

Utah Statewide Immunization Information System (USIIS)
Implementation Guide for HL7 2.5.1 Immunization Messaging

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1. Introduction

In order for different health information systems to exchange data, the structure and content of the data to be exchanged must be standardized. Three controlling documents define the standards USIIS applies to implementing HL7 data exchange. They are arranged in a hierarchy of documents, each refining and constraining the HL7 Standard.

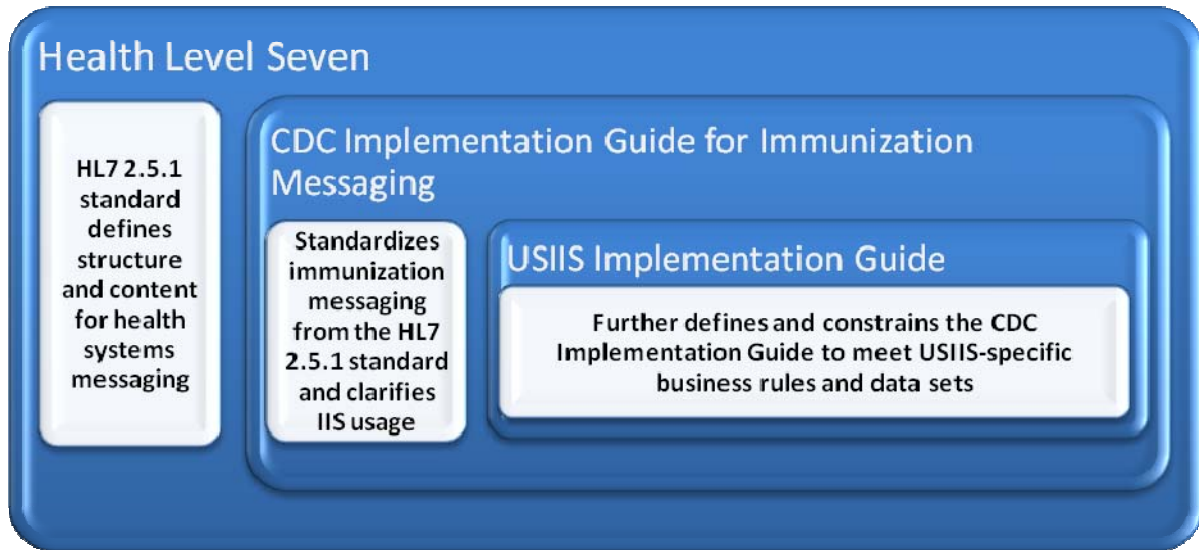


Figure 1: HL7 Guideline Document Hierarchy

The first document is the HL7 2.5.1 standard developed by Health Level Seven, a not-for-profit ANSI-accredited standards developing organization. This standard defines the structure and content of immunization messages, but leaves many specific implementation details undecided. Information on HL7 and a copy of the HL7 message standard can be obtained from the Health Level Seven website at <http://www.hl7.org>.

The second document is the CDC's **Implementation Guide for Immunization Data Transactions using Version 2.5.1 of the Health Level Seven (HL7) Standard Protocol, version 1.4, 11/9/2012**. This guide gives specific instructions regarding how to report to immunization information systems. It leaves some implementation decisions to each state immunization information system. This guide and other technical information can be obtained from the CDC IIS website at <http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html>

The third document is this document. It describes State of Utah implementation decisions and defines what USIIS will and will not accept. It is written in accordance with the standards set in the first two documents. This Utah state implementation guide points out differences from the CDC Implementation Guide. In cases where this guide differs from the CDC Implementation Guide, this guide will provide both the CDC and Utah usage specification.

Intended Audience

This Utah Implementation Guide is intended for use by technical and implementation teams from Electronic Health Record (EHR) system vendors and other state IIS to implement an HL7 2.5.1 immunization interface with USIIS. The reader of this guide should have a HL7 foundation and be familiar with the contents of the CDC Implementation Guide.

Scope

This Utah Implementation Guide is intended to guide the implementation of an HL7 2.5.1 immunization interface between external Health Systems and USIIS. This includes:

- Sending immunization information for individuals to USIIS, to include demographic and immunization information
- Requesting immunization histories for individuals from USIIS
- USIIS responses to requests for immunization histories for individuals
- USIIS acknowledgments of receipt of immunization information
- USIIS error responses
- Note: USIIS does not yet support sending immunization forecasts.

Organization and Flow

This guide is designed to be consistent with the organization and flow of the CDC Implementation Guide. This chapter defines high-level use cases supported by USIIS. Subsequent chapters define how USIIS implements those use cases. Finally, this guide has an appendix example messages.

This guide is intended to be used in conjunction with the CDC Implementation Guide.

2. Messages Supported by USIIS

This section describes the messages supported by USIIS in terms of use cases.

Use Case	Message Type	Purpose
Send Immunization Information to USIIS	VXU	For an external system to send immunization information to USIIS. Information may be a new record or an update to an existing record. It includes patient demographic information. In addition to EHR systems and other state IIS, external systems such as vital records could use this message to send immunization information to USIIS. USIIS will receive this information.
Request an Immunization History from USIIS	QBP	For an external system to request an immunization history from USIIS.

USIIS Returns Immunization History	RSP	USIIS returns one of five outcomes: <ol style="list-style-type: none"> 1. No match found 2. One match found, and immunization history is returned. 3. More than one match found, and the number is less than or equal to the maximum number allowed; immunization history is not returned. 4. More than one match found, but the number is more than the maximum number allowed; immunization history is not returned 5. Error- Message is not well formed and has fatal errors.
USIIS Returns Acknowledgment of Receipt of a Message	ACK QCK	For USIIS to acknowledge receipt of a message from an external system. This can be to acknowledge receipt of immunization information or a request for an immunization history. The acknowledgement may indicate an accurate receipt or an error.

3. HL7 Messaging Structure

Chapter 3 of the CDC Implementation Guide contains basic descriptions of terms and definitions that are common to both the CDC and Utah guides. The majority of the terms and definitions will not be redefined in this guide.

A key attribute of HL7 fields, components, and sub-components is the Usage Code. The table below includes the acceptable Usage Codes used in this implementation guide.

Usage Code	Description	Information
R	Required	The sending application SHALL populate “R” elements with a non-empty value. The receiving application shall process or ignore the information conveyed by required elements. The receiving application may raise an error due to the absence of a required element.
RE	Required but may be empty	The sending application shall populate “RE” elements with a non-empty value if there is relevant data.

Usage Code	Description	Information
C	Conditional	<p>This usage has an associated condition (predicate).</p> <p>If the condition is satisfied (predicate true): The sending application shall follow the USIIS usage for the element, which shall be R, RE, O or X.</p> <p>If the condition is not satisfied (predicate false): The sending application shall follow the USIIS usage for the element, which shall be R, RE, O or X.</p>
O	Optional	These elements are entirely optional to provide by the sending system and also optional to consume by the IIS.
X	Not Supported	<p>The element is not supported by USIIS.</p> <p>The sending application shall not populate "X" elements unless the guide indicates that the information may be sent and is ignored by USIIS.</p>

4. HL7 Data Types

The CDC Implementation Guide contains clearly defined HL7 data types that are the building blocks of an HL7 message. Similar to the terms and definitions found in the HL7 Messaging Infrastructure section above, this guide will define unclear sections or further define Utah constraints.

USIIS adheres to the HL7 data types described in Chapter 4 of the CDC Implementation Guide.

5. Segments and Message Details

This chapter contains tables for each segment supported by USIIS.

USIIS usage that differs from CDC usage is described, to include further constraints on fields to accommodate USIIS business rules. Additional clarifications are provided as well.

Chapter 6 will address how these segments are assembled into specific messages that meet the use cases listed in Chapter 2.

Table 5-1 Message Segments

Segment (Name)	Definition	Message Usage	CDC Usage	USIIS Usage	Note
BHS	The Batch Header Segment. The BHS segment wraps a group of 1 or more messages. These may be a mixture of acceptable message types. This segment is not required for real-time messaging—e.g., a stream of messages.	Any	Optional	C	Required at the beginning of any batch of messages. Not required for a real-time messaging.
BTS	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.	Required if message starts with BHS.	Used to mark the end of any batch of messages. If the batch of messages starts with a BHS, then this segment is required.
ERR	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.	Ability for sending system to process is required.	

Segment (Name)	Definition	Message Usage	CDC Usage	USIIS Usage	Note
FHS	File Header Segment. The FHS segment may be used to group one or more batches of messages. This is an optional segment, even if batches are sent. Its use is not anticipated for use in real-time transactions.	Any	Optional	Optional	Used to mark the beginning of a file of batches. Not accepted for a real-time messaging.
FTS	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)	Required to terminate a file of batches.	Used to mark the end of a file of batches. Required if FHS is used.
IN1, IN2, IN3	Insurance Segments. The IN1-IN3 segments contain insurance policy coverage information necessary to produce properly pro-rated and patient and insurance bills.	VXU	Optional. These segments are not anticipated for use in immunization messages, but may be specified for local use.	Optional	USIIS does not support these segments and will not process the information.
MSA	Message Acknowledgment Segment. The MSA segment is included in the RSP and ACK messages. It contains information used to identify the receiver's acknowledgement response to an identified prior message.	RSP, ACK	Ability to create and process is required for conformant systems.	Ability for sending system to process is required.	
MSH	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.	Ability for sending system to create is required.	Required for all messages.

Segment (Name)	Definition	Message Usage	CDC Usage	USIIS Usage	Note
NK1	Next of Kin Segment. The NK1 segment contains information about the patient's next of kin or other related parties.	VXU, RSP	Ability to create and process is required for conformant systems.	Ability for sending system to create is required.	
NTE	Note Segment. The NTE segment is used for sending notes and comments. It is used in relation to OBX in the VXU and RSP.	VXU, RSP	Ability to create and process is required for conformant systems.	Ability for sending system to create is optional.	Used to carry a note related to the parent OBX segment.
OBX	Observation Result Segment. The OBX segment has several 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 an answer.	VXU, RSP	Ability to create and process is required for conformant systems.	Ability for the sending application to create is required.	Used to give important information related to an immunization (RXA).
ORC	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 standard.	VXU, RSP	Ability to create and process is required for conformant systems.	Ability for the sending application to create is required.	Used to give information about a group of one or more RXA.
PD1	Patient Demographic Segment. The PD1 segment contains additional demographic information that is likely to change about	VXU, RSP	Ability to create and process is required for	Ability for sending application to	

Segment (Name)	Definition	Message Usage	CDC Usage	USIIS Usage	Note
	the patient. In immunization messages, this is information about the need to protect the client's information and how they should be part of reminder efforts and their current status in the IIS.		conformant systems.	create is required.	
PID	Patient Identifier Segment. The PID segment contains 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, RSP	Ability to create and process is required for conformant systems.	Ability for sending application to create is required.	
PV1	Patient Visit Segment. The PV1 segment contains information related to a specific visit.	VXU, RSP	Optional	Optional. USIIS will not process this information.	Previously used to carry funding program eligibility status. HL7 2.5.1 requires using OBX for this purpose.
QAK	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.	Ability for sending application to process is required for a bi-directional interface.	
QPD	Query Parameter Definition Segment.	QBP, RSP	Ability to create and process is required for	Ability for sending application to	

Segment (Name)	Definition	Message Usage	CDC Usage	USIIS Usage	Note
			conformant systems.	create is required for a bi-directional interface.	
RCP	Response Control Parameter Segment	QBP	Ability to create and process is required for conformant systems.	Ability for sending application to process is required for a bi-directional interface.	
RXA	Pharmacy/Treatment Administration Segment	VXU, RSP	Ability to create and process is required for conformant systems.	Ability for sending application to create is required.	
RXR	Pharmacy/Treatment Route Segment	VXU, RSP	Ability to create and process is required for conformant systems.	Ability for sending application to create is required.	

BHS—Batch Header Segment

Table 5-2 Batch Header Segment (BHS)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Batch Field Separator	ST		[1..1]	[1..1]	R	R	The BHS.1 field shall be
2	Batch Encoding Characters	ST		[1..1]	[1..1]	R	R	The BHS.2 field shall be ^~\&
3	Batch Sending Application	HD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
4	Batch Sending Facility	HD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
5	Batch Receiving Application	HD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
6	Batch Receiving Facility	HD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
7	Batch Creation Date/Time	TS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
8	Batch Security	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
9	Batch Name/ID/Type	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
10	Batch Comment	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
11	Batch Control ID	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
12	Reference Batch Control ID	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.

BHS Field Definitions

BHS-1 Batch Field Separator (ST) 00081

Definition: This field contains the separator between the segment ID and the first real field, BHS-2-batch encoding characters. The required value is |,(ASCII 124). Note that this field is different from other fields and immediately follows the Segment name code.

BHS-2 Batch Encoding Characters (ST) 00082

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

BTS—Batch Trailer Segment

Table 5-3 Batch Trailer Segment (BTS)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Batch Message Count	ST		[0..1]	[0..1]	O	R	Required to indicate the count of individual messages contained in the batch.
2	Batch Comment	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
3	Batch Totals	NM		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.

ERR—Error Segment

Table 5-4 Error Segment (ERR)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Error Code and Location	ELD		[0..0]	[0..0]	X	X	ERR-1 is not supported for use in messages starting with HL7 version 2.5.
2	Error Location	ERL		[0..1]	[0..1]	RE	RE	
3	HL7 Error Code	CWE	0357	[1..1]	[1..1]	R	R	
4	Severity	ID	0516	[1..1]	[1..1]	R	R	
5	Application Error Code	CWE		[0..1]	[0..1]	O	X	
6	Application Error Parameter	ST		[0..1]	[0..1]	O	X	
7	Diagnostic Information	TX		[0..1]	[0..1]	O	X	
8	User Message	TX		[0..1]	[0..1]	O	X	
9	Inform Person Indicator	IS		[0..1]	[0..1]	O	X	
10	Override Type	CWE		[0..1]	[0..1]	O	X	
11	Override Reason Code	CWE		[0..1]	[0..1]	O	X	
12	Help Desk Contact Point	XTN		[0..1]	[0..1]	O	X	

ERR field definitions:

ERR-2 Error Location (ERL) 01812

Definition: Identifies the location in a message related to the identified error, warning or message. Each error will have an ERR, so no repeats are allowed on this field.

ERR-3 HL7 Error Code (CWE) 01813

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

ERR-4 Severity (ID) 01814

Definition: Identifies the severity of an application error. Refer to HL7 Table 0516 - Error severity for valid values. If ERR-3 has a value of "0", ERR-4 will have a value of "1".

FHS—File Header Segment

Table 5-5 File Header Segment (FHS)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	File Field Separator	ST		[1..1]	[1..1]	R	R	The FHS.1 field shall be
2	File Encoding Characters	ST		[1..1]	[1..1]	R	R	The FHS.2 field shall be ^~\&
3	File Sending Application	HD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
4	File Sending Facility	HD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
5	File Receiving Application	HD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
6	File Receiving Facility	HD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
7	File Creation Date/Time	TS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
8	File Security	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
9	File Name/ID	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
10	File Header Comment	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
11	File Control ID	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
12	Reference File Control ID	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.

FHS Field Definitions

FHS-1 File Field Separator (ST) 00067

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

FHS-2 File Encoding Characters (ST) 00068

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

FTS—File Trailer Segment

Table 5-6 File Trailer Segment (FTS)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	File Batch Count	NM		[0..1]	[0..1]	O	O	Required to indicate the number of batches contained in the file—if FHS is used.
2	File Trailer Comment	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.

MSA—Message Acknowledgement Segment

Table 5-7 Message Acknowledgement Segment (MSA)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Acknowledgment Code	ID	0008	[1..1]	[1..1]	R	R	USIIS will value this field with AA indicating that the message was received. Note: AA does not indicate that the message was successfully processed into USIIS.
2	Message Control ID	ST		[1..1]	[1..1]	R	R	
3	Text Message	ST		[0..0]	[0..0]	X	X	USIIS does not support; if sent it will be ignored.
4	Expected Sequence Number	NM		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
5	Delayed Acknowledgment Type			[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
6	Error Condition	CE		[0..0]	[0..0]	X	X	USIIS does not support; if sent it will be ignored.

MSA Field Definitions

MSA-1 Acknowledgment Code (ID) 00018

Definition: This field contains an acknowledgment code. See message processing rules. Refer to *HL7 Table 0008 - Acknowledgment code* for valid values.

USIIS will value this field with **AA** indicating that the message was received.

Note: AA does not indicate that the message was successfully processed into USIIS.

MSA-2 Message Control ID (ST) 00010

Definition: This field contains the Message Control ID (MSH-10) 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.

MSH—Message Header Segment

Table 5-8 Message Header Segment (MSH)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Field Separator	ST		[1..1]	[1..1]	R	R	This field shall be
2	Encoding Characters	ST		[1..1]	[1..1]	R	R	This field shall be ^~\&
3	Sending Application	HD	0361	[0..1]	[0..1]	RE	R	The sending application shall value this element with the USIIS-assigned code of the sending application. USIIS shall value this element with USIIS .
4	Sending Facility	HD	0362	[0..1]	[0..1]	RE	R	The sending application shall value this element with the USIIS-assigned code of the Provider Location code. USIIS shall value this element with UT0000 .

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
5	Receiving Application	HD	0361	[0..1]	[0..1]	RE	R	The sending application shall value this element with USIIS . USIIS shall value this element with what was provided in the MSH-3.1 of the corresponding VXU or QBP messages.
6	Receiving Facility	HD	0362	[0..1]	[0..1]	RE	R	The sending application shall value this element with UT0000 . USIIS shall value this element with the value that was provided in the MSH-4.1 of the corresponding VXU or QBP messages.
7	Date/Time Of Message	TS		[1..1]	[1..1]	R	R	The sending application shall value this element with the date/time the message was created. This will be used for logging.
8	Security	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
9	Message Type	MSG	0076	[1..1]	[1..1]	R	R	

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
10	Message Control ID	ST		[1..1]	[1..1]	R	R	The sending application shall value this element with a unique message identifier. USIIS shall value this element with the MSH-10 provided in the corresponding VXU or QPB messages.
11	Processing ID	PT	0103	[1..1]	[1..1]	R	R	USIIS expects P and will ignore other values.
12	Version ID	VID		[1..1]	[1..1]	R	R	The sending application shall send 2.5.1 in this element.
13	Sequence Number	NM		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
14	Continuation Pointer	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
15	Accept Acknowledgment Type	ID	0155	[0..1]	[0..1]	RE	RE	USIIS expects P and will ignore other values.
16	Application Acknowledgment Type	ID	0155	[0..1]	[0..1]	RE	RE	USIIS expects AL and will ignore other values.
17	Country Code	ID	0399	[0..1]	[0..1]	O	O	
18	Character Set	ID		[0..1]	[0..1]	O	O	USIIS expects ASCII printable and will ignore other values.
19	Principal Language Of Message	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
20	Alternate Character Set Handling Scheme	ID		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
21	Message Profile Identifier	EI		[0..*]	[0..*]	C	C	

MSH Field Definitions

MSH-1 Field Separator (ST) 00001

Definition: This field contains the separator between the segment ID and the first real field, MSH-2-encoding characters. Required value is |, (ASCII 124).

MSH-2 Encoding Characters (ST) 00002

Definition: 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).

MSH-3 Sending Application (HD) 00003

Definition: This field contains the USIIS-assigned code of the sending application. USIIS shall value this element with **USIIS**.

MSH-4 Sending Facility (HD) 00004

Definition: This field contains the USIIS-assigned code of the Provider Location code. This field represents the “owner” of the data contained in the message. Note: USIIS shall be contacted to obtain this value for each Provider. USIIS shall value this element with **UT0000**.

MSH-5 Receiving Application (HD) 00005

Definition: This field contains **USIIS**. USIIS shall value this element with what was provided in the MSH-3.1 of the corresponding VXU or QBP messages.

MSH-6 Receiving Facility (HD) 00006

Definition: This field contains **UT0000**. USIIS shall value this element with the value that was provided in the MSH-4.1 of the corresponding VXU or QBP messages.

MSH-7 Date/Time of Message (TS) 00007

Definition: This field contains the date/time that the sending system created the message. The degree of precision should be at least to the minute.

MSH-9 Message Type (MSG) 00009

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

MSH-10 Message Control ID (ST) 00010

Definition: This field contains an identifier assigned by the sending application that uniquely identifies a unique 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).

USIIS shall echo this ID back to the sending system in the Message acknowledgment segment (MSA).

MSH-11 Processing ID (PT) 00011

Definition: This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules. Reference *Table HL7 0103*. The choices are Production, Debugging and Training. In most cases, **P** or Production should be used.

MSH-12 Version ID (VID) 00012

Definition: This field contains the identifier of the version of the HL7 messaging standard used in constructing, interpreting, and validating the message. Only the first component need be populated.

MSH-15 Accept Acknowledgment Type (ID) 00015

Definition: Refer to *HL7 Table 0155 - Accept/application acknowledgment conditions* for valid values. USIIS expects **NE** and will ignore other values.

MSH-16 Application Acknowledgment Type (ID) 00016

Definition: USIIS expects **AL** and will ignore other values.

MSH-17 Country Code (ID) 00017

Definition: This field contains the country of origin for the message. If this field is not valued, USIIS assumes the code is USA. Refer to *HL7 Table 0399 – Country code*.

MSH-18 Character Set (ID) 00018

Definition: USIIS expects **ASCII printable** and will ignore other values.

NK1—Next of Kin Segment

The NK1 segment contains information about the patient’s next of kin. Utilizing NK1-1 - set ID, multiple NK1 segments can be sent, each subsequent NK1 increments the previous set ID by 1. Therefore, if three NK1 were sent in one message, the first would have a set id of 1, the second would have 2 and the third would have 3.

Table 5-9-Next of Kin Segment (NK1)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Set ID - NK1	SI		[1..1]	[1..1]	R	R	Sequence number. 1 for 1 st occurrence, 2 for the 2 nd occurrence, etc. USIIS supports one occurrence; additional occurrences will be ignored.
2	Name	XPN		[1..*]	[1..1]	R	R	Maximum lengths: Last name = 40 characters First name = 20 characters Middle name = 20 characters USIIS supports one occurrence

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								of NK1 and will ignore if multiple occurrences are provided. USIIS considers the first name occurrence to be the legal name and ignores the Name Type code component NK-1.2.
3	Relationship	CE	0063	[1..1]	[1..1]	R	R	USIIS supports three relationship codes: MTH, FTH, GRD ; other types will be ignored.
4	Address	XAD		[0..*]	[0..*]	RE	RE	Maximum street length = 60 characters. Maximum city length = 28 characters.
5	Phone Number	XTN		[0..*]	[0..*]	RE	RE	
6	Business Phone Number	XTN		[0..*]	[0..*]	O	X	USIIS does not support; if sent it will be ignored.
7	Contact Role	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
8	Start Date	DT		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
9	End Date	DT		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
10	Next of Kin / Associated Parties Job Title	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
11	Next of Kin / Associated	JCC		[0..1]	[0..1]	O	X	USIIS does not support; if sent it

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
	Parties Job Code/Class							will be ignored.
12	Next of Kin / Associated Parties Employee Number	CX		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
13	Organization Name - NK1	XON		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
14	Marital Status	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
15	Administrative Sex	IS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
16	Date/Time of Birth	TS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
17	Living Dependency	IS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
18	Ambulatory Status	IS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
19	Citizenship	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
20	Primary Language	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
21	Living Arrangement	IS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
22	Publicity Code	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
23	Protection Indicator	ID		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
24	Student Indicator	IS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								will be ignored.
25	Religion	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
26	Mother's Maiden Name	XPN		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
27	Nationality	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
28	Ethnic Group	CE	0189	[0..1]	[0..1]	O	0	
29	Contact Reason	CE		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
30	Contact Person's Name	XPN		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
31	Contact Person's Telephone Number	XTN		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
32	Contact Person's Address	XAD		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
33	Next of Kin/Associated Party's Identifiers	CX		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
34	Job Status	IS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
35	Race	CE		[0..1]	[0..1]	O	X	
36	Handicap	IS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
37	Contact Person Social Security Number	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.
38	Next of Kin Birth Place	ST		[0..1]	[0..1]	O	X	USIIS does not support; if sent it

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								will be ignored.
39	VIP Indicator	IS		[0..1]	[0..1]	O	X	USIIS does not support; if sent it will be ignored.

NK1 Field Definitions

NK1-1 Set ID - NK1 (SI) 00190

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be **1** (one), for the second occurrence, the sequence number shall be **2** (two), etc.

Note: USIIS supports one occurrence of the segment; additional occurrences will be ignored.

NK1-2 Name (XPN) 00191

Definition: This field contains the name of the next of kin. The legal name must be sent in the first sequence.

Note: USIIS does not support repetition of this field.

Position	Field Name	USIIS Constraint
1	Family name	Required. Maximum length: 40 characters.
2	Given name	Optional. Maximum length: 20 characters.
3	Middle initial or name	Optional. Maximum length: 20 characters.
4	Suffix	Optional.
5	Prefix	USIIS does not support this element; if sent it will be ignored.
6	Degree	USIIS does not support this element; if sent it will be ignored.
7	Name type code	USIIS does not support this element; if sent it will be ignored.
8	Name representation code	USIIS does not support this element; if sent it will be ignored.

NK1-3 Relationship (CE) 00192

Definition: This field contains the personal relationship that the next of kin has to the patient. Refer to *User-defined Table 0063 - Relationship* for valid values.

Position	Field Name	USIIS Constraint
1	Identifier	Required. USIIS accepts the following values: MTH, FTH or GRD . Other types—and the associated names, will be ignored.
2	Test	USIIS does not support this element; if sent it will be ignored.
3	Name of coding system	USIIS does not support this element; if sent it will be ignored.
4	Alternate identifier	USIIS does not support this element; if sent it will be ignored.
5	Alternate text	USIIS does not support this element; if sent it will be ignored.
6	Name of alternate coding system	USIIS does not support this element; if sent it will be ignored.

NK1-4 Address (XAD) 00193

Definition: Maximum street length = 60 characters. Maximum city length = 28 characters.

NK1-5 Phone Number (XTN) 00194

Definition: The primary telephone number must be sent in the first sequence.

NK1-28 Ethnic Group (CE) 00125

USIIS accepts the following valid values from Table 0189.

Value	Description
H	Hispanic or Latino
N	Not Hispanic or Latino
U	Unknown

NK1-35 Race (CE) 00113

USIIS accepts the following values for Race Codes.

Value	Description
1002-5	American Indian or Alaska Native

2028-9	Asian
2076-8	Native Hawaiian or Other Pacific Islander
2054-5	Black or African American
2106-3	White
2131-1	Other Race
(empty field)	Unknown/undetermined

NTE—Note Segment

The NTE segment is used for sending notes and comments. It is used in relation to OBX in the VXU and RSP.

Table 5-10 Note Segment (NTE)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Set ID - NTE	SI		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
2	Source of Comment	ID		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
3	Comment	FT		[1..1]	[1..1]	R	R	Maximum 500 characters.
4	Comment Type	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.

NTE Field Definitions

NTE-3 Comment (FT) 00098

Definition: This field contains the comment contained in the segment. Maximum length is 500 characters.

OBX—Observation Result Segment

The observation result segment has several uses. It carries observations about the object of its parent segment. In the VXU/RSP it is associated with the RXA or immunization segment. The basic format is a question (OBX-3) and an answer (OBX-5).

Table 5-11 Observation Segment (OBX)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Set ID – OBX	SI		[1..1]	[1..1]	R	R	OBX sequence number. 1 for the 1 st occurrence, 2 for the 2 nd occurrence, etc.
2	Value Type	ID		[1..1]	[1..1]	R	R	USIIS supports CE and DT .
3	Observation Identifier	CE	NIP003	[1..1]	[1..1]	R	R	This value indicates the type of observation included in OBX-5. It poses the question that is answered by OBX-5. Refer to the Master Observation Table- Observation Identifiers and Values below.
4	Observation Sub-ID	ST		[1..1]	[1..1]	R	R	
5	Observation Value	varies		[1..1]	[1..1]	R	R	This value indicates the observation. It is the answer to the question that is posed by OBX-3. Refer to Master Observation Table- Observation Identifiers and Values below.
6	Units	CE		[0..1]	[0..1]	C(R / RE)	X	USIIS supports OBX-2 of CE or DT. (This value is used if OBX-2 is NM or SN.)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
7	References Range	ST		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
8	Abnormal Flags	IS		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
9	Probability	NM		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
10	Nature of Abnormal Test	ID		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
11	Observation Result Status	ID	0085	[1..1]	[1..1]	R	X	USIIS does not support this element; if sent it will be ignored.
12	Effective Date of Reference Range Values	TS		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
13	User Defined Access Checks	ST		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
14	Date/Time of the Observation	TS		[0..1]	[0..1]	RE	RE	If OBX-2 is valued DT .
15	Producer's Reference	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
16	Responsible Observer	XCN		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
17	Observation Method	CE		[0..1]	[0..1]	C(RE/O)	X	USIIS does not support this element; if sent it will be ignored.
18	Equipment Instance Identifier	EI		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
19	Date/Time of the Analysis	TS		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
20	Reserved for harmonization with V2.6			[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
21	Reserved for harmonization with V2.6			[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
22	Reserved for harmonization with V2.6			[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
23	Performing Organization Name	XON		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
24	Performing Organization Address	XAD		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
25	Performing Organization Medical Director	XCN		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.

OBX Field Definitions

OBX-1 Set ID - OBX (SI) 00569

Definition: 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.

OBX-2 Value Type (ID) 00570

Definition: This field contains the format of the observation value in OBX. If the value is CE then the result must be a coded entry.

Note: USIIS supports **CE** and **DT**, reflecting the uses for OBX.

OBX-3 Observation Identifier (CE) 00571

Definition: This field contains a unique identifier for the observation being sent in the OBX segment.

Consider that OBX-3 poses the question and OBX-5 answers it. For example, OBX-3 may indicate **VIS Statement Published Date** and the value in OBX-5 is the answer, the date.

USIS accepts and returns OBX for the following immunization-specific information:

- Immunization Contraindication
- Immunization Reaction
- Vaccine Information Statement Published Date
- Vaccine Information Statement Presented Date
- Immunization Funding Source

See the **Master Observation Table** below for valid values. USIS will not process data sent for other uses.

Note: The 2.3.1 Implementation Guide used suffixes (e.g., LN to indicate linked) on the first sequence in OBX-3 to group related observations such as VIS dates for component vaccine. This is no longer acceptable. Grouping of related observations will be accomplished using Observation sub-id (OBX-4).

OBX-4 Observation Sub-ID (ST) 00572

Definition: This field is used to relate more than one observation to the same immunization by setting the value to the same number.

This field may also be used to link related components of an observation. Each component of the observation would share an Observation sub-id. For example, recording VIS Published Date and VIS Presented Date for a combination vaccination requires six (6) OBX segments. One OBX would indicate the vaccine group. It would have a pair of OBX indicating the VIS publication date and the VIS receipt date. These would have the same OBX-4 value to allow them to be linked. The second set of three would have another OBX-4 value common to each of them.

OBX-5 Observation Value (varies) 00573

Definition: This is the answer to the question posed in OBX-3. OBX-2 value type specifies the data type for this field.

USIS accepts and returns OBX for: Immunization Contraindications, Immunization Reactions, Vaccine Information Published Date, Vaccine Information Statement Presented Date and Immunization Funding Source. See the following **Master Observation Table** for valid values.

Master Observation Table – Observation Identifiers and Values

USIIS supports the following OBX uses. If data are sent for other uses, USIIS will not process.

<i>Observation Identifier</i>			<i>Observation Value</i>
<i>OBX-3 "Question"</i>	<i>Description</i>	<i>OBX-3.1</i>	<i>OBX-5 "Answer" OBX-5.1</i>
VIS published date	Vaccine Information Statement published date	29768-9	(DT) date
VIS presented date	Vaccine Information Statement presented date	29769-7	(DT) date
Contraindication	Vaccination Contraindication	30945-0	(CE) PHNVS and SCT codes
Nonspecific Contraindication	Non-vaccine specific Contraindication =	30945-0	(CE) HL7 codes, NIP table 004 Send CVX = 998 in RXA-5
Reaction	Vaccination Reaction	31044-1	(CE) PHNVS and SCT codes
Vaccine Funding Source	Vaccine Funding Program Eligibility Category	30963-3	(CE) HL7 codes, table 0064

Contraindications

USIIS accepts the following values.

<i>Code</i>	<i>Description</i>	<i>HL7 Table</i>
VXC30	Allergy to proteins of rodent or neural origin	CDCPHINVS
VXC17	Allergy to 2-phenoxyethanol	CDCPHINVS
VXC18	Allergy to baker's yeast	CDCPHINVS
91930004	Allergy to eggs	SCT
294847001	Gelatin allergy	SCT
294468006	Neomycin allergy	SCT
VXC19	Allergy to thimerosal	CDCPHINVS
VXC20	Allergy to previous dose of this vaccine or to any of its unlisted components	CDCPHINVS
402306009	Allergy to aluminum	SCT
300916003	Latex allergy	SCT
294530006	Polymyxin B allergy	SCT
VXC21	Previous history of intussusceptions	CDCPHINVS

VXC22	Encephalopathy within 7 days or previous dose of DTP or DTaP	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)	CDCPHINVS
27624003	Chronic disease	SCT
VXC25	History of Arthus hypersensitivity reaction to a tetanus-containing vaccine administered < 10 years previously	CDCPHINVS
VXC26	Underlying unstable, evolving neurologic disorders	CDCPHINVS
VXC27	Immunodeficiency due to any cause	CDCPHINVS
77386006	Patient currently pregnant	SCT
302215000	Thrombocytopenic disorder	SCT
161461006	History of purpura	SCT

Vaccination Reaction

USIIS accepts the following values.

Value	Description	HL7 Table
39579001	Anaphylaxis	SCT
VXC10	Collapse or shock-like state within 48 hours of dose	CDCPHINVS
VXC11	Convulsions (fits, seizures) within 72 hours of dose	CDCPHINVS
8130809	Encephalopathy	SCT
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
VXC15	Intussusception within 30 days of dose	CDCPHINVS
VXC9	Persistent, inconsolable crying lasting > 3 hours within 48 hours of dose	CDCPHINVS
VXC14	Rash within 14 days of dose	CDCPHINVS

Table 0064, Financial Class

USIIS accepts the following values.

Code	Financial Class	VFC Qualified
H01	Self Pay	N
H03	Insured (Private)	N
V01	Not VFC eligible	N
V02	VFC Medicaid	Y
V03	VFC Uninsured	Y
V04	VFC American Indian/Alaskan Native	Y
V05	VFC Under-insured	Y
V06	CHIP	Y
V07	VFC Local-specific eligibility	Y
UT01	Primary Care Network (PCN)	N
UT02	Medicare	N
UT03	Medicaid (>= 19 years old)	N
UT04	Special projects	N

OBX-14 Date/Time of the Observation (DT) 00582

Definition: Records the date of the observation. Time component is optional.

ORC—Order Request Segment

The Common Order segment (ORC) is used to transmit fields that are common to a group of immunizations. 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 5-12 Common Order Segment (ORC)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Order Control	ID	0119	[1..1]	[1..1]	R	R	The value for VXU and RSP shall be RE .
2	Placer Order Number	EI		[0..1]	[0..1]	RE	X	USIIS does not support this element; if sent it will be ignored.
3	Filler Order Number	EI		[1..1]	[1..1]	R	R	Unique identifier...
4	Placer Group Number	EI		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
5	Order Status	ID		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
6	Response Flag	ID		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
7	Quantity/Timing	TQ		[0..0]	[0..0]	X	X	USIIS does not support this element; if sent it will be ignored.
8	Parent	EIP		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
9	Date/Time of Transaction	TS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
10	Entered By	XCN		[0..1]		RE	RE	Name of person who entered or recorded the immunization. Maximum lengths (character)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								Last name = 40 First name = 20 Middle name = 20
11	Verified By	XCN		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
12	Ordering Provider	XCN		[0..1]		C(RE/O)	X	USIIS does not support this element; if sent it will be ignored.
13	Enterer's Location	PL		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
14	Call Back Phone Number	XTN		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
15	Order Effective Date/Time	TS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
16	Order Control Code Reason	CE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
17	Entering Organization	CE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
18	Entering Device	CE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
19	Action By	XCN		[0..1]		O	X	USIIS does not support this element; if sent it will be

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								ignored.
20	Advanced Beneficiary Notice Code	CE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
21	Ordering Facility Name	XON		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
22	Ordering Facility Address	XAD		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
23	Ordering Facility Phone Number	XTN		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
24	Ordering Provider Address	XAD		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
25	Order Status Modifier	CWE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
26	Advanced Beneficiary Notice Override Reason	CWE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
27	Filler's Expected Availability Date/Time	TS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
28	Confidentiality Code	CWE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
29	Order Type	CWE		[0..1]		O	X	USIIS does not support this

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								element; if sent it will be ignored.
30	Enterer Authorization Mode	CNE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
31	Parent Universal Service Identifier	CWE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.

ORC Field Definitions

ORC-1 Order Control (ID) 00215

Definition: Determines the function of the order segment. The value for VXU and RSP shall be **RE**.

ORC-3 Filler Order Number (EI) 00217

Definition: The filler order number is used to identify uniquely the order among all orders sent by a provider organization that filled the order. In the case where a historic immunization is being recorded (i.e. from an immunization card), the sending system shall assign an identifier as if it were an immunization administered by the sending provider.

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

ORC-10 Entered By (XCN) 00224

Definition: This identifies the individual that entered the immunization information .

PD1—Patient Demographic Segment

The Patient Demographic Segment contains patient demographic information. Three primary uses for this information include: 1) indicating whether the person wants his/her data protected; and 2) whether the person wants to receive recall/reminder notices; and 3) the person’s current status in the registry.

Table 5-13-Patient Demographic Segment (PD1)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Living Dependency	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
2	Living Arrangement	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
3	Patient Primary Facility	XON		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
4	Patient Primary Care Provider Name & ID No.	XCN		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
5	Student Indicator	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
6	Handicap	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
7	Living Will Code	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
8	Organ Donor Code	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
9	Separate Bill	ID		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
10	Duplicate Patient	CX		[0..1]		O	X	USIIS does not support this

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								element; if sent it will be ignored.
11	Publicity Code	CE	0215	[0..1]		RE	RE	USIIS supports 01 or 02 .
12	Protection Indicator	ID	0136	[0..1]		RE	RE	USIIS supports Y or N .
13	Protection Indicator Effective Date	DT		[0..1]		C(RE/X)	X	USIIS does not support this element; if sent it will be ignored.
14	Place of Worship	XON		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
15	Advance Directive Code	CE		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
16	Immunization Registry Status	IS	0441	[0..1]		RE	RE	
17	Immunization Registry Status Effective Date	DT		[0..1]		C(RE/X)	X	USIIS does not support this element; if sent it will be ignored.
18	Publicity Code Effective Date	DT		[0..1]		C(RE/X)	X	USIIS does not support this element; if sent it will be ignored.
19	Military Branch	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
20	Military Rank/Grade	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
21	Military Status	IS		[0..1]		O	X	USIIS does not support this element; if sent it will be

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								ignored.

PD1 Field Definitions

PD1-11 Publicity Code (CE) 00743

Definition: This field contains a code indicating the level of publicity allowed for the patient (e.g., No Publicity, Family Only). This refers to how a person wishes to be contacted for reminder or recall. Refer to *User-defined Table 0215 - Publicity Code* for suggested values.

HL7 Table 0215, Publicity code

USIIS accepts the following values.

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

PD1-12 Protection Indicator (ID) 00744

Definition: This field identifies whether a person’s information may be shared with other providers. If protection indicator is not actively determined by the clinician, it shall be empty.

Protection State	Code
Yes, protect the data. Client (or guardian) has indicated that the information shall be protected.	Y
No, it is not necessary to protect data from other clinicians.	N
No determination has been made regarding client’s (or guardian’s) wishes regarding information sharing.	

Note: Previous Implementation Guides stated that **Y** meant that a person’s information could be shared. **This was an incorrect interpretation of the use of this field.** The meaning now aligns with the definition of HL7. That is, **Y** means data must be protected.

PD1-16 Immunization Registry Status (IS) 01569

Definition: This field captures whether the sending provider organization considers this an active patient. Refer to *User-defined Table 0441 - Immunization Registry Status* for suggested values.

HL7 Table 0441, Immunization Registry Status

USIIS accepts the following values.

Value	Description
A	Active
I	Inactive – Unspecified
L	Inactive – Lost to follow-up (cannot contact)
M	Inactive – Moved or gone elsewhere
P	Inactive – Permanently (do not reactivate or enter new events to this record)
U	Unknown

PID—Patient Identifier Segment

The PID is used by all applications as the primary means of communicating patient identification information.

Table 5-14-Patient Identifier Segment (PID)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Set ID - PID	SI		[0..1]	[0..1]	RE	RE	Shall be valued 1 (one).
2	Patient ID	CX		[0..0]	[0..0]	X	X	USIIS does not support this element; if sent it will be ignored.
3	Patient Identifier List	CX		[1..*]	[1..*]	R	R	Patient identifier. USIIS supports: MR: provider's unique patient medical record number MA: Medicaid number SS: Social Security Number USIIS requires MR.
4	Alternate Patient ID	CX		[0..0]	[0..0]	X	X	USIIS does not support this element; if sent it will be ignored.
5	Patient Name	XPN		[1..*]	[1..1]	R	R	USIIS supports last name, first name, middle name and suffix. Maximum lengths: Last name = 40 characters First name = 20 characters Middle name = 20 characters Repeating values will be ignored.

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
6	Mother's Maiden Name	XPN		[0..1]	[0..1]	RE	RE	Maiden name only. Maximum length = 48 characters.
7	Date/Time of Birth	TS		[1..1]	[1..1]	R	R	Time component is optional.
8	Administrative Sex	IS	0001	[0..1]	[0..1]	RE	RE	
9	Patient Alias	XPN		[0..0]	[0..0]	X	X	USIIS does not support this element; if sent it will be ignored.
10	Race	CE	0005	[0..*]	[0..1]	RE	RE	Repeating values will be ignored.
11	Patient Address	XAD		[0..*]	[0..1]	RE	RE	Repeating values will be ignored. Accepted components: street, other designation, city, county, state, zip code.
12	County Code	IS		[0..0]	[0..0]	X	X	USIIS does not support this element; if sent it will be ignored.
13	Phone Number - Home	XTN		[0..*]	[0..*]	RE	RE	
14	Phone Number - Business	XTN		[0..*]	[0..*]	O	X	USIIS does not support this element; if sent it will be ignored.
15	Primary Language	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
16	Marital Status	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								ignored.
17	Religion	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
18	Patient Account Number	CX		[0..1]		O	X	USIIS does not support this element; if sent it will be ignored.
19	SSN Number - Patient	ST		[0..0]		X	X	SSN should be included in PID-3.
20	Driver's License Number - Patient	DLN		[0..0]		X	X	USIIS does not support this element; if sent it will be ignored.
21	Mother's Identifier	CX		[0..0]	[0..0]	X	X	USIIS does not support this element; if sent it will be ignored.
22	Ethnic Group	CE	0189	[0..1]	[0..1]	RE	RE	Valid values: H, N, U.
23	Birth Place	ST		[0..1]	[0..1]	O	O	USIIS does not support this element; if sent it will be ignored.
24	Multiple Birth Indicator	ID	0136	[0..1]	[0..1]	RE	O	
25	Birth Order	NM		[0..1]	[0..1]	C(RE/O)	C(O)	If PID-24 is valued "Y"
26	Citizenship	CE		[0..1]	[0..1]	O	O	USIIS does not support this element; if sent it will be ignored.
27	Veterans Military Status	CE		[0..1]	[0..1]	O	O	USIIS does not support this element; if sent it will be ignored.
28	Nationality	CE		[0..1]	[0..1]	O	O	USIIS does not support this

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								element; if sent it will be ignored.
29	Patient Death Date and Time	TS		[0..1]	[0..1]	C(RE/X)	C(O)	If PID-30 is valued "Y"
30	Patient Death Indicator	ID	0136	[0..1]	[0..1]	RE	O	
31	Identity Unknown Indicator	ID		[0..1]	[0..1]	O	O	USIIS does not support this element; if sent it will be ignored.
32	Identity Reliability Code	IS		[0..1]	[0..1]	O	O	USIIS does not support this element; if sent it will be ignored.
33	Last Update Date/Time	TS		[0..1]		O		USIIS does not support this element; if sent it will be ignored.
34	Last Update Facility	HD		[0..1]		O		USIIS does not support this element; if sent it will be ignored.
35	Species Code	CE		[0..1]		O		USIIS does not support this element; if sent it will be ignored.
36	Breed Code	CE		[0..1]		O		USIIS does not support this element; if sent it will be ignored.
37	Strain	ST		[0..1]		O		USIIS does not support this element; if sent it will be ignored.
38	Production Class Code	CE		[0..1]		O		USIIS does not support this element; if sent it will be ignored.

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
39	Tribal Citizenship	CWE		[0..1]		O		USIIS does not support this element; if sent it will be ignored.

PID Field Definitions

PID-1 Set ID - PID (SI) 00104

Definition: This field should be valued **1** (one).

PID-3 Patient Identifier List (CX) 00106

Definition: This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient.

Note: USIIS requires a **MR** (Medical Record Number) type as the patient unique identifier. Two other types are accepted as repeating values: **MA** (Medicaid Number) and **SS** (Social Security Number).

PID-5 Patient Name (XPN) 00108

Definition: This field contains the names of the patient, The primary or legal name of the patient is reported first.

Note: USIIS supports one patient name; repeating values will not be processed.

Maximum name component lengths:

Last name = 40 characters

First name = 20 characters

Middle name = 20 characters

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

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

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

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

Note: The time component is optional.

PID-8 Administrative Sex (IS) 00111

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

PID-10 Race (CE) 00113

Definition: This field refers to the patient’s race. Refer to *User-defined Table 0005 - Race* for valid values.

Table 0005 – Race Code

USIIS supports the following codes.

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

PID-11 Patient Address (XAD) 00114

Definition: This field contains the mailing address of the patient.

Note: USIIS accepts the following components: street, other designation, city, county, state, zip code. Other components will be ignored. Repeating values will be ignored.

PID-13 Phone Number - Home (XTN) 00116

Definition: This field contains the patient’s personal phone numbers.

PID-22 Ethnic Group (CE) 00125

Definition: This field further defines the patient’s ancestry. Refer to *User-defined Table 0189 - Ethnic Group*. The

Table 0189 – Ethnic group

USIIS accepts the following valid values.

Value	Description
H	Hispanic or Latino
N	Not Hispanic or Latino
U	Unknown

PID-24 Multiple Birth Indicator (ID) 00127

Definition: This field indicates whether the patient was part of a multiple birth. Refer to HL7 Table 0136 - Yes/No Indicator for valid values.

Y the patient was part of a multiple birth

N the patient was a single birth

Empty multiple birth status is undetermined.

PID-25 Birth Order (NM) 00128

Definition: When a patient was part of a multiple birth, a number indicating the patient's birth order is entered in this field. If PID-24 is populated, then this field should be populated.

QAK—Query Acknowledgement Segment

Table 5-15-Query Acknowledgement Segment

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Query Tag	ST		[1..1]	[1..1]	R	R	
2	Query Response Status	ID	0208	[0..1]	[0..1]	RE	RE	
3	Message Query Name	CE	0471	[1..1]	[1..1]	R	R	
4	Hit Count	NM		[0..1]	[0..1]	O	X	USIIS does not support this

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								element; if sent it will be ignored.
5	This payload	NM		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
6	Hits remaining	NM		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.

QAK Field Definitions

QAK-1 Query Tag (ST) 00696

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

QAK-2 Query Response Status (ID) 00708

Definition: Used when there is no record is found in USIIS that matches the query parameters, but where there is also no error. It is defined with *HL7 Table 0208 - Query Response Status*.

Table 0208 – Query Response Status

Code	Description
OK	Data found, no errors (default)
NF	No data found, no errors
AE	Application error
NR	Application reject
TM	Too many candidates found.

QAK-3 Message Query Name (CE) 01375

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

QPD – Query Parameter Definition Segment

The QPD segment defines the parameters of the query.

Table 5-16-Query Parameter Definition (QPD)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Message Query Name	CE	0471	[1..1]	[1..1]	R	R	QPD-1 must be valued Z34 to request an immunization history.
2	Query Tag	ST				R	R	Identify the query.
3-n	User Parameters (in successive fields)	varies				R	R	

QPD Field Definitions

QPD-1 Message Query Name (CE) 01375

Definition: This field contains the name of the query and must be **Z34** to indicate request an immunization history.

QPD-2 Query Tag (ST) 00696

Definition: 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.

This value remains constant for each message (i.e., all continuation messages) associated with the query.

Note: This field differs from *MSA-2-Message control ID* which may vary with each continuation message, since it is associated with each individual message, not the query as a whole

USIIS shall echo it back as the first field in the query acknowledgement segment (QAK).

QPD-3 User Parameters (Varies) 01435

Definition: These successive parameter fields hold the values that the initiating system passes and carry user parameter data.

RCP – Response Control Parameter Segment

The RCP segment is used to restrict the amount of data that should be returned in response to query. It lists the segments to be returned.

Table 5-17- Response Control Parameter

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Query Priority	ID	0091	[0..1]	[0..1]	RE	RE	This will be valued I for immediate.
2	Quantity Limited Request	CQ	0126	[0..1]	[0..1]	RE	RE	
3	Response Modality	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
4	Execution and Delivery Time	TS		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
5	Modify Indicator	ID		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
6	Sort-by Field	SRT		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
7	Segment group inclusion	ID		[0..*]	[0..*]	O	X	USIIS does not support this element; if sent it will be

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								ignored.

RCP Field Definitions

RCP-1 Query Priority (ID) 00027

Definition: This field contains the time frame that the response is expected. Only I (Immediate) shall be used for this field.

RCP-2 Quantity Limited Request (CQ) 00031

Definition: This field contains the maximum length of the response that can be accepted by the requesting system—the maximum number of records to return.

Valid entries are numerical values (in the first component) given in the units specified in the second component.

The second component (Type) is constrained to **RD** (record).

RXA-- Pharmacy/Treatment Administration Segment

The RXA segment carries immunization data. It is a child of an ORC segment, which a repeating segment in the RSP and VXU messages.

Because ORC segments are allowed to repeat ,an unlimited numbers of vaccinations may be included in a message. Each RXA must be preceded by an ORC.

Table 5-18 Pharmacy/Treatment Administration (RXA)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Give Sub-ID Counter	NM		[1..1]	[1..1]	R	R	Constrained to 0 (zero).
2	Administration Sub-ID Counter	NM		[1..1]	[1..1]	R	R	Constrained to 1 (one). USIIS shall value this

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
								element with 999.
3	Date/Time Start of Administration	TS		[1..1]	[1..1]	R	R	Vaccination date/time. Time component is optional.
4	Date/Time End of Administration	TS		[0..1]	[0..1]	RE	X	USIIS does not support this element; if sent it will be ignored.
5	Administered Code	CE	CVX	[1..1]	[1..1]	R	R	CVX code.
6	Administered Amount	NM		[1..1]	[1..1]	R	R	
7	Administered Units	CE	UCUM	[0..1]	[0..1]	C(R/O)	C(R/O)	USIIS will assume mL if not valued.
8	Administered Dosage Form	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
9	Administration Notes	CE	NIP 001	[0..*]	[0..*]	C(R/O)	C(R/O)	If RXA-20 is valued "CP" or "PA"
10	Administering Provider	XCN		[0..1]	[0..1]	RE	RE	
11	Administered-at Location	LA2		[0..1]	[0..1]	RE	RE	
12	Administered Per (Time Unit)	ST		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
13	Administered Strength	NM		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
14	Administered Strength Units	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
15	Substance Lot Number	ST		[0..*]	[0..*]	C(R/		If RXA-9.1 is valued "00"

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
						O)		
16	Substance Expiration Date	TS		[0..1]	[0..1]	C(RE/O)		If RXA-15 is valued
17	Substance Manufacturer Name	CE	MXV	[0..*]	[0..*]	C(R/O)	C(R/O)	MXV Code.
18	Substance/Treatment Refusal Reason	CE	NIP 002	[0..*]	[0..*]	C(R/X)	C(R/X)	If RXA-20 is valued "RE"
19	Indication	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
20	Completion Status	ID	0322	[0..1]	[0..1]	RE	RE	
21	Action Code - RXA	ID	0323	[0..1]	[0..1]	RE	RE	USIIS supports A (add) and D (delete). To update a code, it must be deleted then added.
22	System Entry Date/Time	TS		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
23	Administered Drug Strength Volume	NM		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
24	Administered Drug Strength Volume Units	CWE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
25	Administered Barcode Identifier	CWE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
26	Pharmacy Order Type	ID		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.

RXA Field Definitions

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

Definition: Constrained to **0** (zero).

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

Definition: Constrained to **1** (one).

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

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

Note: Time component is optional.

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

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

RXA-5 Administered Code (CE) 00347

Definition: If the immunization was administered, a CVX code should be used in the first triplet to code this field (see CVX Table maintained by the CDC, <http://www.cdc.gov/vaccines/programs/iis/code-sets.html>). The second set of three components could be used to represent the same vaccine using the Current Procedural Terminology (CPT) coding system. CVX code is the strongly preferred code system.

RXA-6 Administered Amount (NM) 00348

Definition: This field records the amount of vaccine administered. The units are expressed in the next field, RXA-7.

RXA-7 Administered units (CE) 00349

Definition: Valid value is mL. USIIS will assume mL if field is not valued.

RXA-9 Administration Notes (CE) 00351

Definition: This field is used to indicate whether this immunization record is based on a historical record or was given by the reporting provider. Refer to *NIP-defined Table 0001 - Immunization Information Source* for valid values. The first component shall contain the code, the second the free text and the third shall contain the name of the code system (NIP001).

RXA-10 Administering Provider (XCN) 00352

Definition: This field is intended to contain the name of the person who physically administered the vaccination.

RXA-11 Administered-at Location (LA2) 00353

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

Subcomponent 1: USIIS-assigned facility code.

Subcomponent 2: Universal ID This shall be an OID, if populated.

Subcomponent 3: 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.

Component 4: The facility name/identifier.

Component 9-15: Facility address.

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

RXA-15 Substance Lot Number (ST) 01129

Definition: This field contains the lot number of the immunization administered. It may remain empty if the dose is from a historical record. The lot number is the number printed on the label attached to the container holding the vaccine and on the packaging, which houses the container.

RXA-16 Substance Expiration Date (TS) 01130

Definition: This field contains the expiration date of the vaccine administered. It may remain empty if the dose is from a historical record. The vaccine expiration date does not always have a "day" component; therefore, such a date may be transmitted as YYYYMM.

RXA-17 Substance Manufacturer Name (CE) 01131

Definition: This field contains the manufacturer of the vaccine administered. MVX codes should be used to code this field. See CDC maintained list of MVX codes, <http://www.cdc.gov/vaccines/programs/iis/code-sets.html>.

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

Definition: This field contains the reason the patient refused the immunization. Any entry in the field indicates that the patient did not receive the immunization. If this field is populated RXA-20, Completion Status shall be populated with **RE**.

RXA-20 Completion Status (ID) 01223

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

RXA-21 Action Code – RXA (ID) 01224

Definition: This field indicates the immunization action. Refer to Table 0323. If it is left empty, USIIS assumes the action code is **A**.

Note: USIIS does not support action code U (Update system). To update a code, it must be deleted and resent.

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

RXR-- Pharmacy/Treatment Route Segment

The Pharmacy/Treatment Route segment contains the alternative combination of route, site, administration device, and administration method that are prescribed as they apply to a particular order.

Table 5-19 Pharmacy/Treatment Route (RXR)

SEQ	Element Name	Data Type	Value set (HL Table)	CDC IG Cardinality	USIIS Cardinality	CDC Usage	USIIS Usage	Conditional Predicate
1	Route	CE	0162	[1..1]	[1..1]	R	R	
2	Administration Site	CWE	0163	[0..1]	[0..1]	RE	RE	
3	Administration Device	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
4	Administration Method	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
5	Routing Instruction	CE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.
6	Administration Site Modifier	CWE		[0..1]	[0..1]	O	X	USIIS does not support this element; if sent it will be ignored.

RXR Field Definitions

RXR-1 Route (CE) 00309

Definition: This field is the route of administration.

Refer to *Table 0162 - Route of Administration* for valid values.

RXR-2 Administration Site (CWE) 00310

Definition: This field contains the site of the administration route. Refer to Table 0163.

6. Messages for Transmitting Immunization Information to USIIS

This chapter describes each of the messages used to accomplish the use cases described in Chapter 2. These messages are built from the segments described in Chapter 5, Segments and Message Details. The Segments are built using the Data Types specified in Chapter 4.

Table 6-1- USIIS Supported Messages

Message	Use Case	Related Messages
VXU	Send Immunization History to USIIS	ACK
ACK	USIIS Sends Message Acknowledgement to external system	VXU, QBP
QBP	Request Immunization History from USIIS	RSP
RSP	USIIS Responds to Request for Immunization	QBP
BHS, BTS	Send to indicate the beginning and end of a batch of immunization messages sent to USIIS.	BTS
FHS, FTS	Send to indicate the beginning and end of a file of batches of immunization messages sent to USIIS.	FTS

USIIS does not support the following message: ADT.

Send Immunization Information to USIIS – VXU

Systems may send unsolicited immunization information to USIIS using a VXU message type. This may be information that is new to USIIS or may be an update to an existing record in USIIS. The following table lists the segments that are part of a VXU message. If other segments are sent, they will be ignored.

Table 6-2--VXU Segment Usage

Segment	CDC Cardinality	USIIS Cardinality	CDC Usage	USIIS 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 or more PID segments.
PD1	[0..1]	[0..1]	RE	RE	Every VXU has one or more PD1 segments.
NK1	[0..*]	[0..*]	RE	RE	The PID segment may have zero or more NK1 segments.
<i>Order group: Each VXU may have zero or more Order groups</i>					
ORC	[1..1]	[1..1]			The order group must have one ORC segment.
RXA	[1..1]	[1..1]	R	RE	Each ORC segment must have one RXA segment. Every RXA requires an ORC segment.
RXR	[0..1]	[0..1]	RE	RE	Each RXA segment may have zero or one RXR segments.
OBX	[0..*]	[0..*]	RE	RE	Each RXA segment may have zero or more OBX segments.
NTE	[0..1]	[0..1]	RE	RE	Each OBX segment may have zero or one NTE segment.

USIIS does process the following segments: GT1, PD1, IN1, IN2, IN3, PV1, PV2, TQ1, TQ2, SFT.

USIIS Business Rules – VXU Segment

1. Patients with a birth date in the future will be rejected.
2. Patients with any combination of the following first names will be rejected: Baby, Boy, Girl, Twin.
3. Patients with any combination of the following last names will be rejected: Decease, Adopt.
4. A RXA segment is usually expected, although USIIS will accept patient demographic information without immunization related segments.
5. Vaccinations with a vaccination date in the future will be rejected.

6. Vaccinations with a vaccination date before the patient’s birth date will be rejected.

USIIS Immunization Information Message Acknowledgment – ACK

USIIS returns an acknowledgement to the sending external system when a VXU message is received. The acknowledgment does not imply that the message did not contain errors.

Table 6-3 ACK Message Acknowledgement Segment

Segment	CDC Cardinality	USIIS Cardinality	CDC IG Usage	USIIS Usage	Comment
MSH	[1..1]	[1..1]	R	R	MSH-9.2 returns what is sent. MSH-9.3 will be valued ACK .
MSA	[1..1]	[1..1]	R	R	
ERR	[0..*]	[0..*]	RE	O	

USIIS does not support the following segment: SFT

Query and Response for an Immunization History – QPB and RSP

Systems may send requests for immunization histories to USIIS using a QPB message type. USIIS supports queries for real-time, synchronous interfaces only—not for batches of messages.

A subsequent version of this Implementation Guide will include more information about this functionality.

7. Change History

Version	Author	Date	Change	Section/Page
Based on CDC HL7 Implementation Guide version 1.4 and errata, 11/9/2012				
1.0	McConnell	22-Sep-2013	VXU functionality	

Appendix A: Code Tables

Code Tables, where different than the CDC Implementation Guide, are included in the Segments and Message Details chapter of this guide.

Appendix B: Guidance on Usage and Example Messages

VXU Example

MSH|^~\&|EHRCode|ClinicCode|USIIS|UT0000|20120614110335||VXU^V04^VXU_V04|20120614EHR1011|P|2.5.1|||NE|AL|
PID|||548548390^^^MR||MINNIE^SYLVA^MAY|MCDAY|20050924|F||2106-3|1740 BLISS AVE^^SALT LAKE CITY^UT^84108-
2904|9|||||646846410||||NH|UT|

PD1|||||||02|N|

NK1||PEACOCK^KRISAN|MTH^MOTHER^HL70063||4355125154|

RXA|0|999|20051129|20051129|110^DTaP-HEP B-IPV^CVX^90723^Diphtheria, tetanus toxoids, acellular pertussis vaccine,
Hepatitis B, and poliovirus vaccine, inactivated (DTaP-HepB-IPV), for intramuscular use^CPT|0.5|ML||00^New Immunization
Record^NIP0001|^ALSERD^ STACEY||||AC21A012BA|20140925|SKB^GLAXOSMITHKLINE (FORMERLY SMITHKLINE
BEECHAM)^MVX|RE||CP|A|20121129|

RXR|IM^INTRAMUSCULAR^HL70162|LT^LEFT THIGH^HL70163|||

Send Information about presenting vaccine information statement (VIS) to a patient

OBX|1|TS|29769-7^Date Vaccine Information Statement Presented^LN|1|20100518|

Send Information about VIS published date

OBX|1|TS|29768-9^Date Vaccine Information Statement Published^LN|1|20070517|

Report Vaccine-specific Contraindication

OBX|1|CE|30945-0^Vaccination Contraindication^CDCPHINVS|1|VXC21|

Send Information about Vaccine-specific Financial Class

OBX|3|CE|64994-7^Funding Source for Immunization^HL70064|1|H03|

Send Information about Vaccine-specific Reaction

OBX|3|CE|31044-4^Vaccination Reaction^ CDCPHINVS |1|VXC12|

ACK Example

MSH|^~\&|USIIS|UT0000^^UT0000|||20120611082732||QCK|USIIS2012061100002|P|2.5.1|||NE|AL|
MSA|AA|20120605CDP00485|

QCK Example

MSH|^~\&|USIIS|UT0000^^UT0000|||20120611082732||QCK|USIIS2012061100002|P|2.3.1|||NE|AL|
MSA|AA|20120605CDP00485|
QAK|20120605CDP00485|NF|

QPB and RSP Examples

A subsequent version of this Implementation Guide will include examples.