ImmPact HL7 v2.5.1 VXU Implementation Guide

REVISION HISTORY

Editor	Edit Date	Version	Changes
Lacey Dean	01/12/2018	0.1	Update specific to ImmPact
ME DEX Team	06/30/2020	0.2	State specific requirements
ME DEX Team	09/24/2020	0.3	RXA-5 Trade name

IMMPACT DATA EXCHANGE CONTACT INFORMATION

For data exchange questions and support, please email immpact.support@maine.gov.

To get the latest information regarding data exchange with ImmPact, please visit the data exchange page on the ImmPact website at: immunizeme.org

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INTRODUCTION

Thank you for your interest in Health Level Seven (HL7) electronic data exchange with the Maine ImmPact Immunization Information System (IIS). Getting timely and accurate immunization data into ImmPact is important for your clinic and for the individuals you serve.

This document outlines the specifications for immunization data exchange between the Maine Immunization Registry and the Provider's Electronic Medical Record (EMR) application. This document is intended for use in conjunction with the Center for Disease Control (CDC) Implementation Guide for Immunization Data Transactions using Version 2.5.1 of the Health Level Seven (HL7) Standard Protocol, HL7 Version 2.5.1: Implementation Guide for Immunization Messaging, Release 1.5. All specifications published in this document conform to the CDC standards for the exchange of immunization data.

INTENDED AUDIENCE

The Data Exchange Specification is intended for technical groups from Immunization Information Systems (IIS) and Electronic Health Records (EHR) that must implement these guidelines. The reader of the Data Exchange Specification should have a solid HL7 foundations and be very familiar with the contents of the CDC Immunization Information System Functional Standards (IIS FS https://www.cdc.gov/vaccines/programs/iis/functional-standards/func-stds-2018-2022.html) The goal of the Data Exchange Specification is to provide an unambiguous specification for creating and interpreting messages.

HL7 MESSAGE SPECIFICATION

All exchanges of immunization data between EMR applications and ImmPact will use the HL7 standard protocol. HL7 is a not-for-profit organization composed of a broad range of health care professionals. HL7 develops specifications; the most widely used being a messaging standard for communication between various healthcare applications. The remainder of this document will use the term HL7 to refer to the messaging standard protocol instead of the organization.

HL7 information can be accessed through the following website link: http://www.hl7.org/

CDC HL7 Message Implementation Profile

The Centers for Disease Control and Prevention (CDC) National Immunization Program (NIP) publishes an implementation guide for immunization data messaging. The title of the guide is "HL7 Version 2.5.1: Implementation Guide for Immunization Messaging, Release 1.5" Published 10/1/2014. The intent of the guide is to describe a set of HL7 immunization message definitions and encoding rules and provide a nationally consistent implementation of those messages. The current document published by the CDC can be found at **HL7 Version 2.5.1: Implementation Guide for Immunization Messaging, Release 1.5** (URL: http://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-5-2014- 11.pdf).

The guide identifies the set of HL7 messages required to enable information systems that maintain immunization records to transmit patient-specific immunization histories electronically to other systems. This allows healthcare providers to have access to these records at the time health care is provided. This includes:

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

The HL7 message profile specification implemented between ImmPact and the provider's EMR application is based on the CDC specification and consists of a sub-set of the message and segment definitions contained in the guide.

Message Workflow

The provider's EMR or EHR will be the system of origin for immunization data. The user will log into the EMR application and enter patient, responsible person and immunization data into the appropriate data fields of the application. The data entered and maintained will reflect the data identified in this document.

The act of changing, adding, deleting patient, next of kin or immunization data will trigger the creation of an HL7 message. This can take place in real time or the records can be batched for later message creation.

BI-DIRECTIONAL CAPABILITY – QBP/RSP

IMMPACT will support real-time immunization record query messages (QBP) and will return immunization histories or immunization histories plus forecasting in a response file (RSP). This bidirectional messaging functionality (BiDX) will be made available to IMMPACT DX sites beginning in April 2018. Specifications on query/response messaging with IMMPACT will be identical those found in the **HL7 Version 2.5.1 Implementation Guide for Immunization Messaging Release**
1.5 (URL: http://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-5-2014-11.pdf)

Sites interested in BiDX will be required to complete an online *IMMPACT Bidirectional Interest/Readiness* survey beginning in Summer 2018.

SENDING DATA TO IMMPACT

ImmPact accepts unsolicited HL7 v2.5.1 vaccination record updates (VXU) in real time. ImmPact uses SOAP web services as the transport mechanism. Details regarding the SOAP format can be found in the IMMPACT Test Plan found on the data exchange tech support page: http://www.maine.gov/dhhs/mecdc/infectious-disease/immunization/

MEANINGFUL USE

Registration of Intent must be completed and is considered a declaration of intent to engage in data submission to ImmPact in support of 'Meaningful Use'. For more information please visit http://www.maine.gov/dhhs/mecdc/navtabs/providers.shtml.

HL7 VXU FILE FORMAT AND CONTENT

Unsolicited Vaccination Update (VXU)

All immunization messages should be sent as a VXU type HL7 message. Regardless of whether the message contains a new record or an update to an existing record, ImmPact requires a full VXU message to be sent with all required fields populated. A full VXU message should be generated by the sending system for any updates to existing patient records, and should contain all required segments, components, and subcomponents of a full message.

VXU Message Structure (Ignored segments not shown)

Segment	Cardinality	Description	Usage	Notes
MSH	[1..1]	Message Header	**R**	Every message begins with an MSH.
PID	[1..1]	Patient Identification	**R**	Every VXU requires one PID
PD1	[1..1]	Patient Additional Demographics	**R**	Every PID segment must have one PD1 segment.
[{NK1}]	[0..*]	Next of Kin/Associated Parties	**R** (State)	PID segment in a VXU must have one or more NK1 segments.
{			**R**	Begin Order Group – Each VXU must contain at least one Order
ORC	[1..*]	Order Request	**R**	Each RXA requires exactly one ORC
RXA	[1..1]	Pharmacy/Treatment Administration	**R**	Each ORC requires exactly one RXA
[RXR]	[0..1]	Pharmacy/Treatment Route	RE	Every RXA segment in a VXU may have zero or one RXR
[{OBX}]	[0..*]	Observation/Result	RE	Every RXA segment in a VXU may have zero or more OBX
}				End order segment

NOTE: [XYZ]   Square brackets enclose optional segments
**   {XYZ}   Curly brackets enclose segments which can be repeated**
**   [{XYZ}] Defines an optional segment which can be repeated**

SAMPLE VXU MESSAGE

The following sample message contains one RXA segment. The ImmPact Organization Code or Organization ID is identified as DE-000001 and the data is coming from their internal system called MyEMR.   The file was sent on July 1, 2016. The file is using HL7 version 2.5.1 and the message ID is ME0001. The   patient is George M. Jones, Jr., a white male with a patient ID of PA123456 and a birth date of   02/27/2014. His mother's maiden name is Martha G. Miller. His address is 1234 W First St in Augusta, ME, 04330. His home number is 207-555-5555. His primary language is English and he is the second child in a multiple- birth.

The publicity code is set for reminder/recall, any method, and his protection indicator is set to N, with an effective date of 7/30/2014. His mother is the identified guardian in the record, and her married name is the same as the patient's.

One vaccination record is recorded, a new immunization of Hep B given by the primary provider on 7/30/2014 with a dosage amount of .5 mL and a lot number of 0039F. The vaccine lot expires on 05/31/2020. The manufacturer is Merck and the vaccination was recorded as a completed shot (CP) and is marked as an "add" or new record. The vaccine was given as intramuscular in the left arm of the patient. The immunization was ordered by Janet Smith, MD and Dave Clark entered the information into the EMR (MyEMR). The patient is VFC eligible and the patient's VFC eligibility status is uninsured.

Here is the sample HL7 message. Note that indentation has been added to each segment for readability.

```
MSH|^~\&|MyEMR|DE-000001| |IMMPACT|20160701123030-
    0700||VXU^V04^VXU_V04|CA0001|P|2.5.1|||ER|AL|||||Z22^CDCPHINVS|DE-000001
PID|1||PA123456^^^MYEMR^MR||JONES^GEORGE^M^JR^^^L|MILLER^MARTHA^G^^^^M|20140227|M||21
    06-3^WHITE^CDCREC|1234 W FIRST ST^^AUGUSTA^ME^04330^^H
    ||^PRN^PH^^^207^5555555||ENG^English^HL70296|||||||2186-5^ not Hispanic or Latino^CDCREC||Y|2
PD1|||||||||||02^REMINDER/RECALL – ANY METHOD^HL70215|N|20140730|||A|20140730|
NK1|1|JONES^MARTHA^^^^^L|MTH^MOTHER^HL70063|1234 W FIRST ST^^AUGUSTA
    ^ME^04330^^H|^PRN^PH^^^207^5555555|
ORC|RE||197023^CMC|||||||^Clark^Dave||^Smith^Janet^^^^^^L^^^^^^^^^MD |||||
RXA|0|1|20140730||08^HEPB-PEDIATRIC/ADOLESCENT^CVX|.5|mL^mL^UCUM||00^NEW IMMUNIZATION
    RECORD^NIP001|1245319599^Smith^Janet^^^^^^CMS^^^^NPI^^^^^^^MD |^^^DE-
    000001|||||0039F|20200531|MSD^MERCK^MVX|||CP|A
RXR|C28161^INTRAMUSCULAR^NCIT|LA^LEFT ARM^HL70163
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V03^VFC eligibility –Not
    Insured^HL70064|||||||F|||20110701140500
```

MASTER FIELD LIST

The Master Field List shows every field accepted by ImmPact in one table. For more details on each field see the documentation under the segment and field description. Use this table as a quick reference, but read the expanded segment documentation for more complete information. A few pointers on reading the table:

- Usage column code interpretations:
    - **R – Required**: A conforming sending application shall populate all "R" elements with a non-empty value
    - **RE – Required, but may be empty**: The element may be missing from the message, but must be sent by the sending application if there is relevant data. If the sending application does not know the required values, then that element may be omitted.
    - **O – Optional**: ImmPact may read or use the information, but does not require it to be sent. Please send values for optional fields if they are available.
    - **C** – Conditional: The usage code has an associated condition predicate that determines the operational requirements (usage code) of the element.
- **All HL7 Code Tables referenced in this document are from the CDC document *HL7 Version 2.5.1 Implementation Guide for Immunization Messaging v1.5* and can be viewed or downloaded from** http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html
- The order of the segments in the table align with the standard VXU message structure

Segment / Field	Data Element	Usage	HL7 Code Table	Comment
MSH-1	Field Separator	R		Required value is |
MSH-2	Encoding Characters	R		Required values ^~\&
MSH-4	Sending Facility	R		Required in MSH segment. Sending vendor organization ID supplied by ImmPact.
MSH-6	Receiving Facility	R		**IMMPACT IIS**
MSH-7	Date/time of message	R		
MSH-9	Message type	R		**VXU^V04^VXU_V04**
MSH-10	Message control ID	R		Used to tie acknowledgement to message
MSH-11	Processing ID	R		Required by HL7. **Constrain to 'P'.** Empty field or any other value will cause the message to be rejected.
MSH-12	HL7 Version ID	R	HL70104	Version **2.5.1** only
MSH-15	Accept Acknowledgement Type	RE	HL70155	
MSH-16	Application Acknowledgement Type	RE	HL70016	If blank, MSH-16 acts as 'ER'.
MSH-21	Message Profile Indicator	RE		Orgs may use this field to assert adherence to, or reference, a message profile.

Segment / Field	Data Element	Usage	HL7 Code Table	Comment
MSH-22	Responsible Sending Org	RE		Value of **MSH-22** should be the ImmPact Org ID or code of the 'Sending Responsible Organization' who administered the immunization (in most cases, use the **RXA-11.4** value). If **MSH-22** is empty, the value in **RXA-11.4** will be used as the 'sending responsible organization'. If both **MSH-22** and **RXA-11.4** are em Z22^CDCPHINVSpty, the record will be rejected. Note: State will provide *Organization ID*
PID-3	Patient ID	R		This is the patient ID from the provider's system, commonly referred to as medical record number. ImmPact only accepts type codes, '**MR**', '**PI**', '**PN**', '**PRN**', or '**PT**'
PID-5	Patient Name	R		Each name field has a 50 character length limit in ImmPact
PID-6	Mother's Maiden Name	RE		***Required*** If NOFIRSTNAME or NO FIRST NAME is used in PID-5 (unnamed child) the mothers maiden name is required for deduplication.
PID-7	Date of Birth	R		YYYYMMDD
PID-8	Sex	R	HL70001	'**M**', '**F**', '**U**' only
PID-10	Race	RE	HL70005	
PID-11	Patient Address	RE		
PID-13	Home Phone Number	RE		PID 13.6 is area code PID 13.7 is seven digit phone# Example: |(207)555-1212^PRN^PH^^^207^5551212|
PID-15	Primary Language	RE	HL70296	To ensure correct translation, please use the proper code for the HL7 version of the message.
PID-22	Ethnic Group	RE	HL70189	Used to further identify race as Hispanic or non-Hispanic
PID-24	Multiple Birth Indicator	RE	HL70136	'**Y**', '**N**', or blank. Empty value is treated as 'N' in ImmPact.
PID-25	Birth Order	C(R/O)		If PID-24 = 'Y' a birth order number (1, 2, 3, etc…) must be entered.
PID-29	Patient Death Date and Time	C(RE/X)		If PID-30 is valued 'Y'
PID-30	Patient Death Indicator	RE	HL70136	Field indicates whether the patient is deceased. Values are either 'Y', 'N', or empty.
PD1-11	Publicity Code	RE	HL70215	Indicates reminder/recall intentions. A blank value will default to 'Y' in ImmPact.

PD1-12	Protection Indicator	R		'Y', 'N'. Indicates whether patient data should be 'protected' so other ImmPact providers can't view.
PD1-13	Protection Indicator Effective Date	C(R/O)		Nk1-3 Required if PD1-12 is supplied.
PD1-16	Immunization Registry Status	RE	HL70441	Current status of the patient in relation to the sending provider organization
PD1-17	Immunization Registry Status Effective Date	C(RE/X)		Date for the registry status reported in PD1-16. If PD1-16 is valued.

Segment / Field	Data Element	Usage	HL7 Code Table	Comment
NK1-1	Set ID	R		Empty value will cause the NK1 segment to be ignored
NK1-2	Next of Kin Name	R		Name of next of kin or associated party
NK1-3	Relationship	R	HL70063	Personal relationship that the next of kin or associated party has to the patient.
NK1-4	Address	RE		
NK1-5	Phone number	RE		Example: |(207)555-1212^PRN^PH^^^207^5551212| Reference PID 13 for format details
ORC-1	Order Control	R		Constrain to "**RE**"
ORC-2	Placer Order Number	RE		Uniquely identifies the order among all orders sent by a provider organization
ORC-3	Filler Order Number	RE		Uniquely identifies the order among all orders sent by a provider organization that filled the order
ORC-10	Entered By	RE		This is the person that entered the immunization record into the system.
ORC-12	Ordering Provider	RE		This shall be the provider ordering the immunization. It is expected to be empty if the immunization record is transcribed from an historical record.
ORC-17	Entering Organization	RE		If populated, use ImmPact Org Code (ID) in ORC- 17.1
RXA-1	Give Sub-ID counter	R		**Constrain to '0' (zero)**
RXA-2	Administration Sub-ID counter	R		**Constrain to '1' (one).**
RXA-3	Date/Time Start of Administration	R		YYYYMMDD
RXA-5	Administration Code	R		**CVX Required. Trade Name and Vaccine Name accepted with CVX.**
RXA-6	Administered Amount	R		**Required for all doses.** If the amount is unknown, then the value '999' must be placed in this field. Comma separators are not allowed in this field.
RXA-7	Administered Units	C(RE/O)		If RXA-6 is supplied, unit value should be '**mL^mL^UCUM**'.

RXA-9	Administered Notes	R	NIP001	Indicates historical or given shot.
				(see table below)

Value	Description	Operational Definition
00	New immunization record	The record of a newly administered dose of vaccine. The dose was administered by the organization that is reporting this dose.
01	Historical information - source unspecified	The record of a vaccine dose from a reliable historical source, such as an immunization card.
02	Historical information - from other provider	The record of a vaccine dose from another health care provider's historical records.
03	Historical information - from parent's written record	The record of a vaccine dose from parentally maintained written records.
04	Historical information - from parent's recall	The record of a vaccine dose from a parents recall. The reliability of this record is considered low.
05	Historical information - from other registry	The record of a vaccine dose from another Immunization Information System (IIS).
06	Historical information - from birth certificate	The record of a vaccine dose from a birth record.
07	Historical information - from school record	The record of a vaccine dose from a written school record.
08	Historical information - from public agency	The record of a vaccine dose from a written public health agency record.

Field	Name	Usage	Code	Notes
RXA-10	Administering Provider	C(RE/O)		The person who administered the shot. **If RXA-9.1 = '00' and RXA-20 is valued at 'CP' or 'PA'.**
RXA-11	Administered-at Location	C(R/O)		The provider site where the shot was given. Provider ID supplied by ImmPact. **If RXA-9.1 = '00' then this field is required.**
RXA-15	Substance Lot Number	C(R/O)		**If RXA-9.1 = '00' and RXA-20 is valued at 'CP' or 'PA', substance lot number must be supplied**.
RXA-16	Substance Expiration Date	C(RE/O)		**If RXA-9.1 = '00' and RXA-20 is valued at 'CP' or 'PA'.** Note: Expiration mismatch will be ignored
RXA-17	Substance Lot Mfr Name	C(R/O)	HL70227	**If RXA-9.1 = '00' and RXA-20 is valued at 'CP' or 'PA'. MVX** code only.

Segment / Field	Data Element	Usage	HL7 Code Table	Comment
RXA-20	Completion Status	RE	HL70322	Only complete records (**CP**) and Partial Administrations (**PA**) are processed. Empty value will be treated as '**CP**'.
RXA-21	Action Code	RE	HL71224	Empty value will be treated as '**A**'. Values '**A**', '**U**', and '**D**' accepted
RXR-1	Route	RE	HL70162	Route of the administration.
RXR-2	Administration Site	RE	HL70163	Body site of the administration route.
OBX-1	Set ID – OBX	R		Sequence number of the OBX. First instance should be set to '1' (one).
OBX-2	Value Type	R		Should be "**CE**" – coded element.
OBX-3	Observation Identifier	R	NIP003	Only "**64994-7**" Vaccine funding program eligibility category accepted. All other OBX segments will be ignored.
OBX-4	Observation Sub-ID	R		Required to group related OBX segments
OBX-5	Observation Value	R	HL70064	This is where the code for VFC eligibility will be recorded at the vaccine level.
OBX-11	Observation Result Status	R		Constrain to "**F**" for final.
OBX-14	Date/Time of the Observation	RE		

SEGMENT DETAILS

MSH: Message Header Segment

The Message Header (MSH) segment is required for each message sent. Multiple messages may be sent back-to-back. MSH segments separate multiple messages.

Position	Field Name	Status
1	**Field separator**	**required**
2	**Encoding characters**	**required**
3	Sending application	optional
4	**Sending facility**	**required**
5	Receiving application	ignored
6	**Receiving facility**	**required**
7	**Date/time of message**	**required**
8	Security	ignored
9	**Message type**	**required**
10	**Message control id**	**required**
11	**Processing id**	**required**
12	**Version id**	**required**
13	Sequence number	ignored
14	Continuation pointer	ignored
15	**Accept acknowledgment type**	**required, but may be empty**
16	**Application acknowledgment type**	**required, but may be empty**
17	Country code	ignored
18	Character set	ignored
19	Principal language of message	ignored
20	Alternate character set handling scheme	ignored
21	**Message Profile Identifier**	**required, but may be empty**
22	**Sending Responsible Organization**	**required, but may be empty**

MSH-1: Field separator

ImmPact expects to receive standard character: '|'
NOTE: The CDC Immunization Guide requires senders to only use the standard character.

MSH-2: Encoding characters

ImmPact expects standard encoding characters: **^~\&**
NOTE: The CDC Immunization Guide requires senders to only use the standard characters.

MSH-4: Sending facility ID

The sending vendor organization ID is assigned by the State. The ID will be sent to the vendor Organization in a secure email. Data submitters will place their assigned vendor organization ID in MSH-4. This assigned Code (ID) should be used for   all messages sent.

Position	Field Name	Status
1	namespace id	required
2	universal id	ignored
3	universal id type	ignored

MSH-6: Receiving Facility

The receiving facility will be used to indicate the name of the region where the data is being sent

Position	Field Name	Status
1	namespace id	required; IMMPACT IIS
2	universal id	ignored
3	universal id type	ignored

MSH-7: Date/time of message

The date and time the message was created. This field is required.
Format: YYYYMMDDHHMMSS

If sending more than 14 digits, the following format is required:
YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]

Example: **19970716192030.45+0100**

MSH-9: Message type

The type of message being sent.
Message type: VXU
Trigger event: V04
Message structure: VXU_V04

Position	Field Name	Status
1	message type	required
2	trigger event	required
3	message structure	required

MSH-10: Message Control ID

The Message Control ID is a unique id for the message that is generated by the sending system. This field is used to tie the acknowledgement to the message. **Format: STRING**

MSH-11: Processing ID

Required by HL7. **Only value accepted is "P" for production. All other values will cause the message to be rejected.**

Note: "P" will also be used in state testing environment.

MSH-12: Version ID

Value: **2.5.1**

MSH-16: Application acknowledgment type

Indicates whether or not a response should be returned, and if so, under what conditions. Empty MSH-16 will act as 'ER'

HL7-defined Table 0155 – Accept/Application Acknowledgment conditions

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

MSH-22: Sending Responsible Organization

The ImmPact Org Code (ID) for the location that 'owns' the vaccination should be sent in MSH-22. The ImmPact Org Code (ID) in MSH-22 should match the value sent in RXA-11.4 of a given shot in the HL7 message. For inventory decrementing in ImmPact, the value in MSH-22 will be the ImmPact Org Code (ID) where the vaccine was administered. If MSH-22 is empty, the value will default to the ImmPact Org Code (ID) sent in RXA-11.4. If there are multiple RXA segments, with multiple Org Codes (IDs) in one message, and MSH-22 is empty, the message will be rejected.

PID: Patient Identifier Segment

The Patient Identifier segment includes essential information for matching an incoming patient record to patient records previously sent by other providers.

Position	Field Name	Status
1	Set id	ignored
2	Patient id	ignored
3	**Patient identifier list**	**required**
4	Alternative patient id	ignored
5	**Patient name**	**required**
6	**Mother's maiden name**	**required, but may be empty**
7	**Date/time of birth**	**required**
8	**Sex**	**required**
9	Patient alias	ignored
10	**Race**	**required, but may be empty**

11	**Patient address**	**required, but may be empty**
12	County code	Ignored
13	**Phone number - home**	**required, but may be empty**
14	Phone number - business	optional
15	**Primary language**	**required, but may be empty**
16	Marital status	ignored
17	Religion	ignored
18	Patient account number	ignored
19	SSN number - patient	ignored
20	Driver's license number - patient	ignored
21	Mother's identifier	ignored
22	**Ethnic group**	**required, but may be empty**
23	Birth place	ignored
24	**Multiple birth indicator**	**required, but may be empty**
25	**Birth order**	**C (R/O); if PID-24 is valued "Y"**
26	Citizenship	ignored
27	Veterans military status	ignored
28	Nationality	ignored
29	**Patient death date and time**	**C (RE/X) If PID-30 is valued "Y"**
30	**Patient death indicator**	**required, but may be empty**
31	Identify Unknown Indicator	ignored
32	Identity Reliability Code	ignored
33	Last Update Date/Time	optional
34	Last Update Facility	ignored
35	Species Code	ignored
36	Breed Code	ignored

NOTES: Patient Mapping in ImmPact

The ImmPact system assigns a unique patient ID to each patient in the system. VXU files from providers include demographic information about a patient along with the provider's unique patient identifier. ImmPact accepts and stores these provider patient IDs and uses them in its matching algorithm in an attempt to uniquely identify patients and prevent duplication of patient information. For this reason, it is very important to provide as much of the demographic data on the patient as possible. The patient name, date of birth, and sex are required fields. Additional information about the parents or guardians—in particular the birth mother name—as well as accurate current address are all used to identify patients. The more information provided, the better the matching process and the less likely it is that a duplicate patient record will be created.

*The provider's patient identifier is located in the PID segment, field 3. This is a required field. According to HL7 specification, this field can be repeated, meaning that the provider may send multiple identifiers along with their appropriate identifier types. ImmPact will only accept patient IDs with an identifier type code of **MR** (medical record number), **PI** (patient internal identifier), **PN** (person number) **PRN**(provider*

*number), or **PT** (patient external identifier). The identifier should be the one used in the provider's EHR to uniquely identify patients. Other identifier types, including social security number or Medicare number are ignored. It is therefore recommended that the provider include only the accepted types of patient identifiers for each patient and to use that identifier type consistently for all patient records submitted.*

PID-3: Patient identifier list

This is the patient ID from the provider's system, commonly referred to as the medical record number.

Warning: The sending system's patient id is a required field. The message will be rejected if this id is not sent or cannot be found in this field. The identifier type code in PID-3.5 is also required and if not submitted the message will be rejected.

Position	Field Name	Status
1	**id**	**required**
2	check digit	ignored
3	code identifying the check digit scheme employed	ignored
4	**assigning authority**	**required; if empty, a warning ACK will be returned**
5	**identifier type code**	**required**
6	assigning facility	ignored

NOTE: ImmPact only accepts identifier type codes **MR** *(medical record number),* **PI** *(patient internal identifier),* **PN** *(person number)* **PRN** *(provider number), or* **PT** *(patient external identifier)* in PID-3.5. Repetitions are accepted in this field.

PID-5: Patient name

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

Note: If child is unnamed use NOLASTNAME or NO LAST NAME in PID-5.1.

If child is unnamed use NOFIRSTNAME or NO FIRST NAME in PID-5.2. Baby boy and baby girl will be rejected.

If NOFIRSTNAME or NOLASTNAME is used in PID-5 (unnamed child) the mother's maiden name is ***required*** for deduplication.

WARNING: This message will be rejected if the first and/or last name is blank.

Position	Field	Status
1	**family name**	**required**
2	**given name**	**required**
3	**middle initial or name**	**required, but may be empty**
4	**suffix**	**required, but may be empty**
5	prefix	ignored
6	degree	ignored

7	name type code	required, but may be empty
8	name representation code	ignored

NOTE: Repetitions are accepted in this field. The first repetition shall contain the legal name.
Values for the name type code field are from HL7-defined Table 0200 – Name type

PID-6: Mother's maiden name

This field should contain the patient's mother's maiden name as well as the mother's first name. This field is used for patient matching and is **highly desired** if available. If the field is valued, the requirements below must be followed.

Position	Field	Status
1	**family name**	**required**
2	**given name**	**required**
3	middle initial or name	ignored
4	suffix	ignored
5	prefix	ignored
6	degree	ignored
7	**name type code**	**required, but may be empty**
8	name representation code	ignored

NOTE: Values for the name type code field are from HL7-defined Table 0200 – Name type

PID-7: Date of birth

The patient's date of birth. This date is required because it is critical to several functions including immunization recommendations/forecast.

Format: YYYYMMDD

NOTE: Pre-registration of unborn children will require a certain DOB to be used. If this is a standard for the practice the State will provide the appropriate DOB to be sent.

PID-8: Sex

The patient's gender.

Value	Description	Status
F	Female	accepted
M	Male	accepted
U	Unknown	accepted

NOTE: Values are from HL7 User Defined Table 0001 - Sex

PID-10: Race

Patient's race is sent in this field. If the field is valued, the requirements below must be followed.

Position	Field	Status
1	**identifier**	**required**
2	text	optional
3	**name of coding system**	**required, but may be empty; use HL7005**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

NOTE: Values for the identifier field are from User-defined Table 0005 – Race. Repetitions are accepted in this field.

PID-11: Patient address

The patient's address is sent in this field. If the field is valued, the requirements below must be followed.

Position	Field	Status
1	**street address**	**required**
2	**other designation**	**required, but may be empty**
3	**city**	**required**
4	**state or province**	**required**
5	**zip or postal code**	**required**
6	country	optional
7	**address type**	**required, but may be empty**
8	other geographic designation	ignored
9	**county/parish code**	**required** Format should be county name spelled out and is not case sensitive Example: KENNEBEC
10	census tract	ignored
11	address representation code	ignored

PID-13: Phone number – home

The patient's home phone number is sent in this field. If the field is valued, the requirements below must be followed.

PID 13.6 is area code

PID 13.7 is seven digit phone#

Example:|(207)555-1212^PRN^PH^^^207^5551212|

Position	Field	Status
1	phone number	Optional
2	**use code**	**Required** (Warning ACK returned if code invalid or not submitted)
3	equipment type	optional
4	email	**C (R/X)** If PID-13.2 (telecommunication use code is valued as "NET".
5	country	ignored
6	**area**	**C (RE/X)** If PID-13.2 (telecommunication use code is valued not "NET".
7	**phone**	**C (RE/X)** If PID-13.2 (telecommunication use code is valued not "NET".
8	extension	ignored
9	any text	ignored

NOTE: Values for the use code are found in table HL70201. Repetitions are allowed in this field.

PID-15: Primary language

The primary language of the patient or responsible party (if child.) This information is used to ensure that the appropriate language is used in mailings or other contacts.

Note: To ensure correct translation, please use the proper identifier code for the HL7 version of the message. HL7 v2.5.1 use ISO 639 available from PHIN-VADS at (URL: https://phinvads.cdc.gov/vads/ViewValueSet.action?id=43D34BBC-617F-DD11-B38D-00188B398520)

If the field is valued, the requirements below must be followed.

Position	Field	Status
1	identifier	required
2	text	optional
3	name of coding system	required, but may be empty; use HL70296
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

PID-22: Ethnic Group

This field is for the ethnicity of the patient. If the field is valued, the requirements below must be followed.

Position	Field	Status
1	identifier	required
2	text	optional
3	name of coding system	required, but may be empty; use CDCREC

Note: The identifier for ethnicity can be found in CDCREC table – Ethnic Group

PID-24: Multiple Birth Indicator

This field indicates whether the patient was part of a multiple birth. If empty, ImmPact will default this field to "N".

Value	Description
Y	The patient was part of a multiple birth
N	The patient was a single birth

Note: Refer to HL7-defined Table 0136 – Yes/No Indicator for valid values.

PID-25: Birth Order

If the patient is part of a multiple birth, a value (number) indicating the patient's birth order is entered in this field. If PID-24 is populated with a 'Y', then this field shall be populated.

PID-29: Patient Death Date and Time

This field contains the date and time at which the patient death has occurred. Must be valued if PID-30 is valued with a 'Y'.

PID-30: Patient Death Indicator

This field indicates whether the patient is deceased.

PD1: Additional Demographics Segment

The Patient Demographic Segment contains patient demographic information that may change from time to time. ImmPact uses this segment to indicate whether the person wants to receive reminder/recall notices and whether or not the patient wants his or her data protected.

Position	Field Name	Status
1	Living dependency	ignored
2	Living arrangement	ignored
3	Patient primary facility	ignored
4	Patient primary care provider name & id number	ignored
5	Student indicator	ignored
6	Handicap	ignored
7	Living will	ignored
8	Organ donor	ignored
9	Separate bill	ignored
10	Duplicate patient	ignored
11	**Publicity code**	**required, but may be empty**
12	**Protection indicator**	**required**
13	**Protection indicator effective date**	**C (R/O) Required if PD1-12 is supplied.**
14	Place of worship	ignored
15	Advance directive code	ignored
16	**Immunization registry status**	**required, but may be empty**
17	**Immunization registry status effective date**	**C (RE/X) If the PD1-16 field is valued**
18	Publicity code effective date	ignored

PD1-11: Publicity code

This field indicates whether the patient wishes to receive reminder/recall notices. Use this field to indicate a specific request from the patient/parent or leave blank. An empty value will be treated the same as a "02" value in this field, meaning that it is OK for a provider site to send reminder/recall notices regarding immunizations to this patient

Position	Field Name	Status
1	**identifier**	**required, but may be empty**
2	text	optional
3	**name of coding system**	**required, but may be empty; use HL70215 if valued**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

Note: Values for this field can be found in User-defined Table 0215 – Publicity code

PD1-12: Protection Indicator

This field identifies whether a person's information may be shared with other ImmPact users. The protection state must be actively determined by the clinician. ImmPact will translate an empty value sent in PD1-12 as **disclosed/agree to share**. (*Please see below text for more detailed information regarding disclosure and sharing*)

Value in HL7 2.5.1	HL7 Standard
Y	Protect the data. Client (or guardian) has indicated that the information shall be protected. **(Do not share data)**
N	It is not necessary to protect the data from other clinicians. Client (or guardian) has indicated that the information does not need to be protected. **(Sharing is OK)**

PD1-13: Protection Indicator Effective Date

This field indicates the effective date for PD1-12
Format: YYYYMMDD

PD1-16: Immunization Registry Status

This field identifies the current status of the patient in relation to the sending provider organization. If PID-29 (date of death) is populated, then the value of PD1-16 must be 'P' – Permanently Inactive.
Refer to User Defined Table 0441 in the CDC Implementation Guide for all accepted values.

PD1-17: Immunization Registry Status Effective Date

This field indicates the effective date for the registry status reported in PD1-16.

NK1: Next of Kin Segment

The NK1 segment contains information about the patient's other related parties. The segment is optional, but if submitted in the HL7 message, the following field requirements must be followed. If any of the required fields are left empty, the NK1 segment will be ignored and a 'warning' will be issued in the ACK.

Position	Field Name	Status
1	Set id - NK1	required
2	Name	required
3	Relationship	required
4	Address	required, but may be empty
5	Phone number	required, but may be empty

NK1-1: Set ID

This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be '1' (one), for the second occurrence the sequence number shall be '2' (two), and so on.**NOTE:** This field is required if the data in the NK1 segment data is to populate ImmPact.

NK1-2: Name

This field contains the name of the next of kin or associated party. If the field is valued, the requirements below must be followed.

Position	Field	Status
1	**family name**	**required**
2	**given name**	**required**
3	middle initial or name	required, but may be empty
4	suffix	optional
5	prefix	ignored
6	degree	ignored
7	name type code	ignored
8	name representation code	ignored

NK1-3: Relationship

This field contains the actual personal relationship that the next of kin/associated party has to the patient. If the field is valued, the requirements below must be followed.

Position	Field	Status
1	**identifier**	**required**
2	text	optional
3	**name of coding system**	**required, but may be empty. use HL70063**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

Note: For the identifier, please refer to User-defined table 0063 – Relationship.

NK1-4: Address

This field contains the address of the next of kin or associated party. The field follows the same address formatting rule as the PID-11 field.

NK1-5: Phone Number

This field contains the phone number of the next of kin or associated party. The field follows the same phone number formatting rule as the PID-13 field.

ORC: Order Control Segment

The Order Request (ORC) segment is required for 2.5.1 messages and indicates information about the pharmaceutical order. While many of the elements don't apply directly to immunizations (as the immunizations are usually ordered, delivered, and administered at the same location) some of the fields allow for better control of immunization data.

Position	Field Name	Status
1	**Order Control**	**required, constrain to 'RE'**

2	**Placer Order Number**	**required, but may be empty**
3	**Filler Order Number**	**required, but may be empty**
4	Placer Group Number	ignored
5	Order Status	ignored
6	Response Flag	ignored
7	Quantity/Timing	ignored
8	Parent	ignored
9	Date/Time of Transaction	ignored
10	**Entered By**	**required, but may be empty**
11	Verified By	ignored
12	**Ordering Provider**	**required, but may be empty**
13	Enterer's Location	ignored
14	Call Back Phone Number	ignored
15	Order Effective Date/Time	ignored
16	Order Control Code Reason	ignored
17	**Entering Organization**	**required, but may be empty**
18	Entering Device	ignored
19	Action By	ignored
20	Advanced Beneficiary Notice Code	ignored
21	Ordering Facility Name	ignored
22	Ordering Facility Address	ignored
23	Ordering Facility Phone Number	ignored
24	Ordering Provider Address	ignored
25	Order Status Modifier	ignored
26	Advanced Beneficiary Notice Override Reason	ignored
27	Filler's Expected Availability Date/Time	ignored
28	Confidentiality Code	ignored
29	Order Type	ignored
30	Enterer Authorization Mode	ignored
31	Parent Universal Service Identifier	ignored

RXA: Pharmacy/Treatment Administration Segment

The RXA segment carries pharmacy administration data. This segment is required to indicate which vaccinations are given. This segment is required if there are vaccinations to report. All vaccinations should be reported in one message, not in separate messages.

NOTE: INVENTORY DECREMENTING IN IMMPACT THROUGH DATA EXCHANGE:

Provider organizations have the ability to have vaccine doses decrement from inventory in ImmPact through data exchange. In order for the inventory to decrement correctly in ImmPact:

1. Inventory with matching lot number and funding source need to exist in ImmPact

2. The following fields in the RXA and OBX segment of the HL7 message must be populated accurately.

Segment / Field	Data Element	Comments
MSH-22	Responsible Sending Org	ImmPact Org Code (ID) in MSH-22, must match the ImmPact Org Code (ID) of the site where the vaccine inventory will be drawn from.
RXA-5.1	Administration Code	Vaccine code submitted must match vaccine in the ImmPact inventory
RXA-9.1	Administered Notes	Must be coded as a given shot. Not historical.
RXA-11.4	Administered-at Location	ImmPact Org Code (ID) in this field must match the ImmPact Org Code (ID) in MSH-22.
RXA-15	Substance Lot Number	Vaccine lot number sent must match lot number in ImmPact inventory
RXA-20	Completion Status	Must be 'CP', 'PA', or empty.
RXA-21	Action Code	Must be 'A' or 'U'
OBX-5.1	Observation Value	VFC Funding Eligibility Category sent in this field must match with the funding category of the vaccine lot in the ImmPact inventory

The RXA segment fields that must be included for inventory decrementing are indicated in the detailed field explanations following this table.

Position	Field Name	Status
1	**Give sub-ID counter**	**required; constrain to "0" (zero)**
2	**Administration sub-ID counter**	**required; constrain to "1"**
3	**Date/time start of administration**	**required**
4	Date/time end of administration	ignored
5	**Administered code**	**CVX codes required**
6	**Administered amount**	**required (if amount is unknown, use '999')**
7	Administered units	required if amount is not '999'
8	Administered dosage form	ignored
9	**Administration notes**	**required**
10	**Administering provider**	**required, but may be empty**
11	**Administered-at location**	**required if RXA-9 = '00'**
12	Administered per (time unit)	ignored
13	Administered strength	ignored
14	Administered strength units	ignored
15	**Substance lot number**	**required if administered dose** **<u>NOTE:</u> Vaccine lots numbers are case sensitive. Public vaccine lot numbers must be all UPPERCASE.**
16	**Substance expiration date**	**required, but may be empty**
17	**Substance manufacturer name**	**required if administered dose**
18	Substance refusal reason	ignored
19	Indication	ignored
20	**Completion status**	**required, but may be empty; empty field will default to 'CP'**
21	**Action code**	**required, but may be empty; empty field will default to 'A'**
22..26		Components 22 -26 are ignored.

RXA-1: Give sub ID counter

ImmPact expects a "0" (zero) in this field.

RXA-2: Administration sub-ID counter

ImmPact expects a "1" (one) in this field.

RXA-3: Date/time start of administration

The date/time start of administration is used to record the date of when the vaccination was given. Any time information is ignored, and need not be sent. It is important that this date be the actual date the vaccination was given and not the date that it was recorded or billed.

Format: YYYYMMDD

RXA-5: Administered code

This field identifies the medical substance administered. **CVX codes are required.**

Position	Field	Status
1	**Identifier (CVX code)**	**required**
2	Text description	optional
3	**name of coding system**	**Required (CVX).**
4	alternate identifier (Trade Name)	If supplied must match ImmPact trade name. See ImmPact Trade Names.pdf on our [website](#)
5	alternate text description	optional
6	name of alternate coding system	**WVTN** if RXA-5.4 is supplied

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

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

For Trade Name code set, provide information in the second triplet (components 4 – 6) of the RXA-5 field. Provide the coding system identifier in the fourth component, text description in the fifth component, and the name of coding system (WVTN) in the sixth component.

Trade Name example: |120^DTaP-Hib-IPV^CVX^Pentacel^DTaP-Hib-IPV combination^WVTN|

CVX and NDC crosswalk tables are available and maintained by the Centers for Disease Control and Prevention, Immunization Information System Support Branch (IISSB) for use in HL7 data transmission. The code sets are available through their website: http://www.cdc.gov/vaccines/programs/iis/code-sets.html. New codes are added several times a year.

CDC offers an email service that sends updates when new codes are added to their tables. Information about this service is available on the websites listed above. It is critical to keep code sets up-to-date in order to appropriately report vaccinations. Steps should be taken to ensure that someone is receiving these emails and keeping the code sets up-to-date.

RXA-6: Administered amount

The amount of vaccine that was given. This should be expressed in milliliters (mL). The amount should be placed here and the units in RXA-7. **Do not put the units in this field.**
Format: Number
NOTE: This field is required. If amount is unknown, use '999' in this field.

RXA-7: Administered units

The units associated with the number in RXA-6. A value of mL is expected. Example: mL^mL^UCUM

Position	Field	Status
1	**identifier**	**required, but may be empty; should be 'mL'**
2	text	ignored
3	**name of coding system**	**required, but may be empty; use "UCUM" if valued**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

RXA-9: Administration notes

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 NIP001 – Immunization information source). Health plan submitters must us the NIP001 '01' code ('source unspecified) to ensure administered data is not overwritten during the record merge process.
NOTE: This field is required and must be '00' (given vaccine) for inventory decrementing.

Position	Field	Status
1	**identifier**	**required; Health Plans must use NIP001 code '01'**
2	text	optional
3	**name of coding system**	**required, but may be empty; use NIP001 if valued**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

RXA-10: Administering provider

This field is intended to contain the name and provider ID of the person physically administering the vaccine. This field is required, but may be empty. If the field is valued, it must follow the specifications below.

Position	Field Name	Status
1	**ID number**	**required, but may be empty**
2	**family name**	**required**

3	given name	required
4	middle initial or name	optional
5	suffix	optional
6	prefix	optional
7	degree	**No longer used. Use professional suffix in sequence 21 (RXA-10.21)**
8	source table	ignored
9	**assigning authority**	**required if RXA-10.1 is populated**
10	**name type code**	**required, but may be empty**
11	identifier check digit	ignored
12	code identifying the check digit scheme employed	ignored
13	**identifier type code**	**required if RXA-10.1 is populated**
14.. 20		Components 14 – 20 are ignored
21	Professional Suffix	optional

RXA-11: Administered at location

The administered at location is used to indicate the facility at which the immunization was given. The facility **(ImmPact Organization Code (ID))** should be sent in position 4.
NOTE: This field is required for decrementing inventory in ImmPact through data exchange

Position	Field Name	Status
1	point of care	ignored
2	room	ignored
3	bed	ignored
4	**facility**	**required if RXA-9.1 value is '00'**
5	location status	ignored
6	patient location type	ignored
7	building	ignored
8	floor	ignored
9	street address	optional
10	other designation	optional
11	city	optional
12	state or province	optional
13	zip or postal code	optional
14	country	optional
15	address type	ignored
16	other geographic designation	ignored

RXA-15: Substance lot number

This field contains the log number of the vaccine administered. It may remain empty if the dose is from a   historical record.
Format: String
NOTE: This field is required for decrementing inventory in ImmPact through data exchange.

RXA-16: Substance expiration date

This field contains the expiration date of the vaccine administered. Note that vaccine expiration date does   not always have a "day" component; therefore use the last day of the month for the 'day' component of   the expiration date.
Format: YYYYMMDD

RXA-17: Substance manufacturer

This field contains the manufacturer of the vaccine administered. If the field is valued, the requirements below must be followed. Code system "**MVX**" should be used to code this field.

The CDC's National Center for Immunization and Respiratory Diseases (NCIRD) developed and maintains HL7 Table 0227, Manufacturers of Vaccines (MVX). The table can be found here: http://www2a.cdc.gov/vaccines/iis/iisstandards/vaccines.asp?rpt=mvx

Position	Field	Status
1	**identifier**	**required**
2	text	optional
3	**name of coding system**	**required, but may be empty; use "MVX"**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

RXA-20: Completion Status

This field indicates if the dose was successfully given. Only complete records (CP) and Partial administrations (PA) are processed. Any other value sent in RXA-20 will cause the RXA segment to fail. **NOTE: An empty field will be treated as 'CP'.**

Position	Field	Status
1	**id**	**required, but may be empty.**

HL7 User-defined Table 0322 – Completion status

Value	Description	Status
CP	**Complete**	**accepted**
RE	Refused	not accepted
NA	Not Administered	not accepted
PA	**Partially Administered**	**accepted as a 'subpotent dose'**

RXA-21: Action code

This field indicates the action expected by the sending system. **An empty field will be treated as 'A'.**

Value	Description	Status
A	**Add**	**accepted**
U	**Update**	**accepted**
D	**Delete**	**accepted**
		NOTE: Administered doses will not delete

RXR: Pharmacy Route Segment

The Pharmacy Route (RXR) segment is a continuation of RXA segment.

Position	Field	Status
1	**route**	**required, but may be empty**
2	**site**	**required, but may be empty**
3	administration device	ignored
4	administration method	ignored
5	routing instruction	ignored

RXR-1: Route

The route is the place or method that was used to give the vaccination. This is normally dependent on the type of vaccination given. If the field is valued, the requirements below must be followed.

Position	Field	Status
1	**identifier**	**required**
2	text	optional
3	**name of coding system**	**required, but may be empty**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

NOTE: Codes for the identifier can be found in HL7-defined Table 0162 – Route of administration.
FDA NCI Thesaurus codes are now accepted in RXR-1.1.

RXR-2: Site

The site is the place on the body that the vaccination was given. This is normally decided at time of administration. If the field is valued, the requirements below must be followed.

Position	Field	Status
1	**identifier**	**required**
2	text	optional
3	**name of coding system**	**required, but may be empty; use HL70163**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

NOTE: Codes for the identifier can be found in HL7-defined Table 0163 – Administrative site.

OBX: Observation Segment

The Observation segment includes additional information that could not be sent in the RXA. In ImmPact the OBX segment will be used to record VFC (Vaccine for Children) eligibility by vaccine dose. Unrecognized observations will be ignored by ImmPact. **If the OBX segment is sent, the below requirements must be followed.**

NOTE: Vaccine Information Statement (VIS) information is <mark>required</mark> to be sent in OBX segments reference Chapter 5: Segments and Message Details from the CDC HL7 Guide
https://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-5-2014-11.pdf

<mark>NOTE: State of Maine requires</mark> one OBX segment with OBX-3.1 valued "30956-7" (vaccine type) and one OBX segment with OBX-3.1 valued "29768-9" (version date) and one OBX with OBX-3.1 valued "29769-7" (presentation /delivery date) associated. All three OBX shall have the same value in OBX-4.

Position	Field Name	Status
1	**Set ID - OBX**	**required**
2	**Value Type**	**required; constrain to "CE"**
3	**Observation Identifier**	**required if RXA-9 value is "00"**
4	**Observation Sub-ID**	**required, but may be empty**
5	**Observation Value**	**required for decrementing**
6	Units	ignored
7	Reference Ranges	ignored
8	Abnormal Flags	ignored
9	Probability	ignored
10	Nature of Abnormal Test	ignored
11	**Observation Result Status**	**required; should be "F" for Final**
12	Effective Date of Reference Range Values	ignored
13	User Defined Access Checks	ignored
14	**Date/Time of the Observation**	**required, but may be empty**
15	Producer's Reference	ignored
16	Responsible Observer	ignored
17	Observation Method	ignored
18	Equipment Instance Identifier	ignored
19	Date/Time of Analysis	ignored
20	Reserved	ignored
21	Reserved	ignored
22	Reserved	ignored
23	Performing Organization Name	ignored
24	Performing Organization Name	ignored
25	Performing Organization Name	ignored

OBX-1: Set ID – OBX

Indicates the current sequence number for this OBX as it sits under the RXA.

OBX-2: Value Type

This field contains the format of the observation value in OBX. **Value type will be 'CE'**

OBX-3: Observation Identifier

This indicates what kind of data is being sent in this OBX. One way to look at this is OBX-3 poses the question and OBX-5 answers it. For example, OBX-3 will indicate Vaccine funding program eligibility, which can be read as "What program was this person eligible for when this vaccine was administered?" The answer in OBX-5 could be "VFC eligible-Medicaid/MaineCare"

Position	Field	Status
1	**identifier**	**required, shall be 64994-7**
2	text	optional
3	**name of coding system**	**required, use 'LN'**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

Table LN – LOINC

Value	Description	Status
64994-7	**Vaccine funding program eligibility category**	**accepted**

OBX-4: Observation Sub-ID

Indicates if this observation is part of a grouping.

OBX-5: Observation Value (VFC eligibility)

This is the answer to the question that was posed in OBX-3. This is where the VFC eligibility is recorded at the vaccine level. **An empty value will be treated as "Unknown".**

For proper inventory decrementing in ImmPact, the Vaccine Eligibility Funding Status in OBX-5 is required and must match the funding status of the vaccine lot in ImmPact.

Note: If using Public/Private indicators it must be included before VFC eligibility.

Position	Field	Status
1	**identifier**	**required, but may be empty**
2	text	optional
3	**name of coding system**	**required, but may be empty, use HL70064**
4	alternate identifier	ignored
5	alternate text	ignored
6	name of alternate coding system	ignored

ImmPact required Values for VFC Eligibility Funding Status in OBX-5.

Value	Description
V01	Private Stock
V02	VFC Eligible – Medicaid/MaineCare – Under 19
V03	VFC Eligible – Not Insured
V04	VFC Eligible - American Indian or Alaskan Native
V05	VFC Eligible - Underinsured
V07	317 Eligible – Uninsured Adult
MEA01	State Eligible – Insured – Under 19

OBX-14: Date/Time of the Observation

Records the date/time of the observation

Here is an example of how to report VFC eligibility in the OBX segment:

OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN||V02^VFC eligible-Medicaid/MaineCare – Under 19 ^HL70064|||||||F|||20110701130100

HL7 ACK FILE FORMAT AND CONTENT

There are two fields stored in the MSH segment that pertain to acknowledgements: MSH-15 and MSH-16. The MSH-16 field, Application Acknowledgement Type, is used to determine the conditions for sending an acknowledgement message indicating the success or failure to process the data contained in the VXU message. The following table shows results for the five potential values:

Value	Description	Status
AL	Always	ACK message always sent
NE	Never	ACK message never sent
ER	Error	ACK message sent only on error condition
SU	Success	ACK message sent only on successful load
<blank>	Blank value	If blank MSH-16 treated as 'ER'

ImmPact ACK Segment Structure

Segment	Cardinality	Usage	Comment
MSH	(1..1)	R	**Message Header Segment**. Every message begins with an MSH.
MSA	(1..1)	R	**Message Acknowledgment.** Every ACK has at least one MSA segment.
[{ERR}]	(0..*)	RE	**Error description. Included if there are errors**

MSH – Message Header Segment

The Message Header Segment for the ACK will have the same number of fields as the VXU MSH segment. The values in the fields will reflect information about a previously received, single record. The data types for each component and sub-component are the same for the VXU MSH and the ACK MSH

MSA – Message Acknowledgment Segment

The MSA segment contains information used to identify the receiver's acknowledgement response to an identified prior message.

Position	Field Name	Status
1	**Acknowledgment Code**	**Required**
2	**Message Control ID**	**Required**

MSA-1 – Acknowledgment code

This field contains an acknowledgment code from table HL70008.

In MSA-1 only the value shown in the table will be used.

Value (MSA-1)	Description	Comment
AA	Application Accept	Message was accepted without error
AE	Application Error	Message was processed and errors are being reported.
AR	Application Reject	Message was rejected because one of the following occurred: • Unsupported Message Type • Unsupported event code • Unsupported processing ID • Unable to process for reasons unrelated for format or content

MSA-2 – Message Control ID

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

ERR – Error Segment

The error segment reports information about errors or warnings in processing the message. The segment may repeat. Each error or warning will have its' own ERR segment.

Position	Field Name	Status
1	Error code and location	Not supported in v2.5.1
2	**Error location**	**Required**
3	**HL7 error code**	**Required (refer to HL7 table 0357)**
4	**Severity**	**Required; if error occurs, will use "E", if warning occurs will use 'W'**
5	**Application Error Code**	**Required, but may be empty (refer to User Defined table 0533)**
6	Application Error Parameter	Optional
7	Diagnostic Information	Optional
8	**User Message**	**Required, but may be empty**

EXAMPLE ACK MESSAGES GENERATED BY ImmPact:

WARNING (Informational)
MSH|^~\&|ImmPact IIS2.0.0|ImmPact IIS
||IRPH|20170630||ACK^V04^ACK|1|P|2.5.1||||||||||ImmPact IIS|IRPH
MSA||1
ERR||RXA^1^10^1^13|0^Message accepted^HL70357|W|5^Table value not
found^HL70533|||Informational error - No value was entered for RXA-10.13

ERROR (Message Rejected)
MSH|^~\&|ImmPact IIS2.0.0|ImmPact IIS
||IRPH|20160630||ACK^V04^ACK|1|P|2.5.1||||||||||ImmPact IIS
MSA|AE|1791129
ERR||PID^1^3^0|101^Required field missing^HL70357|E|6^Required observation
missing^HL70533|||MESSAGE REJECTED - REQUIRED FIELD PID-3-5 MISSING

APPLICATION REJECTION
MSH|^~\&|ImmPact IIS2.0.0|ImmPact IIS
||IRPH|20160630||ACK^V04^ACK|1|P|2.5.1||||||||||ImmPact IIS|IRPH
MSA|AR|1791129
ERR||MSH^1^11|202^Unsupported processing ID^HL70357|E|4^Invalid value^HL70533|||MESSAGE
REJECTED. INVALID PROCESSING ID. MUST BE 'P'

VALID MESSAGE
MSH|^~\&|ImmPact IIS2.0.0|ImmPact IIS
||IRPH|20160630||ACK^V04^ACK|1|P|2.5.1||||||||||ImmPact IIS|IRPH
MSA|AA|1791129

APPENDIX A

HL7 TABLES

0001-Sex (PID-8)

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

0005-Race (PID-10)

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

0063-Relationship (NK1-3)

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

0064-Financial Class (OBX-5)

Code	Label	Definition
V01	Not VFC eligible **Private Stock**	Patient does not qualify for VFC because they do not have one of the statuses below. (V02-V05)
V02	VFC eligible-Medicaid/Medicaid Managed Care **VFC Eligible-Medicaid/MaineCare-Under 19**	Patient is currently on Medicaid or Medicaid managed care and < 19 years old and the vaccine administered is eligible for VFC funding.
V03	VFC eligible- Uninsured **VFC Eligible - Not Insured**	Patient does not have private insurance coverage and < 19 years old and the vaccine administered is eligible for VFC funding.
V04	VFC eligible- American Indian/Alaskan Native **VFC Eligible- American Indian or Alaskan Native**	Patient is a member of a federally recognized tribe and < 19 years old and the vaccine administered is eligible for VFC funding.
V05	VFC eligible-Federally Qualified Health Center Patient (under-insured) **VFC Eligible-Underinsured**	Patient has insurance, but insurance does not cover vaccines, limits the vaccines covered, or caps vaccine coverage at a certain amount and so client is eligible for VFC coverage at a Federally Qualified Health Center. The patient must be receiving the immunizations at the FQHC or a FQHC designated clinic and < 19 years old and the vaccine administered is eligible for VFC funding.
V07	Local-specific eligibility **317 Eligible – Uninsured Adult**	Adult Patient is eligible for state supplied vaccine based on local specific rules and the vaccine administered is eligible for state- funding. It should only be used if the state has not published local codes for these programs.
MEA01	**State Eligible – Insured – Under 19**	Patient is insured and is <19 years old

0162-Route of Administration (RXR-1)

|C28161^Intramuscular^NCIT|

FDA NCI Thesaurus (NCIT)	HL7-0162	Description	Definition
C38238	ID	Intradermal	within or introduced between the layers of the skin
C28161	IM	Intramuscular	within or into the substance of a muscle
C38284	NS	Intranasal	Given by nose
C38276	IV	Intravenous	administered into a vein
C38288	PO	Oral	administered by mouth
	OTH	Other/Miscellaneous	
C38676		Percutaneous	made, done, or effected through the skin.
C38299	SC	Subcutaneous	Under the skin or between skin and muscles.
C38305	TD	Transdermal	describes something, especially a drug, that is introduced into the body through the skin

0163-Administrative Site (RXR-2)

HL7 0163	Description
LT	Left Thigh
LA	Left Arm
LD	Left Deltoid
LG	Left Gluteous Medius
LVL	Left Vastus Lateralis
LLFA	Left Lower Forearm
RA	Right Arm
RT	Right Thigh
RVL	Right Vastus Lateralis
RG	Right Gluteous Medius
RD	Right Deltoid
RLFA	Right Lower Forearm
LN	Left Nares
RN	Right Nares
BN	Bilateral Nares
MO	Mouth

0189-Ethnic Group (PID-22)

US ethnicity codes (CDCREC)	Description
2135-2	Hispanic or Latino
2186-5	not Hispanic or Latino
	Unknown

0296-Language (PID-15)

Value	Description
Eng	English
Spa	Spanish

0322-Completion Status (RXA-20)

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

0441-Immunization Registry Status (PD1-16)

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

0323-Action Code (RXA-21)

Value	Description
A	Add
D	Delete
U	Update

Accepted Patient Identifiers (PID-3)

Value	Description
MR	Medical Record Number
PI	Patient Internal Identifier
PN	Person Number
PRN	Provider Number
PT	Patient External Identifier