trigger event information to receiving applications. Valid event types for all chapters are contained in <a href="#">HL7 Table 003 – Event Type</a> .	ADT	Required for ADT message.	R	Used to convey event trigger information.
<b>FHS</b> (File Header Segment)	The FHS segment may be used to group one or more batches of messages. This is a purely optional segment, even if batches are sent.	Any	Optional	O	Used to mark the beginning of a file of batches.
<b>FTS</b> (File Trailer Segment)	The FTS segment defines the end of a file of batches. It is only used when the FHS segment is used.	Any	Required to terminate a file of batches.  (Matches FHS)	C	Used to mark the end of a file of batches. If a file of batches has an FHS at the beginning, then this segment is required.
<b>MSA</b> (Message Acknowledgement Segment)	The MSA segment is included in the query response (RSP) and acknowledgement (ACK) messages.	RSP, ACK	Ability to create and process is required for conformant systems.	R	Contains information used to identify the receiver's acknowledgement response to an identified prior message.
<b>Segment</b>	<b>Definition</b>	<b>Message Usage</b>	<b>CDC IG Usage</b>	<b>ImmTrac2 Usage</b>	<b>Note</b>

<b>MSH</b> (Message Segment Header)	The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.	All	Ability to create and process is required for conformant systems.	R	This begins every message and includes information about the type of message, how to process it, and by whom it was created.
<b>NK1</b> (Next of Kin Segment)	The NK1 segment contains information about the patient's next-of-kin or other related parties. Any associated parties may be identified.	VXU, ADT, RSP	Ability to create and process is required for conformant systems.	C	Used to carry information about the next-of-kin for a client. Important to ImmTrac2 for patient matching.
<b>OBX</b> (Observation Result Segment)	The OBX segment has many uses. It carries observations about the object of its parent segment. In the VXU/RSP, it is associated with the RXA or immunization record. The basic format is a question and answer.	ADT, VXU, RSP	Ability to create and process is required for conformant systems.	C	Used to report one atomic part of an observation.
<b>ORC</b> (Order Request Segment)	The ORC segment is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standards.	VXU, RSP	Ability to create and process is required for conformant systems.	R	Used to give information about a group of one or more orders (typically RXA).
<b>Segment</b>	<b>Definition</b>	<b>Message Usage</b>	<b>CDC IG Usage</b>	<b>ImmTrac2 Usage</b>	<b>Note</b>

<b>PD1</b> (Patient Demographic Segment)	The PD1 segment contains data that is likely to change about the individual. In immunization messages, this is information about the need to protect the client's information, how they should be part of reminder efforts and their current status in the IIS.	VXU, RSP, ADT	Ability to create and process is required for conformant systems.	O	Used to give information about a patient. A primary use in immunization messages is to give information about privacy and whether contact is allowed.
<b>PID</b> (Patient Identifier Segment)	The PID segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change. Used by all applications as the primary means of communicating patient identification information frequently.	VXU, ADT, RSP	Ability to create and process is required for conformant systems.	R	Used to carry information about the patient/client.
<b>PV1</b> (Patient Visit Segment)	The PV1 segment contains information related to a specific visit.	VXU, ADT, RSP	O	X	Previously used to carry funding program eligibility status. Use OBX for this purpose.
<b>QAK</b> (Query Acknowledgement Segment)	The QAK segment contains information sent with responses to a query.	RSP	Ability to create and process is required for conformant systems.	R	
<b>Segment</b>	<b>Definition</b>	<b>Message Usage</b>	<b>CDC IG Usage</b>	<b>ImmTrac2 Usage</b>	<b>Note</b>

QPD	Query parameter definition	QBP, RSP	Ability to create and process is required for conformant systems.	R	
RCP	Response control parameter segment	QBP	Ability to create and process is required for conformant systems.	R	
RXA	Pharmacy/Treatment Administration Segment	VXU, RSP	Ability to create and process is required for conformant systems.	R	
RXR	Pharmacy/Treatment Route Segment	VXU, RSP	Ability to create and process is required for conformant systems.	O	

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## BHS: BATCH HEADER SEGMENT

The Batch Header Segment wraps a group of one or more messages. This segment is not required for real-time messaging.

Table 28, Batch Header Segment (BHS)

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
BHS-1	1	ST	Batch Field Separator	R	R
BHS-2	3	ST	Batch Encoding Characters	R	R
BHS-3	20	HD	Batch Sending Application	O	O
BHS-4	20	HD	Batch Sending Facility	O	O
BHS-5	20	HD	Batch Receiving Application	O	O
BHS-6	20	HD	Batch Receiving Facility	O	O
BHS-7	26	TS	Batch Creation Date/Time	O	O
BHS-8	20	ST	Batch Security	O	O
BHS-9	20	ST	Batch Name/ID/Type	O	O
BHS-10	80	ST	Batch Comment	O	O
BHS-11	20	ST	Batch Control ID	O	O
BHS-12	20	ST	Reference Batch Control ID	O	O

### BHS-1: BATCH FIELD SEPARATOR

This field contains the separator between the segment ID and the first real field, BHS-2-Batch Encoding Characters. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. The required value is '|' (ASCII 124).

#### IZ-8 CONFORMANCE STATEMENT

BHS.1 field shall be '|'

### BHS-2: BATCH ENCODING CHARACTERS

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

#### IZ-9 CONFORMANCE STATEMENT

BHS.2 field shall be ^~\&

## BTS: BATCH TRAILER SEGMENT

The conditional Batch Trailer Segment defines the end of a batch. It is required if the message has a matching BHS.

Table 29, Batch Trailer Segment (BTS)

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
BTS-1	10	ST	Batch Message Count	O	O
BTS-2	80	ST	Batch Comment	O	O
BTS-3	100	NM	Batch Totals	O	O

### BTS-1: BATCH MESSAGE COUNT

This field contains the count of the individual messages contained within the batch.

### BTS-2: BATCH COMMENT

Free text, which can be included for convenience, has no effect on processing.

## ERR: ERROR SEGMENT

The Error segment (ERR) is used to add error comments to acknowledgment messages. If the message was rejected for functional reasons, this segment will locate the error and describe it using locally established codes.

Table 30, Error Segment (ERR)

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
ERR-1		ELD	Error Code and Location	X	X
ERR-2	18	ERL	Error Location	RE	RE
ERR-3		CWE	HL7 Error Code	R	R
ERR-4	2	ID	Severity	R	R
ERR-5		CWE	Application Error Code	O	O
ERR-6	80	ST	Application Error Parameter	O	O
ERR-7	2048	TX	Diagnostic Information	O	O
ERR-8	250	TX	User Message	O	O
ERR-9	20	IS	Inform Person Indicator	O	O
ERR-10		CWE	Override Type	O	O
ERR-11		CWE	Override Reason Code	O	O
ERR-12		XTN	Help Desk Contact Point	O	O

## ERR-1: ERROR CODE AND LOCATION

NOTE: ERR-1 is not supported for use in messages starting with HL7 version 2.5.

## 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 not meaningful. For example, if is unidentifiable, an ERR to that effect may be returned.

## ERR-3: HL7 ERROR CODE

Identifies the HL7 (communications) error code. Refer to Appendix A, [Table 0357 – Message Error Condition Codes](#) for valid values.

## ERR-4: SEVERITY

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 Appendix A, [Table 0516 - Error Severity](#) for valid values. If ERR-3 has a value of '0', ERR-4 will have a value of '1'.

## EVN: EVENT SEGMENT

Table 31, Event Segment (EVN)

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac 2 Usage	Value Set
EVN-1	3	ID	Event Type Code	O	O	<a href="#">HL70003</a>
EVN-2		TS	Recorded Date/Time	R	R	
EVN-3		TS	Date/Time Planned Event	O	O	
EVN-4	3	IS	Event Reason Code	O	O	HL70062
EVN-5		XCN	Operator ID	O	O	
EVN-6		TS	Event Occurred	O	O	
EVN-7		HD	Event Facility	O	O	

## EVN-2: RECORDED DATE/TIME

Most systems will default to the system date/time when the transaction was entered, but they should also permit an override.

## FHS: FILE HEADER SEGMENT

The File Header Segment begins the batch and is used to group one or more batches of messages.

Table 32, File Header Segment (FHS)

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
FHS-1	1..1	ST	File Field Separator	R	R
FHS-2	4..4	ST	File Encoding Characters	R	R
FHS-3		HD	File Sending Application	O	O
FHS-4		HD	File Sending Facility	O	O
FHS-5		HD	File Receiving Application	O	O
FHS-6		HD	File Receiving Facility	O	O
FHS-7		TS	File Creation Date/Time	O	O
FHS-8	40	ST	File Security	O	O
FHS-9	20	ST	File Name/ID	O	O
FHS-10	80	ST	File Header Comment	O	O
FHS-11	20	ST	File Control ID	O	O
FHS-12	20	ST	Reference File Control ID	O	O

### FHS-1: FILE FIELD SEPARATOR

This field has the same definition as the corresponding field in the MSH segment. The value shall be '|'.

#### IZ-10 CONFORMANCE STATEMENT

The FSH.1 field shall be '|'

### FSH-2: FILE ENCODING CHARACTERS

This field has the same definition as the corresponding field in the MSH segment. The value shall be '^~\&

#### IZ-11 CONFORMANCE STATEMENT

The FSH.2 field shall be '^~\&

## FTS: FILE TRAILER SEGMENT

The File Trailer Segment defines the end of a file of batches. It is only used when the FHS segment is used.

Table 33, File Trailer Segment (FTS)

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
FTS-1	10	NM	File Batch Count	O	O
FTS-2	80	ST	File Trailer Comment	O	O

### FTS-1: FILE BATCH COUNT

The number of batch files.

### FTS-2: FILE TRAILER COMMENT

Free text, which can be included for convenience, has no effect on processing.

## MSA: MESSAGE ACKNOWLEDGEMENT SEGMENT

The MSA segment contains information sent by ImmTrac2 to acknowledge an incoming message.

Table 34, Message Acknowledgement Segment (MSA)

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
MSA-1	2	ID	Acknowledgement Code	R	R
MSA-2	20	ST	Message Control ID	R	R
MSA-3	80	ST	Text Message	O	O
MSA-4	15	NM	Expected Sequence Number	O	O
MSA-5			Delayed Acknowledgement Type	O	O
MSA-6		CE	Error Condition	X	X

### MSA-1: ACKNOWLEDGEMENT CODE

This field contains an acknowledgment code. See message processing rules. Refer to Appendix A, [Table 0008 - Acknowledgement code](#) for valid values.

### MSA-2: MESSAGE CONTROL ID

This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended. This field echoes the Message Control ID sent in MSH-10 by the initiating system.

### MSA-3: TEXT MESSAGE

This optional field further describes an error condition. When a message has been rejected, ImmTrac2 returns text describing the error message in this field. Information messages will contain the text 'Informational Error' and may include additional text concerning the issue.

### MSA-4: EXPECTED SEQUENCE NUMBER

This optional numeric field is used in the sequence number protocol. ImmTrac2 does not generate this field.

### MSA-5: DELAYED ACKNOWLEDGEMENT TYPE

ImmTrac2 does not generate this field.

### MSA-6: ERROR CONDITION

ImmTrac2 does not generate this field.

## MSH: MESSAGE SEGMENT HEADER

The MSH segment is required for each message sent. It contains information used to identify the intent, source and destination of the message, as well as certain specifics about the syntax of the message. MSH segments separate multiple messages.

#### Example MSH Segment:

```
MSH|^~\&|MyEMR|999999999|TXImmTrac|TxDSHS|20060817||VXU^V04^VXU_V04|MyEMR1234567890123  
45|P|2.5.1|||NE<CR>
```

Table 35, Message Segement Header (MSH)

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
MSH-1	1	ST	Field Separator	R	R
MSH-2	4	ST	Encoding Characters	R	R
MSH-3	20	HD	Sending Application	RE	RE
MSH-4	20	HD	Sending Facility	RE	R
MSH-5	30	HD	Receiving Application	RE	R
MSH-6	30	HD	Receiving Facility	RE	R
MSH-7	26	TS	Date/Time of Message	R	R
MSH-8	40	ST	Security	O	O
MSH-9	15	MSG	Message Type	R	R
MSH-10	20	ST	Message Control ID	R	R
MSH-11	3	PT	Processing ID	R	R
MSH-12	20	VID	Version ID	R	R
MSH-13	15	NM	Sequence Number	O	O
MSH-14	180	ST	Continuation Pointer	O	O
MSH-15	2	ID	Accept Acknowledgement Type	RE	RE

SEQ	Len	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
MSH-16	2	ID	Application Acknowledgement Type	RE	RE
MSH-17	3	ID	Country Code	O	O
MSH-18	16	ID	Character Set	O	O
MSH-19		CE	Principal Language of Message	O	O
MSH-20	20	ID	Alternate Character Set Handling Scheme	O	O
MSH-21		EI	Message Profile Identifier	C(R/X)	C(R/X) If MSH-9.1 is populated with 'QBP' or 'RSP'

### MSH-1: FIELD SEPARATOR

This field contains the separator between the segment ID and the first real field, MSH-2-encoding characters. As such, it serves as the separator and defines the character to be used as a separator for the rest of the message. Required value is '|', (ASCII 124).

#### IZ-12 CONFORMANCE STATEMENT

MSH-1 shall have the literal value of '|'

### MSH-2: ENCODING CHARACTERS

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

#### IZ-13 CONFORMANCE STATEMENT

MSH-2 shall have the literal value of ^~\&

### MSH-3: SENDING APPLICATION

The sending application may be used to indicate the application name of the sending system. A human readable name should be sent as the namespace ID. This information will be used for logging or debugging purposes. ImmTrac2 uses MSH-4 to identify the entity that is sending the message.

### MSH-4: SENDING FACILITY

ImmTrac2 controls and defines the value in this field. The Namespace ID will be the TXIIS ID number for the site representing 'parent facility' for the organization, which identifies the entity that owns the information in the message. The entity must be registered in ImmTrac2 under this identifier.

**Required value:** *ImmTrac2 assigned TXIIS ID number*

**Note:** For message to be processed:

- An active valid organization must be provided or the message will be rejected.
- If message is QBP, the organization must have permission to query the system or the message will be rejected.
- If message is a VXU, the organization must have permission to update the system or the message will be rejected.

---

### **MSH-5: RECEIVING APPLICATION**

The receiving application may be used to indicate the application name of the receiving system. In the case of an EHR sending data to ImmTrac2, the value must be 'TXImmTrac'.

---

### **MSH-6: RECEIVING FACILITY**

The receiving facility may be used to indicate the name of the facility where the data is being sent. The required value for this field is 'TXDSHS'.

---

### **MSH-7: DATE/TIME OF MESSAGE**

This field contains the date/time that the sending system created the message. The degree of precision must be at least to the minute. The time zone must be specified and will be used throughout the message as the default time zone.

#### **IZ-14 CONFORMANCE STATEMENT**

MSH-7 shall be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[S[S[S[S]]]]] [+/-ZZZZ]'

---

### **MSH-9: MESSAGE TYPE**

Three components of this field give the HL7 message type: Message Code ([Table 0076](#)), Trigger Event ([Table 0003](#)) and Message Structure ([Table 0354](#)). Within HL7, the triggering event is considered to be the real-world circumstance causing the message to be sent.

#### **IZ-17 VXU CONFORMANCE STATEMENT**

MSH-9 (Message Type) SHALL contain the constant value 'VXU^V04^VXU\_V04'

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#### **IZ-18 QBP CONFORMANCE STATEMENT**

MSH-9 (Message Type) SHALL contain the constant value 'QBP^Q11^QBP\_Q11'

---

#### **IZ-19 RSP CONFORMANCE STATEMENT**

MSH-9 (Message Type) SHALL contain the constant value 'RSP^K11^RSP\_K11'

---

### **MSH-10: MESSAGE CONTROL ID**

This field contains the identifier assigned by the sending application (MSH-3) that uniquely identifies a message instance. This identifier is unique within the scope of the sending facility (MSH-4), sending application (MSH-3), and the YYYYMMDD portion of message date (MSH-7). The receiving system echoes this ID back to the sending system in the Message Acknowledgement Segment (MSA). The content and format of the data sent in this field is the responsibility of the sender. The receiver returns exactly what was sent in response messages.

---

#### **MSH-11: PROCESSING ID**

This field is used to decide whether to process the message (see Appendix A, [Table 0103](#)). ImmTrac2 requires the value 'P' for production processing.

---

#### **MSH-12: VERSION ID**

This field contains the identifier of the version of the HL7 messaging standard used in constructing, interpreting, and validating the message. The version number that is read in the first MSH segment of the file will be the version assumed for the whole file (see Appendix A, [Table 0104](#)).

---

#### **IZ-15 CONFORMANCE STATEMENT**

MSH-12 shall have the literal value of '2.5.1'.

---

#### **MSH-15: ACCEPT ACKNOWLEDGEMENT TYPE**

This field identifies the conditions under which accept acknowledgements are required to be returned in response to this message. Required for enhanced acknowledgement mode. Refer to Appendix A, [Table 0155 – Accept/Application Acknowledgement Conditions](#) for valid values.

**NOTE:** Accept acknowledgement indicates if the message was safely received or not. It does not indicate successful processing. Application acknowledgement indicates the outcome of processing.

---

#### **MSH-16: APPLICATION ACKNOWLEDGEMENT TYPE**

This field contains the conditions under which application acknowledgements are required to be returned in response to this message.

**NOTE:** If MSH-15-accept acknowledgement type and MSH-16-application acknowledgement type are omitted (or are both empty), the original acknowledgement mode rules are used. This means that, unless otherwise specified, the receiving application will send acknowledgement when it has processed the message.

## IZ-16 CONFORMANCE STATEMENT

The value of MSH-16 shall be one of the following: AL-always, NE-never, ER-Error/reject only, SI-successful completion only.

### MSH-21: MESSAGE PROFILE IDENTIFIER

This field contains the profile used when responding to a query (QBP). ImmTrac2 requires this field when MSH-9 Message Type contains 'RSP^K11^RSP\_K11' for an RSP message type and ImmTrac2 finds one or more clients that match the search criteria. Message profiles contain detailed explanations of grammar, syntax, and usage for a message or message set. Refer to [QBP/RSP – Query and Response Profile](#) section.

### NK1: NEXT OF KIN 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. That is, each subsequent NK1 increments the previous set ID by 1. So if 3 NK1 segments were sent in a message, the first would have a set ID of 1, the second would have 2 and the third would have 3.

Table 36, Next of Kin Segment (NK1)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
NK1-1	SI	Set ID – NK1	R	R
NK1-2	XPN	Name	R	R
NK1-3	CE	Relationship	RE	RE
NK1-4	XAD	Address	RE	RE
NK1-5	XTN	Phone Number	RE	RE
NK1-6	XTN	Business Phone Number	O	O
NK1-7	CE	Contact Role	O	O
NK1-8	DT	Start Date	O	O
NK1-9	DT	End Date	O	O
NK1-10	ST	Next of Kin/AP Job Title	O	O
NK1-11	JCC	Next of Kin/AP Job Code/Class	O	O
NK1-12	CX	Next of Kin/AP Employee Number	O	O
NK1-13	XON	Organization Name	O	O
NK1-14	CE	Marital Status	O	O
NK1-15	IS	Sex	O	O
NK1-16	TS	Date/Time of Birth	O	O
NK1-17	IS	Living Dependency	O	O
NK1-18	IS	Ambulatory Status	O	O
NK1-19	CE	Citizenship	O	O
NK1-20	CE	Primary Language	O	O
NK1-21	IS	Living Arrangement	O	O

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
NK1-22	CE	Publicity Code	O	O
NK1-23	ID	Protection Indicator	O	O
NK1-24	IS	Student Indicator	O	O
NK1-25	CE	Religion	O	O
NK1-26	XPN	Mother's Maiden Name	O	O
NK1-27	CE	Nationality	O	O
NK1-28	CE	Ethnic Group	O	O
NK1-29	CE	Contact Person	O	O
NK1-30	XPN	Contact Person's Name	O	O
NK1-31	XTN	Contact Person's Phone Number	O	O
NK1-32	XAD	Contact Person's Address	O	O
NK1-33	CX	Next of Kin/AP's Identifiers	O	O
NK1-34	IS	Job Status	O	O
NK1-35	CE	Race	O	O
NK1-36	IS	Handicap	O	O
NK1-37	ST	Contact Person's SSN Number	O	O

#### **NK1-1: SET ID**

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

#### **NK1-2: NAME**

This field contains the name of the next of kin or associated party. Multiple names for the same person are allowed, but the legal name must be sent in the first sequence. Refer to Appendix A, [Table 0200 – Name Type](#) for valid values.

#### **NK1-3: RELATIONSHIP**

This field indicates the relationship between this person and the patient. If NK1-3 is empty, ImmTrac2 will set a default value of 'GRD' Guardian. It is important to remember that relationships that are deemed as "responsible party" are used to ensure a good patient match. Refer to Appendix A, [Table 0063 - Relationship](#) for list of valid codes.

#### **NK1-4: ADDRESS**

This field contains the address of the next of kin/associated party. The mailing address must be sent in the first sequence. If the mailing address is not sent, then the repeat delimiter must be sent in the first sequence. ImmTrac2 does not support repetition of this field.

## NK1-5: PHONE NUMBER

This field contains the telephone number of the next of kin/associated party. ImmTrac2 supports repetition of this field, however only one phone number and email address will be stored. The primary telephone number must be sent in the first sequence. If the primary telephone number is not sent, then the repeat delimiter must be sent in the first sequence. Refer to Appendix A, [Table 0201 – Telecommunication Use Code](#) and [Table 0202 – Telecommunication Equipment Type](#) for valid values. If PRN is specified in component 2, ImmTrac2 will use components 6-8 for specification of area code, phone number, and extension.

## OBX: OBSERVATION RESULT SEGMENT

The observation result segment has many uses. It carries observations about the object of its parent segment. The basic format is a question (OBX-3) and an answer (OBX-5).

Table 37, Observation Result Segment (OBX)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
OBX-1	SI	Set ID – OBX	R	R
OBX-2	ID	Value Type	R	R
OBX-3	CE	Observation Identifier	R	R
OBX-4	ST	Observation Sub-ID	RE	RE
OBX-5	Varies	Observation Value	R	R
OBX-6	CE	Units	C(R/RE)	C(R/RE) If OBX-2 is valued 'NM' or 'SN'  Note: If there is not a unit of measure available while the Condition Predicated is true, then the value 'NA' shall be used in CWE.1 and 'HL70353' in CWE.3
OBX-7	ST	Reference Ranges	O	O
OBX-8	IS	Abnormal Flags	O	O
OBX-9	NM	Probability	O	O
OBX-10	ID	Nature of Abnormal Test	O	O
OBX-11	ID	Observation Result Status	R	R Value shall be 'F'
OBX-12	TS	Effective Date of Reference Range Values	O	O
OBX-13	ST	User Defined Access Checks	O	O
OBX-14	TS	Date/Time of the Observation	RE	RE
OBX-15	CE	Producer's Reference	O	O

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
OBX-16	XCN	Responsible Observer	O	O
OBX-17	CE	Observation Method	C(R/O)	C(R/O) If OBX-3.1 is valued '64994-7'. This OBX will indicate the Patient Eligibility Category for Vaccine Funding Program.
OBX-18	EI	Equipment Instance Identifier	O	O
OBX-19	TS	Date/Time of Analysis	O	O
OBX-20		Reserved	O	O
OBX-21		Reserved	O	O
OBX-22		Reserved	O	O
OBX-23	XON	Performing Organization Name	O	O
OBX-24	XAD	Performing Organization Address	O	O
OBX-25	XCN	Performing Organization Medical Director	O	O

### OBX-1: SET ID – OBX

This field contains the sequence number. The first instance shall be set to '1' and each subsequent instance shall be the next number in sequence.

#### IZ-20 CONFORMANCE STATEMENT

The value of OBX-1 shall be valued sequentially starting with the value '1' within a given segment group.

### OBX-2: VALUE TYPE

This field contains the format of the observation value in OBX. When sending to ImmTrac2, use Data Type CE for Coded Entry. When responding, ImmTrac2 will return Data Type values of CE, TS, NM for Coded Entry, Timestamp, and Number respectively, depending on what is sent in OBX-5.

#### IZ-21 CONFORMANCE STATEMENT

The value of OBX-2 shall be one of the following: CE, NM, ST, DT, ID or TS.

### OBX-3: OBSERVATION IDENTIFIER

This field contains a unique identifier for the observation. The format is that of the Coded Element (CE). Organizations send Logical Identifier Name and LOINC codes. The Name of the Coding System in the third component must be 'LN' for LOINC. More specific examples for OBX can be found in [OBX Examples](#) below.

---

## OBX-4: OBSERVATION SUB-ID

This field may be used to link related components of an observation. Each component of the observation would share an Observation sub-id. When responding with Series Information and Recommendations, the number in this field groups together related OBX segments. A single recommendation is sent in a grouped set of OBX segments, all with the same sub-identifier in OBX-4. The sub-identifier will increment sequentially.

In the following example, the system sends out grouped OBX segments for each recommendation. The following example is a single recommendation for DTaP, all sharing the same Observation Sub-ID of '1' in OBX-4.

```
OBX|1|CE|59779-9^Immunization Scheduled used^LN|1|VXC16^ACIP
Schedule^PHVS_ImmunizationScheduleIdentifier_IIS|||||F
OBX|2|CE|59780-7^Immunization Series Name^LN|1|3^DTaP^SeriesName|||||F
OBX|3|NM|30973-2^Dose Number in Series^LN|1|2|||||F
OBX|4|NM|59782-3^Number of Doses in Primary Series^LN|1|5|||||F
OBX|5|TS|30981-5^Earliest Date to Give^LN|1|20120912|||||F
OBX|6|TS|30980-7^Date Vaccine Due^LN|1|20121015|||||F
OBX|7|TS|59778-1^Vaccine Overdue Date^LN|1|20121115|||||F
OBX|8|CE|59783-1^Status in Immunization Series^LN|1|2 of 5^In
Progress^SeriesStatus|||||F
```

---

## OBX-5: OBSERVATION VALUE (VARIES)

This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which observation value is formatted.

This field contains the value of OBX-3-observation identifier of the same segment. Depending upon the observation, the data type may be a number (e.g., dose number), a coded answer (e.g., a vaccine), or a date/time (the date/time that the VIS was given to the client/parent). An observation value is always represented as the data type specified in OBX-2-value type of the same segment. Whether numeric or short text, the answer shall be recorded in ASCII text.

### Coded Values

When an OBX segment contains values of CE data types, the observations are stored as a combination of codes and/or text.

For sending systems, see the appropriate code table ([NIP004](#), [NIP005](#), [Vaccination Reaction Table](#), or [Table 0064](#)) to correspond with the value that corresponds to the LOINC code identified in OBX-3. ImmTrac2 requires that this field is constructed as a CE data type (see OBX-2, the first component of which is required).

## OBX-3 CONFORMANCE STATEMENTS

---

IZ-35: If OBX-3 is '64994-7' and OBX-2 is 'CE', then the value set for OBX-5 shall be HL70064.

IZ-36: If OBX-3 is '69764-9' and OBX-2 is 'CE', then the value set for OBX-5 shall be cdcgi1vis.

IZ-37: If OBX-3 is '30956-7' and OBX-2 is 'CE', then the value set for OBX-5 shall be CVX.

---

**OBX-6: UNITS**

This shall be the units for the value in OBX-5. The value shall be from the ISO+ list of units. If the value is numeric and indicates some kind of quantity the units should be indicated here.

---

**OBX-11: OBSERVATION RESULT STATUS**

This field contains the observation result status. The expected value is 'F', for final.

---

**IZ-22 CONFORMANCE STATEMENT**

The value of OBX-11 shall be 'F'.

---

**OBX-14: DATE/TIME OF THE OBSERVATION**

Records the date and time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation. ImmTrac2 uses the date element and ignores the time component.

---

**OBX-17: OBSERVATION METHOD**

Used to transmit the method or procedure by which an observation was obtained. In this Guide, it shall be used to differentiate the way that Eligibility Status was collected. The two choices are:

- VXC40 – Recorded in the sending system at the immunization level
- VXC41 – Recorded in the sending system at the visit level

---

**OBX EXAMPLES:**

---

**VACCINE ELIGIBILITY CODES (REQUIRED)**

Reporting vaccine eligibility at the dose level is required for all clinics that receive state supplied vaccines (e.g., Texas Vaccines for Children (TVFC) Program enrollees). ImmTrac2 collects vaccine eligibility codes by dose in the OBX segment. When indicating a Vaccine Eligibility Code, use LOINC code 64994-7 ([Table NIP003](#)) in the OBX-3 field and map the appropriate Vaccine Eligibility Code ([Table 0064](#)) to the OBX-5 field.

```
OBX|1|CE|64994-7^Vaccine fund pgm elig  
cat^LN|1|V01^HL70064|||||F|||20131210180231||VXC40^Eligibility captured at the  
immunization level^CDCPHINVS
```

---

**IZ-23 CONFORMANCE STATEMENT**

If RXA-20 is valued 'CP' or 'PA' and the first occurrence of RXA-9.1 (Administration Note.code) is '00' then the message shall include an OBX segment associated with the RXA with OBX-3.1 shall equal '64994-7'. This OBX will indicate the Patient Eligibility Category for Vaccine Funding Program.

---

## VACCINATION CONTRAINDICATION/PRECAUTIONS

When indicating a Vaccination Contraindication/Precaution, enter LOINC code 30945-0 ([Table NIP003](#)) in the OBX-3 field, and enter a Contraindication, Precaution, or Immunity code ([Table NIP004](#)) in the OBX-5 field.

```
OBX|1|CE|30945-0^Contradindication^LN|1|91930004^allergy to eggs^SCT|||||F|||20140401
```

---

## REACTIONS TO IMMUNIZATIONS

When indicating a Reaction to Immunization, enter LOINC code 31044-1 ([Table NIP003](#)) in the OBX-3 field, and enter a Reaction code ([Vaccination Reaction Table](#)).

### Example:

```
ORC|RE||12345^DCS|||||^Clerk^Myron|^Pediatric^Mary^L^MD <CR>
```

```
RXA|0|1|20131211|20131211|48^HIB PRP-T^CVX|999|||00^New immunization  
record^NIP0001|^Sticker^Nurse|^DCS_DC|||33k2a||PMC^Sanofi^MVX||CP <CR>
```

```
RXR|C28161^IM^NCIT^IM^IM^HL70162| <CR>
```

```
OBX|1|CE|31044-1^Reaction^LN|1|VXC12^Fever > 40.5C^CDCPHINVS|||||F|||20131213
```

---

## VACCINATION ADVERSE EVENT OUTCOMES

When indicating a Vaccination Adverse Event Outcome, enter LOINC code 30948-4 ([Table NIP003](#)) in the OBX-3 field and enter an Event Consequence code ([Table NIP005](#)) in the OBX-5 field.

```
OBX|1|CE|30948-4^Adverse Outcome^LN|1|E^ER Room^NIP005^F|
```

---

## DISEASE WITH PRESUMED IMMUNITY

When indicating Disease Immunity, enter LOINC code 59784-9 ([Table NIP003](#)) in the OBX-3 field, and enter an Immunity code ([Evidence of Immunity](#)) in the OBX-5 field.

```
ORC|RE||12345^DCS|||||^Clerk^Myron| <CR>
```

```
RXA|0|1|20140412|20140412|998^No vaccine administered^CVX|999|||NA <CR>
```

```
OBX|1|CE|59784-9^Disease with presumed immunity^LN|1|66071002^History of HepB  
infection^SCT^F| <CR>
```

---

## VACCINE SERIES INFORMATION

ImmTrac2 uses the OBX segment to return 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. The following table displays the LOINC Codes that the system sends in OBX-3 for Series Information for combination vaccines.

Table 38, Vaccine Series Information

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.

For each component of a combination vaccine, ImmTrac2 returns a grouped set of two OBX segments because each component may have a different series dose number. In the example below, a single dose of DTaP-Hib has been returned. The first and second OBX segments express the dose number of 1 for DTaP. The third and fourth OBX segments express the dose number of 3 for Hib. Field OBX-4, the sub-id, ties each group of two OBX segments together.

```
RXA|0|1|20140807|20140807|50^DtaP-Hib^CVX^90721^DtaP-
Hib^CPT|1.0|mL||01^^^^~32851914^ImmTrac immunization id^IMM_ID^^|
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|20^DTaP^CVX^90700^DTaP^CPT|F|
OBX|2|NM|38890-0&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|38890-0&30973-2^Dose number in series^LN|2|3|F|
```

## VACCINE RECOMMENDATION INFORMATION

ImmTrac2 uses the OBX segment to return Recommendation Information. For each recommendation, the system returns a grouped set of OBX segments.

The five OBX segments that follow define the recommended vaccine, 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.

The OBX-3 field in each of these segments is used to send LOINC Codes, which identify the five components of the Recommendation. The LOINC is sent in OBX-3 in order to identify what the value in OBX-5 represents. The following table displays the LOINC Codes that the system sends in OBX-3 for Recommendations.

Table 39, Vaccine Recommendation Information

LOINC Code	Description
30979-9	Vaccines Due Next
30979-9 & 30980-7	Date Vaccine Due
30979-9 & 30973-2	Vaccine due next dose number
30979-9 & 30981-5	Earliest date to give
30979-9 & 30982-3	Reason applied by logic to project this vaccine

In the following example, there are three Recommendations. The first, for DTP/aP, is represented in OBX|1| through OBX|5|; the second, for HepA, is represented in OBX|6| through OBX|10|; and the third, HepB, is represented in OBX|11| through OBX|14|. Note the LOINC Codes are in OBX-3 and the associated value represented in OBX-5 for each segment.

```

RXA|0|0|20010407|20010407|998^No Vaccine Administered^CVX|999|0
OBX|1|CE|30979-9^Vaccines Due
Next^LN^^^|1|20^DTP/aP^CVX^90700^DTP/aP^CPT|||||F|
OBX|2|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|1|20010607|||||F|
OBX|3|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|1|1|||||F|
OBX|4|TS|30979-9&30981-5^Earliest date to give^LN^^^|1|20010519|||||F|
OBX|5|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^^|1|^ACIP schedule|||||F|
OBX|6|CE|30979-9^Vaccines Due Next^LN^^^|2|85^HepA^CVX^90730^HepA^CPT|||||F|
OBX|7|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|2|20030407|||||F|
OBX|8|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|2|1|||||F|
OBX|9|TS|30979-9&30981-5^Earliest date to give^LN^^^|2|20020407|||||F|
OBX|10|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^^|2|^ACIP schedule|||||F|
OBX|11|CE|30979-9^Vaccines Due Next^LN^^^|3|45^HepB^CVX^90731^HepB^CPT|||||F|
OBX|12|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|3|20010407|||||F|
OBX|13|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|3|1|||||F|
OBX|14|TS|30979-9&30981-5^Earliest date to give^LN^^^|3|20010407|||||F|
OBX|15|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^^|3|^ACIP schedule|||||F|

```

To receive recommendation information in these grouped OBX segments your system must be configured for bi-directional data exchange (web services).

## ORC: ORDER REQUEST SEGMENT

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

Table 40, Order Request Segment (ORC)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
ORC-1	ID	Order Control	R	R
ORC-2	EI	Placer Order Number	RE	RE
ORC-3	EI	Filler Order Number	R	R
ORC-4	EI	Placer Group Number	O	O
ORC-5	ID	Order Status	O	O
ORC-6	ID	Response Flag	O	O
ORC-7	TQ	Quantity/Timing	X	X
ORC-8	EIP	Parent	O	O
ORC-9	TS	Date/Time of Transaction	O	O
ORC-10	XCN	Entered By	RE	RE
ORC-11	XCN	Verified By	O	O

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
ORC-12	XCN	Ordering Provider	C(RE/O)	C(RE/O) If RXA-20 is valued 'CP' or 'PA' and the first instance of RXA-9.1 is valued '00'
ORC-13	PL	Enterer's Location	O	O
ORC-14	XTN	Call Back Phone Number	O	O
ORC-15	TS	Order Effective Date/Time	O	O
ORC-16	CE	Order Control Code Reason	O	O
ORC-17	CE	Entering Organization	O	O
ORC-18	CE	Entering Device	O	O
ORC-19	XCN	Action By	O	O
ORC-20	CE	Advanced Beneficiary Notice Code	O	O
ORC-21	XON	Ordering Facility Name	O	O
ORC-22	XAD	Ordering Facility Address	O	O
ORC-23	XTN	Ordering Facility Phone Number	O	O
ORC-24	XAD	Ordering Provider Address	O	O
ORC-25	CWE	Order Status Modifier	O	O
ORC-26	CWE	Advanced Beneficiary Notice Override Reason	O	O
ORC-27	TS	Filler's Expected Availability Date/Time	O	O
ORC-28	CWE	Confidentiality Code	O	O
ORC-29	CWE	Order Type	O	O
ORC-30	CNE	Enterer Authorization Mode	O	O
ORC-31	CWE	Parent Universal Service Identifier	O	O

### ORC-1: ORDER CONTROL

Determines the function of the order segment. The value for VXU and RSP messages shall be 'RE'.

In the immunization context, it is not common to have one system placing and one filling an immunization order. In some cases neither is known. The use case that these have supported is to allow a system that sent an immunization record to another system to identify an immunization that needs to be changed using the Filler Order Number it had sent. This Guide specifies that Placer Order Number is RE (required, but may be empty). The Filler Order Number is the unique immunization id of the sending system.

### IZ-25 CONFORMANCE STATEMENT

ORC-1 shall contain the value 'RE'.

---

**ORC-2: PLACER ORDER NUMBER**

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

ORC-2 is a system identifier assigned by the placer software application. The Placer Order Number and the Filler Order Number are essentially foreign keys exchanged between applications for uniquely identifying orders and the associated results across applications. In the case where the ordering provider organization is not known, the sending system may leave this field empty.

---

**ORC-3: FILLER ORDER NUMBER**

The filler order number is used to identify uniquely this order among all orders sent by a provider organization that filled the order. This shall be the unique identifier of the sending system in a given transaction.

In the case where system A sends the record to system B and system B then forwards to system C, system B will send its' own unique identifier. Use of this foreign key will allow the initiating system to identify accurately the previously sent immunization record, facilitating update or deletion of that record. In the case where a historical immunization is being recorded (i.e., from an immunization card), the sending system SHALL assign an identifier as if it were an immunization administered by a provider associated with the provider organization owning the sending system. In the case where an RXA is conveying information about an immunization that was not given, such as a refusal, the filler order number shall contain the value of '9999'. Note that the receiving system will need to store this value in addition to its own internal id in order for this to be used.

---

**ORC-10: ENTERED BY**

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 shall contain the provider ordering the immunization. It is expected to be empty if the immunization record is transcribed from a historical record.

---

**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.

---

**ORC-21: ORDERING FACILITY NAME**

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

## ORC-22: ORDERING FACILITY ADDRESS

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

## ORC-23: ORDERING FACILITY PHONE NUMBER

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

## ORC-24: ORDERING PROVIDER ADDRESS

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

## PD1: PATIENT DEMOGRAPHIC SEGMENT

The Patient Demographic Segment contains patient demographic information that may change from time to time. There are two primary uses for patient demographic information in immunization messages. These include indicating whether the person wants to receive recall/reminder notices and the person's current active/inactive status at the clinic.

Table 41, Patient Demographic Segment (PD1)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
PD1-1	IS	Living Dependency	O	O
PD1-2	IS	Living Arrangement	O	O
PD1-3	XON	Patient Primary Facility	O	O
PD1-4	XCN	Patient Primary Care Provider Name & ID Number	O	O
PD1-5	IS	Student Indicator	O	O
PD1-6	IS	Handicap	O	O
PD1-7	IS	Living Will	O	O
PD1-8	IS	Organ Donor	O	O
PD1-9	ID	Separate Bill	O	O
PD1-10	CX	Duplicate Patient	O	O
PD1-11	CE	Publicity Code	RE	RE
PD1-12	ID	Protection Indicator	RE	RE
PD1-13	DT	Protection Indicator Effective Date	C(RE/X)	C(RE/X) If PD1-12 is valued
PD1-14	XON	Place of Worship	O	O
PD1-15	CE	Advance Directive Code	O	O
PD1-16	IS	Immunization Registry Status	RE	RE
PD1-17	DT	Immunization Registry Status Effective Date	C(RE/X)	C(RE/X) If PD1-16 is valued

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
PD1-18	DT	Publicity Code Effective Date	C(RE/X)	C(RE/X) If PD1-11 is valued

### PD1-3: PATIENT PRIMARY FACILITY

This field contains the name and identifier that specifies the “primary care” healthcare facility selected by the patient. Use may be specified locally.

### PD1-4: PATIENT PRIMARY CARE PROVIDER NAME & ID NO.

Identifier for primary care provider. Use may be specified locally.

### PD1-11: PUBLICITY CODE

This field contains a user-defined code indicating what level of publicity is allowed (e.g., No Publicity, Family Only) for the patient. In context of immunization messages, this refers to how a person wishes to be contacted in a reminder or recall situation. Refer to Appendix A, [Table 0215 – Publicity Code](#) for suggested values. ImmTrac2 will recognize “01” to indicate no recall/reminder notices or “02” recall/reminder notices are allowed to be sent for this patient.

### PD1-12: PROTECTION INDICATOR

Indicates whether the patient record may be shared with others. ImmTrac2 understands ‘Y’ (Yes) to indicate that the patient has indicated that the information shall be protected and ‘N’ (No) to indicate that the patient’s information may be shared. If the field is empty, ImmTrac2 defaults to ‘N’, do not protect access to data. ImmTrac2 will not return protected records in an RSP Response message.

Table 42, Protection Indicator Values

Value	Description
(empty)	No determination has been made regarding the client’s (or guardian’s) wishes regarding information sharing
Y	The patient (or guardian) has indicated that the information shall be protected.
N	The record does not need to be protected and may be shared.

### PD1-13: PROTECTION INDICATOR EFFECTIVE DATE

The effective date for PD1-12 (Protection Indicator) in YYYYMMDD format. If PD1-12 is valued, then this field should be populated.

### PD1-16: IMMUNIZATION REGISTRY STATUS

This field identifies the current status of the patient in relation to the sending provider organization. Refer to Appendix A, [Table 0441 – Immunization Registry Status](#) for suggested values. This field captures whether the sending provider organization considers this an active patient. The status may be different between the sending and receiving systems. For instance, a person may no longer be active with a provider organization, but may still be active in the public health jurisdiction, which has the Immunization Information System (IIS). In this case the provider organization would indicate that the person was inactive in their system using this field in a message from them. The IIS would indicate that person was active in a message from the IIS.

If a code of ‘P’, for permanently inactive/deceased is specified, the message must contain the Patient Death Date in PID-29 or the record will be rejected.

### PD1-17: IMMUNIZATION REGISTRY STATUS EFFECTIVE DATE

The effective date for PD1-16 (Immunization Registry Status) in YYYYMMDD format. If PD1-16 is valued, then this field should be populated.

### PD1-18: PUBLICITY CODE EFFECTIVE DATE

The effective date for PD1-11 (Publicity Code) in YYYYMMDD format. If PD1-11 is valued, then this field should be populated.

## PID: PATIENT IDENTIFIER SEGMENT

The Patient Identifier segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information.

#### Example:

```
PID|||48844^^^PI~988776655^^^MA~111225555^^^SS||Green^Susan^Q|Redfield|20140908|F||2106-3^White^HL70005|123 Main St.^Apt. 223^Austin^TX^78888-2345^US^P^^TX453~^^TX^^US^BDL|^PRN^^^512^7542270^^|H^Hispanic or Latino^HL70189||Y<CR>
```

Table 43, Patient Identifier Segment (PID)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
PID-1	SI	Set ID	R	R
PID-2	CX	Patient ID	X	X
PID-3	CX	Patient Identifier List	R	R
PID-4	CX	Alternate Patient ID	X	X
PID-5	XPN	Patient Name	R	R
PID-6	XPN	Mother's Maiden Name	RE	RE
PID-7	TS	Date/Time of Birth	R	R
PID-8	IS	Administrative Sex	RE	RE

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
PID-9	XPN	Patient Alias	X	X
PID-10	CE	Race	RE	RE
PID-11	XAD	Patient Address	RE	R
PID-12	IS	County Code	X	X
PID-13	XTN	Phone Number - Home	RE	RE
PID-14	XTN	Phone Number - Business	O	O
PID-15	CE	Primary Language	O	O
PID-16	CE	Marital Status	O	O
PID-17	CE	Religion	O	O
PID-18	CX	Patient Account Number	O	O
PID-19	ST	SSN Number - Patient	X	X
PID-20	DLN	Driver's License Number - Patient	X	X
PID-21	CX	Mother's Identifier	X	X
PID-22	CE	Ethnic Group	RE	RE
PID-23	ST	Birth Place	O	O
PID-24	ID	Multiple Birth Indicator	RE	RE
PID-25	NM	Birth Order	C(RE/O)	C(RE/O) If PID-24 is valued 'Y', this field should contain a number indicating the person's birth order ('1' for first, '2' for second, etc.)
PID-26	CE	Citizenship	O	O
PID-27	CE	Veterans Military Status	O	O
PID-28	TS	Nationality	O	O
PID-29	ID	Patient Death Date and Time	C(RE/X)	C(RE/X) If PID-30 is valued 'Y'
PID-30	ID	Patient Death Indicator	RE	RE
PID-31	ID	Identify Unknown Indicator	O	O
PID-32	IS	Identity Reliability Code	O	O
PID-33	TS	Last Update Date/Time	O	O
PID-34	HD	Last Update Facility	O	O
PID-35	CE	Species Code	O	O
PID-36	CE	Breed Code	O	O
PID-37	ST	Strain	O	O
PID-38	CE	Production Class Code	O	O
PID-39	CWE	Tribal Citizenship	O	O

---

### **PID-1: SET ID**

This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc. PID-1 shall have the literal value of '1' when the message type is VXU.

---

### **PID-3: PATIENT IDENTIFIER LIST**

This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.). Refer to Appendix A, [Table 0203 – Identifier Type](#). ImmTrac2 supports repetition of this field. **A provider organization is required to send a Patient Internal ID using one of the following identifier type codes (MR, PI, PN, PRN, or PT).** Additional patient identifiers may be sent using repetition of the PID-3 field, including Social Security Number (SS) or Medicaid ID (MA). When ImmTrac2 returns a message to an outside system, the Primary State ID will be sent as the State Registry ID (SR), and the originating system's Primary Patient ID will be sent as the Patient Internal ID (PI) if it is stored in ImmTrac2.

---

### **PID-5: PATIENT NAME**

This field contains the names of the patient. Family name and Given name are required in the first two components. Therefore, the name type code in this field should be 'L – Legal'. Refer to Appendix A, [Table 0200 - Name Type](#) for valid values. See the [XPN data type](#).

The Family, Given and middle names must be alpha characters only (A-Z). The family name or the given name should not contain a suffix (e.g. JR or III). The given name should not include the patient's middle name or middle initial. These should be sent in their appropriate designated fields.

ImmTrac2 requires that submitters not send patients with placeholder names in any of the name fields. Placeholder names include, but are not limited to, INFANT, BABY, GIRL, BOY, etc.

---

### **PID-6: MOTHER'S MAIDEN NAME**

This field contains the family name under which the mother was born (i.e., before marriage). It is used to assist in distinguishing between patients with the same last name. See the [XPN data type](#). In this context, where the mother's maiden name is used for patient identification, ImmTrac2 uses only last name and first name. A mother's legal name might also appear in the context of an NK1 segment. ImmTrac2 does not return this data in outgoing data exchange. ImmTrac2 does not support repetition of this field. This data is strongly recommended in order to assist in the client de-duplication processes.

---

### **PID-7: DATE/TIME OF BIRTH**

This field contains the patient's date of birth in YYYYMMDD format. This date is required because it is critical to several functions including immunization recommendations/forecast. ImmTrac2 ignores the time component.

## IZ-26 CONFORMANCE STATEMENT

---

PID-7 shall be accurate at least to the day.

### **PID-8: ADMINISTRATIVE SEX**

This field contains the patient's sex. Refer to Appendix A, [Table 0001 – Administrative Sex](#) for suggested values. Sending blank value in this field is highly discouraged.

### **PID-9: PATIENT ALIAS**

This field should not be used. Alias names should be placed in the patient name field.

### **PID-10: RACE**

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

### **PID-11: PATIENT ADDRESS**

The patient address may be sent here or in the Next of Kin/Associated Parties (NK1) segment. Address is required here or in the NK1 segment.

This field contains the mailing address of the patient. Address type codes are defined by Appendix A, [Table 0190 - Address Type](#). Multiple addresses for the same person may be sent in the following sequence: The primary mailing address must be sent first in the sequence (for backward compatibility); if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence. ImmTrac2 does not support repetition of this field.

The county code component, if included, must specify the ANSI INCITS 31-2009 (the county code formerly used FIPS coding) county code (see Appendix A, [Table 0289](#)). Note that since county code is a specific component of this data type, it should be reported in this field and not in PID-12. Also, a post office box should never be included in the "other designation" component of a street address. The two letter state code plus the numeric county code should be used (e.g., AZ001 represents Apache County, Arizona and TX001 represents Anderson County, Texas).

### **PID-13: PHONE NUMBER – HOME**

This field contains the patient's personal phone numbers. ImmTrac2 supports repetition of this field, however only one phone number and email address will be stored. The primary telephone number must be sent in the first sequence. If the primary telephone number is not sent, then the repeat delimiter must be sent in the first sequence. Refer to Appendix A, [Table 0201 – Telecommunication Use Code](#) and [Table 0202 – Telecommunication Equipment Type](#) for valid values. If PRN is specified in component 2, ImmTrac2 will use components 6-8 for specification of area code, phone number, and extension.

---

**PID-14: PHONE NUMBER – BUSINESS**

This field contains the patient’s business telephone number(s). All business numbers for the patient are sent in the following sequence. The first sequence is considered the patient’s primary business phone number (for backward compatibility). If the primary business phone number is not sent, then a repeat delimiter must be sent in the first sequence. Refer to Appendix A, [Table 0201 – Telecommunication Use Code](#) and [Table 0202 – Telecommunication Equipment Type](#) for valid values.

---

**PID-15: PRIMARY LANGUAGE**

This field contains the patient’s primary language. HL7 recommends using [ISO Table 639](#) as the suggested values in Appendix A, [Table 0296 – Primary Language](#).

---

**PID-22: ETHNIC GROUP**

This field further defines the patient’s ancestry. Refer to Appendix A, [Table 0189 – Ethnic Group](#). The second triplet of CE data type for ethnic group (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes.

---

**PID-24: MULTIPLE BIRTH INDICATOR**

This field indicates whether the patient was part of a multiple birth. Refer to Appendix A, [Table 0136 – Yes/No](#) for valid values. If patient was part of a multiple birth, then field should contain ‘Y’ (Yes). If patient was a single birth, then field should contain ‘N’ (No). Blank value indicates birth status is undetermined.

---

**PID-25: BIRTH ORDER**

When a patient was part of a multiple birth, a value indicating the patient’s birth order is entered in this field. This field should only be used if PID-24 Multiple Birth Indicator is valued as ‘Y’ (Yes). The expected value would be 1, 2, 3, etc. depending on the total number of children born as multiples.

---

**PID-29: PATIENT DEATH DATE AND TIME**

This field contains the date and time at which the patient death occurred, if patient is deceased. Give the year, month, and day in YYYYMMDD format. ImmTrac2 ignores any time component. If a death date is sent, PID-30 must indicate a value of ‘Y’ for permanently inactive/deceased.

---

**PID-30: PATIENT DEATH INDICATOR**

This field indicates whether the patient is deceased. Refer to Appendix A, [Table 0136 – Yes/No](#) for valid values. This field may be valued as ‘N’ (No) if patient is not deceased or is not known to be deceased. This field should be valued as ‘Y’ (Yes) if the patient is known to be deceased and the date should be sent in PID-29.

---

**PID-33: LAST UPDATE DATE/TIME**

This field contains the last update date and time for the patient's/person's identifying and demographic data, as defined in the PID segment.

## RXA: PHARMACY/TREATMENT ADMINISTRATION SEGMENT

The RXA segment carries immunization administration data. It is a child of an ORC segment, which is a repeating segment in the RSP and VXU messages. Because ORC are allowed to repeat an unlimited numbers of vaccinations may be included in a message. Each RXA must be preceded by an ORC. HL7 Version 2.5.1 guide clearly indicates that any RXA must be associated with an ORC. In the case of immunization, each immunization will have its own ORC.

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

ImmTrac2 supports deduction of new immunizations from ImmTrac2 vaccine inventory.

ImmTrac2 supports sending delete messages via data exchange. The RXA segment can be sent with a delete code in RXA-21.

Note: ImmTrac2 will NOT support delete messages if inventory deduction is turned on for the clinic.

Example of RXA segment for New Immunizations:

```
RXA|0|1|20140817|20140817|20^DTaP^CVX|1.0|||00^New
Immunization^NIP001|72980987^Jones^Robert^^^^^^TX^^^^MD|^^^1234567890^^^^^321 Medical Dr^Suite
325^Austin^TX^78756^US|||VaccineLotNumber-1234|20180701|WAL^VaccineManufacturer^MVX|||CP<CR>
```

Example of RXA segment for Historical Immunizations:

```
RXA|0|1|20150908|20150908|31^Hep B Peds NOS^CVX|999|||01^Historical Record^NIP001|||||||<CR>
```

Table 44, Pharmacy/Treatment Administration Segment (RXA)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage	Conditional Predicate	Value Set	Comment
RXA-1	NM	Give Sub-ID Counter	R	R			Shall be valued '0'
RXA-2	NM	Administration Sub-ID Counter	R	R			Shall be valued '1'
RXA-3	TS	Date/Time Start of Administration	R	R			

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage	Conditional Predicate	Value Set	Comment
RXA-4	TS	Date/Time End of Administration	RE	RE			If populated, this should be the same value as RXA-3
RXA-5	CE	Administered Code	R	R			If RXA-5.1 has a CVX of '998', then RXA-20 shall be populated with 'NA'
RXA-6	NM	Administered Amount	R	R			If RXA-9.1 is not valued '00', then this field shall be valued '999'
RXA-7	CE	Administered Units	C(R/O)	C(R/O)	If RXA-6 is not valued '999'	UCUM	
RXA-8	CE	Administered Dosage Form	O	O			
RXA-9	CE	Administration Notes	C(R/O)	C(R/O)	If RXA-20 is valued 'CP' or 'PA'	<a href="#">NIP001</a>	If this field is used for a notes only entry, the data type shall be CE_TX, otherwise the data type shall be CE.
RXA-10	XCN	Administering Provider	RE	RE			This is the person who gave the immunization. It is not the ordering clinician
RXA-11	LA2	Administered-at Location	RE	RE			This is the clinic/site where the vaccine was administered
RXA-12	ST	Administered per (Time Unit)	O	O			
RXA-13	NM	Administered Strength	O	O			
RXA-14	CE	Administered Strength Units	O	O			
RXA-15	ST	Substance Lot Number	C(R/O)	C(R/O)	If the first occurrence of RXA-9.1 is valued '00' and RXA-20 is valued 'CP' or 'PA'		

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage	Conditional Predicate	Value Set	Comment
RXA-16	TS	Substance Expiration Date	<b>C(RE/O)</b>	<b>C(RE/O)</b>	If RXA-15 is valued		
RXA-17	CE	Substance Manufacturer Name	<b>C(R/O)</b>	<b>C(R/O)</b>	If the first occurrence of RXA-9.1 is valued '00' and RXA-20 is valued 'CP' or 'PA'	MVX	
RXA-18	CE	Substance/Treatment Refusal Reason	<b>C(R/X)</b>	<b>C(R/X)</b>	If the RXA-20 is valued 'RE'	<a href="#">NIP002</a>	
RXA-19	CE	Indication	O	O			
RXA-20	ID	Completion Status	<b>RE</b>	<b>RE</b>	If the RXA-18 is populated, this field shall be 'RE'  If RXA-5.1 has a CVX of '998', this field shall be populated with 'NA'	<a href="#">HL70322</a>	
RXA-21	ID	Action Code	<b>RE</b>	<b>RE</b>		<a href="#">HL70323</a>	
RXA-22	TS	System Entry Date/Time	O	O			
RXA-23	NM	Administered Drug Strength Volume	O	O			
RXA-24	CWE	Administered Drug Strength Volume Units	O	O			
RXA-25	CWE	Administered Barcode Identifier	O	O			
RXA-26	ID	Pharmacy Order Type	O	O			

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---

### **RXA-1: GIVE SUB-ID COUNTER**

This field is used to match an RXA and RXG. Not a function under IIS. Constrain to 0 (zero) value.

#### **IZ-28 CONFORMANCE STATEMENT**

RXA-1 shall be valued '0'. Note that '0' is zero.

---

### **RXA-2: ADMINISTRATION SUB-ID COUNTER**

This field is used to indicate number of RXA segments under an ORC. VXU messages require one RXA per ORC. Constrain to '1' in this field.

#### **IZ-29 CONFORMANCE STATEMENT**

RXA-2 shall be valued '1'.

In the RSP message (query response back from ImmTrac2), this field is used to track multiple RXA under an ORC. When responding to a query, ImmTrac2 returns 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 Immunization Evaluator, then ImmTrac2 returns the number '3' in RXA-2. If the dose violates a specific Immunization Evaluator rule, then the system sends '777' in RXA-2. In all other cases, the number '999' will be returned in RXA-2. For combination vaccines, '999' 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). Returning series information in RXA-2 is specific to the local Texas implementation of HL7 Version 2.5.1, as described in this Implementation Guide. Other sending applications may not adopt this convention. If the user configures the system so that it will not send series information, then the system always sends '999' in RXA-2.

---

### **RXA-3: DATE/TIME START OF ADMINISTRATION**

The date this vaccination occurred. In the case of refusal or deferral, this is the date that the refusal or deferral was recorded. ImmTrac2 does not process any time component. It is important that this date be the actual date the vaccination was given and not the date that it was recorded or billed in format of 'YYYYMMDD'.

**Note:** The entire message will be rejected if a vaccination is recorded in the future, after the message was created, after the indicated death date, or before the patient's date of birth.

---

### **RXA-4: DATE/TIME END OF ADMINISTRATION**

In the context of immunization, this is equivalent to the Start date/time. If populated, it should be = RXA-3. If empty, the date/time of RXA-3 Date/Time Start of Administration is assumed. ImmTrac2 ignores any time component.

## IZ-30 CONFORMANCE STATEMENT

---

If RXA-4 is populated, then it shall be the same as RXA-3.

### RXA-5: ADMINISTERED CODE

This field identifies the medical substance administered. If the substance administered is a vaccine, CVX codes should be used in the first triplet to code this field (see Appendix A, [Table 0292 - Codes for vaccines administered](#)). The second set of three components could be used to represent the same vaccine using a different coding system, such as CPT, Vaccine Trade Name (WVTN) or Vaccine Group Code (WVGC).

**NOTE:** CVX codes are required for providers enrolled in TVFC and for Meaningful Use reporting.

For the CVX code set, provide information in the first triplet (components 1 – 3) of the RXA-5 field. Provide the CVX Code value in the first component, text description in the second component, and the name of the coding system ‘CVX’ in the third component.

**CVX example:** | 09^Td/Tdap^CVX^^^ |

For all other codes sets, provide information in the second triplet (components 4 – 6) of the RXA-5 field. Provide the coding system identifier in the fourth component, text description in the fifth component, and the name of coding system in the sixth component.

#### Examples:

**NDC Code:** | ^^11793-2101-\*0^Td/Tdap^NDC |

**Trade Name:** | 120^DTaP-Hib-IPV^CVX^Pentacel1^DTaP-Hib-IPV combination^WVTN |

**CPT Code:** | ^^90718^Td/Tdap^CPT |

**Vaccine Group :** | ^^Td/Tdap^Td/Tdap^WVGC |

### RXA-6: ADMINISTERED AMOUNT

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

## IZ-33 CONFORMANCE STATEMENT

---

If RXA-9.1 is not valued ‘00’, then RXA-6 shall be valued ‘999’.

---

### **RXA-7: ADMINISTERED UNITS**

This field is conditional because it is required if the administered amount code does not imply units. This field must be in simple units that reflect the actual quantity of the substance administered (e.g., ML). It does not include compound units. This field is not required if the previous field is populated with '999'.

---

### **RXA-9: ADMINISTRATION NOTES**

This field is used to indicate whether the immunization record is based on a historical record or was given by the reporting provider. It should contain the information source (Appendix A, [Table 001 – Immunization Information Source](#)). The first component shall contain the code, the second component the free text and the third shall contain the name of the code system. Sending systems should be able to send this information. Receiving systems should be able to accept this information.

Use '00' to indicate New Immunization Administered owned by the sending organization or '01' through '08' to specify the source of the historical record. For provider organizations set up to deduct from ImmTrac2 inventory via data exchange, '00' is the only value that will allow the dose to be deducted. When responding to a query, ImmTrac2 will send the corresponding immunization id in the second repeating segment.

```
| 01^^^^~9999999^ImmTrac2 immunization id^IMM_ID^^ |
```

---

### **IZ-31 CONFORMANCE STATEMENT**

If RXA-20 is valued 'CP' or 'PA', then RXA-9.1 shall be valued one of the codes listed in NIP001 in the first occurrence of this field.

---

### **RXA-10: ADMINISTERING PROVIDER**

This field is intended to contain the name and provider ID of the person physically administering the pharmaceutical. The field should identify the name of the administering clinician (VEI) in the first repetition, ordering authority (OEI) in the second repetition, and recorder (REI) of the immunization in the third repetition. The recorder will be ignored on incoming data submissions. When responding to a query, the recorder will only be returned if the immunization is owned by the provider that requested the data.

ImmTrac2 uses components 2-7 to record the names and recommends that license information (LPN, RN, MD) be put in the 5<sup>th</sup> component so that it processes as the clinician suffix, as in the following example:

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

ImmTrac2 automatically creates a new clinician record if the incoming clinician does not exist in the system.

---

## **RXA-11: ADMINISTERED AT LOCATION**

This field contains the name and address of the facility that administered the immunization. Note that the components used are:

### **RXA-11.4 FACILITY NAME**

---

Administered-at location will be the provider organization code (TXIIS ID) for the clinic that owns the data. This may be the same TXIIS ID code you send in MSH-4 depending on if this was administered at a sub-site of the organization submitting the message.

#### **RXA-11.4.1 IDENTIFIER**

---

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

#### **RXA-11.4.2 UNIVERSAL ID**

---

This shall be an (Object Identifier) OID, if populated. Note that this should not be a local code, but rather a universal id code.

#### **RXA-11.4.3 UNIVERSAL ID TYPE**

---

Universal ID type (specify which universal ID type)

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

#### **RXA-11.4.9-15 FACILITY ADDRESS**

---

The facility's address.

**NOTE:** Components not specifically mentioned here are not expected in immunization messages.

---

## **RXA-15: SUBSTANCE LOT NUMBER**

This field contains the lot number of the medical substance administered. This field must be populated to deduct from inventory. It may remain empty if the dose is from a historical record.

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

---

## **RXA-16: SUBSTANCE EXPIRATION DATE**

This field contains the expiration date of the medical substance administered. If RXA-15 (Substance Lot Number) exists, then the organization should send this field. This field must be populated to deduct from inventory. If the dose is from a historical record, this field may be empty.

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

### RXA-17: SUBSTANCE MANUFACTURER NAME

This field contains the manufacturer of the medical substance administered. If RXA-9 (Administration Notes) is valued '00', then organizations should send this field. See Appendix A, [MVX Table](#) for values. This field must be populated to deduct from inventory. When populated, the vaccine manufacturer must correspond to the RXA-5 (Administered Code) to avoid errors. When using this code system to identify vaccines, the coding system component should be valued 'MVX', not 'HL70227'.

**Example:** |AB^Abbott^MVX|

### RXA-18: SUBSTANCE REFUSAL REASON

This field contains the reason the patient refused the medical substance/treatment. Any entry in the field indicates that the patient did not take the substance. The vaccine that was offered should be recorded in RXA-5. Do not record contraindications, immunities or reactions in this field. ImmTrac2 does not support repetition of this field.

**Example:**

RXA|0|1|20140601|20140601|107^DTAP-NOS^CVX|999|||||||||00^Parental Decision^NIP002||RE

#### Notes:

- ImmTrac2 only stores that a vaccine refusal occurred, not a specific type of refusal, so refusals returned from ImmTrac2 will be designated as either 'PARENTAL DECISION' or 'PATIENT DECISION' based on client age.
- ImmTrac2 will not return refusals which do not have an applies-to-date (in RXA-3). Multiple refusals will be returned for the same vaccine administered on different dates if they exist.
- ImmTrac2 system will accept refusals for the same vaccine on different dates. However, if multiple refusals are sent for the same vaccine with the same date of refusal (date in RXA-3), only one will be stored.

### RXA-20: COMPLETION STATUS

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

### IZ-32 CONFORMANCE STATEMENT

If the RXA-18 is populated, RXA-20 shall be valued to 'RE'.

## IZ-34 CONFORMANCE STATEMENT

If RXA-5.1 has a CVX of '998', then RXA-20 shall be populated with 'NA'.

### RXA-21: ACTION CODE

This field indicates the action expected by the sending system. It can facilitate update or deletion of immunization records. This field has a usage of RE. If it is left empty, then receiving systems should assume that the action code is 'A' (See Appendix A, [Table 0323](#)). It also provides a method for correcting vaccination information previously transmitted incorrectly. To delete an immunization from ImmTrac2, this field must be populated with 'D' and the other fields in the RXA should match the original message. An add/update occurs when this field is populated with anything other than 'D'.

```
RXA|0|1|20131215|20131215|03^MMR^CVX|1|mL||00^New Immunization Record^NIP001^^^|D|
```

#### Notes:

- Deletes will not process if Inventory Deduction is turned on for the clinic and/or the data exchange parent.
- Immunizations deducted from ImmTrac2 inventory cannot be deleted. If the number of deletions received through batch exceeds 5% of the total number of immunizations or more than 50 immunizations are marked for deletion, ImmTrac2 will reject the file.

### RXA-22: SYSTEM ENTRY DATE/TIME

This field records the date/time that this record was created in the originating system and should be on a date on or after the vaccination date. Do not send reports of vaccinations that have not yet occurred. If this value is unknown it should be left blank. Do not use a default date such as the current date or vaccination date as the value.

## RXR: PHARMACY/TREATMENT ROUTE SEGMENT

The Pharmacy/Treatment Route segment contains the alternative combination of route, site, administration method that are prescribed as they apply to a particular order. If RXR information is to be included, a single RXR segment must follow each RXA.

Table 45, Pharmacy/Treatment Route Segment (RXR)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
RXR-1	CE	Route	R	R
RXR-2	CWE	Administration Site	RE	RE
RXR-3	CE	Administration Device	O	O
RXR-4	CWE	Administration Method	O	O
RXR-5	CE	Routing Instruction	O	O
RXR-6	CWE	Administration Site Modifier	O	O

## RXR-1: ROUTE

The route is the place or method that was used to give the vaccination. This is normally dependent on the type of vaccination given. Refer to Appendix A, [Table 0162 – Route of Administration](#) for valid values.

## RXR-2: ADMINISTRATION SITE

The administration site is the place on the body that the vaccination was given. This is normally decided at time of administration. Refer to Appendix A, [Table 0163 – Administration Site](#) for valid values.

## MESSAGES FOR TRANSMITTING IMMUNIZATION INFORMATION

ImmTrac2 accepts three HL7 2.5.1 message types from sending systems (ADT, VXU and QBP) and will return one of three message types (QCK, ACK, or RSP) in response. The segments that are used to construct each message type are defined below.

[ ] Optional segment

{ } Repeating segment

This chapter describes each of the messages used to accomplish the use cases described in section – [Actors, Goals, and Messaging Transactions](#). These messages are built from the segments described in section – [Segments and Message Details](#). The Segments are built using the Data Types that are specified in section – [HL7 Data Types](#).

## SUPPORTED MESSAGES

Table 46, Supported Messages

Message	Purpose	Related Messages	Associated Profiles
VXU	Send Immunization History	ACK	
QBP	Request Immunization History and Request Person ID	RSP	Z34^CDC
RSP	Respond to Request for Immunization Record and Respond to Request for Person ID	QBP	Z31^CDC Z32^CDC
ACK	Send Message Acknowledgement	VXU, ADT, QBP	
ADT	Send Person Demographic Data	ACK	

## ADT: ADMISSION, DISCHARGE, AND TRANSFER

Organizations send Admission, Discharge, and Transfer (ADT) messages only to update existing ImmTrac2 patient demographic information. ImmTrac2 does NOT accept an ADT message for a new patient.

Table 47, Admission, Discharge and Transfer (ADT)

Segment	CDC IG Cardinality	ImmTrac2 Cardinality	CDC IG Usage	ImmTrac2 Usage	Comment
MSH	[1..1]	[1..1]	R	R	Every message begins with an MSH.
EVN	[1..1]	[1..1]	R	R	Every ADT has one EVN segment.
PID	[1..1]	[1..1]	R	R	Every ADT has one PID segment.
[PD1]	[0..1]	[0..1]	RE	RE	Every PID segment in an ADT may have zero or one PD1 segment.
{{NK1}}	[0..*]	[0..*]	O	O	The PID segment in an ADT may have zero or more NK1 segments.
{{OBX}}	[0..*]	[0..*]	O	O	The PID segment in an ADT may have zero or more OBX segments.

### Recommendation:

It is preferred that demographic information be sent in a VXU message whenever possible, as this message type accommodates BOTH immunization information and demographic update information.

When either a VXU^V04 (Unsolicited Vaccination Record Update) or an ADT message type is sent with an RXA segment (immunization information) or an ADT, a check is done to verify if whether the patient exists in ImmTrac2 or not. If the patient already exists in ImmTrac2, then the demographic update will occur (if all other update business rules apply).

## VXU: SEND IMMUNIZATION HISTORY

Systems may send unsolicited immunization records using a VXU. This may be a record that is new to the receiving system or may be an update to an existing record. The following table lists the segments that are part of a VXU. Some of the optional segments are not anticipated to be used.

MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographics
[[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

Table 48, Send Immunization History (VXU)

Segment	CDC IG Cardinality	ImmTrac2 Cardinality	CDC IG Usage	ImmTrac2 Usage	Comment
MSH	[1..1]	[1..1]	R	R	Every message begins with an MSH.
PID	[1..1]	[1..1]	R	R	Every VXU has one PID segment.
PD1	[0..1]	[0..1]	RE	RE	Every PID segment in VXU may have one or less PD1 segment.
NK1	[0..*]	[0..*]	RE	RE	The PID segment in a VXU may have zero or more NK1 segments.
PV1	[0..1]	[0..1]	RE	X	The PID segment in a VXU may have zero or one PV1 segment. Subsequent messages regarding the same client may have a different PV1 segment.
PV2	[0..1]		O	X	
GT1	[0..1]		O	X	
IN1	[0..1]		O	X	
IN2	[0..1]		O	X	
IN3	[0..1]		O	X	
Begin Order Group					Each VXU may have zero or more Order groups.

Segment	CDC IG Cardinality	ImmTrac2 Cardinality	CDC IG Usage	ImmTrac2 Usage	Comment
ORC	[1..*]	[1..*]	RE	RE	The PID segment in a VXU may have one or more ORC segments.
TQ1	[0..1]		O	X	
TQ2	[0..1]		O	X	
RXA	[1..1]	[1..1]	R	R	Each ORC segment in a VXU must have one RXA segment. Every RXA requires an ORC segment.
RXR	[0..1]	[0..1]	RE	O	Every RXA segment in a VXU may have zero or one RXR segment.
OBX	[0..*]	[0..*]	RE	O	Every RXA segment in a VXU may have zero or more OBX segments.
End Order group					

## QBP/RSP: QUERY AND RESPONSE PROFILE

A provider organization will query a registry to get information on a certain client and will receive a response with one of three response profiles specified in MSH-21 or ACK to that query.

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 three Response Profiles that are specified in MSH-21:

1. Z31^CDCPHINVS – Return List of Candidates
2. Z32^CDCPHINVS – Exact Candidate Match
3. Z34^CDCPHINVS – No Candidate Match

### Z31^CDCPHINVS RESPONSE TO VACCINATION QUERY (MULTIPLE MATCHES)

When a health care provider participating in an immunization registry needs to obtain a complete patient vaccination record, a query (QBP message) is sent to the immunization registry for the definitive (last updated) immunization record. When a query results in multiple patient matches, the Z31 response profile is generated, which contains multiple clients and their demographic information but does not contain their vaccination information. ImmTrac2 will return a maximum of ten (10) matching clients.

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgement Segment (One per message)
QAK	Query Acknowledgement 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)
}

```

---

### **Z32^CDCPHINVS RESPONSE TO VACCINATION QUERY (EXACT MATCH)**

When a patient has been uniquely identified (there is only one client “match” to the query), the response to the query is a Z32^CDCPHINVS profile that is generated and sent back to the querying organization.

```

MSH          Message Header Segment (One per message)
MSA          Message Acknowledgement Segment (One per message)
QAK          Query Acknowledgement 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
}
[RXA]        Flags beginning of Vaccine Recommendations
[OBX]        Observation/Result Vaccines Due Next

```

---

### **Z34^CDCPHINVS QUERY GENERAL ACKNOWLEDGEMENT (NO MATCH FOUND)**

A Z34 response profile is generated when ImmTrac2 has processed the query message, but no match was found to the query parameters in the database. In addition, a Z34 response profile will be generated if the query is invalid.

```

MSH          Message Header Segment (One per message)
MSA          Message Acknowledgement Segment (One per message)
[ERR]        Error (If errors exist, then this segment is populated)
[QAK]        Query Acknowledgement Segment
QPD          Query Parameter Definition Segment

```

## QPD: QUERY PARAMETER DEFINITION

The QPD segment defines the parameters of the query.

Table 49, Query Parameter Definition (QPD)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
QPD-1	CE	Message Query Name	R	R
QPD-2	ST	Query Tag	R	R
- Begin QPD Input Parameter Specifications Refer to the referenced fields in the PID Segment for additional information				
QPD-3	CX	Patient Identifier List	RE	RE PID-3: Patient Identifier List
QPD-4	XPN	Patient Name	RE	R PID-5: Patient Name
QPD-5	XPN	Mother's Maiden Name	RE	RE PID-6: Mother's Maiden Name
QPD-6	TS	Patient Date of Birth	RE	RE PID-7: Patient Date of Birth
QPD-7	IS	Patient Sex	RE	RE PID-8: Patient Sex
QPD-8	XAD	Patient Address	RE	RE PID-11: Patient Address
QPD-9	XTN	Patient Home Phone	RE	RE PID-13: Patient Home Phone
QPD-10	ID	Patient Multiple Birth Indicator	RE	RE PID-24: Patient Multiple Birth Indicator
QPD-11	NM	Patient Birth Order	RE	RE PID-25: Patient Birth Order
QPD-12	TS	Client Last Updated Date	RE	RE
QPD-13	HD	Client Last Update Facility	RE	RE
- End QPD Input Parameter Specifications				

### QPD-1: MESSAGE QUERY NAME

This field contains the name of the query. The Immunization Registry System requires all incoming QBP messages to specify the value '**Z34^Request Immunization History^HL70471**' in this field.

### QPD-2: QUERY TAG

This field must be valued by the initiating system to identify the query, and may be used to match response messages to the originating query. The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

This field differs from MSA-2-Message control ID in that its value remains constant for each message (i.e. all continuation messages) associated with the query, whereas MSA-2-Message control ID may vary with each continuation message, since it is associated with each individual message, not the query as a whole.

---

### **QPD-3: USER PARAMETERS**

Components 1 (ID Number), 4 (Assigning Authority) and 5 (Identifier Type Code) are required in the QPD-3 field. When a provider organization is sending to ImmTrac2, use the sending system's Chart Number, Medical Record Number or other identifier if available.

---

### **QPD-4: PATIENT NAME**

Last name and first name are required in the first two components.

---

### **QPD-5: MOTHER'S MAIDEN NAME**

In this context, where the mother's maiden name is used for client identification, ImmTrac2 uses only last name and first name. If not valued, Mother's Maiden Name is not considered when seeking matching clients.

---

### **QPD-6: PATIENT DATE OF BIRTH**

Contains the client's date of birth (YYYYMMDD). ImmTrac2 ignores any time component.

---

### **QPD-7: PATIENT SEX**

This field contains the client's sex. Use 'F', 'M', or 'U'.

---

### **QPD-8: PATIENT ADDRESS**

This field contains the address of the client. See XAD data type.

---

### **QPD-9: PATIENT HOME PHONE NUMBER**

This field contains the patient's personal phone numbers. ImmTrac2 ignores this field since it is not used for patient matching.

---

### **QPD-10: PATIENT MULTIPLE BIRTH INDICATOR**

Use 'Y' to indicate that the patient was born in a multiple birth.

---

### **QPD-11: PATIENT BIRTH ORDER**

Relevant when the 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.

## RCP: RESPONSE CONTROL PARAMETER SEGMENT

The Response Control Parameter (RCP) segment is required and used to restrict the amount of data that should be returned in response to query. It lists the segments to be returned.

Table 50, Response Control Parameter Segment (RCP)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
RCP-1	ID	Query Priority	RE	RE
RCP-2	CQ	Quantity Limited Request	RE	RE
RCP-3	CE	Response Modality	O	O
RCP-4	TS	Execution and Delivery Time	O	O
RCP-5	ID	Modify Indicator	O	O
RCP-6	SRT	Sort-by Field	O	O
RCP-7	ID	Segment Group Inclusion	O	O

### RCP-1: QUERY PRIORITY

This field contains the time frame that the response is expected. Refer to Appendix A, [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.

#### IZ-27 CONFORMANCE STATEMENT

Constrain RCP-1 to empty or 'I'. Immediate priority is expected.

### RCP-2: QUANTITY LIMITED REQUEST

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 in the units specified in the second component. Default is LI (lines). The expected type is records, so the second component is constrained to 'RD'.

Note that 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: QUERY ACKNOWLEDGEMENT SEGMENT

The Required Query Acknowledgment (QAK) segment contains information sent in an RSP message.

Table 51, Query Acknowledgement Segment (QAK)

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
QAK-1	ST	Query Tag	R	R
QAK-2	ID	Query Response Status	RE	RE
QAK-3	CE	Message Query Name	R	R
QAK-4	NM	Hit Count	O	O

SEQ	Data Type	Element Name	CDC Usage	ImmTrac2 Usage
QAK-5	NM	This payload	O	O
QAK-6	NM	Hits remaining	O	O

### QAK-1: QUERY TAG

This field contains the value sent in QPD-2 (Query Tag) by the initiating system and will be used to match response messages to the originating query. The responding system is required to echo it back as the first field in the Query Acknowledgement Segment (QAK).

### QAK-2: QUERY RESPONSE STATUS

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 Appendix A, [Table 0208 - Query Response Status](#).

### QAK-3: MESSAGE QUERY NAME

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

## ACK: ACKNOWLEDGEMENT MESSAGE

The Acknowledgement Message (ACK) are generated for message rejections and for informational error messages. Three conditions that result in message rejection are:

1. Sequencing (i.e., a PID segment must follow an MSH segment).
2. Required segments or required fields contain no data.
3. Required segments or required fields contain invalid data.

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 returned informing the sender of the problem. The error message in the text does NOT include "Message Rejected". An ACK message contains the MSH, MSA and ERR segments.

Table 52, Acknowledgement Message (ACK)

Segment	CDC IG Cardinality	ImmTrac2 Cardinality	CDC IG Usage	ImmTrac2 Usage	Comment
MSH	(1..1)	(1..1)	R	R	Every message begins with an MSH.
[[SFT]]	(0..1)		O	X	

Segment	CDC IG Cardinality	ImmTrac2 Cardinality	CDC IG Usage	ImmTrac2 Usage	Comment
MSA	(1..1)	(1..1)	R	R	
[{ERR}]	(0..*)	(0..*)	RE	RE	Include if there are errors.

**Note:** For the general acknowledgement (ACK) message, the value of MSH-9.2-Trigger event is equal to the value of MSH-9.2-Trigger event in the message being acknowledged. The value of MSH-9.3-Message structure for the general acknowledgment message is always ACK.

## APPENDIX A – CODE TABLES

The following tables define the valid values for the segments described above. In some cases, only selected values are listed in the HL7-type tables; please refer to the HL7 Standard for complete listings. Those tables designated as type User have values determined by ImmTrac2.

Table 53, Code Tables Appendix

Type	Table	Name	Value	Description
<b>User</b>	<b>0001</b>	<b>Sex</b>		<b>(use in PID-8, NK1-15)</b>
	0001		F	Female
	0001		M	Male
	0001		U	Unknown/Undifferentiated
<b>HL7</b>	<b>0003</b>	<b>Event Type</b>		<b>(use in MSH-9, second component)</b>
	0003		A08	ADT/ACK – Update Patient Information
	0003		K11	RSP – Response to Vaccination Query
	0003		Q11	QBP – Query for Vaccination Record
	0003		V04	VXU – Unsolicited Vaccination Record Update
<b>User</b>	<b>0004</b>	<b>Patient Class</b>		<b>(use in PV1-2)</b>
	0004		R	Recurring
<b>User</b>	<b>0005</b>	<b>Race</b>		<b>(use in PID-10)</b>
	0005		1002-5	American Indian or Alaska Native
	0005		2028-9	Asian
	0005		2054-5	Black or African American
	0005		2076-8	Native Hawaiian or Other Pacific Islander
	0005		2106-3	White
	0005		2131-1	Other Race
<b>HL7</b>	<b>0008</b>	<b>Acknowledgement Code</b>		<b>(use in MSA-1)</b>
	0008		AA	Application Accept
	0008		AE	Application Error

Type	Table	Name	Value	Description
	0008		AR	Application Reject
<b>User</b>	<b>0063</b>	<b>Relationship</b>		<b>(use in NK1-3)</b>
	0063		ASC	Associate
	0063		BRO	Brother
	0063		CGV	Care Giver
	0063		CHD	Child
	0063		DEP	Handicapped Dependent
	0063		DOM	Life Partner
	0063		EMC	Emergency Contact
	0063		EME	Employee
	0063		EMR	Employer
	0063		EXE	Extended Family
	0063		FCH	Foster Child
	0063		FND	Friend
	0063		FTH	Father
	0063		GCH	Grandchild
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MGR	Manager
	0063		MTH	Mother
	0063		NCH	Natural Child
	0063		NON	None
	0063		OAD	Other Adult
	0063		OTH	Other
	0063		OWN	Owner
	0063		PAR	Parent
	0063		SCH	Stepchild
	0063		SEL	Self
	0063		SIB	Sibling
	0063		SIS	Sister
	0063		SPO	Spouse
	0063		TRA	Trainer

Type	Table	Name	Value	Description
	0063		UNK	Unknown
	0063		WRD	Ward of Court
<b>User</b>	<b>0064</b>	<b>Financial Class</b>		<b>(use in OBX-5)</b> <b>*eligibility status listed by precedence</b>
			<b>Code</b>	<b>Eligibility Status</b>
	0064		V01	Private Pay/Insurance
	0064		V02	Medicaid
	0064		V03	No Insurance
	0064		V04	American Indian/Alaskan Native
	0064		V05	Underinsured, FQHC/RHC/Deputized
	0064		TXA01	CHIP
	0064		TXA02	Underinsured, Not FQHC/RHC/Deputized
	0064		TXA04	Adult, No Insurance
	0064		TXA05	Adult, Underinsured
	0064		TXA06	Adult, Private Pay/Insurance
<b>HL7</b>	<b>0076</b>	<b>Message Type</b>		<b>(use in MSH-9, first component)</b>
	0076		ADT	ADT Message
	0076		ACK	General Acknowledgement Message
	0076		QBP	Query by Parameter
	0076		RSP	Segment Pattern Response
	0076		VXU	Unsolicited Vaccination Record Update
<b>HL7</b>	<b>0085</b>	<b>Observation Result Status Codes</b>		<b>(use in OBX-11)</b>
	0085		F	Final Results
<b>HL7</b>	<b>0091</b>	<b>Query Priority</b>		<b>(use in QRD-3)</b>
	0091		I	Immediate
<b>HL7</b>	<b>0103</b>	<b>Processing ID</b>		<b>(use in MSA-11, first component)</b>
	0103		P	Production

Type	Table	Name	Value	Description
HL7	0104	Version ID		(use in MSH-12)
	0104		2.5.1	Release 2.5.1 2007
HL7	0126	Quantity Limited Request		(use in QRD-7)
	0126		RD	Records
HL7	0136	Yes/No Indicator		(use in PID-24)
	0136		N	No
	0136		Y	Yes
HL7	0155	Accept/Application Acknowledgment Conditions		(use in MSH-15)
	0155		AL	Always
	0155		ER	Error/Reject Conditions Only
	0155		NE	Never
	0155		SU	Successful Completion Only
HL7	0162	Route of Administration		(use in RXR-1)

**NOTE:** HITSP has specified the use of the FDA route of administration. The following table maps these to the HL7 Table 0162 values.

FDA	0162	Description	Definition
C38238	ID	Intradermal	Within or introduced between the layers of skin
C28161	IM	Intramuscular	Within or into the substance of a muscle
C38276	IV	Intravenous	Administered into a vein
C38284	NS	Nasal	Given by nose
C38288	PO	Oral	Administered by mouth
C38676	MP	Percutaneous	Made, done, or effected through the skin
C38299	SC	Subcutaneous	Under the skin or between skin and muscles
C38305	TD	Transdermal	Describes something, especially a drug, that is introduced into the body through the skin

Type	Table	Name	Value	Description
<b>HL7</b>	<b>0163</b>	<b>Administrative Site</b>		<b>(use in RXR-2)</b>
	0163		LA	Left Arm
	0163		LD	Left Deltoid
	0163		LG	Left Gluteus Medius
	0163		LLFA	Left Lower Forearm
	0163		LN	Left Nares
	0163		LT	Left Thigh
	0163		LVL	Left Vastus Lateralis
	0163		MO	Mouth
	0163		RA	Right Arm
	0163		RD	Right Deltoid
	0163		RG	Right Gluteus Medius
	0163		RLFA	Right Lower Forearm
	0163		RN	Right Nares
	0163		RT	Right Thigh
	0163		RVL	Right Vastus Lateralis
<b>User</b>	<b>0189</b>	<b>Ethnic Group</b>		<b>(use in PID-22)</b>
	0189	CDCREC	2135-2	Hispanic or Latino
	0189	CDCREC	2186-5	Not Hispanic or Latino
<b>HL7</b>	<b>0190</b>	<b>Address Type</b>		<b>(use in PID-11; NK1-4)</b>
	0190		H	Home
	0190		O	Office
<b>HL7</b>	<b>0200</b>	<b>Name Type</b>		<b>(use in PID-5, 6; NK1-2)</b>
	0200		L	Legal Name
	0200		M	Maiden Name
<b>HL7</b>	<b>0201</b>	<b>Telecommunication Use Code</b>		<b>(use in PID-13.2; NK1-5.2)</b>
	0201		NET	Network (email) Address

Type	Table	Name	Value	Description
	0201		PRN	Primary Residence Number
<b>HL7</b>	<b>0202</b>	<b>Telecommunication Equipment Type</b>		<b>(use in PID-13.3; NK1-5.3)</b>
	0202		CP	Cellular Phone
	0202		Internet	Internet Address: Use only if Telecommunication Code is 'NET'
	0202		PH	Telephone
	0202		X.400	X.400 Email Address: Use only if Telecommunication Use Code is 'NET'
<b>User</b>	<b>0203</b>	<b>Identifier Type</b>		<b>(use in PID-3)</b>
	0203		BR	Birth Registry Number
	0203		MA	Patient Medicaid Number
	0203		MC	Patient Medicare Number
	0203		MR	Medical Record Number
	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
<b>User</b>	<b>0208</b>	<b>Query Response Status</b>		<b>(find in QAK-2)</b>
	0208		AE	Application Error
	0208		AR	Application Reject
	0208		OK	Data Found, No Errors
	0208		NF	No Data Found, No Errors
<b>User</b>	<b>0215</b>	<b>Publicity Code</b>		<b>(use in PD1-11)</b>
	0215		01	No Reminder/Recall
	0215		02	Yes Reminder/Recall – any method
<b>HL7</b>	<b>0227</b>	<b>Manufacturers of Vaccines (MVX)</b>		<b>(use in RXA-17)</b>
	0227		AB	Abbott Laboratories

Type	Table	Name	Value	Description
	0227		ACA	Acambis, Inc <i>(Inactive – use PMC)</i>
	0227		AD	Adams Laboratories, Inc
	0227		AKR	Akorn, Inc
	0227		ALP	Alpha Therapeutic Corporation
	0227		AR	Armour <i>(Inactive – use CSL)</i>
	0227		AVB	Aventis Behring L.L.C. <i>(Inactive – use CSL)</i>
	0227		AVI	Aviron <i>(Inactive – use MED)</i>
	0227		BA	Baxter Healthcare Corporation (Inactive – use BAH)
	0227		BAH	Baxter Healthcare Corporation
	0227		BAY	Bayer Corporation (Inactive – use TAL)
	0227		BP	Berna Products (Inactive – use BPC)
	0227		BPC	Berna Products Corporation
	0227		BRR	Barr Laboratories
	0227		BTP	Biotest Pharmaceuticals Corporation
	0227		CEN	Centeon L.L.C. (Inactive – use CSL)
	0227		CHI	Chiron Corporation (Inactive – use NOV)
	0227		CMP	Celltech Medeva Pharmaceuticals (Inactive – use NOV)
	0227		CNJ	Cangene Corporation (Inactive – use MIP)
	0227		CON	Connaught (Inactive – use PMC)
	0227		CRU	Crucell
	0227		CSL	bioCSL
	0227		DVC	DynPort Vaccine Company, LLC
	0227		EVN	Evans Medical Limited (Inactive – use NOV)
	0227		GEO	GeoVax Labs, Inc

Type	Table	Name	Value	Description
	0227		GRE	Greer Laboratories, Inc
	0227		GRF	Grifols
	0227		IAG	Immuno International AG (Inactive – use BAH)
	0227		IDB	ID Biomedical
	0227		IM	Merieux (Inactive – use PMC)
	0227		INT	Intercell Biomedical
	0227		IUS	Immuno-U.S., Inc
	0227		JNJ	Johnson and Johnson
	0227		JPN	The Research Foundation for Microbial Diseases of Osaka University (BIKEN)
	0227		KED	Kedrion Biopharma
	0227		KGC	Korea Green Cross Corporation
	0227		LED	Lederle (Inactive – use WAL)
	0227		MA	Massachusetts Public Health Biologic Laboratories (Inactive – use MBL)
	0227		MBL	Massachusetts Biologic Laboratories
	0227		MCM	MCM Vaccine Company
	0227		MED	MedImmune, Inc
	0227		MIL	Miles (Inactive – use TAL)
	0227		MIP	Emergent BioDefense Operations Lansing
	0227		MSD	Merck and Co, Inc
	0227		NAB	NABI
	0227		NAV	North American Vaccine, Inc (Inactive – use BAH)
	0227		NOV	Novartis Pharmaceutical Corporation
	0227		NVX	Novavax, Inc
	0227		NYB	New York Blood Center
	0227		ORT	Ortho-clinical Diagnostics
	0227		OTC	Organon Teknika Corporation
	0227		OTH	Other Manufacturer

Type	Table	Name	Value	Description
	0227		PAX	PaxVax
	0227		PD	Parkedale Pharmaceuticals (formerly Parke Davis)
	0227		PFR	Pfizer, Inc
	0227		PMC	Sanofi Pasteur (Connaught and Pasteur Merieux)
	0227		PRX	Praxis Biologics (Inactive – use WAL)
	0227		PSC	Protein Sciences
	0227		PWJ	PowderJect Pharmaceuticals (Inactive – use NOV)
	0227		SCL	Sclavo, Inc
	0227		SI	Swiss Serum and Vaccine Inst (Inactive – use BPC)
	0227		SKB	GlaxoSmithKline
	0227		SOL	Solvay Pharmaceuticals <b>(Inactive – use AB)</b>
	0227		TAL	Talecris Biotherapeutics (includes Bayer Biologicals)
	0227		UNK	Unknown Manufacturer
	0227		USA	United States Army Medical Research and Material Command
	0227		VXG	VaxGen <b>(Inactive – use MIP)</b>
	0227		WA	Wyeth-Ayerst (Inactive – use WAL)
	0227		WAL	Wyeth
	0227		ZLB	ZLB Behring (includes Aventis Behring and Armour Pharmaceutical Co) <b>(Inactive – use CSL)</b>
<b>User</b>	<b>0289</b>	<b>County/Parish (Texas Only)</b>		<b>(use in PID-11;NK1-4)</b>
<b>Code</b>	<b>County</b>		<b>Code</b>	<b>County</b>
TX001	Anderson		TX255	Karnes
TX003	Andrews		TX257	Kaufman
TX005	Angelina		TX259	Kendall
TX007	Aransas		TX261	Kenedy

Type	Table	Name	Value	Description
TX009	Archer		TX263	Kent
TX011	Armstrong		TX265	Kerr
TX013	Atascosa		TX267	Kimble
TX015	Austin		TX269	King
TX017	Bailey		TX271	Kinney
TX019	Bandera		TX273	Kleberg
TX021	Bastrop		TX275	Knox
TX023	Baylor		TX277	Lamar
TX025	Bee		TX279	Lamb
TX027	Bell		TX281	Lampasas
TX029	Bexar		TX283	La Salle
TX031	Blanco		TX285	Lavaca
TX033	Borden		TX287	Lee
TX035	Bosque		TX289	Leon
TX037	Bowie		TX291	Liberty
TX039	Brazoria		TX293	Limestone
TX041	Brazos		TX295	Lipscomb
TX043	Brewster		TX297	Live Oak
TX045	Briscoe		TX299	Llano
TX047	Brooks		TX301	Loving
TX049	Brown		TX303	Lubbock
TX051	Burleson		TX305	Lynn
TX053	Burnet		TX307	McCulloch
TX055	Caldwell		TX309	McLennan
TX057	Calhoun		TX311	McMullen
TX059	Callahan		TX313	Madison
TX061	Cameron		TX315	Marion
TX063	Camp		TX317	Martin
TX065	Carson		TX319	Mason
TX067	Cass		TX321	Matagorda
TX069	Castro		TX323	Maverick
TX071	Chambers		TX325	Medina
TX073	Cherokee		TX327	Menard

Type	Table	Name	Value	Description
TX075	Childress		TX329	Midland
TX077	Clay		TX331	Milam
TX079	Cochran		TX333	Mills
TX081	Coke		TX335	Mitchell
TX083	Coleman		TX337	Montague
TX085	Collin		TX339	Montgomery
TX087	Collingsworth		TX341	Moore
TX089	Colorado		TX343	Morris
TX091	Comal		TX345	Motley
TX093	Comanche		TX347	Nacogdoches
TX095	Concho		TX349	Navarro
TX097	Cooke		TX351	Newton
TX099	Coryell		TX353	Nolan
TX101	Cottle		TX355	Nueces
TX103	Crane		TX357	Ochiltree
TX105	Crockett		TX359	Oldham
TX107	Crosby		TX361	Orange
TX109	Culberson		TX363	Palo Pinto
TX111	Dallam		TX365	Panola
TX113	Dallas		TX367	Parker
TX115	Dawson		TX369	Parmer
TX117	Deaf Smith		TX371	Pecos
TX119	Delta		TX373	Polk
TX121	Denton		TX375	Potter
TX123	DeWitt		TX377	Presidio
TX125	Dickens		TX379	Rains
TX127	Dimmit		TX381	Randall
TX129	Donley		TX383	Reagan
TX131	Duval		TX385	Real
TX133	Eastland		TX387	Red River
TX135	Ector		TX389	Reeves
TX137	Edwards		TX391	Refugio
TX139	Ellis		TX393	Roberts

Type	Table	Name	Value	Description
TX141	El Paso		TX395	Robertson
TX143	Erath		TX397	Rockwall
TX145	Falls		TX399	Runnels
TX147	Fannin		TX401	Rusk
TX149	Fayette		TX403	Sabine
TX151	Fisher		TX405	San Augustine
TX153	Floyd		TX407	San Jacinto
TX155	Foard		TX409	San Patricio
TX157	Fort Bend		TX411	San Saba
TX159	Franklin		TX413	Schleicher
TX161	Freestone		TX415	Scurry
TX163	Frio		TX417	Shackelford
TX165	Gains		TX419	Shelby
TX167	Galveston		TX421	Sherman
TX169	Garza		TX423	Smith
TX171	Gillespie		TX425	Somervell
TX173	Glasscock		TX427	Starr
TX175	Goliad		TX429	Stephens
TX177	Gonzales		TX431	Sterling
TX179	Gray		TX433	Stonewall
TX181	Grayson		TX435	Sutton
TX183	Gregg		TX437	Swisher
TX185	Grimes		TX439	Tarrant
TX187	Guadalupe		TX441	Taylor
TX189	Hale		TX443	Terrell
TX191	Hall		TX445	Terry
TX193	Hamilton		TX447	Throckmorton
TX195	Hansford		TX449	Titus
TX197	Hardeman		TX451	Tom Green
TX199	Hardin		TX453	Travis
TX201	Harris		TX455	Trinity
TX203	Harrison		TX457	Tyler
TX205	Hartley		TX459	Upshur

Type	Table	Name	Value	Description
TX207	Haskell		TX461	Upton
TX209	Hays		TX463	Uvalde
TX211	Hemphill		TX465	Val Verde
TX213	Henderson		TX467	Van Zandt
TX215	Hidalgo		TX469	Victoria
TX217	Hill		TX471	Walker
TX219	Hockley		TX473	Waller
TX221	Hood		TX475	Ward
TX223	Hopkins		TX477	Washington
TX225	Houston		TX479	Webb
TX227	Howard		TX481	Wharton
TX229	Hudspeth		TX483	Wheeler
TX231	Hunt		TX485	Wichita
TX233	Hutchinson		TX487	Wilbarger
TX235	Irion		TX489	Willacy
TX237	Jack		TX491	Williamson
TX239	Jackson		TX493	Wilson
TX241	Jasper		TX495	Winkler
TX243	Jeff Davis		TX497	Wise
TX245	Jefferson		TX499	Wood
TX247	Jim Hogg		TX501	Yoakum
TX249	Jim Wells		TX503	Young
TX251	Johnson		TX505	Zapata
TX253	Jones		TX507	Zavala
<b>User</b>	<b>0296</b>	<b>Language</b>		<b>(Example codes, not restricted to this list)</b>
<p><b>Primary Spoken Language</b>  <a href="#">PHVS Language ISO 639-2 Alpha3</a>  Value Set OID: 2.16.840.1.114222.4.11.831</p>				
	0296		ara	Arabic
	0296		chi	Chinese

Type	Table	Name	Value	Description
	0296		eng	English
	0296		hin	Hindi
	0296		jpn	Japanese
	0296		kor	Korean
	0296		spa	Spanish
	0296		vie	Vietnamese
<b>HL7</b>	<b>0301</b>	<b>Universal ID Type</b>		<b>(use in all HD Data Types)</b>
	0301		DNS	An Internet dotted name – either in ASCII or as integers
	0301		GUID	Same as UUID
	0301		HCD	The CEN Healthcare Coding Scheme Designator (Identifiers used in DICOM follow this assignment scheme)
	0301		HL7	Reserved for future HL7 registration schemes
	0301		ISO	An International Standards Organization Object Identifier
	0301		L,M,N	These are reserved for locally defined coding schemes
	0301		Random	Usually a base64 encoded string of random bits. The uniqueness depends on the length of the bits. Mail systems often generate ASCII string “unique names,” from a combination of random bits and system names. Obviously, such identifiers will not be constrained to the base64 character set.
	0301		UUID	The DCE Universal Unique Identifier
	0301		x400	An X.400 MHS format identifier
	0301		x500	An X.500 directory name
<b>HL7</b>	<b>0322</b>	<b>Completion Status</b>		<b>(use in RXA-20)</b>
	0322		CP	Complete
	0322		NA	Not Administered
	0322		PA	Partially Administered
	0322		RE	Refused

Type	Table	Name	Value	Description
<b>HL7</b>	<b>0323</b>	<b>Action Code</b>		<b>(use in RXA-21)</b>
	0323		A	Add
	0323		D	Delete
	0323		U	Update
<b>HL7</b>	<b>0354</b>	<b>Message Structure</b>		<b>(use in MSH-9)</b>
	0354		ACK	ACK
	0354		VXU_V04	VXU
	0354		QBP_Q11	QBP
	0354		RSP_K11	RSP
<b>HL7</b>	<b>0357</b>	<b>Message Error Status Code</b>		<b>(find in ERR-3)</b>
	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 Identifier
	0357		205	Duplicate Key Identifier
	0357		206	Application Record Locked
	0357		207	Application Internal Error
<b>User</b>	<b>0396</b>	<b>Coding System</b>		
	0396		CDCPHINVS	PHIN VS (CDC Local Coding System)
	0396		CPT	AMA Current Procedural Terminology
	0396		CVX	CDC Vaccine Codes
	0396		HL7nnnn	HL7 Defined Codes (where nnnn is the HL7 Table Number)
	0396		ISOnnnn	ISO Defined Codes (where nnnn is the ISO Table Number)

Type	Table	Name	Value	Description
	0396		LN	Logical Observation Identifier Names and Codes (LOINC®)
	0396		MVX	CDC Vaccine Manufacturer Codes
	0396		NCIT	NCI Thesaurus
	0396		NDC	National Drug Codes
	0396		NPI	National Provider Identifier
	0396		SCT	SNOMED Clinical Terminology
	0396		WVGC	Vaccine Group Code
	0396		WVTN	Vaccine Trade Name
<b>HL7</b>	<b>0399</b>	<b>Country Code</b>		<b>(Use ISO 3166-1 alpha-3 codes)</b>
	0399		USA	United States
	0399		MEX	Mexico
<b>User</b>	<b>0441</b>	<b>Immunization Registry Status</b>		<b>(use in PD1-16)</b>
	0441		A	Active
	0441		I	Inactive-Other/Unspecified
	0441		L	Inactive-Lost to Follow-up
	0441		M	Inactive-Moved or Gone Elsewhere
	0441		P	Inactive-Permanently (deceased)
	0441		U	Inactive-Unknown
<b>HL7</b>	<b>0516</b>	<b>Error Severity</b>		<b>(use in ERR-4)</b>
	0516		E	Error
	0516		I	Information
	0516		W	Warning
<b>User</b>	<b>0533</b>	<b>Application Error Code</b>		
	0533		1	Illogical Date Error
	0533		2	Invalid Date
	0533		3	Illogical Value Error
	0533		4	Invalid Value
	0533		5	Table Value Not Found

Type	Table	Name	Value	Description
	0533		6	Required Observation Missing
<b>NIP</b>	<b>NIP001</b>	<b>Immunization Information Source</b>		<b>(use in RXA-9)</b>
	NIP001		00	New Immunization Administered (by Sending Organization)
	NIP001		01	Historical Source – Unspecified
	NIP001		02	Historical – From Other Provider
	NIP001		03	Historical – From Parent’s Written Record
	NIP001		04	Historical – From Parent’s Recall
	NIP001		05	Historical – From Other Registry
	NIP001		06	Historical – From Birth Certificate
	NIP001		07	Historical – From School Record
	NIP001		08	Historical – From Public Agency
<b>NIP</b>	<b>NIP002</b>	<b>Substance Refusal Reason</b>		<b>(use in RXA-18)</b>
	NIP002		00	Parental Decision
	NIP002		01	Religious Exemption
	NIP002		02	Other (must add text component of the CE field with description)
	NIP002		03	Patient Decision
<b>LN</b>	<b>NIP003</b>	<b>Observation Identifiers</b>		<b>(use in OBX-3)</b>
<b>Vaccine Funding Program Eligibility and Vaccine Funding Source</b>				
LOINC Code	Description	Data Type (in OBX-2)	Observation value or Code Table (in OBX-5)	
64994-7	Vaccine funding program eligibility category	CE	<a href="#">HL70064</a>	
30963-3	Vaccine funding source	CE	CDCPHINVS (See <a href="#">Vaccine Funding Source Table</a> )	

Type	Table	Name	Value	Description
<b>Vaccine Type Identifier</b>				
LOINC Code	Description	Data Type (in OBX-2)	Observation value or Code Table (in OBX-5)	
30956-7	Vaccine Type (Vaccine group or family)	CE	CVX (CVX codes – use the codes described as “unspecified formulation” as needed) NOTE: This code preferred over 38890-0.	
38890-0	Component Vaccine Type	CE	CVX (CVX codes – use the codes described as “unspecified formulation” as needed)	
<b>Contraindications, Precautions, Indications and Immunities</b>				
LOINC Code	Description	Data Type (in OBX-2)	Observation value or Code Table (in OBX-5)	
30945-0	Vaccination contraindication/precaution	CE	CDCPHINVS (See <a href="#">Vaccination Contraindications Table</a> )	
31044-1	Reaction	CE	CDCPHINVS (See <a href="#">Vaccination Reaction Table</a> )	
30949-2	Vaccination adverse event outcome	CE	CDCPHINVS (See <a href="#">Event Consequence</a> )	
59785-6	Indications to immunize	CE	CDCPHINVS (See <a href="#">Vaccination Special Indications Table</a> )	
59784-9	Disease with presumed immunity	CE	CDCPHINVS (See <a href="#">Evidence of Immunity Table</a> )	
<b>Forecasting and Evaluating Immunizations</b>				
<b>30973-2</b>	Dose Number in Series	NM	2	
<b>30979-9</b>	Vaccines Due Next	CE	HL7 0292 (CVX)	
<b>30980-7</b>	Date Vaccine Due	TS	19980526	
<b>30981-5</b>	Earliest Date to Give	TS	19980522	

Type	Table	Name	Value	Description
30982-3	Reason Applied by Forecast Logic to Project this vaccine		CE or ST	Codes for forecast logic reason locally defined
59779-9	Immunization Schedule Used		CE	CDCPHINVS (See Immunization Schedule Identifiers)
59780-7	Immunization Series Name		CE	
59782-3	Number of Doses in Primary Series		NM	2
59778-1	Vaccine Overdue Date		CE	
59783-1	Status in Immunization Series		CE	
<b>HL7</b>	<b>0396</b>	<b>OBX-5 VALUE SETS</b>		
<p><b>Immunization Funding Source</b>  <a href="#"><u>PHVS ImmunizationFundingSource IIS</u></a>  Value Set OID: 2.16.840.1.114222.4.11.3287</p>				
	<b>Coding System</b>	<b>Code</b>	<b>Description</b>	
	CDCPHINVS	PHC70	Private Funds	
	CDCPHINVS	VXC1	Federal Funds	
	CDCPHINVS	VXC2	State Funds	
	CDCPHINVS	PHC68	Military Funds	
	CDCPHINVS	VXC3	Tribal Funds	
	NULLFL	OTH	Other	
	NULFFL	UNK	Unspecified	
<p><b>Funding Eligibility Observation Method</b>  <a href="#"><u>PHVS FundingEligibilityObsMethod IIS</u></a>  Value Set OID: 2.16.840.1.114222.4.11.6039</p>				
	<b>Coding System</b>	<b>Code</b>	<b>Description</b>	
	CDCPHINVS	VXC40	Eligibility captured at the immunization level	
	CDCPHINVS	VXC41	Eligibility captured at the visit level	

Type	Table	Name	Value	Description
<b>Vaccination Contraindications</b> <b><u>PHVS VaccinationContraindication IIS</u></b> Value Set OID: 2.16.840.1.114222.4.11.3288				
	Coding System	Code	Description	
	CDCPHINVS	VXC30	Allergy to proteins of rodent or neural origin (anaphylactic)	
	CDCPHINVS	VXC17	Allergy to 2-phenoxyethanol (anaphylactic)	
	CDCPHINVS	VXC18	Allergy to baker's yeast (anaphylactic)	
	SCT	91930004	Allergy to eggs (anaphylactic)	
	SCT	294847001	Allergy to gelatin (anaphylactic)	
	SCT	294468006	Allergy to neomycin (anaphylactic)	
	SCT	294466005	Allergy to streptomycin (anaphylactic)	
	CDCPHINVS	VXC19	Allergy to thimerosal (anaphylactic)	
	CDCPHINVS	VXC20	Allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)	
	SCT	402306009	Allergy to aluminum (anaphylactic)	
	SCT	300916003	Allergy to latex (anaphylactic)	
	SCT	294530006	Allergy to Polymyxin B (anaphylactic)	
	CDCPHINVS	VXC21	Previous history of intussusception	
	CDCPHINVS	VXC22	Encephalopathy within 7 days of previous dose of DTP	
	CDCPHINVS	VXC23	Current fever with moderate-to-severe illness	
	CDCPHINVS	VXC24	Current acute illness, moderate to severe (with or without fever) (e.g. diarrhea, otitis media, vomiting)	
	SCT	27624003	Chronic illness (e.g. chronic gastrointestinal disease)	
	CDCPHINVS	VXC25	History of Arthus hypersensitivity reaction to a tetanus-containing vaccine administered <10 years previously	

Type	Table	Name	Value	Description
	CDCPHINVS		VXC26	Neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)
	CDCPHINVS		VXC27	Immunodeficiency (hematologic and solid tumors, congenital immunodeficiency, long term immunosuppressive therapy, including steroids) (in recipient)
	SCT		77386006	Pregnancy (in recipient)
	SCT		302215000	Thrombocytopenia
	SCT		161461006	Thrombocytopenia purpura (history)

### Vaccination Reaction - IIS

#### PHVS VaccinationReaction IIS

Value Set OID: 2.16.840.1.114222.4.11.3289

	Coding System	Code	Description
	SCT	39579001	Anaphylaxis (life-threatening) reaction to previous dose of this vaccine
	SCT	81308009	Disorder of brain
	CDCPHINVS	VXC9	Persistent, inconsolable crying lasting >3 hours within 48 hours of previous dose
	CDCPHINVS	VXC10	Collapse or shock like state within 48 hours of previous dose of DTP/DTaP
	CDCPHINVS	VXC11	Convulsions (fits, seizures) within 72 hours of dose
	CDCPHINVS	VXC12	Fever of >40.5 C (105 F) within 48 hours of dose
	CDCPHINVS	VXC13	Guillain-Barre syndrome (GBS) within 6 weeks of dose
	CDCPHINVS	VXC14	Rash within 14 days of dose
	CDCPHINVS	VXC15	Intussusception within 30 days of dose

Type	Table	Name	Value	Description
<b>Evidence of Immunity - IIS</b> <u><a href="#">PHVS EvidenceOfImmunity IIS</a></u> Value Set OID: 2.16.840.1.114222.4.11.3293				
		<b>Coding System</b>	<b>Code</b>	<b>Description</b>
		SCT	409498004	History of anthrax infection
		SCT	397428000	History of diphtheria infection
		SCT	76902006	History of tetanus infection
		SCT	27836007	History of pertussis infection
		SCT	40468003	History of HepA infection
		SCT	66071002	History of HepB infection
		SCT	91428005	History of Hib infection
		SCT	240532009	History of HPV infection
		SCT	14189004	History of measles infection
		SCT	36989005	History of mumps infection
		SCT	36653000	History of rubella infection
		SCT	23511006	History of meningococcal infection
		SCT	16814004	History of pneumococcal infection
		SCT	398102009	History of polio infection
		SCT	14168008	History of rabies infection
		SCT	18624000	History of rotavirus infection
		SCT	4834000	History of typhoid infection
		SCT	111852003	History of Vaccinia infection
		SCT	38907003	History of Varicella infection
		SCT	271511000	Immunity to HepB
<b>Vaccination Special Indications - IIS</b> <u><a href="#">PHVS VaccinationSpecialIndication IIS</a></u> Value Set OID: 2.16.840.1.114222.4.11.3290				
		<b>Coding System</b>	<b>Code</b>	<b>Description</b>

Type	Table	Name	Value	Description
	CDCPHINVS		VXC7	Rabies exposure within previous 10 days
	CDCPHINVS		VXC8	High Risk (member of special group)
<p><b>Immunization Schedule Identifiers</b></p> <p><b><u><a href="#">PHVS ImmunizationScheduleIdentifier IIS</a></u></b></p> <p>Value Set OID: 2.16.840.1.114222.4.11.3292</p>				
	CDCPHINVS		VXC16	ACIP Schedule
<b>NIP</b>	<b>NIP005</b>	<b>Event Consequence</b>		<b>(use in OBX-5)</b>
	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
<b>HL7</b>	<b>0292</b>	<b>Vaccines Administered</b>		<b>(use in RXA-5)</b>
	CVX			<a href="#">CVX - Vaccines Administered</a>
	CPT			Current Procedural Code
	WVGC			Vaccine Group Code
	WVTN			Vaccine Trade Name
	NDC			National Drug Code