Local Implementation Guide for HL7 2.5.1 Immunization Messaging

Version 1.4

1/20/2017

VERSION HISTORY

Version #	Implemented By	Revision Date	Reason
0.1	Eric Larson	02/24/2011 – 4/08/2011	Initial creation through peer feedback by IIS and EHR community.
1.0	Eric Larson	04/11/2011	Group consensus to move forward into version 1.0 after review cycles.
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1.3	Eric Larson	09/13/2011	Updated per the updated release of the CDC HL7 Implementation Guide.
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1.4	VacTrAK Staff	06/03/2014	Added regulation changes and corrections.
1.4	VacTrAK Staff	06/17/2014	Added page numbers
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1.4	VacTrAK Staff	1/5/2015	Updated eligibility status codes to reflect new state specific codes.
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1.4	VacTrAK Staff	10/14/2015	Improved wording for OBX 64994-7, added eligibility status code V25, and removed references to the deprecated use of PV1-20.
1.4	VacTrAK Staff	9/2/2016	Updated funding source codes per CDC HL7 2.5.2 IG Addendum, updating of VacTrAK Interface Project Stages, adding of local clarifying language and correction of typos.
1.4	VacTrAK Staff	9/26/2016	RXA-21 and RXA-11 changed from RE to R.
1.4	VacTrAK Staff	1/20/2017	Modifications to PV1 and ERR segments in tables 6-2, 6-3 to reflect the standard and program rules. Updated explanation of state rules for OBX 64994-7 and 30963-3). Updated links

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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 how the VacTrAK HL7 data exchange interface works. They are arranged in a hierarchy of documents, each refining and constraining the HL7 Standard.

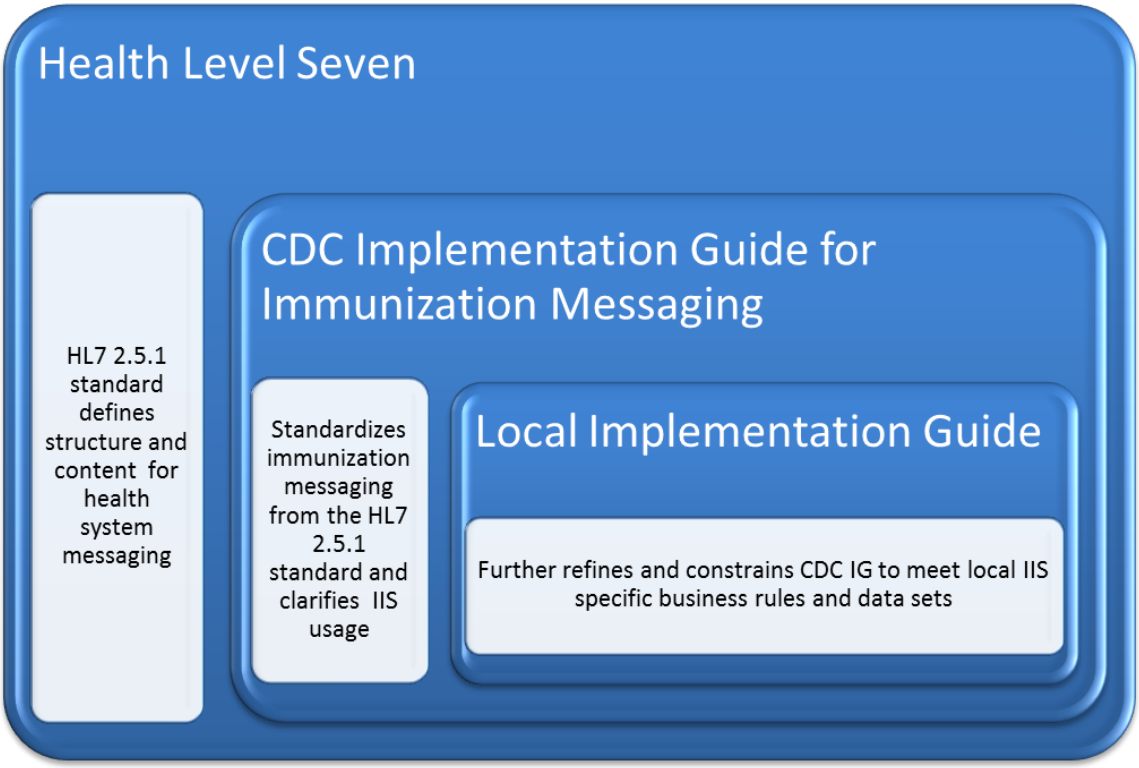

Figure 1: HL7 Controlling Document Hierarchy

The first document is the HL7 2.5.1 standard developed by Health Level Seven, a not-for-profit ANSI-accredited standards developing organization. FrThis standard defines the structure and content of immunization messages, but leaves many specific implementation details undecided. Beneficial 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 **HL7 2.5.1 Implementation Guide for Immunization Messaging, Release 1.5** (CDC IG) and it's **Addendum**. (Whenever this guide reference's the CDC's IG, it infers the inclusion of the addendum even if not specifically referenced.) This guide gives specific instructions regarding how to report to immunization information systems, but still leaves some implementation decisions to each state IIS. This guide and other technical

information can be obtained from the CDC website at http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html.

The third document is this document. It finalizes all implementation decisions and defines exactly what VacTrAK will and will not accept. It is written in accordance with the standards set in the first two documents. This local implementation guide has taken great care to point out differences from the CDC IG by adding additional columns to the tables. In cases where this guide differs from the CDC IG, this guide will provide both the CDC IG column followed the local usage specification. This effort will prove highly useful in the larger interoperability effort for Electronic Health Record Systems, Indian Health Services, and any other electronic exchange that may span multiple IIS. Providing this information will allow the implementers of external systems to accurately compare the CDC IG with a local implementation guide, and compare differences between two different local implementation guides much easier than in the past.

VacTrAK has identified additional documents that can be helpful.

1. *HL7 Version 2.5.1: Implementation Guide for Immunization Messaging, Release 1.5 (by CDC)*
2. *HL7 Version 2.5.1: Implementation Guide for Immunization Messaging, Release 1.5 Addendum (by CDC)*
3. *A short List of Required Fields (by VacTrAK)*
4. *VacTrAK Meaningful Use Guidance*
5. *Roles and Responsibilities (by VacTrAK)*
6. *Interface Stages (See appendix C)*

Intended Audience

This Local IG is intended for technical groups from IIS and EHRS that must implement these guidelines. The reader of this Local IG should have a solid HL7 foundation and be very familiar with the contents of the CDC IG (http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html). Chapters 2 and 3 of the CDC IG provide HL7 foundational concepts and set the stage for this Local IG. The goal of this Local IG is to provide an unambiguous specification for creating and interpreting messages.

Scope

This Local IG is intended to facilitate the exchange of immunization records between external Health Systems and VacTrAK. This includes:

- sending and receiving immunization histories for individuals, *including data used to deduplicate vaccination records and facilitate inventory management*
- sending and receiving demographic information about the individuals, *including data used to deduplicate patient records*

- receiving requests for 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 *(at this time, VacTrAK can only send one error per message; however, we have an error reporting system that details all message errors for users.)*
- sending observations about an immunization event (may include funding, contraindications, VIS given and publication dates, and forecasts)

Organization and Flow

This Local IG is designed to mirror the organization and flow of the CDC IG. This chapter of this guide defines the high-level use cases supported by VacTrAK. The subsequent chapters define how VacTrAK implements those use cases. Finally, this guide has appendices for the code tables, example messages, and other important guidance.

It is important to note this guide adheres to the CDC IG on several key aspects including:

- Data type specifications from chapter 3 of the CDC IG have not been redefined and usage has not been changed
- Standardized vocabulary is supported as specified in the CDC IG
- To the extent possible, data sets and business rules will adhere to the CDC IG.

In cases where differences exist between this guide and the CDC IG and Addendum the differences will be clearly defined in the appropriate sections of this guide.

This guide adheres to the following conventions beyond those specified in the CDC IG and Addendum:

- This local guide is constructed assuming the implementer has access to the Version 2.5.1 of the HL7 Standard and the CDC's HL7 Version 2.5.1 Implementation Guide: Immunization Messaging (Release 1.5) 8/1/2012 and Addendum.
- Conformance information is usually not provided for optional message elements, unless there is a specific reason for including them.

2. Actors, Goals, and Messaging Transactions

Chapter 2 of the CDC IG defines actors (entities) that may be involved in sending or receiving immunization-related messages. It describes what actors are and how use cases (goals) can be associated to those actors. Finally, it associates specific HL7 messages with these use cases.

There are nine use cases defined in Chapter 2 of the CDC IG. The use cases listed in the CDC IG and supported by VacTrAK are:

Use Case	**Goal**	**Supported by *VacTrAK***
Send Immunization History	To send an *[unsolicited]* immunization history for an individual client from one system to another. In addition to EHRS and IIS, other systems such as vital records systems or billing systems could use this message to send immunization histories.	*No. Although VacTrAK accepts immunization histories from EHRs, it does not send unsolicited vaccine histories.* *Bi-directional interfaces will be expected to use solicited queries as VacTrAK no longer supports the sending of data (VXU) in a reciprocal batch to EHRs.*
Receive Immunization History	To receive an unsolicited immunization history. It may be an update or a new record.	Yes. *VacTrAK routinely receives VXU messages.*
Request Immunization History	To request an immunization history from another system.	Yes. *Although VacTrAK is not currently requesting immunization history from any other state's registries, the system is capable of doing so and is anticipated it will in the future.*
Return Immunization History	To return an immunization history to another system.	Yes. VacTrAK will return an immunization history. *If a QBP is sent, then a RSP, QCK, or ACK will result. If VXQ is sent either a VXX, VXR, QCK, or ACK returned depending on match results.* *(See Appendix B for relevant information on public / private data and on solicited queries.)*
Accept Requested History	To accept an immunization history in response to a query for an immunization history from another system.	Yes. (Future use.) *Although VacTrAK is not currently sending requests to other state's registries, it is anticipated it will in the*

Use Case	Goal	Supported by *VacTrAK*
		future. When it does, it can accept the requested histories.
Send Demographic Data	To send demographic data about a person. It may be an update or a new record.	Limited. *VacTrAK does not support the sending of data in a reciprocal batch. Bi-directional interfaces will be expected to use queries. These queries would contain limited demographic data for the purposes of properly identifying patients.* *(See Appendix B for relevant information on public / private data)*
Accept Demographic Data	To accept demographic data about a person. It may be an update or a new record.	Yes. *Most EHRs currently send this data in a VXU with demographic data and vaccinations; however, VacTrAK can accept some ADT and DFT as well. VacTrAK no longer accept ORU messages.*
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 personal id. It may indicate success or failure. It may include error messages.	Yes. *ACK or RSP are sent.*
Report Error	To send error messages related to submitted messages. These errors could result of rejection of message or parts of message.	Yes. *VacTrAK error messages come in ACK messages. Currently, only one error is sent in the ACK, which differs from the standard. However, VacTrAK also provides errors in an error report outside of the interface itself which details all errors.*

For detailed specifics about each use case, please refer to Chapter 2 of the CDC IG.

3. HL7 Messaging Infrastructure

The CDC IG contains basic descriptions of terms and definitions that are used in both the CDC IG and this guide. To avoid potentially ambiguous situations, the majority of the terms and definitions will not be redefined in this guide.

In cases where the CDC guide requires (R or RE) an element but VacTrAK has not yet implemented that element, the system usage indicated will conform to the CDC guidance by indicating 'R' or 'RE' based on what the CDC IG expresses. However, the "Comments" column will also note that the element is currently ignored, and any clarifying information available will be included in the definition. If the CDC IG considers an element optional and VacTrAK has not yet implemented the element, the system usage will indicate 'O' and there will be no field definition present. As VacTrAK evolves, it will work to resolve conflicts with the CDC IG by expanding usage. Providers and Vendors are encouraged to become prepared to send R or RE fields when VacTrAK is ready to accept them.

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 implementation guide.

Usage	Information
R – Required	The sending application SHALL populate "R" elements with a non-empty value.
RE – Required but may be empty	The sending application SHALL populate "RE" elements with a non-empty value if there is relevant data.
C(a/b) – Conditional	The sending application SHALL follow the usage of the "a" half of the conditional usage if the conditional predicate is true. The sending application SHALL follow the usage of the "b" half of the conditional usage if the conditional predicate is false. "a" and "b" shall be "R", "RE", "O", or "X". "a" and "b" can be valued the same or differently.
O – Optional	These elements are entirely optional to provide by the sending system and also optional to consume by the IIS.
X – Not Supported	The sending application SHALL NOT populate "X" elements.

Key words and HL7 Definitions

- *Null and empty fields: Any null values that are accepted by VacTrAK as null typically do not write over a populated value. This differs from the standard presented in the CDC IG 1.5.*

Although this guide overall is specific to HL7 2.5.1, VacTrAK has included some comments added to facilitate backwards compatibility. The CDC guide indicates that, "Messages conforming to the specifications in this Guide shall indicate that the version is 2.5.1.;" however, messages sent to VacTrAK should indicate the version of the CDC guide to which they conform. VacTrAK will process the message according to the version indicated and the configuration options set in the HL7 Uploads Settings or Import Profile.

4. HL7 Data Types

The CDC IG 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 avoid potentially ambiguous situations and not attempt redefine an already clearly defined section. This guide will adhere to Chapter 4 of the CDC IG.

In addition, VacTrAK does maintain many elements from the CDC IG for HL7 2.3.1 for the purpose of backwards compatibility. This guide contains very limited definitions of relevant HL7 data types supported in messages for backward compatibility. Where there are irreconcilable differences, a configuration option in the HL7 Upload Settings page for an incoming account is available.

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

Table 5-1 Message Segments

Segment (Name/Role)	**Definition**	**Message Usage**	**CDC IG Usage**	***VacTrAK* Usage**	**Note**
BHS (Batch Header Segment)	The Batch Header 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. That is, a stream of messages may be sent without a BHS. A system may choose to require BHS for all groups of messages, but should specify this requirement in a local implementation Guide.	Any	Optional	*Not Supported*	Ignored
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.	*Not Supported*	Ignored
ERR (Error Segment)	The error segment reports information about errors in processing the message. *Although CDC guidelines indicate that this segment may repeat and that each error will have its' own ERR segment,*	ACK, RSP	Ability to create and process is Required for conformant	ACK, RSP	Used to return information about errors. *VacTrAK sends only one ERR segment, even if multiple errors are*

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	*VacTrAK* Usage	Note
	VacTrAK has not yet implemented repeating ERR segments.		systems.		*present in the message. This differs from the standard. However, VacTrAK also provides errors in an error report outside of the interface itself which details all errors.*
FHS (File Header Segment)	The file header segment may be used to group one or more batches of messages. This is a purely optional segment, even if batches are sent. Its' use is not anticipated for use in real-time transactions. Any system that anticipates its use should specify this in a local implementation Guide.	Any	Optional	*Not Supported*	Ignored
FTS (File Trailer Segment)	The FTS defines the end of a file of batches. It is only used when the FHS is used.	Any	Required to terminate a file of batches. (Matches FHS)	*Not Supported*	Ignored
IN1-3 (Insurance Segment)	The IN1-IN3 segments contain insurance policy coverage information necessary to produce properly pro-rated and patient and insurance bills.	VXU	Required if the group is present per the standard.	*Not Supported*	This segment is not anticipated for use in immunization messages, but may be specified for local use. *Ignored*
MSA (Message	This segment is included in the query response (RSP) and acknowledgment	RSP, ACK	Ability to create and	ACK, QAK	

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	*VacTrAK* Usage	Note
Acknowledgement Segment)	(ACK) messages. It contains information used to identify the receiver's acknowledgement response to an identified prior message.		process is required for conformant systems.		
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.	All	This begins every message and includes information about the type of message, how to process it, and by whom it was created.
NK1 (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.	VXU, ADT, RSP, VXR, VXX	Used to carry information about the next of kin for a client.
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, ADT, RSP	Ability to create and process is required for conformant systems.	VXR, ADT, RSP, VXQ	Used to carry a note related to the parent segment.
OBX (Observation Result Segment)	The observation result 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	ADT, VXU, RSP	Ability to create and process is required for conformant	VXU, VXR, RSP	Used to report one atomic part of an observation.

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	*VacTrAK* Usage	Note
	format is a question and an answer.		systems.		
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.	VXU, RSP	Ability to create and process is required for conformant systems.	VXU, VXR, RSP	Used to give information about a group of one or more orders (typically RXA).
PD1 (Patient Demographic Segment)	The patient additional demographic segment contains demographic information that is likely to change about the patient. 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.	VXU, ADT, VXR, RSP	Used to give information about a patient. A primary use in immunization messages is to give information about privacy and whether contact is allowed.
PID (Patient Identifier Segment)	This 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.	VXU, ADT, VXR, RSP	Used to carry information about the patient/client.

PV1 (Patient Visit Segment)	This segment contains information related to a specific visit.	VXU, ADT, RSP	Optional	VXU, ADT, VXR, RSP	*This segment is used to carry information about a given visit.*
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.	QCK, RSP	
QPD	Query parameter definition	QBP, RSP	Ability to create and process is required for conformant systems.	QBP, RSP	
RCP	Response control parameter segment	QBP	Ability to create and process is required for conformant systems.	QBP	
RXA	Pharmacy/Treatment Administration Segment	VXU, RSP	Ability to create and process is required for conformant systems.	VXU, VXR, RSP	
RXR	Pharmacy/Treatment Route Segment	VXU, RSP	Ability to create and	VXU, VXR, RSP	

			process is required for conformant systems.		

BHS—Batch Header Segment (Not Supported)

This segment is not currently supported by VacTrAK.

BTS—Batch Trailer Segment (Not Supported)

This segment is not currently supported by VacTrAK.

ERR—Error Segment

Table 5-2 Error Segment (ERR)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comments
1	Error Code and Location	ELD		[0..0]	[0..0]	X	X		*Not supported for Version 2.5 and above.* *Backwards compatibility support in VacTrAK for versions prior to 2.5*
2	Error Location	ERL		[0..1]	[0..1]	RE	RE		
3	HL7 Error Code	CWE	0357	[1..1]	[1..1]	R	R		This field is required for 2.5.1 messages and optional (ignored) for 2.3.1 messages
4	Severity	ID	0516	[1..1]	[1..1]	R	R		This field is required for 2.5.1 messages and optional (ignored) for 2.3.1 messages
5	Application Error Code	CWE	0533	[0..1]	[0..1]	O	O		
6	Application Error Parameter	ST		[0..1]	[0..1]	O	O		
7	Diagnostic Information	TX		[0..1]	[0..1]	O	O		Ignored
8	User Message	TX		[0..1]	[0..1]	O	O		

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comments
9	Inform Person Indicator	IS	0517	[0..1]	[0..1]	O	O		Ignored
10	Override Type	CWE	0518	[0..1]	[0..1]	O	O		Ignored
11	Override Reason Code	CWE	0519	[0..1]	[0..1]	O	O		Ignored
12	Help Desk Contact Point	XTN		[0..1]	[0..1]	O	O		Ignored

ERR field definitions:

ERR-1 Error Location (ELD) 01812

Note: ERR-1 is not supported for use in messages starting with version 2.5. *However, it may continue to be used for versions earlier as specified in the earlier Implementation Guide. It is the ONLY field that will be included in an ERR segment if the MSH indicates that the message with the error was a version prior to 2.5.*

In VacTrAK this field is not supported for 2.5.1 messages but is available for backward compatibility for earlier HL7 versions.

ERR-2 Error Location (ERL) 01812

Definition: Identifies the location in a message related to the identified error, warning or message. *The standard indicates that, "each error will have an ERR, so no repeats are allowed on this field." However, VacTrAK does not support the return of multiple errors from a single message.* This field may be left empty if location is not meaningful. For example, if is unidentifiable, an ERR to that effect may be returned.

In VacTrAK this field is required for 2.5.1 messages and optional (ignored) for 2.3.1 messages

ERR-3 HL7 Error Code (CWE) 01813

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

In VacTrAK this field is required for 2.5.1 messages and optional (ignored) for 2.3.1 messages

ERR-4 Severity (ID) 01814

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

Example with error in RXA:

MSH|^~\&|VacTrAK^^|AKIIS^^|PRIMESUITE^^|Test Provider Site^^|20131212154450||ACK^V04^ACK|6610258598.100003591|P|2.5.1|
MSA|AE| Test Provider Site -1215309|vaccination lot is missing|||^^HL70357|
ERR|^^0^^^HL70357|

FHS—File Header Segment

This segment is not currently supported by VacTrAK.

FTS—File Trailer Segment

This segment is not currently supported by VacTrAK.

IN1 Insurance Segment (IN2, IN3)

This segment is not currently supported by VacTrAK.

MSA—Message Acknowledgement Segment

Table 5-3 Message Acknowledgement Segment (MSA)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	VacTrAK Cardinality	CDC IG Usage	VacTrAK Usage	Conditional Predicate	Comments
1	Acknowledgment Code	ID	0008	[1..1]	[1..1]	R	R		
2	Message Control ID	ST		[1..1]	[1..1]	R	R		
3	Text Message	ST		[0..0]	[0..0]	X	X		
4	Expected Sequence Number	NM		[0..1]	[0..1]	O	O		Ignored

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	VacTrAK Cardinality	CDC IG Usage	VacTrAK Usage	Conditional Predicate	Comments
5	Delayed Acknowledgment Type			[0..1]	[0..1]	O	O		Ignored
6	Error Condition	CE		[0..0]	[0..0]	X	X		VacTrAK supports for backwards compatibility to 2.3.1.

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.

MSA-2 Message Control ID (ST) 00010

Definition: 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.

MSH—Message Header Segment

HL7 ATTRIBUTE TABLE - MSH - MESSAGE HEADER

Table 5-4 Message Header Segment (MSH)

SEQ	Element Name	Data Type	Value set	CDC IG Cardinality	VacTrAK Cardinality	CDC IG Usage	VacTrAK Usage	Conditional Predicate	Comments
1	Field Separator	ST		[1..1]	[1..1]	R	R		Field shall be valued "|" for 2.5.1 messages. See notes regarding backwards compatibility.
2	Encoding Characters	ST		[1..1]	[1..1]	R	R		Field shall be valued "^~\&"
3	Sending Application	HD		[0..1]	[0..1]	RE	R		Name of EHR.
4	Sending Facility	HD		[0..1]	[0..1]	RE	R		Name of organization/practice.

SEQ	Element Name	Data Type	Value set	CDC IG Cardinality	VacTrAK Cardinality	CDC IG Usage	VacTrAK Usage	Conditional Predicate	Comments
5	Receiving Application	HD		[0..1]	[0..1]	RE	R		Expected value is “VacTrAK”
6	Receiving Facility	HD		[0..1]	[0..1]	RE	R		Expected value is “AKIIS”
7	Date/Time Of Message	TS		[1..1]	[1..1]	R	R		Required for 2.4 and later messages.
8	Security	ST		[0..1]	[0..0]	O	O		Undefined
9	Message Type	MSG		[1..1]	[1..1]	R	R		
10	Message Control ID	ST		[1..1]	[1..1]	R	R		
11	Processing ID	PT		[1..1]	[1..1]	R	R		Strongly recommended to be ‘P’. If some other value is needed by sending system, please contact VacTrAK staff and discuss.
12	Version ID	VID		[1..1]	[1..1]	R	R		Answers in this guide based on 2.5.1. Contact VacTrAK staff for guidance and rules for older versions.
13	Sequence Number	NM		[0..1]	[0..1]	O	O		Ignored
14	Continuation Pointer	ST		[0..1]	[0..1]	O	O		Ignored
15	Accept Acknowledgement Type	ID	0155	[0..1]	[0..1]	RE	RE		Ignored
16	Application Acknowledgment Type	ID	0155	[0..1]	[0..1]	RE	RE		AL, NE, or ER. VacTrAK has settings available to override these if necessary.
17	Country Code	ID		[0..1]	[0..0]	O	O		Ignored
18	Character Set	ID		[0..1]	[0..0]	O	O		Ignored

SEQ	Element Name	Data Type	Value set	CDC IG Cardinality	VacTrAK Cardinality	CDC IG Usage	VacTrAK Usage	Conditional Predicate	Comments
19	Principal Language Of Message	CE		[0..1]	[0..0]	O	O		Ignored
20	Alternate Character Set Handling Scheme	ID		[0..1]	[0..0]	O	O		Ignored
21	Message Profile Identifier	EI		[0..*]	[0..0]	C(R/X)	C(R/X)	If R MSH-9.1 is valued “QBP” or “RSP”	
22	VacTrAK expects the CDC to announce additional guidance regarding messaging authorized organizations. It is expected that this guidance will include MSH-22 and MSH-23. VacTrAK plans to add requirements around these fields as soon as possible after the CDC’s final guidance is available. Organizations with existing interfaces and their vendors will be given as much time as possible to make appropriate changes.								
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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. 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). The rest of the message will be parsed based on this field.

For 2.5.1 messages the field separator is required to be the vertical bar “|” (ASCII 124); however, other legal HL7 values can be sent to support backwards compatibility. Contact VacTrAK staff for more information.

Example:

MSH|

↑

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). The rest of the message is parsed based upon this field.

MSH-3 Sending Application (HD) 00003

Definition: This field uniquely identifies the sending application. In the case of an IIS, it will be found in the list of IIS applications in Appendix A, User-defined table 0361. This is not the product, but rather the name of the specific instance. For instance, the IIS in Georgia(GRITS) is an instance based on the Wisconsin IIS (WIR). The code for GRITS would be specific to GRITS. Additional locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0361, including local additions to this table. The second and third components are reserved for use of OIDs.

In VacTrAK the Sending Application (Name of EHR) is expected in the MSH-3.2 but if blank will be read from MSH-3.1.

MSH-4 Sending Facility (HD) 00004

Definition: This field identifies the organization responsible for the operations of the sending application. Locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0362. The second and third components are reserved for use of OIDs or other universal identifiers.

In VacTrAK the Sending Facility is expected to be the name of organization/practice. This is expected in MSH-4.2 but if empty will be read from MSH-4.1. However, it's important to note that HL7 imports are identified/ logging in VacTrAK uses the HL7 user credentials as the sending facility.

MSH-5 Receiving Application (HD) 00005

Definition: This field uniquely identifies the receiving application. In the case of an IIS, it will be found in the list of IIS applications in Appendix A, User-defined table 0361. This is not the product, but rather the name of the specific instance. For instance, the IIS in Georgia(GRITS) is an instance based on the Wisconsin IIS (WIR). The code for GRITS would be specific to GRITS. Additional locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0361. The second and third components are reserved for use of OIDs.

In VacTrAK this expected to be "VacTrAK"

MSH-6 Receiving Facility (HD) 00006

Definition: This field identifies the organization responsible for the operations of the receiving application. Locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0362. The second and third components are reserved for use of OIDs.

In VacTrAK this expected to be "AKIIS"

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 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.

Format: YYYYMMDDHHMM[SS[.S[S[S]]]]+/-ZZZZ

This field was made required in version 2.4. Messages with versions prior to 2.4 are not required to value this field. This usage supports backward compatibility.

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. Reference Table 0076 for list of message types.

Event type triggers used in VacTrAK differ from that in the CDC guide Table 0003. Those accepted follow: VXU: V04; DFT: P03; and ADT: A01, A02, A03, A04, A05, A06, A07, A08, A09, A10, A14, A15, A16, A28, and A31 (With A04, A08, and A28 being the most commonly used for ADT message with immunization messages.)

MSH-10 Message Control ID (ST) 00010

Definition: 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 acknowledgment 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 (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 in Appendix A. The choices are Production, Debugging and Training. In most cases, P or Production should be used.

It is important to always send HL7 messages to VacTrAK as "P" for production. The other methods can yield unexpected results. If some other value is needed by sending system, please contact VacTrAK staff and discuss.

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.

The CDC guide indicates that, "Messages conforming to the specifications in this Guide shall indicate that the version is 2.5.1."However, VacTrAK has some backwards compatibility capacity. Those interested in using versions older than 2.5.1 should contact VacTrAK staff. Additionally, messages sent to VacTrAK should correctly indicate the version of the CDC guide to which they conform. When possible VacTrAK will process the message according to the data provided and the configuration options set in the HL7 Import Profile.

MSH-15 Accept Acknowledgment Type (ID) 00015 - Ignored

Definition: This field identifies the conditions under which accept acknowledgments are required to be returned in response to this message; required for enhanced acknowledgment mode. Refer to HL7 Table 0155 - Accept/application acknowledgment conditions for valid values.

The CDC guide indicates that, "Accept acknowledgement indicates if the message was safely received or not. It does not indicate successful processing. Application acknowledgement indicates the outcome of processing." However, VacTrAK ignores this value and will process the message according to the data provided according to configuration options set in system HL7 Uploads Settings or Import Profile.

MSH-16 Application Acknowledgment Type (ID) 00016

Definition: This field contains the conditions under which application acknowledgments are required to be returned in response to this message. Required for enhanced acknowledgment mode.

The CDC guide indicates that, "If MSH-15-accept acknowledgment type and MSH-16-application acknowledgment type are omitted (or are both empty), the original acknowledgment mode rules are used. This means that, unless otherwise specified, the receiving application will send acknowledgment when it has processed the message." However, VacTrAK ignores MSH-15. Additionally, the behavior of MSH-16 can be overridden in the HL7 Import Profile configuration.

HL7-defined Table 0155 - Accept/Application acknowledgment conditions

Type	Description
AL	Always return acknowledgement
NE	Never return acknowledgment
ER	Only return acknowledgment when an error occurs

MSH-21 Message Profile Identifier (EI) 01598

Definition: Sites may use this field to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages. Chapter 7 describes the query profile for requesting an immunization history. It also includes child profiles that constrain the response to the query.

Although the CDC Guide indicates that, "this field will be required whenever a profile is being used to constrain the message," *the profiles used by VacTrAK are not managed in this manner. If sent, this will be ignored.*

VacTrAK expects the CDC to announce additional guidance regarding messaging authorized organizations. It is expected that this guidance will include MSH-22 and MSH-23. VacTrAK plans to add requirements around these fields as soon as possible after the CDC's final guidance is available. Organizations with existing interfaces and their vendors will be given as much time as possible to make appropriate changes.

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. Therefore, if 3 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 5-5-Next of Kin Segment (NK1)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	VacTrAK Cardinality	CDC IG Usage	VacTrAK Usage	Conditional Predicate	Comments
1	Set ID - NK1	SI		[1..1]	[1..1]	R	R		
2	Name	XPN		[1..*]	[1..2]	R	R		The first instance is the legal name and is required.
3	Relationship	CE	0063	[1..1]	[1..1]	R	R		For <19 preferred values: GRD, PAR, MTH, or FTH.
4	Address	XAD		[0..*]	[0..1]	RE	RE		The first instance shall be the primary address.
5	Phone Number	XTN		[0..*]	[0..1]	RE	RE		The first instance shall be the primary phone number.
6	Business Phone Number	XTN		[0..*]	[0..*]	O	O		Ignored
7	Contact Role	CE		[0..1]	[0..1]	O	O		Ignored
8	Start Date	DT		[0..1]	[0..1]	O	O		Ignored
9	End Date	DT		[0..1]	[0..1]	O	O		Ignored
10	Next of Kin / Associated Parties Job Title	ST		[0..1]	[0..1]	O	O		Ignored
11	Next of Kin / Associated Parties Job Code/Class	JCC		[0..1]	[0..1]	O	O		Ignored
12	Next of Kin / Associated Parties Employee Number	CX		[0..1]	[0..1]	O	O		Ignored
13	Organization Name - NK1	XON		[0..1]	[0..1]	O	O		Ignored
14	Marital Status	CE		[0..1]	[0..1]	O	O		Ignored
15	Administrative Sex	IS		[0..1]	[0..1]	O	O		Ignored
16	Date/Time of Birth	TS		[0..1]	[0..1]	O	O		Ignored
17	Living Dependency	IS		[0..1]	[0..1]	O	O		Ignored

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	VacTrAK Cardinality	CDC IG Usage	VacTrAK Usage	Conditional Predicate	Comments
18	Ambulatory Status	IS		[0..1]	[0..1]	O	O		Ignored
19	Citizenship	CE		[0..1]	[0..1]	O	O		Ignored
21	Living Arrangement	IS		[0..1]	[0..1]	O	O		Ignored
20	Primary Language	CE		[0..1]	[0..1]	O	O		Ignored
22	Publicity Code	CE		[0..1]	[0..1]	O	O		Ignored
23	Protection Indicator	ID		[0..1]	[0..1]	O	O		Ignored
24	Student Indicator	IS		[0..1]	[0..1]	O	O		Ignored
25	Religion	CE		[0..1]	[0..1]	O	O		Ignored
26	Mother’s Maiden Name	XPN		[0..1]	[0..1]	O	O		Ignored
27	Nationality	CE		[0..1]	[0..1]	O	O		Ignored
28	Ethnic Group	CE		[0..1]	[0..1]	O	O		Ignored
29	Contact Reason	CE		[0..1]	[0..1]	O	O		Ignored
30	Contact Person’s Name	XPN		[0..1]	[0..1]	O	O		Ignored
31	Contact Person’s Telephone Number	XTN		[0..1]	[0..1]	O	O		Ignored
32	Contact Person’s Address	XAD		[0..1]	[0..1]	O	O		Ignored
33	Next of Kin/Associated Party’s Identifiers	CX		[0..1]	[0..1]	O	O		
34	Job Status	IS		[0..1]	[0..1]	O	O		Ignored
35	Race	CE		[0..1]	[0..1]	O	O		Ignored
36	Handicap	IS		[0..1]	[0..1]	O	O		Ignored
37	Contact Person Social Security Number	ST		[0..1]	[0..1]	O	O		Ignored
38	Next of Kin Birth Place	ST		[0..1]	[0..1]	O	O		Ignored
39	VIP Indicator	IS		[0..1]	[0..1]	O	O		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 one, for the second occurrence, the sequence number shall be two, etc.

NK1-2 Name (XPN) 00191

Definition: 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 HL7 Table 0200 - Name Type for valid values.

Component	Description	Max. Length
2.1	Next of Kin Last Name	48 characters. Alphabetic characters, hyphens, apostrophes, and spaces are all valid.
2.2	Next of Kin First Name	48 characters. Alphabetic characters, hyphens, apostrophes, and spaces are all valid.
2.3	Next of Kin Middle Name	48 characters. Alphabetic characters, hyphens, apostrophes, and spaces are all valid.

NK1-2 values can be important to VacTrAK's deduplication process for those < 19. The consideration of the value in NK1-2 is tied to the value sent in NK1-3. If the NK1-3 indicates a guardian type relationship (i.e. is GRD, PAR, MTH, or FTH), the person is considered a guardian and the data is used in deduplication. Otherwise, the individual would be considered a contact and are not used to aid in deduplication.

Additionally, as a matter of business practice, issue resolutions in VacTrAK are set to error messages sent without valid values for NK1-2 and NK-3 for patients <19.

NK1-3 Relationship (CE) 00192

Definition: This field contains the actual personal relationship that the next of kin/associated party has to the patient.

*Refer to User-defined Table 0063 - Relationship (below) for required values. For those ≥ 19, use any value from Table 0063; however, for persons <19 VacTrAK highly encourages limiting values to FTH, MTH, PAR, GRD (highlighted in **bold** below). These values are vital for VacTrAK's deduplication process.*

User-defined Table 0063 – Relationship

Code	Description
BRO	Brother
CGV	Care giver
CHD	Child
FCH	Foster child

Code	Description
FTH	**Father**
GRD	**Guardian**
GRP	Grandparent
MTH	**Mother**

Code	Description
OTH	Other
PAR	**Parent**
SCH	Stepchild
SEL	Self

Code	Description
SIB	Sibling
SIS	Sister
SPO	Spouse

NK1-4 Address (XAD) 00193

Definition: This field contains the address of the next of kin/associated party. Multiple addresses are allowed for the same person. 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.

Component	Description	Max Length
4.1	Guardian Address Street	45 characters
4.2	Guardian Address Street2	45 characters
4.3	Guardian Address City	30 characters
4.4	Guardian Address State	5 characters

NK1-5 Phone Number (XTN) 00194

Definition: This field contains the telephone number of the next of kin/associated party. Multiple phone numbers are allowed for the same person. 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 HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

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. It is also used in ADT in relation to various segments.

Table 5-6 Note Segment (NTE)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
1	Set ID - NTE	SI		[0..1]	[0..1]	O	O		Ignored
2	Source of Comment	ID		[0..1]	[0..1]	O	O		Ignored
3	Comment	FT		[1..1]	[1..1]	R	R		
4	Comment Type	CE		[0..1]	[0..1]	O	O		Ignore

NTE Field Definitions

NTE-3 Comment (FT) 00098

Definition: This field contains the comment contained in the segment.

Note: *Data sent in NTE-3 is not currently saved in VacTrAK but may be in a future version.*

OBX—Observation Result Segment

The observation result 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 (OBX-3) and an answer (OBX-5).

Four OBX segments are required by VacTrAK for all administered vaccines are included below along with an example. These segments are not expected for historic vaccines.

- *Vaccination funding source (public/ private funding),*
  OBX|1|CE|30963-3^VACCINE PURCHASED WITH^LN|| PHC70^PRIVATE FUNDS^CDCPHINVS|||||F|
- *Vaccine level - vaccine funding program eligibility status*
  OBX|2|CE|64994-7^VACCINE FUNDING PGM ELIG CAT^LN|1|V01|||||F|
- *Vaccine information statement (VIS) publication date,*
  OBX|3|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|1|20090913|||||F|||20100920
- *VIS form given date*
  OBX|4|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED ^LN|1|20100920|||||F|||20100920

IMPORTANT: OBX 30963-3 and OBX 67994-7:

- *Both of these segments are required by regulation (7 AAC 27.650) for vaccines administered in Alaska.*
- *See Appendix B, "Vaccine Accountability and HL7 – logic compatibility requirements for OBX (30963-3 and 64994-7)" for important information related to OBX requirements and logic.*

Note: Please see Appendix B for detailed information on Eligibility Status and Lot Tracking.

Additional desirable OBX segments include:

- *TB induration (1648-5)*
- *Contraindication (30945-0)*
- *Disease with presumed immunity (59784-9)*
- *Others as outlined in the CDC IG.*

Table 5-7 Observation Segment (OBX)

SEQ	Element Name	Data Type	Value Sets	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
1	Set ID – OBX	SI		[1..1]	[1..1]	R	R		
2	Value Type	ID	0125	[1..1]	[1..1]	R	R		CE, NM, ST, DT, or TS
3	Observation Identifier	CE	NIP 003	[1..1]	[1..1]	R	R		This indicates what this observation refers to. It poses the question that is answered by OBX-5. There are 4 REQUIRED OBX segments for (administered vaccines only) with the following observation identifiers: 30963-3, 64994-7, 29768-9, and 29769-7. There are also optional OBX segments.
4	Observation Sub-ID	ST		[1..1]	[1..1]	R	R		Not implemented yet
5	Observation Value	varies		[1..1]	[1..1]	R	R		This is the observation value and answers the question posed by OBX-3.
6	Units	CE		[0..1]	[0..1]	C(R/RE)	C(R/RE)	If OBX-2 is valued “NM” or “SN”	If the observation in OBX-5 requires an indication of the units, they are placed here. *In VacTrAK this is only used for receiving lead lab results.*

SEQ	Element Name	Data Type	Value Sets	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
7	References Range	ST		[0..1]	[0..1]	O	O		
8	Abnormal Flags	IS		[0..1]	[0..1]	O	O		
9	Probability	NM		[0..1]	[0..1]	O	O		Ignored
10	Nature of Abnormal Test	ID		[0..1]	[0..1]	O	O		Ignored
11	Observation Result Status	ID	0085	[1..1]	[1..1]	R	R		Constrain to F
12	Effective Date of Reference Range Values	TS		[0..1]	[0..1]	O	O		Ignored
13	User Defined Access Checks	ST		[0..1]	[0..1]	O	O		Ignored
14	Date/Time of the Observation	TS		[0..1]	[1..1]	RE	RE		
15	Producer's Reference	CE		[0..1]	[0..1]	O	O		Ignored
16	Responsible Observer	XCN		[0..1]	[0..1]	O	O		Ignored
17	Observation Method	CE		[0..1]	[0..1]	C(RE/O)	C(RE/O)	If OBX-3.1 is valued “64994-7”	Ignored. See field definition for important VacTrAK policy information regarding collection of eligibility status.
18	Equipment Instance Identifier	EI		[0..1]	[0..1]	O	O		Ignored
19	Date/Time of the Analysis	TS		[0..1]	[0..1]	O	O		Ignored
20	Reserved for harmonization with V2.6			[0..1]	[0..1]	O	O		Ignored
21	Reserved for harmonization with V2.6			[0..1]	[0..1]	O	O		Ignored
22	Reserved for harmonization with V2.6			[0..1]	[0..1]	O	O		Ignored
23	Performing Organization Name	XON		[0..1]	[0..1]	O	O		Ignored
24	Performing Organization Address	XAD		[0..1]	[0..1]	O	O		Ignored

SEQ	Element Name	Data Type	Value Sets	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
25	Performing Organization Medical Director	XCN		[0..1]	[0..1]	O	O		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. The possible types are defined in table HL7125. If the value is CE then the result must be a coded entry.

OBX-3 Observation Identifier (CE) 00571

Definition: This field contains a unique identifier for the observation. The format is that of the Coded Element (CE).

Example: |30963-3^Vaccine purchased with^LN|.

Observations in VXU messages can be used to include additional information that is not currently supported by RXA or RXR segments. In VacTrAK, as in most systems, the identifier (OBX-3) will point to a master observation table that will provide other attributes of the observation that may be used by the receiving system to process the observations it receives. This may be thought of as a question (OBX-3) that the observation (OBX-5) answers. In the example above, the question is "what funding program was this person eligible for when this vaccine was administered" The answer in OBX-5 could be "eligibility - MEDICAID". These extra values have specific identifiers that must be set properly in order for VacTrAK to recognize them. The following table gives the value type VacTrAK is expecting:

The four OBX segments are required by VacTrAK are highlighted in bold and italics.

Identifier	Description	Corresponding Data Type (Indicate in OBX-2)
30963-3	***Vaccine funding source***	***CE***
29768-9	***VIS form date***	***TS***
29769-7	***VIS form given date***	***TS***
64994-7	***Vaccine funding program eligibility status code category***	***CE***
1648-5	TB Induration	NM

Identifier	Description	Corresponding Data Type (Indicate in OBX-2)
30945-0	Contraindication	DT, CE

The 2.3.1 Implementation Guide used suffixes on the first sequence in OBX-3 to group related observations. For instance, reporting a VIS publication date and VIS receipt date each added a suffix of one LOINC code to a second LOINC code when recording VIS dates for a component vaccine. (38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN) This is no longer acceptable. Grouping of related observations will be accomplished using Observation sub-id (OBX-4).
VacTrAK has not yet implemented OBX-4.

OBX 30963-3 and OBX 67994-7 Are both required by regulation (7 AAC 27.650).

OBX-4 Observation Sub-ID (ST) 00572

Definition: This field is used to group related observations by setting the value to the same number. For example, recording VIS date and VIS receipt date for a combination vaccination requires 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. *VacTrAK has not yet implemented.*

OBX-5 Observation Value (varies) 00573

Definition: 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.

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

IMPORTANT: <u>OBX 30963-3</u> and <u>OBX 67994-7</u>:

- *Both of these segments are required by regulation (7 AAC 27.650) for vaccines administered in Alaska.*
- *See Appendix B, "Vaccine Accountability and HL7 – logic compatibility requirements for OBX (30963-3 and 64994-7)" for important information related to OBX requirements and logic.*

In VacTrAK values that are sent for Vaccine Funding Source, 30963-3, are translated from HL7 Table 0396 into a Yes/No indicator as designated below

Value Set Name – Immunization Funding Source

Used in OBX- 5. VacTrAK translates funding sources into a Yes/No indicator as an answer to the question, "publicly supplied? Yes or No?"

PHVS Immunization Funding Source	**Concept Name**	**Definition**	**VacTrAK Value**
PHC70	Private	Vaccine stock used was privately funded	***N***
VXC50	Public	Vaccine stock used was publicly funded	***Y***
VXC51	Public VFC	Vaccine stock used was publicly funded by the VFC program	***Y***
VXC52	Public non-VFC	Vaccine stock used was publicly funded by a non - VFC program	***Y***

OBX 30963-3 values are required by regulation (7 AAC 27.650). It is also vital to ensure that VacTrAK's vaccine management system decrements inventory as expected.

In VacTrAK values sent for Financial Class, 64994-7, are translated as designated below.

OBX 64994-7 values are required by regulation (7 AAC 27.650). It is also vital to ensure that VacTrAK's vaccine management system decrements inventory as expected.

User-defined Table 0064 - Financial class

Use in OBX (64994-7) Vaccine Program Eligibility Status codes as shown below by Status and Facility Type with user notes.

VFC Medicaid Eligible	VFC Uninsured	VFC American Indian/Alaska Native	VFC Underinsured (FQHC) *	State Vaccine (AVAP)**	Ineligible (Private Vaccine)
V02	V03	V04	V05	V25 (or the older V07 if V25 can't be sent)	V01
*V05 has limited use. This eligibility status code is only applicable for the following facility types: Public Health Centers, FQHC, and deputized facilities. It is not applicable for Tribal Health Centers or private providers.					
**V07 new in January 2015, used for State-supplied vaccine from the Alaska Vaccine Assessment Program (AVAP). For additional information regarding eligibility status screening for State-supplied vaccines in Alaska please refer to the eligibility status guides: Child Eligibility Adult Eligibility					
***V25 was introduced in the HL7 Version 2.5.1 Implementation Guide for Immunization Messaging (Release 1.5) — Addendum as the state specific code to be used when the client is eligible for a state vaccine program. Interfaces interested in using V25 instead of V07 should contact VacTrAK staff to ensure their interface is adjusted for this change.					
V06 is now deprecated as of July 2015.					

V00 is a deprecated value that is no longer listed as an eligible code as of the CDC's HL7 2.5.1 specification guide. Sending VacTrAK V00 indicates the patient's eligibility status was not assessed / is unknown. Because screening eligibility status is a program requirement, this should never be true for sites receiving state supplied vaccine. As a result most messages sent to VacTrAK using V00 will be set to error. There are some rare exceptions to this rule for sites that do not accept state or CDC funded vaccines. Contact VacTrAK staff for more information.

OBX-6 Units (CE) 00574

Definition: This shall be the units for the value in OBX-5. The value shall be from the ISO+ list of units.

In VacTrAK this is only used for receiving lead lab results.

OBX-11 Observation Result Status (ID) 00579

Definition: This field contains the observation result status. The expected value is F or final.

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

Definition: Records the time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation.

OBX-17 Observation Method (CE)

Definition: This optional field can be used to transmit the method or procedure by which an observation was obtained when the sending system wishes to distinguish among one measurement obtained by different methods and the distinction is not implicit in the test ID.

Not implemented in VacTrAK.

The CDC guide indicates that, "In this Guide, it shall be used to differentiate the way that Eligibility Status was collected. The two choices are: Recorded in the sending system at the visit level, Recorded in the sending system at the immunization level."
However, this field is currently ignored by VacTrAK and ***program policy dictates that eligibility status must be collected and reported at the vaccine level****. Contact the VacTrAK program with any questions regarding vaccine eligibility status policy.*

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 5-8 Common Order Segment (ORC)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
1	Order Control	ID	0119	[1..1]	[1..1]	R	R		Constrain to the value "RE"
2	Placer Order Number	EI		[0..1]	[0..1]	RE	RE		
3	Filler Order Number	EI		[1..1]	[1..1]	R	R		
4	Placer Group Number	EI		[0..1]	[0..1]	O	O		Ignored
5	Order Status	ID		[0..1]	[0..1]	O	O		Ignored
6	Response Flag	ID		[0..1]	[0..1]	O	O		Ignored
7	Quantity/Timing	TQ		[0..0]	[0..0]	X	X		Ignored
8	Parent	EIP		[0..1]	[0..1]	O	O		Ignored

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
9	Date/Time of Transaction	TS		[0..1]	[0..1]	O	O		Ignored
10	Entered By	XCN		[0..1]	[0..1]	RE	RE		Not yet implemented
11	Verified By	XCN		[0..1]	[0..1]	O	O		Ignored
12	Ordering Provider	XCN		[0..1]	[0..1]	C(RE/O)	C(RE/O)	If RXA-9.1 is valued “00”	For administered vaccines only: this shall be the provider ordering the immunization. Expected to be empty if the immunization record is transcribed from a historical record.
13	Enterer's Location	PL		[0..1]	[0..1]	O	O		Ignored
14	Call Back Phone Number	XTN		[0..1]	[0..1]	O	O		Ignored
15	Order Effective Date/Time	TS		[0..1]	[0..1]	O	O		Ignored
16	Order Control Code Reason	CE		[0..1]	[0..1]	O	O		Ignored
17	Entering Organization	CE		[0..1]	[0..1]	O	O		Not yet implemented
18	Entering Device	CE		[0..1]	[0..1]	O	O		Ignored
19	Action By	XCN		[0..1]	[0..1]	O	O		Ignored
20	Advanced Beneficiary Notice Code	CE		[0..1]	[0..1]	O	O		Ignored
21	Ordering Facility Name	XON		[0..1]	[0..1]	O	O		
22	Ordering Facility Address	XAD		[0..1]	[0..1]	O	O		
23	Ordering Facility Phone Number	XTN		[0..1]	[0..1]	O	O		
24	Ordering Provider Address	XAD		[0..1]	[0..1]	O	O		Ignored
25	Order Status Modifier	CWE		[0..1]	[0..1]	O	O		Ignored
26	Advanced Beneficiary Notice Override Reason	CWE		[0..1]	[0..1]	O	O		Ignored
27	Filler's Expected Availability	TS		[0..1]	[0..1]	O	O		Ignored

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
	Date/Time								
28	Confidentiality Code	CWE		[0..1]	[0..1]	O	O		
29	Order Type	CWE		[0..1]	[0..1]	O	O		Ignored
30	Enterer Authorization Mode	CNE		[0..1]	[0..1]	O	O		Ignored
31	Parent Universal Service Identifier	CWE		[0..1]	[0..1]	O	O		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.

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

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

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

ORC-2 Placer Order Number (EI) 00216

Definition: 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 (EI) 00217

Definition: 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 historic immunization is being recorded (i.e. from an immunization card), the sending system SHALL assign an identifier as if it were an immunization administered by a provider associated with the provider organization owning the sending system. In the case where an RXA is conveying information about an immunization that was not given (e.g. refusal) the filler order number shall be 9999.

ORC-10 Entered By (XCN) 00224 - Ignored

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

Not yet implemented in VacTrAK.

ORC-12 Ordering Provider (XCN) 00226

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

ORC-21 Ordering Facility Name (XON) 01311

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

ORC-22 Ordering Facility Address (XAD) 01312

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

ORC-23 Ordering Facility Phone Number (XTN) 01312

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

PD1—Patient Demographic Segment

The Patient Demographic Segment contains patient demographic information that may change from time to time. There are three primary uses for in Immunization Messages. These include indicating whether the person wants his/her data protected, whether the person wants to receive recall/reminder notices and the person's current status in the registry.

Table 5-9-Patient Demographic Segment (PD1)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
1	Living Dependency	IS		[0..1]	[0..1]	O	O		Ignored
2	Living Arrangement	IS		[0..1]	[0..1]	O	O		Ignored
3	Patient Primary Facility	XON		[0..1]	[0..1]	O	O		***Do not use***
4	Patient Primary Care Provider Name & ID No.	XCN		[0..1]	[0..1]	O	O		***Do not use***
5	Student Indicator	IS		[0..1]	[0..1]	O	O		Ignored
6	Handicap	IS		[0..1]	[0..1]	O	O		Ignored
7	Living Will Code	IS		[0..1]	[0..1]	O	O		Ignored
8	Organ Donor Code	IS		[0..1]	[0..1]	O	O		Ignored
9	Separate Bill	ID		[0..1]	[0..1]	O	O		Ignored
10	Duplicate Patient	CX		[0..1]	[0..1]	O	O		Ignored
11	Publicity Code	CE	0215	[0..1]	[0..1]	RE	RE		*VacTrAK interprets the HL7 0215 table values into "yes" or "no." The values to not align perfectly.* *See table with definition for additional detail.*
12	Protection Indicator	ID		[0..1]	[0..0]	RE	RE		***State regulation requires all vaccines be sent to VacTrAK. See field***

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
									definitions and notes for additional guidance.
13	Protection Indicator Effective Date	DT		[0..1]	[0..0]	C(RE/X)	C(RE/X)	If PD1-12 is valued	***State regulation requires all vaccines be sent to VacTrAK. See field definitions and notes for additional guidance.***
14	Place of Worship	XON		[0..1]	[0..1]	O	O		Ignored
15	Advance Directive Code	CE		[0..1]	[0..1]	O	O		Ignored
16	Immunization Registry Status	IS	0441	[0..1]	[0..1]	RE	RE		*VacTrAK interprets the HL7 0441table values into VacTrAK's patient inactive codes. The values to not align perfectly.* *See table with definition for additional detail.*
17	Immunization Registry Status Effective Date	DT		[0..1]	[0..1]	C(RE/X)	C(RE/X)	If PD1-16 is valued	*Not implemented.*
18	Publicity Code Effective Date	DT		[0..1]	[0..1]	C(RE/X)	C(RE/X)	If PD1-11 is valued	*Not implemented*
19	Military Branch	IS		[0..1]	[0..1]	O	O		Ignored
20	Military Rank/Grade	IS		[0..1]	[0..1]	O	O		Ignored
21	Military Status	IS		[0..1]	[0..1]	O	O		Ignored

PD1 Field Definitions

PD1-11 Publicity Code (CE) 00743

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

VacTrAK does not support the full list of Publicity Code values included in the CDC guidelines (HL7 code table 0215). In VacTrAK this field indicates whether the patient should be blocked from receiving reminder/recall notices via mail with the system translating answers into an HL7 Table 0136 Yes/No Indicator for valid value. The publicity code is stored in a VacTrAK patient field called BLOCK_RECALL which flags users who should not be reminded/recalled.

A table that cross references the HL7 code table 0215 values with how VacTrAK interprets each value to a "yes" or "no" reminder recall flag is below and is also included in Appendix A. ***The values do not align perfectly.***

User-defined Table 0215 - Publicity code / Cross Reference to VacTrAK Yes/No Indicator

Publicity Code	Description	Block Recall
01	No reminder/recall	YES
02	Reminder/recall – any method	NO
03	Reminder/recall – no calls	NO
04	Reminder only – any method	YES
05	Reminder only – no calls	YES
06	Recall only – any method	YES
07	Recall only – no calls	YES
08	Reminder/recall – to provider	YES
09	Reminder to provider	YES
10	Only reminder to provider, no recall	YES

Any other value received will result in BLOCK_RECALL set to NO.

PD1-12 Protection Indicator (ID) 00744

Definition: This field identifies whether a person's information may be shared with others[1]. Specific protection policies are a local consideration (opt in or opt out, for instance). This field conveys the current state in the sending system. (*See note below for important local protection policy information*.)

[1] Local policies determine how data are protected. In general, it indicates who may view the client's data. It may be as narrow as just the provider that entered the information.

NOTES: regarding required participation in VacTrAK

It is important to note that all Alaskans are included in VacTrAK and State regulation 7AAC 27.650 requires all administered vaccines be added to VacTrAK. Therefore, patients cannot choose to opt out of VacTrAK or choose to otherwise prevent their data from being sent to VacTrAK.

Because patients in Alaska cannot opt out of VacTrAK participation, the simplest valid option is for organizations to not collect this information and to send PD1-12 ***empty*** *to VacTrAK 100% of the time. However, if that is not possible for a given interface, then then the organization's staff should work with VacTrAK's staff to ensure the PD1-12 value are sent correctly. Additionally, these organizations should also ensure data-entry staff are trained regarding this matter to ensure the data crosses as expected.*

It is the responsibility of each provider organization in Alaska to ensure their interface is correctly sending all values and that all vaccines administered are correctly represented in VacTrAK.

NOTES: on use of Y for Protection Indicator in 2.5.1 Guide vs. earlier Guides..

As noted in the CDC's Implementation Guide, the interpretation of PD1-12 values have changed over time. Despite the additional clarity currently given in the CDC's Implementation Guide, the changes in the interpretation have created confusion regarding the meaning of the values sent. Beyond the requirements of 7AAC 27.650, the ambiguity in the meaning of the data is an additional reason for VacTrAK prefers this field to be empty. Therefore, if an organization cannot send PD1-12 empty 100% of the time as is preferred by VacTrAK, their technical staff should be work with VacTrAK to confirm the appropriate values are being sent.

PD1-13 Protection Indicator Effective Date (DT) 01566

Definition: This field indicates the effective date for PD1-12 - Protection Indicator.

VacTrAK has not implemented this field. It is preferred that electronic data submitters leave PD1-13 ***empty*** *when submitting data to VacTrAK.*

PD1-16 Immunization Registry Status (IS) 01569

Definition: This field identifies the current status of the patient in relation to the sending provider organization. Refer to User-defined Table 0441 - Immunization Registry Status for suggested values.

This field captures whether the sending provider organization considers this an active patient. There are several classes of responsibility. 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.

See codes in the Immunization Registry Status User-defined Table 0441 below and in Appendix A. ***The values do not directly correspond to the VacTrAK patient inactive codes.*** *The mapping between these are in the table below. An active code is recorded as a blank since the inactive code is only set when the patient is inactive. If the inactive code is sent in the second triplet then its value will supersede the value sent in the first triplet. Although the CDC guide has discontinued the use of "O" for other, many of the values from the Immunization Registry Status table are mapped to "O" for "Other" in VacTrAK.*

Deceased is the only permanently inactive status in VacTrAK. Therefore, VacTrAK does not have a status that corresponds to, "Inactive-permanently inactive (do not re-activate or add new entries to this record)." Because of this, there is no provider level option for "Permanently Inactive." If it is sent, it is recorded as "other," which is not a permanent status. Additionally, although "deceased" is shown in VacTrAK as an inactive code, but is sent via HL7 PID-30, not PD1-16. See the PID-30 documentation for information about transmitting deceased status.

User-defined Table 0441 - Immunization registry status / Mapped to VacTrAK Value

Use in PD1-16.

User-defined Table 0441 Value	Description	Mapped to VacTrAK Value
A	Active	
I	Inactive	O
L	Inactive-Lost to follow-up (cannot contact)	O
M	Inactive-moved or gone elsewhere (transferred)	G
P	Inactive-permanently inactive (do not re-activate or add new entries to this record)	O
U	Unknown	U

PD1-17 Immunization Registry Status Effective Date (DT) 01570

Definition: This field indicates the effective date for the registry status reported in PD1-16 - Immunization Registry Status.

Not implemented in VacTrAK.

PD1-18 Publicity Code Effective Date (DT) 01571

Definition: This is the effective date for PD1-11 - Publicity Code.

Not implemented in VacTrAK.

PID—Patient Identifier Segment

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

VacTrAK uses PID information to create the patient's demographic record and to match this patient's vaccination record with vaccination records from other providers to precisely deduplicate patient data. The PID segment is required for all messages. Because update messages send only one patient per message, there should be only one PID per message. Many PID fields are vital for proper deduplication. (See deduplication in Appendix B for more information.)

Table 5-10-Patient Identifier Segment (PID)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
1	Set ID - PID	SI		[1..1]	[1..1]	R	R		
2	Patient ID	CX		[0..0]	[0..1]	X	X		Backwards compatible for 2.3.1 messages
3	Patient Identifier List	CX		[1..*]	[1..*]	R	R		
4	Alternate Patient ID	CX		[0..0]	[0..0]	X	X		
5	Patient Name	XPN	0200	[1..*]	[1..*]	R	R		The first repetition shall contain the legal name. (Signified with an "L" from table 0200.) Multiple given names or initials are separated by spaces.
6	Mother's Maiden Name	XPN		[0..1]	[0..1]	RE	RE		

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
7	Date/Time of Birth	TS		[1..1]	[1..1]	R	R		Month, day, and year all required in this format YYYYMMDD
8	Administrative Sex	IS	0001	[0..1]	[0..1]	RE	R		M= male, F = female, O = Other, U = not determined/unspecified/unknown.
9	Patient Alias	XPN		[0..0]	[0..1]	X	X		Backwards compatible for 2.3.1 messages
10	Race	CE	0005	[0..*]	[0..5]	RE	RE		Patient's self-reported race. Repeating value used for multi-racial.
11	Patient Address	XAD	0190	[0..*]	[0..*]	RE	R		Required in most cases. The first repetition should be the primary address.
12	County Code	IS		[0..0]	[0..0]	X	X		County belongs in address field.
13	Phone Number - Home	XTN	0201 0202	[0..*]	[0..*]	RE	RE		The first instance shall be the primary phone number. Only one item is allowed per repetition.
14	Phone Number - Business	XTN		[0..*]	[0..*]	O	O		
15	Primary Language	CE	0296	[0..1]	[0..1]	O	O		Very limited compatibility.
16	Marital Status	CE		[0..1]	[0..1]	O	O		Ignored
17	Religion	CE		[0..1]	[0..1]	O	O		Ignored
18	Patient Account Number	CX		[0..1]	[0..1]	O	O		Ignored
19	SSN Number - Patient	ST		[0..0]	[0..1]	X	X		**Do not send.**
20	Driver's License Number - Patient	DLN		[0..0]	[0..0]	X	X		

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
21	Mother's Identifier	CX		[0..0]	[0..0]	X	X		
22	Ethnic Group	CE	0189	[0..1]	[0..1]	RE	RE		Patient's self-reported ethnic group. If first and second triplets are populated, they must match logically.
23	Birth Place	ST		[0..1]	[0..1]	O	O		Use may be specified locally.
24	Multiple Birth Indicator	ID	0136	[0..1]	[0..1]	RE	RE		The acceptable values are Y and N. If the status is undetermined, then field shall be empty.
25	Birth Order	NM		[0..1]	[0..1]	C(RE/O)	C(RE/O)	If PID - 24 (Multiple Birth Indicator) is valued "Y"	This field contains a number indicating the person's birth order, with 1 for the first child born and 2 for the second.
26	Citizenship	CE		[0..1]	[0..1]	O	O		Ignored
27	Veterans Military Status	CE		[0..1]	[0..1]	O	O		Ignored
28	Nationality	CE		[0..1]	[0..1]	O	O		Ignored
29	Patient Death Date and Time	TS		[0..1]	[0..1]	C(RE/X)	RE	If PID-30 (patient death indicator) is valued "Y"	
30	Patient Death Indicator	ID	0136	[0..1]	[0..1]	RE	C(R/X)	If PID-29 is valued with a date	
31	Identity Unknown Indicator	ID		[0..1]	[0..1]	O	O		Ignored
32	Identity Reliability Code	IS		[0..1]	[0..1]	O	O		Ignored
33	Last Update Date/Time	TS		[0..1]	[0..1]	O	O		Ignored
34	Last Update Facility	HD		[0..1]	[0..1]	O	O		Ignored
35	Species Code	CE		[0..1]	[0..1]	O	O		Ignored

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
36	Breed Code	CE		[0..1]	[0..1]	O	O		Ignored
37	Strain	ST		[0..1]	[0..1]	O	O		Ignored
38	Production Class Code	CE		[0..1]	[0..1]	O	O		Ignored
39	Tribal Citizenship	CWE		[0..1]	[0..1]	O	O		Ignored

PID Field Definitions

PID-1 Set ID - PID (SI) 00104

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

PID-3 Patient Identifier List (CX) 00106

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

A unique patient identifier is required for all electronic messages sent to VacTrAK. This patient id (Medical Record Number, Chart Number, or Primary Identifier) is generally referred in VacTrAK as the patient's MRN and is defined as the unique id that is used by the sending system to uniquely identify this, and only this patient. VacTrAK will reject this message if there is no Medical Record Number sent.

When VacTrAK receives an update from a provider with a MRN, it stores this value into two fields: the patient's MRN and Chart ID. The MRN is reported electronically to VacTrAK must be unique to one patient in that IRMS and cannot be hand-entered by users. The Chart Id however, is a user editable field that is not required to be unique. Users may change or erase the manually entered Chart ID field at any time and they will not affect the MRN field. VacTrAK stores multiple MRNs for a patient, one MRN for each provider that has reported to the registry.

It is important that providers maintain internally unique MRNs and do not reassign them to other patient records, except in cases of patient record merges. *In addition, care should be taken when installing new systems or upgrades to ensure that the MRNs remain the same, or do not clash with the previous system.*

Please notify VacTrAK before making any global changes to your medical record numbering system. This can have a huge impact on system operation for all users statewide.

HL7 Sub-Field		Notes
3.1	ID (ST)	The id, as assigned to the patient. This field is required.
3.2	Check digit (ST)	Not supported
3.3	Check digit scheme(ID)	Not supported
3.4	Assigning authority (HD)	Not supported
3.5	Identifier type code (IS)	Used to identify the type code. Should be sent with all ids (typically ‘MR’)
3.6	Assigning facility (HD)	Not supported

VacTrAK will reject this message if there is no MRN sent. By default, the registry interface assumes this to be marked by the identifier type code 'MR', but upon request the interface may be configured to look for a specified id type code using the HL7 Upload Settings page. The MRN identifier may be blank so long as the MRN is sent in the first repetition of PID-3 and the configured value in the HL7 Upload Settings is also blank. Mismatching the MRN identifier sent in the HL7 message with the value configured in the HL7 Upload Settings is the most common cause of message rejection when setting up a new interface with the registry.

PID-3 values are vital to VacTrAK’s deduplication process.

PID-5 Patient Name (XPN) 00108

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

The first and last names are both required. VacTrAK will reject a message sent if both are not included. This field is not expected to repeat, but if it does the legal name should be marked with a name type code of 'L' or be placed in the first repetition with no name type code specified.

If no first name is sent and the last name contains a comma, the last name will be split and the data right of the comma and any spaces will be considered the first name and the data left of the comma will be considered the last name. This fixes problems when some users incorrectly enter first names with the last name.

Names can contain alphabetical characters, hyphens, apostrophes, and spaces. Names that are too long will be silently truncated.

Component	Description	Length
5.1	Patient’s Last Legal Name (Required)	Maximum of 48 characters (alphabetic characters, hyphens, apostrophes, and spaces.
5.2	Patient’s First Legal Name (Required)	Maximum of 48 characters (alphabetic characters, hyphens, apostrophes, and spaces.
5.3	Patient’s Middle Legal Name (Optional)	Maximum of 48 characters (alphabetic characters, hyphens, apostrophes, and spaces.

PID-5 values are required by regulation (7 AAC 27.650) and are vital to VacTrAK’s deduplication process.

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

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

PID-3 values are used in VacTrAK's deduplication process.

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

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

VacTrAK will reject messages without the patient's date of birth, as will those with a date of birth in the future. Format should be: YYYYMMDD. Time component ignored if sent

PID-7 values are required by regulation (7 AAC 27.650) and are vital to VacTrAK's deduplication process.

PID-8 Administrative Sex (IS) 00111

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

PID-8 values are vital to VacTrAK's deduplication process.

PID-10 Race (CE) 00113

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

VacTrAK accepts up to five race codes in the table below using repeating the field for multi-race.

PID-10 values are required by regulation (7 AAC 27.650).

User-defined Table 0005 – Race

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

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

Value set OID: 2.16.840.1.114222.4.11.836

Value	Definition
2076-8	Native Hawaiian or Other Pacific Islander
2131-1	Other (In past documentation this code was reported as “Multi-Race.” Definition should be “Other.” For multi-race, up to five codes can be sent.)
2028-9	Asian
2106-3	White
1002-5	American Indian or Alaska Native
2054-5	Black or African-American
<empty field>	Unknown/undetermined

PID-11 Patient Address (XAD) 00114

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

The CDC guide indicates that, “This field is used for any type of address that is meaningfully associated with the client/patient. For instance Birth State is the state of the address of the birthing location, address type = BDL.” However, *in VacTrAK the first repetition should be the primary and mailing address. If the patient has a PO Box, the second address should be the physical address. VacTrAK only stores the physical address street one and assumes that the rest of the address is the same as the mailing address. Because of this, all other fields in the second address will be ignored.*

Additionally, the CDC guide indicates that, “A person’s address may be sent in this field or in the NK1 segment with a relationship code indicating ‘Self.’” *VacTrAK has not yet implemented use of the relationship of “Self”; and therefore, patient address should be sent to VacTrAK only in PID-11.*

VacTrAK will silently truncate values that are too long. Value lengths are below.

PID-11 values are required by regulation (7 AAC 27.650) and are vital to VacTrAK’s deduplication process.

PID-13 Phone Number - Home (XTN) 00116

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

In VacTrAK the first instance shall be the primary phone number. Only one item is allowed per repetition.

PID-13 values are used in VacTrAK’s deduplication process.

PID-14 Phone Number - Business (XTN) 00117

Definition: This field contains the patient's business telephone numbers. 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 HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

PID-22 Ethnic Group (CE) 00125

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

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.

Value	Description
Y	the patient was part of a multiple birth
N	the patient was a single birth
<Empty>	multiple birth status is undetermined

PID-24 values are vital to VacTrAK's deduplication process.

PID-25 Birth Order (NM) 00128

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

If an interface is unable to indicate multiple birth and birth order in a message to VacTrAK, provider staff should manually update records in VacTrAK. This is especially important for birthing centers that might not have a full, legal name for an infant. Without this information, multiple birth records can easily be erroneously merged into one record.

VacTrAK Values defined as:

Value	Description
1	No-Single Birth
2	Yes-Twin
3	Yes-Triplet
4	Yes-Quadruplet
5	Yes-Quintuplet
6	Yes-Sextuplet
7	Yes-Septuplet
8	Yes-Octuplet
9	No-invalid value

PID-25 values are vital to VacTrAK's deduplication process.

PID-29 Patient Death Date and Time (TS) 00740

Definition: This field contains the date and time at which the patient death occurred.

VacTrAK expects this field to be valued if PID-30 indicates "Y." Messages that indicate a vaccination after a patient's date of death will be rejected.

PID-30 Patient Death Indicator (ID) 00741

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

Value	Description
Y	the patient is deceased
N	the patient is not deceased
<Empty>	status is undetermined

VacTrAK expects this field to be valued if PID-29 indicates a date of death. Although patient death indicator is sent to VacTrAK in PID-30, a deceased patient's status shows in VacTrAK as "inactive" with the permanent reason of "deceased." See PD1-16 for additional information regarding "Immunization Registry Status."

QAK—Query Acknowledgement Segment

Table 5-11-Query Acknowledgement Segment

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
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		Ignored
4	Hit Count	NM		[0..1]	[0..1]	O	O		Ignored
5	This payload	NM		[0..1]	[0..1]	O	O		Ignored
6	Hits remaining	NM		[0..1]	[0..1]	O	O		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. The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

QAK-2 Query Response Status (ID) 00708

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

Value	Description
OK	Data found, no errors
NF	No data found, no errors

AE and AR are no longer used. If an error occurs VacTrAK will send a negative acknowledgment.

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.

Not implemented in VacTrAK.

QPD – Query Parameter Definition

The QPD segment defines the parameters of the query.

Table 5-12-Query Parameter Definition (QPD)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
1	Message Query Name	CE	0471	[1..1]	[1..1]	R	R		Z34^Request Immunization History^HL70471
2	Query Tag	ST		[1..1]	[1..1]	R	R		Generated by the initiating system.
3	Patient List	CX		[0..1]	[0..1]	RE	RE		PID-3: Patient Identifier List
4	Patient Name	XPN		[0..1]	[0..1]	RE	RE		PID-5: Patient Name
5	Patient Mother Maiden Name	XPN		[0..1]	[0..1]	RE	RE		PID-6: Mother's maiden name
6	Patient Date of Birth	TS		[0..1]	[0..1]	RE	RE		PID-7: Patient date of birth
7	Patient Sex	IS		[0..1]	[0..1]	RE	RE		PID-8: Patient sex
8	Patient Address	XAD		[0..1]	[0..1]	RE	RE		PID-11: Patient Address
9	Patient Home Phone	XTN		[0..1]	[0..1]	RE	RE		PID-13: Patient home phone
10	Patient Multiple Birth Indicator	ID		[0..1]	[0..1]	RE	RE		PID-24: Patient multiple birth indicator
11	Patient Birth Order	NM		[0..1]	[0..1]	RE	RE		PID-25: Patient birth order
12	Client Last Updated Date	TS		[0..1]	[0..1]	RE	RE		Not Supported
13	Client Last Updated Facility	HD		[0..1]	[0..1]	RE	RE		Not Supported

QPD Field Definitions

QPD-1 Message Query Name (CE) 01375

Definition: This field contains the name of the query. These names are assigned by the function-specific chapters of this specification. It is one to one with the conformance statement for this query name, and it is in fact an identifier for that conformance statement.

For VacTrAK use this value: Z34^Request Immunization History^HL70471

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.

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 (Varies) 01435

Definition: These successive parameter fields hold the values that the Client passes to the Server.

The client data is presented as a sequence of HL7 fields. Beginning at *QPD-3-User parameters*, the remaining fields of the QPD segment carry user parameter data. Each QPD user parameter field corresponds to one parameter defined in the Conformance Statement, where each name, type, optionality, and repetition of each parameter has been specified. While these parameters are understood to be usually “and-ed” together, the user must inspect the required Conformance Statement to understand properly each. Except in the QSC variant, the parameter names do not need to be stated in the query; they are understood to be positional based on the Conformance Statement.

Each parameter field may be specified in the Conformance Statement to be of any single data type, including the complex QIP and QSC types. Parameter fields in the QPD segment appear in the same order as in the Conformance Statement.

QRD-4: Query Id

Definition: Query ID is required by HL7 and VacTrAK will report it back in the query response just as HL7 specifies. VacTrAK does not use the query id for any other purpose.

QRD-7: Quantity Limited Request

Definition: The Quantity Limited Request is the maximum number of records that should be returned. VacTrAK has an internal maximum with a default of 20. The maximum number returned is the lesser of this value and the internal maximum. The internal maximum can be changed by the VacTrAK administrator.

This application does not support any other limiting units and therefore ignores any supplied.

QRD-8: Who Subject Filter (XCN)

Definition: The Who Subject Filter is part of the name of the patient to search by. VacTrAK expects at least part of the patient name to appear here. Different searches will be performed depending on how complete this information is. The patient id and type can be supplied in components 1 and 13 respectively, and may be the patient MRN (usually denoted by MR, but is configurable) or State Registry id (usually type SR, also configurable).

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 5-13-Response Control Parameter

SEQ	Element Name	Data Type	Value set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
1	Query Priority	ID	0091	[0..1]		RE	RE		
2	Quantity Limited Request	CQ	0126	[0..1]		RE	RE		
3	Response Modality	CE		[0..1]		O	O		Not Supported
4	Execution and Delivery Time	TS		[0..1]		O	O		Not Supported
5	Modify Indicator	ID		[0..1]		O	O		Not Supported
6	Sort-by Field	SRT		[0..1]		O	O		Not Supported
7	Segment group inclusion	ID		[0..*]		O	O		Not Supported

RCP Field Definitions

RCP-1 Query Priority (ID) 00027

Definition: This field contains the time frame that the response is expected. Refer to HL7 Table 0091 - Query priority for valid values. Table values and subsequent fields specify time frames for response. Only I for immediate shall be used for this field.

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. 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 Standard version 2.5.1 indicates the maximum number to return in each batch. No batching of responses is permitted in this Guide.

RXA-- Pharmacy/Treatment Administration Segment

The RXA segment carries pharmacy administration data. It is a child of an ORC segment, which a repeating segment in the RSP and 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.[2]

There is a change requiring an ORC conflicts with the Implementation Guide version 2.3.1. In that, ORC is optional and in fact rarely included in a VXU. *VacTrAK still treats the ORC segment as optional preceding RXA segments for 2.3.1 messages.*

Table 5-14 Pharmacy/Treatment Administration (RXA)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
1	Give Sub-ID Counter	NM		[1..1]	[1..1]	R	R		Constrain to 0 (zero)
2	Administration Sub-ID Counter	NM		[1..1]	[1..1]	R	R		Constrain to 1, but can be 0 for 2.3.1 messages
3	Date/Time Start of Administration	TS		[1..1]	[1..1]	R	R		
4	Date/Time End of Administration	TS		[0..1]	[0..1]	RE	RE		If populated, this should be the same as start time (RXA-3).
5	Administered Code	CE	CVX	[1..1]	[1..1]	R	R		CVX codes are strongly preferred over CPT codes. CVX are also a meaningful use requirement.
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)	If RXA-6 is not valued “999”	If previous field is populated by any value

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

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
									except 999, it is required.
8	Administered Dosage Form	CE		[0..1]	[0..1]	O	O		
9	Administration Notes	CE	NIP 001	[0..*]	[0..*]	C(R/O)	R	If RXA-20 is valued "CP," "PA" or null because a null RXA-20 is assumed to be "CP"	00=New Immunization 01=Historical information.
10	Administering Provider	XCN		[0..1]	[0..1]	RE	RE		This is the person who physically administered the vaccine or is most knowledgeable about the vaccine given.
11	Administered-at Location	LA2		[0..1]	[0..1]	RE	R		Use the VacTrAK supplied facility code for the facility that administered the immunization or that recorded if historical
12	Administered Per (Time Unit)	ST		[0..1]	[0..1]	O	O		Ignored
13	Administered Strength	NM		[0..1]	[0..1]	O	O		Ignored
14	Administered Strength Units	CE		[0..1]	[0..1]	O	O		Ignored
15	Substance Lot Number	ST		[0..*]	[0..*]	C(R/O)	C(R/O)	If RXA-9.1 is valued "00"	
16	Substance Expiration Date	TS		[0..1]	[0..1]	C(RE/O)	C(RE/O)	If RXA-15 is valued	
17	Substance Manufacturer Name	CE	MVX	[0..*]	[0..*]	C(R/O)	C(R/O)	If RXA-9.1 is valued "00"	
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	O		Not implemented
20	Completion Status	ID	0322	[0..1]	[0..1]	RE	RE		If RXA-18 is populated, RXA-20 shall be valued to

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
									RE. If RXA-5.1 has a CVX of 998 (no vaccine administered) then RXA-20 shall be NA. NA can also be used to indicate a vaccine that was not administered. If this field is not populated, it is assumed to be CP or complete.
21	Action Code - RXA	ID	0323	[0..1]	[0..1]	RE	R		Expected values are A, U, D. A=Add, U=Update, and D=Delete.
22	System Entry Date/Time	TS		[0..1]	[0..1]	O	O		Ignored. VacTrAK auto-populates this field with the current date when it is received.
23	Administered Drug Strength Volume	NM		[0..1]	[0..1]	O	O		
24	Administered Drug Strength Volume Units	CWE		[0..1]	[0..1]	O	O		
25	Administered Barcode Identifier	CWE		[0..1]	[0..1]	O	O		
26	Pharmacy Order Type	ID		[0..1]	[0..1]	O	O		

RXA Field Definitions

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

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

This is required by HL7, but VacTrAK ignores it.

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

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

Note that the previous Implementation Guide suggested that this be used for indicating dose number. This use is no longer supported. *Additionally, because VacTrAK collects data from multiple sources, it does not explicitly record the vaccination dose. Instead a forecast mechanism dynamically marks vaccinations as valid or invalid, and indicates when further vaccinations are due.*

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

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

The RXA segment has been defined to allow for specifying the start and end of IV or timed administrations. Therefore, this field indicates the start and the next field (RXA-4) indicates the end of the administration. This field is required and will result in a message rejection if not populated.

Send exact dates, do not send year and month only. Time is not required and will be ignored if sent. VacTrAK expects that both times are exactly the same (or for RXA-4 to be null).

This segment may be used in cases where a vaccine has not been administered. For instance a patient may refuse a vaccination or the sending system may be forecasting a next dose due. See notes below for guidance on the relevant date to include here.

RXA-3 (date values) are vital to VacTrAK's vaccine deduplication process.

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

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

This field is ignored in VacTrAK. However, VacTrAK expects that both times are exactly the same or for this field to be null.

RXA-5 Administered Code (CE) 00347

Definition: This field identifies the medical substance administered. If the substance administered is a vaccine, CVX codes should be used in the first triplet *(RXA-5.1 through RXA-5.3)* to code this field (see CVX Table - Codes for vaccines administered). The second set of three components *(RXA-5.4 through RXA-5.6)* could be used to represent the same vaccine using a different coding system, such as Current Procedural Terminology (CPT). CVX code is the strongly preferred code system.

The first part of each triplet contains the vaccination code (5.1 and/or 5.4). Unrecognized codes will be rejected and an error message sent if the HL7 interface is configured to send error messages. The second part of each triplet contains the vaccine description (5.2 and/or 5.5), which is used to ease human readability of HL7 messages. The vaccine description has a maximum limit of 60 characters. All updates to VacTrAK will be based on the code sent, not the description.

VacTrAK strongly recommends CVX codes over CPT codes for this field*. CPT codes are ill-advised for sending vaccine information because they are tied to provider billing. CPT codes can be used in VacTrAK only within a strict set of parameters and these can differ from the billing needs of providers. Using CPT codes instead of CVX can result in the need for changes in provider systems and practices that can require workarounds on the provider side that can be prohibitive. This, in addition to the fact that CVX is the industry standard and CDC preference, is the reason VacTrAK strongly advises the use of CVX codes instead of CPT codes.*

CVX codes are also required by meaningful use.

RXA-5 values are required by regulation (7 AAC 27.650) and are vital to VacTrAK's vaccine deduplication process. The deduplication process does consider vaccines in the same family on the same date as the same vaccine.

RXA-6 Administered Amount (NM) 00348

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

This value helps VacTrAK to correctly decrement inventory and is, therefore, required for administered vaccines. It should be submitted as the actual amount instead of as "999" whenever possible.

RXA-7 Administered units (CE) 00349

Definition: This field is conditional because it is required if the administered amount code does not imply units. This field must be in simple units that reflect the actual quantity of the substance administered. It does not include compound units. This field is not required if the previous field is populated with 999. *Use UCUM.*

RXA-9 Administration Notes (CE) 00351

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

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

Other notes may include text only in component 2 of the repeat. Acceptance of text only is by local agreement only. *In VacTrAK these free-text comments may be sent in any repeat, but the first sub-field must be left blank and the comment must be placed in the second subfield. Comments longer than 254 characters will be silently truncated.*

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

In VacTrAK, if a vaccination is known to be from second-hand information, such as a paper record, it is historical; otherwise, it is considered administered. The description portion is used to ease human readability of HL7 messages. All updates to VacTrAK will be based on the code sent, not the description.

CDC-defined NIP001 - Immunization information source

Code	Description
00	New immunization record
01	Historical information-source unspecified

Note that VacTrAK only accepts medically verified immunizations. Do not send messages with unverified immunizations.
Also, historical values (02-08) treated as 01 in VacTrAK.

Example of HL7 encodings:

- *Newly administered vaccine*
  |00^New immunization record^NIP001|
- Historical information
  |01^Historical information – source unspecified^NIP001|

RXA-9 values are vital to VacTrAK's vaccine deduplication process. Specifically, the information source allows the system to give added weight to administered vaccines (00) over historic (01) duplicates when they exist. As such, if a vaccine has been sent by multiple providers, all other elements equal, the administered values would be the values shown on the master record. Additionally, only administered vaccines are considered for inventory decrementation, which is vital in maintaining a correct vaccine inventory in VacTrAK.

RXA-10 Administering Provider (XCN) 00352

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

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

VacTrAK does not differentiate between the administering, ordering provider and recording provider, and only allows one person to be recorded on an immunization record. This should be the person most knowledgeable about the event and the one in which questions should be directed from other providers about the administration. This person is stored as a 'physician' in the registry. A 'physician' in VacTrAK is not necessarily a medical doctor, but may be any person involved with the delivery of health care, specifically immunizations.

RXA-11 Administered-at Location (LA2) 00353

Definition: The name and address of the facility that administered the immunization or recorded if historical. Note that the components used are:
Component 4: The facility identifier.

To facilitate 2.5.1 messages, the facility id may be obtained from RXA-11.4 if it is not found in RXA-11.1. There is also a configuration option to ignore anything sent in RXA-11.1, in which case the facility name and id will be taken as the value of RXA-11.4.Contact VacTrAK program for more information.

Note in VacTrAK this field indicates the facility where the patient received an immunization or where the immunization was recorded (if historical).

VacTrAK uses the VacTrAK facility id assigned by the system when the facility was created in VacTrAK. Contact VacTrAK for applicable codes for your organization's facilities to ensure proper mapping. Only those assigned values should be sent.

Facility information sent to VacTrAK will need to be closely coordinated with VacTrAK staff as it can affect mapping, inventory decrementation, and reporting. Unreported changes or additions to facility values or poorly planned facility layout or lack of facility mapping can affect inventory decrementation and other areas. Facilities are set up in VacTrAK as documented in the VacTrAK Provider Agreement.

In this context the concept of facility and is defined by the organization (formerly called an IRMS) in VacTrAK that the facility belongs to. For example, a facility in a hospital network may indicate the hospital, or even the care unit and a facility in a public health system may indicate departments, or individual community clinics. The facility information is used to aggregate patient and vaccination data into reportable groups in VacTrAK.

RXA-15 Substance Lot Number (ST) 01129

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

This field is used in VacTrAK for inventory and vaccine recall purposes. Free-text lot numbers are, therefore, a challenge in inventory management and should be avoided when possible. VacTrAK takes all lot numbers as they are, but with one exception: Zero's and letter O's are treated as the same. So "0111" is equivalent to "o111", or "O111".

Begin Oct 23, 2013 (IWeb v5.13.8) VacTrAK implemented stricter decrementing rules. ***Accurate lot numbers and the sending of correct values for the following two OBX segments: vaccination funding source and vaccine funding program eligibility status are the most important elements required to ensure correct inventory decrements.*** *Vaccines that don't decrement correctly are accessible for correct through the "correct decrementing" feature in VacTrAK. Access to this feature is configurable by VacTrAK and will require training and commitment by provider staff.*

Note that the CDC does not condone the renaming of lots to track private versus public or adult state versus public vaccine.

Note that 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-15 values are required by regulation (7 AAC 27.650) for both publicly and privately vaccines. It is also vital in ensuring VacTrAK vaccine management decrements as expected.

RXA-16 Substance Expiration Date (TS) 01130

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

Note that 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 medical substance administered.

Note that for vaccines, code system MVX should be used to code this field.

RXA-17 values are required by regulation (7 AAC 27.650). They are also vital to ensure that VacTrAK's vaccine management system decrements inventory as expected.

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

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

RXA-20 Completion Status (ID) 01223

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.

If this field is not populated, VacTrAK assumes it to be CP or complete. NA can also be used to indicate a vaccine that was not administered.

RXA-21 Action Code – RXA (ID) 01224

Definition: 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.

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

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

Notes on updates and deletes:
VacTrAK uses a sophisticated deduplication algorithm which supersedes U or A and essentially determines if the message is an add or update based on other criteria.

For data quality reasons, it is expected that updates and deletes will be sent to VacTrAK when there is a change in an immunization previously sent to VacTrAK. ***If an interface cannot send updates or deletes, then any changes in the EHR that would equate to an update or delete MUST BE made manually in VacTrAK****. For example, in a case where an immunization is added to a patient record and that information is then sent to VacTrAK, but then the immunization is found to be in error and is deleted from the EHR. If the interface cannot then send a delete to VacTrAK, then the expectation is that a user will log into VacTrAK and delete the erroneous immunization manually.*

Notes on deleted vaccines:
Providers may discover data entry errors which result in the need for vaccination deletions. The deletions may be completed through data entry or by HL7 import. If a deletion is processed through electronic import, the incoming record should match the record previously submitted exactly and use a "d" in RXA-21. Sending a "d" for delete in this field will not only delete the vaccine from the patient's record, but if applicable, will return the vaccine to the facility's inventory.

It is important interfaces send a delete instead of an update when making a significant change to a vaccination. This is because VacTrAK identifies vaccinations by date and by code. If one of these values change, then a delete must be sent for the old values followed by an "add" for the new values; otherwise, the registry may not properly remove the incorrect entry.

If a data entry or other error has been discovered by a provider site, their interface is expected to be capable of sending an appropriate message to VacTrAK to correct the patient record. If a system cannot send messages to properly correct errors through HL7, then staff at that site must manually log into VacTrAK and correct the record.

Deletes and adds may be sent in the same message without a problem. The same vaccination may even be added, updated, deleted, and then added again in the same message. All adds/updates and deletes are processed in the order received. When deleting a vaccination VacTrAK also records a deletion date. This is always set as the date the HL7 message was received by VacTrAK.

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

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

Any value sent is ignored because VacTrAK auto-populates this field with the current date when it is received.

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 5-15 Pharmacy/Treatment Route (RXR)

SEQ	Element Name	Data Type	Value Set	CDC IG Cardinality	*VacTrAK* Cardinality	CDC IG Usage	*VacTrAK* Usage	Conditional Predicate	Comment
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	0164	[0..1]	[0..1]	O	O		Ignored
4	Administration Method	CE	0165	[0..1]	[0..1]	O	O		Ignored
5	Routing Instruction	CE		[0..1]	[0..1]	O	O		Ignored
6	Administration Site Modifier	CWE		[0..1]	[0..1]	O	O		Ignored

RXR Field Definitions

RXR-1 Route (CE) 00309

Definition: This field is the route of administration.

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

This will change, based on HITSP. They specify use of FDA list. Systems should be prepared to accept either FDA or HL7 codes.

HL7 Sub-Field		Notes
1	Identifier (ST)	Route
2	Text (ST)	Description of route
3	Coding system (ST)	Value as ‘HL70162’
4	Alternate identifier (ST)	Not supported
5	Alternate text (ST)	Not supported
6	Alternate coding system (ST)	Not supported

RXR-2 Administration Site (CWE) 00310

Definition: This field contains the site of the administration route.

HL7 Sub-Field		Notes
1	Identifier (ST)	site
2	Text (ST)	Description of site
3	Coding system (ST)	Value ‘HL70163’
4	Alternate identifier (ST)	Not supported
5	Alternate text (ST)	Not supported
6	Alternate coding system(ST)	Not supported

6. Messages for Transmitting Immunization Information

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. Readers are referred to these chapters for specifics on these components. Issues related to segments and fields that are message specific will be addressed in this chapter.

Table 6-1-Supported Messages

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

Send Immunization History--VXU

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.

Table 6-2--VXU Segment Usage

Segment	**CDC IG Cardinality**	***VacTrAK* Cardinality**	**CDC IG Usage**	***VacTrAK* Usage**	**Comment**
MSH	[1..1]	[1..1]	R	R	*Every message begins with an MSH.*
SFT	[0..*]	[0..0]	O	O	*Not implemented in VacTrAK.*
PID	[1..1]	[1..1]	R	R	*Every VXU has one and only one PID segment.*
PD1	[0..1]	[0..1]	RE	RE	*Every PID segment in VXU should have a PD1 segment. Used to provide medical home information.*
NK1	[0..*]	[0..*]	RE	C(R/RE)	*For those <19, the PID segment is required. For everyone else, it is desired. (Used in deduplication.).*
PV1	[0..1]	[1..1]	O	O	
PV2	[0..1]	[0..1]	O	O	*Not implemented in VacTrAK.*
GT1	[0..1]	[0..1]	O	O	*Not implemented in VacTrAK.*
Begin Insurance Group	[0..*]	[0..*]	O	O	*Not implemented in VacTrAK.*
IN1	[0..1]	[0..1]	R	R	*Not implemented in VacTrAK.*
IN2	[0..1]	[0..1]	O	O	*Not implemented in VacTrAK.*
IN3	[0..1]	[0..1]	O	O	*Not implemented in VacTrAK.*
End Insurance Group					
Begin Order group	[0..*]	[0..*]	RE	RE	*Each VXU may have zero or more Order groups*
ORC	[1..*]	[1..1]	RE	RE	*Required for HL7 for administered vaccines, but for VacTrAK it is optional.*

Segment	**CDC IG Cardinality**	***VacTrAK* Cardinality**	**CDC IG Usage**	***VacTrAK* Usage**	**Comment**
TQ1	[0..1]	[0..1]	O	O	*Not implemented in VacTrAK.*
TQ2	[0..1]	[0..1]	O	O	*Not implemented in VacTrAK.*
RXA	[1..1]	[1..1]	R	R	*Messages without RXA segments are allowed if the intent is to update demographics. However, a RXA is required for all messages for patient whom receive an administered or for whom a historic vaccine is being documented.*
RXR	[0..1]	[0..1]	RE	RE	*Required if RXA sent and vaccine is administered.*
OBX	[0..*]	[0..*]	RE	RE	*Four OBX segments required for administered vaccines, including vaccine level eligibility status.*
NTE	[0..1]	[0..1]	RE	RE	
End Order Group					

Acknowledging a Message--ACK

The ACK returns an acknowledgement to the sending system. This may indicate errors in processing.

Table 6-3 Message Acknowledgement Segment (ACK)

Segment	**CDC IG Cardinality**	***VacTrAK* Cardinality**	**CDC IG Usage**	***VacTrAK* Usage**	**Comment**
MSH	[1..1]	[1..1]	R	R	
SFT	[0..1]	[0..1]	O	O	Not implemented
MSA	[1..1]	[1..1]	R	R	
ERR	[0..*]	[0..*]	RE	RE	

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

7. Query and Response Profile (QBP/RSP)

Refer to the CDC IG 1.5 for detailed specifics.

8. Change History

Version	Date	Author	Location	Change
0.1	01/29/2014	VacTrAK Staff	Throughout	Localized the implementation guide.
1.4	06/03/2014	VacTrAK	Throughout	Noted fields required by regulation and other corrections.
1.4	06/17/2014	VacTrAK	Throughout	Added page numbers.
1.4	9/04/2014	VacTrAK	OBX	Updated example for OBX 30963-3 and other corrections.
1.4	1/05/2015	VacTrAK	OBX and PV1-20	Updated eligibility status codes to reflect new state specific codes.
1.4	3/18/2015	VacTrAK	NK1-3	Updated NK1-3 NK Relationship
1.4	9/17/2015	VacTrAK	PD1-12, OBX (64994-7)	PD1-12 Consent and references to the now deprecated V06
1.4	10/14/2015	VacTrAK	OBX, appendix	Improved wording for OBX 64994-7, added eligibility status code V25, and removed references to the deprecated use of PV1-20.
1.4	12/23/2015	VacTrAK	Throughout	Correction of typos related to use of V06 and V07
1.4	9/2/2016	VacTrAK	OBX 30963-3 code tables, Appendix A and D, and throughout	Updated funding source codes per CDC HL7 2.5.2 IG Addendum, updating of VacTrAK Interface Project Stages, adding of local clarifying language and correction of typos.
1.4	9/26/2016	VacTrAK	RXA-11 RXA-21	RXA-21 and RXA-11 changed from RE to R
1.4	1/20/2017	VacTrAK	PV-1,ERR, OBX 64994-7, OBX 30963-3	Modifications to PV1 and ERR segments in tables 6-2, 6-3 to reflect the standard and program rules. Updated explanation of state rules for OBX 64994-7 and 30963-3). Updated links.

Appendix A: Code Tables

User-defined Table 0001 – Sex

Use in PID-8, NK1-15. Use ***only*** *the following:*

Value	Definition	Definitions
F	Female	Person reports she is a female
M	Male	Person reports that he is a male
O	Other	
U	Unknown	No assertion is made about the gender of the person

User-defined Table 0005 – Race

VacTrAK accepts up to five race codes using repeating the field. Values accepted:

Value	Definition
2076-8	Native Hawaiian or Other Pacific Islander
2131-1	Other (In past documentation this code was reported as "Multi-Race." Definition should be "Other." For multi-race, up to five codes can be sent.)
2028-9	Asian
2106-3	White
1002-5	American Indian or Alaska Native
2054-5	Black or African-American
<empty field>	Unknown/undetermined

User-defined Table 0063 – Relationship

Use in NK1-3. *The full list of 0063 values acceptable for adults; however, for persons <19 VacTrAK highly encourages limiting values to FTH, MTH, PAR, GRD (highlighted in* ***bold*** *below). These values are vital for VacTrAK's deduplication process.*

Code	Description
BRO	Brother
CGV	Care giver
CHD	Child
FCH	Foster child

Code	Description
FTH	**Father**
GRD	**Guardian**
GRP	Grandparent
MTH	**Mother**

Code	Description
OTH	Other
PAR	**Parent**
SCH	Stepchild
SEL	Self

Code	Description
SIB	Sibling
SIS	Sister
SPO	Spouse

User-defined Table 0064 - Financial class

Use in OBX (64994-7) Vaccine Program Eligibility Status codes as shown below by Status and Facility Type with user notes.

. VFC Medicaid Eligible	VFC Uninsured	VFC American Indian/Alaska Native	VFC Underinsured (FQHC) *	State Vaccine (AVAP)**	Ineligible (Private Vaccine)
V02	V03	V04	V05	V25 (or the older V07 if V25 can't be sent)	V01
*V05 has limited use. This eligibility status code is only applicable for the following facility types: Public Health Centers, FQHC, and deputized facilities. It is not applicable for Tribal Health Centers or private providers.					
**V07 new in January 2015, used for State-supplied vaccine from the Alaska Vaccine Assessment Program (AVAP). For additional information regarding eligibility status screening for State-supplied vaccines in Alaska please refer to the eligibility status guides: Child Eligibility Adult Eligibility					
***V25 was introduced in the HL7 Version 2.5.1 Implementation Guide for Immunization Messaging (Release 1.5) — Addendum as the state specific code to be used when the client is eligible for a state vaccine program. Interfaces interested in using V25 instead of V07 should contact VacTrAK staff to ensure their interface is adjusted for this change.					
V06 is now deprecated as of July 2015.					

HL7-defined Table 0103 - Processing ID

Use in MSH-11. Use only "P" for Production. Others could provide unexpected results.

Value	Description
~~D~~	~~Debugging~~
P	Production
~~T~~	~~Training~~

HL7-defined Table HL70125 - Value type

Use in OBX-2

Value	Description
CE	Coded Entry
DT	Date
NM	Numeric
ST	String Data.
TS	Time Stamp (Date & Time)

HL7-defined Table 0155 - Accept/Application acknowledgment conditions

Use in MSH-15 and 16. Interface settings can override value sent in this field. Consult VacTrAK staff for more information.

Value	Description
AL	Always return acknowledgement
NE	Never return acknowledgment
ER	Only return acknowledgment when an error occurs
~~SU~~	~~Successful completion only~~

HL7-defined Table 0162 - Route of administration

Only selected values listed. Use in RXR-1. Only these values are expected.

Value	Description	Definition
ID	Intradermal	within or introduced between the layers of the skin
IM	Intramuscular	within or into the substance of a muscle
NS	Nasal	Given by nose
IV	Intravenous	administered into a vein
PO	Oral	administered by mouth
OTH	Other/Miscellaneous	
SC	Subcutaneous	Under the skin or between skin and muscles.
TD	Transdermal	describes something, especially a drug, that is introduced into

User-defined Table 0215 - Publicity code / Cross Reference to VacTrAK Yes/No Indicator

PD1-11

Publicity Code	Description	Block Recall
01	No reminder/recall	YES
02	Reminder/recall – any method	NO
03	Reminder/recall – no calls	NO
04	Reminder only – any method	YES
05	Reminder only – no calls	YES
06	Recall only – any method	YES
07	Recall only – no calls	YES
08	Reminder/recall – to provider	YES
09	Reminder to provider	YES
10	Only reminder to provider, no recall	YES

Any other value received will result in BLOCK_RECALL set to NO.

HL7-defined Table 0227 - Manufacturers of Vaccines (code = MVX)

Use in RXA-17

The CDC's National Center for Immunization and Respiratory Diseases (NCIRD) maintains the HL7 external code set MVX. New codes are added as needed; therefore, see the most current version of this code set at the CDC website: http://www2a.cdc.gov/vaccines/iis/iisstandards/vaccines.asp?rpt=mvx

HL7-defined Table 0292 - Codes for Vaccines administered (code=CVX)

Use in RXA-5

The table below represents the August 2011 version of the CVX code set. New codes are added as needed; therefore, see the most current version of this code set at the CDC website: http://www2a.cdc.gov/vaccines/iis/iisstandards/vaccines.asp?rpt=cvx

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

HL7-defined Table 0322 - Completion status

Use in RXA-20

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

HL7-defined Table 0323 - Action code

Use in RXA-21

Value	Description
A	Add
D	Delete
U	Update

User-defined Table 0441 - Immunization registry status / Mapped to VacTrAK Value

Use in PD1-16.

Value	Description	Mapped to VacTrAK Value
A	Active	
I	Inactive	O
L	Inactive-Lost to follow-up (cannot contact)	O
M	Inactive-moved or gone elsewhere (transferred)	G
P	Inactive-permanently inactive (do not re-activate or add new entries to this record)	O
U	Unknown	U

CDC-defined NIP001 - Immunization information source

Use in RXA-9 Value and Description

VacTrAK accepts only medically verified vaccines. Do not send any that are not medically verified. Also, values 02 – 08 will be treated as 01 in VacTrAK

Value	Description
00	New immunization record
01	Historical information -source unspecified

Value Set Name – Immunization Funding Source

Used in OBX- 5. This is used to support vaccine inventory management.

VacTrAK translates funding sources into a Yes/No indicator as an answer to the question, “publicly supplied? Yes or No?”

OBX

PHVS Immunization Funding Source	Concept Name	Definition	VacTrAK Value
PHC70	Private	Vaccine stock used was privately funded	***N***
VXC50	Public	Vaccine stock used was publicly funded	***Y***
VXC51	Public VFC	Vaccine stock used was publicly funded by the VFC program	***Y***
VXC52	Public non-VFC	Vaccine stock used was publicly funded by a non - VFC program	***Y***

Appendix B: Other Guidance

Alaska Immunization Law – change as of 12/29/2013

As of December 29, 2013, healthcare providers are required to report all administered vaccines to VacTrAK, the State of Alaska's Immunization Information System, within 14 days of vaccination (7 AAC 27.650). The new reporting requirement is applicable for any vaccine administered, including state-supplied and privately purchased vaccines.

Vaccine Accountability and HL7 – logic compatibility requirements for OBX (30963-3 and 64994-7)

Vaccines supplied from the State of Alaska have to be accounted for to the CDC and state through either VFC or AVAP program. Therefore, all vaccines sent through HL7 must indicate both:

- if the vaccine was a state supplied vaccine or a privately supplied vaccine OBX (30963-3), AND
- how the vaccine qualifies as either state supplied or privately supplied OBX (64994-7).

Additionally, the values sent must be logically compatible so that they appropriately account for the vaccines. This means that a financial class of V01 (which means the vaccine is "ineligible") has to be accompanied with a funding source of private because private vaccine is the only appropriate vaccine to use. It therefore follows that all other listed financial class codes have to be accompanied with a funding source that equates to answering "yes" the vaccine is publically supplied because all the remaining codes (V02, V03, V04, V05, V07, V25) represent some form of the vaccine being eligible.

The first question is answered in OBX (30963-3) Funding Source with the values shown in the Immunization Funding Source table. The second question is answered in OBX (64994-7) Financial Class table. Both are included in this guide. Therefore, both OBX segments are required.

Vaccine Inventory Management and Eligibility Status

VacTrAK tracks Vaccines for Children (VFC) and Alaska Vaccine Assessment Program (AVAP) immunization administrations and vaccine lot inventory for providers. *Begin Oct 23, 2013 VacTrAK (IWeb v5.13.8) implemented stricter decrementing rules.*

The following information is required to support this functionality for all administered vaccines:

- Administered Code (CVX)
- Correct vaccine lot number
- Facility Id (configurable)
- OBX 64994-7 Eligibility Status

```
OBX|2|CE|64994-7^VACCINE FUNDING PGM ELIG CAT^LN|1|V01||||||F|
```

- OBX 30963-3 Public/Private flag

```
OBX|1|CE|30963-3^VACCINE PURCHASED WITH^LN|| PHC70^PRIVATE FUNDS^CDCPHINVS|||||F|
```

The HL7 interface must be configured to track the administered inventory lot before submitting data. Vaccine lots will be decremented if they match the incoming values listed above *exactly*. If the lot number is sent with a typo or the eligibility status is incorrect, or there is no public/private vaccine information, then the correct lot may not be decremented and no error message will be displayed. It is important to correctly enter/configure the current lots and to transmit the vaccines given without typos. In addition, as lots may be tracked separately for each facility the facility MUST be designated if lots are defined by facility.

Vaccines that don't decrement correctly are accessible for correct through the "correct decrementing" feature in VacTrAK. Note that the CDC does not condone the renaming of lots to track private versus public or adult state versus public vaccine. Access to this feature is configurable by VacTrAK and will require training and commitment by provider staff.

Query for Patient Vaccination Query (VXQ/QBP)

The **VXQ/QBP** includes patient demographic data used by a registry to query another registry for a patient's vaccination record. When the IIS receives a query, it tries to match the patient data sent with the patients in the registry and returns one of the following query responses:

Message	Description
VXR(RSP)	Query Response with Patient Vaccination Record
VXX(RSP)	Query Response with Multiple Matches
QCK	Query Acknowledgment (no match)
ACK	Acknowledgment (indicates error)

If the patient's Medical Record Number/State Registry ID, First Name, Last Name, and Birth Date match exactly one patient, the patient's complete vacation record is returned in a **VXR (RSP)** message; otherwise, the IIS tries to find as many patients that closely match the given demographic data. If one or more are found, then a **VXX (RSP)** message containing only patient demographic data is returned; otherwise, a **QCK** message is returned which indicates no matches found.

A negative **ACK** message is sent when an error prevents the completion of the request.

The standard for immunization messages does not allow the sender (the system originating the query) to specify how to do the patient query, but leaves it up to the receiving system to make that decision. Instead, the sender gives all known information about a particular patient and the receiving system must reply with exact or possible matches according to its own criteria.

PHC-Hub finds matches as follows:

1. Search for a match by patient ID. If a match is found, return this patient.
    - If the patient query is sent with the State Registry ID, the patient is queried by this ID and if found, a complete record is returned.
    - If the patient query is sent with the sender's Medical Record Number, the patient is queried by this ID and if found, a complete record is returned.
2. If no match was found above in Step One, then the patient data is used to perform the "Advanced Search" which is a standard algorithm used by the main deduplication process to find exact and possible matches. The following fields are considered by the Advanced Search:

    - Patient Last, First, Middle Name
    - Patient Birth Date
    - Patient SSN - Patient Medicaid Number
    - Patient Birth Number
    - Guardian First Name - Guardian SSN - Mother's Maiden Name
    - Patient Address - Patient Phone
3. If no matches are found, the interface may be configured to run additional searches such as "first initial, last name, birth date" searches; however, only a few of these additional searches are normally configured since the "Advanced Search" is the best option. PHC-Hub allows the administrator to configure each interface to have any set of optional queries included.
4. Once the matching has completed, the following applies:
    - If one exact match is found, this is returned in a VXR (RSP) message, which will include patient demographics and all immunizations.
    - If one or more matches is found, but some matches are possible, then a VXX(RSP) message is returned, which only includes the patient demographics for the possible matches.
    - If no match is found, then a **QCK** message is returned, to acknowledge the query and report that no matches were found.
        - The original CDC document specified that when there is one patient record match, the **VXR (RSP)** is returned; and if there are two or more found, then a **VXX (RSP)** is returned. This description assumed that all single matches would be good matches. For situations where there is only one match and it is not a good match, the IIS returns a **VXX (RSP)**.
5. If the sending system gets a response that indicates a multiple match, it may display the demographic information and prompt the query user to choose one.
6. The sending system may then re-query with a message that includes the State Registry ID sent in the first response; thus, ensuring an exact match on the second query and a return of an immunization record.

Public and Private Data

To encourage participation and ensure privacy, VacTrAK differentiates between public and private data. Changes to public data are visible to all VacTrAK users while changes to private data are only visible to users associated within the same Organization (IRMS). Therefore, when VacTrAK is queried, either manually using VacTrAK's UI or by sending a VXQ/QBP through to a VacTrAK interface, a mixture of public and private data can be returned. The exact data returned depends on how closely the data sent in the query matches what is in VacTrAK. However, of the private data returned, only the private data sent by the Organization that is now sending the query would be returned along with the public data that all users see.

For example if: Johnny is first given a vaccination by Clinic A and Clinic A sends that vaccine and Johnny's demographic information to VacTrAK. Then Johnny moves and goes to Clinic B and provides that staff with his new address. He also is given another vaccine at Clinic B and both of those were sent to VacTrAK. In this case, both Clinics would be able to see both vaccines because that is public data. However, each would only see the address that Johnny had given to their clinic because address data is private.

Public/Private Demographics Elements

Demographics consist of patient, address, family, and miscellaneous data. The table details the Patient Demographic fields and the type of field (public or private).

Patient Demographics			
Patient			
First Name or Alias:	Public	Race:	Private
Middle Name:	Public	Ethnicity:	Private
Last Name or Alias:	Public	Language:	Private
Suffix:	Public	Medicaid:	Private
Birth Date:	Public	Birth File:	Private
SSN:	Private	Patient Eligibility Status:	Private
Sex:	Public	Inactive:	Public
Age:	Public		
Multiple Birth	Public		
Address			
Street:	Private	Physical Address:	Private
City:	Private	State:	Private
Country:	Private	County/Parish:	Private
ZIP Code:	Private	District/Region:	Private
Phone Number and Extension	Private	Valid Address	Private
Email:	Private	Block Health Promotion Reason	Private
School:	Private		
Family			
Grdn 1 First Nm:	Public	Grdn 1 SSN:	Private
Grdn 1 Middle Nm:	Public	Grdn 2 First Nm:	Public
Grdn 1 Last Nm:	Public	Grdn 2 Last Nm:	Public
Mother Maiden Nm:	Private	Grdn Work Phone:	Private
Other Info			
Physician:	Public	Health Plan Name:	Public
Facility:	Public	HP Patient ID:	Private
Chart Number:	Private	HP Enroll Date:	Private
Next Appt. Date:	Private	Birth State:	Private
Block Recall:	Private	Birth Country:	Private
Recall Count:	Public	Allergies/Comments:	Private
Program/Mem.IDs:	Public	Number in Family:	Public
Monthly Income:	Private		
Record Info			
SIIS Patient ID:	Private	IRMS Owner	Public
Entry Date:	Public	Last Update:	Public

Public/Private Vaccinations Elements

The Vaccinations element is self-explanatory. The table contains the fields associated with a patient's vaccinations.

Vaccination	
Note: Regardless of patient record ownership, the user will always see every individual vaccination.	
Vaccination Detail	
Vaccine:	Public
Date Administered:	Public
Historical:	Public
Manufacturer:	Private
Lot Number:	Public
Lot Facility:	Private
Vaccinator:	Public
Publicly Supplied:	(Y) Public / (N) Private
Facility:	Public
Anatomical Site:	Public
Vaccine-level Eligibility Status:	Private
Adverse Reaction:	Private
District/Region:	Private
Dates of VIS Publications:	Public
Date VIS Form Given:	Public

Ownership

Ownership is a fundamental concept behind VacTrAK. At the patient level it is shown on a patient's demographic page. It is also key in to proper use of reports in VacTrAK and is included in report settings as an option to choose between reporting by ownership or service. For example, VacTrAK allows providers to select the patient group of interest when running coverage rate, patient detail, or reminder/recall reports in VacTrAK. VacTrAK definitions for ownership and service are as follows:

> Ownership – Patients that are active in your practice and it is the most recent place that they have received an immunization.
>
> Service – Patients administered a vaccine by your practice (within the user selected report date parameters), regardless of current patient ownership status.

How VacTrAK assigns ownership has been updated to reflect AIRA guidelines for Management of Patient Active/Inactive Status published Apr 2015. Prior to 12/9/2016, ANY change to a patient record (demographics, historical or administered vaccines) caused a change in ownership. After that date, patient ownership will change only when an administered vaccine is added to their record.

The only exception to these rules are "non-owning" organizations such as schools. Vaccines administered by non-owning organizations/facilities do not change patient ownership.

Ids

Patient Identification VacTrAK uses two IDs to identify patients, its own internal SIIS ID, and the externally defined ID normally referred to as the Medical Record Number (aka Chart Number or Patient Id), which must be unique for a given Organization (IRMS). A patient in VacTrAK has one SIIS ID and one or more Chart Numbers, one for every Organization (IRMS) entity for the patient's association. If no Medical Record Number is defined, it defaults to the ID "SIISCLIENT+SIIIS ID." When contacting VacTrAK for assistance regarding a specific patient, it is best to use the SIIS ID for clarity.

Please notify VacTrAK before making any global changes to your medical record numbering system. This can have a huge impact on VacTrAK.

Deduplication

Patient Matching (Deduplication) VacTrAK employs a sophisticated algorithm to identify and merge duplicate patient records. The process is called deduplication which results in one of three actions for a new record:

- The new record is a good match for exactly one patient record in the registry and the two records are automatically merged together.
- The new record is not a good match for any patient records in the registry and will automatically be added as a new patient record.
- The new record is a possible match with one or more patient records and must be reviewed by a VacTrAK administrator before it can be merged with any patient record.

VacTrAK runs the primary deduplication process every night which may take several hours. This means that most updates will not be visible in VacTrAK until the next day. Also, records marked for manual review by VacTrAK administrators will not be available until reviewed, which may take several days.

Incoming messages will be acknowledged by default. This acknowledgement indicates that VacTrAK has taken responsibility for the message but does not indicate that the message has been processed and merged with other VacTrAK data.

Real-time interfaces can be set to deduplicate immediately. so that VacTrAK users will not have to wait until the next day to see patient information imported. This feature comes with some limitations. The decision to set an interface to immediate deduplication is made by VacTrAK staff who takes into consider resources such as server load. It may not be possible to set all sites that would like it to immediate deduplication.

If an interface is set to immediate deduplication, most patients are accepted immediately VacTrAK. However, some still will have to be reviewed by VacTrAK staff to determine a proper registry match. Depending on the registry deduplication work queue, this may take several days. The “sending” systems can reduce the number of records that are affected by ensuring that complete patient records are sent. The more complete a patient record’s demographics are, the more likely it is to be confidently matched to other records.

Some system upgrades, especially those that affect changes in our forecasting algorithm, require a full system deduplication that can cause noticeable delays as it applies new changes to patient records.

VacTrAK’s system is designed to minimize the number of duplicate patient and vaccination records within it; however, it is still possible for duplicates to occur. The complete deduplication process uses a sophisticated algorithm to determine matches and possible matches. Below is a simple list of the primary fields this process examines.

- Medicaid Number
- Birth File Number
- SSN
- First Name
- Middle Name
- Last Name
- Birth Date
- Street Address, State, and Zip Code
- Street Address, City
- 7-digit phone number (excludes area code)
- Guardian SSN
- Guardian First Name
- Guardian Last Name
- Mother Maiden Name
- Sex
- Second Guardian First Name
- Second Guardian Last Name
- Second Guardian SSN
- Birth Order
- Multiple Birth Count

When multiple sources send the same vaccine information, the vaccination that ends up in the master record is the one that contains the most information; i.e., specific vaccine type, administered shot, lot number, combination vaccine. A procedure is used to "score" the immunization to determine if the incoming or existing shot is the "winner" for the master record.

The score is determined as follows:

⇨ Administered shot (historical is null)	1
⇨ Specific Vaccine type	2
⇨ Has Lot Number	3
⇨ Combination Vaccine	1
Total Possible Score	7

Quality Assurance Measures

Provider Level Quality Assurance Tools

Here are some suggestions on how individuals at the Organizations (IRMS) level can monitor data being submitted to VacTrAK.

Patient Detail

- This report displays a list of Patients and their Vaccinations for a selected IRMS/Facility.
- The list includes either patients that are owned by the IRMS or patients to whom service has been provided, depending on whether by ownership or by service has been selected. Multiple vaccines can be selected.
- This is helpful in determining exactly whose message we did or did not receive.

Provider Submission Detail

- This report displays the number of Patients and Vaccinations Added or Updated during the date range specified and the pre-defined IRMS/Facility reporting methods for the selected IRMS/Facility(s).

Vaccination Data Quality Report

- This report will identify what appears to administration errors or issues, which can also be data related issues.
- This Vaccination Data Quality Report summarizes vaccinations outside of recommended administration age or administered vaccinations that were given from unspecified vaccine types.
- This report displays the Names, IDs and Birth Dates of the Patients with suspect Vaccinations so that their records can be examined and corrected, when necessary.

Patient Data Quality Detail

- This report will identify what appears to be errors on the demographic side.
- This report lists the individual Patient Names and Birth Dates for Patients with missing data elements so that these Patients can be reviewed and fixed.

Other Resources

- VacTrAK Provider Application
- Roles and Responsibilities
- Other VacTrAK resources can be found on the VacTrAK homepage.

Appendix C: Interface Project Development Guidance

VacTrAK Interface Project Stages

- See VacTrAK Interface Project Stages

Interface Specification - Message Transport

There are several methods used to transfer HL7 data. VacTrAK supports multiple methods of message transport, all of which move the data to the common data processing interface.

Transport options:

- HTTP Upload Interface
- HTTP POST Interface
- SOAP using the CDC WSDL

Contact the program for additional details.