



ImmTrac
Texas Immunization Registry
HL7 Batch VXU
Data Transfer Specification
and Implementation Guide
Version 2.1
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Based on the National Immunization Program of the Centers for Disease Control and Prevention
Implementation Guide for Immunization Data Transactions using Version 2.5.1 of the Health Level Seven
Standard Protocol Implementation Guide Version 1.4

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1 Overview

The Centers for Disease Control and Prevention (CDC) together with public and private healthcare professionals and software developers have worked to define a set of messages that promote standardized exchange of immunization data. These standards are derived from the Health Level Seven International (HL7.org) standards. HL7.org is a not-for-profit standards developing organization accredited by the American National Standards Institute (ANSI) as well as the International Organization for Standardization (ISO).

ImmTrac, the Texas immunization registry, has been enhanced to accept batch files of HL7 Version 2.5.1 formatted VXU^V04 Messages (Unsolicited Vaccination Record Updates) from healthcare Providers. According to CMS Final Rules for Stage 2, HL7 Version 2.5.1 is a requirement for Stage 2 Meaningful Use. However, if eligible providers prior to CY 2014 and eligible hospitals and critical access hospitals prior to FY 2014 have achieved successful ongoing submission using EHR technology certified to the 2011 Edition EHR certification criteria (HL7 2.3.1 only) it is acceptable to continue this ongoing submission and meet the Stage 2 measure for as long as HL7 2.3.1 continues to be accepted by the immunization registry.

Although registered users throughout the state can use ImmTrac's real-time World Wide Web application to update their clients' immunization histories in the registry, some Providers already store and process similar data in their own Electronic Health Record (EHR) systems. ImmTrac's HL7 Batch VXU interface is designed to allow those Providers to use their own systems to extract the data necessary for electronically submitting immunizations administered to Texas children younger than 18 years of age and adults to ImmTrac within the 30 day period as required by Texas statute. **The upload schedule is one weekly file in batch format.** ImmTrac has developed an HL7 Provider adoption process that provides ease of use, efficiency, and a cost-effective approach to allow increased electronic Provider submissions of immunization information, in an HL7 format.

1.1 Meaningful Use

The Centers for Medicare and Medicaid Services (CMS) have created a concept called Meaningful Use to provide financial incentives for the "meaningful use" of certified EHR technology to improve patient care. The link http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Meaningful_Use.html contains the following description of Stage 1 Meaningful Use as well as links to documents with details concerning participation:

To receive an EHR incentive payment, providers have to show that they are "meaningfully using" their EHRs by meeting thresholds for a number of objectives. CMS has established the objectives for "meaningful use" that eligible professionals, eligible hospitals, and critical access hospitals (CAHs) must meet in order to receive an incentive payment. The link http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Stage_2.html contains information about Stage 2 Meaningful Use as well as many additional links providing details about the program:

1.2 Scope of this Document

The HL7 standard is used for data exchange by many entities in the healthcare industry. Although the complete standard covers a variety of situations in patient care, ImmTrac supports a specific subset of HL7 pertaining to client and immunization records. The Batch Transfer Specification contained within this document describes how batches of HL7 VXU^V04 messages should be constructed for submission to ImmTrac.

1.3 Audience

This document is an HL7 Batch VXU implementation guide for Texas healthcare immunization providers and their technical resources to establish transfer data directly from their EHR system to ImmTrac in compliance with Texas Immunization Registry HL7 Batch VXU standards and requirements.

2 ImmTrac HL7 Standard for Immunization Data Exchange

2.1 *The ImmTrac Standard*

The Centers for Disease Control and Prevention (CDC) worked with HL7 to create a set of messages that support the electronic exchange of client and immunization data. ImmTrac supports the National Center for Immunization and Respiratory Diseases' (NCIRD) goal of keeping the use of HL7 for immunization data as uniform as possible. ImmTrac specifications are based on the NCIRD *Implementation Guide for Immunization Data Transactions using Version 2.5.1 of the Health Level Seven (HL7) Standard Protocol*, published as version 1.4 in August 2012, available online at:

<http://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-4-2012-08.pdf>

Additional information regarding HL7 is available online at <http://www.hl7.org>.

The details of how HL7 messages are structured for ImmTrac purposes will be explained later in this document, but the basic concepts of HL7 data exchange are:

- The basic unit transmitted in an HL7 implementation is the message
- Messages are made up of segments, each of which is a single line of text, beginning with a proscribed three-letter code identifying the segment type and ending with a carriage return (ASCII code 013), and denoted in this document by <CR>.
- Segments are composed of fields representing discrete data elements separated by the delimiter character, "|"
- Data fields may contain subfields separated by ^.

ImmTrac does not allow vaccination or patient data to include HL7 delimiter characters outside of the default HL7 standards. Although HL7 permits the use of other delimiters besides those recommended, the CDC guide and ImmTrac requires that the recommended delimiter characters be used for every message.

2.2 *Batch Submission of the HL7 Vaccination Updates*

HL7 does not specify how messages are transmitted; it is flexible enough to be used for both real-time interaction and large batches. The HL7 standard defines file/batch header and trailer segments that are used when a number of messages are gathered into a batch for transmission as a file.

ImmTrac requires that submitters create one weekly batch file each week when transmitting many HL7-formatted Unsolicited Vaccination Update (VXU) messages together. This allows ImmTrac to process large numbers of immunization updates outside of production hours in order to limit the performance impact on our online users.

2.3 *HL7 Data types*

Each field has an HL7 data type. Appendix IV of this document lists and defines the HL7 data types used by ImmTrac. The elemental data types Numeric (NM) and String (ST) consist of one value. Some data types, such as Extended Person Name (XPN), Extended Address (XAD) and Extended Composite ID Number and Name (XCN) are composites.

2.4 *HL7 Field Delimiter Characters*

Field values of composite data types consist of several components separated by the component separator, "^". When components are further divided into sub-components, these are separated by the sub-component separator, "&". Some fields are defined to permit repetition separated by the repetition

character, "~". When these special characters need to be included within text data, their special interpretations are prevented by preceding them with the escape character, "\".

2.5 Example VXU Message

The message contains data sent by My-EMR on behalf of the KidzDoctor Clinic for the purpose of updating a child's immunization history in ImmTrac.

```
MSH|^~\&|MyEMR|999999999|TxImmTrac|TxDSHS|20060817220122||VXU^V04|MC6643|P|2.5.1|<CR>
PID||||Green^Susan^Q|Redfield|20040908|F|||123 Main St^^Austin^TX^78888^US^^TX453|<CR>
ORC|RE<CR>
RXA|0|999|20060903|20060903|20^DTaP^CVX|.5|mL^^ISO+||00^New Immunization
Record|^Johnson^Rosa^|^1105555555^2500 Main
Street^Suite103^Austin^TX^787563200^USA|||AC20B221AB||SKB^GlaxoSmithKline^MVX||CP|A
```

The message consists of four segments:

1. The Message Header segment (MSH) identifies the PFS number of the entity authorized to submit information to ImmTrac as 999999999, and the receiver as TXImmTrac. It also identifies the message as being of type VXU (Unsolicited Vaccination Update), which contains client and immunization information.
2. The Patient Identification (PID) segment gives the client's name (Susan Q. Green), birth date, 20040908, in yyyymmdd format, and gender (F), as well as address information.
3. 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.
4. The Pharmacy Administration segment (RXA) tells that a DTaP vaccine, with CVX code 20, was administered on September 3, 2006 (20060903, in yyyymmdd format). The PFS number of the site that administered the vaccination is 1105555555.

The message could include multiple RXA segments to record more immunizations, as well as other optional fields and segments.

3 Provider HL7 File Submission

3.1 Rules for Sending Systems

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

- Encode each segment in the order specified in the message format.
- Begin the segment with the 3-letter segment ID (for example "RXA").
- Precede each field with the data field separator ("|").
- Use the HL7 recommended encoding characters ("^~\&").
- Encode the data fields in the order given in the table defining the segment's structure.
- Encode the data field according to its HL7 data type format.
- Do not include any characters for fields not present in the segment. Since later fields in the segment are encoded by ordinal position, fields that are not present do not reduce the number of field separators in the segment. For example, when the second and third fields are not present, the field separators maintain the ordinal position of the fourth field; as in MSG|field1|||field4
- Represent data fields that are present but explicitly null by empty double quotes "". ImmTrac does not expect that any patient or vaccination fields will be sent as null. All patient and vaccination fields should be sent every time if they are known.
- Trailing separators may optionally be omitted. For example, |field1|field2 is equivalent to |field1|field2|||, when field3 and all subsequent fields are not present.
- End each segment with the default HL7 segment terminator, the carriage return character, ASCII hex 0D).
- After an initial data dump, ImmTrac requests that submitters include only new and updated immunizations (those given or changed since the last submission to ImmTrac) in the periodic HL7 batch files. Re-processing immunization history will impact the ability to process files in a timely manner.

3.2 HL7 VXU Message Transport

HL7 messages will be sent using a Secure File Transfer transport mechanism. Each transmission will be encrypted for security purposes using the industry standard secured socket layer (SSL) protocol. Only authorized partners will be permitted to exchange information. For more information about how to obtain a provider id and password to send HL7 messages or about the methods to securely upload HL7 immunization information to ImmTrac, please contact Customer Support at DSHS. Email:

ImmTracMU@dshs.state.tx.us, Phone: (800) 348-9158.

3.3 Importance of Data Quality

Providers throughout Texas share the data in ImmTrac. Submitting correct and complete information in each record segment will not only help reduce the possibility of creating duplicate records, but will give other providers the necessary information needed to provide proper healthcare. ImmTrac staff will periodically review data that is submitted for data quality. A provider may be notified of data quality issues that need to be resolved in their data system and/or in ImmTrac.

3.4 Transmitting Data

To transmit data to ImmTrac, a site must first be assigned an ImmTrac Provider/Facility/Site Number (PFS) and an Import Code. The *Import Code* is an alpha code that is an abbreviation of the Provider's

business name. The Import Code is used in the file naming convention. The *PFS Number* is a unique, 10-digit number used to link a site to its clients' immunization information.

If this site receives or maintains immunization information from "other sites or clinics" (i.e. a satellite office, a WIC clinic, a private physicians office/entity/group, etc.) and will report this immunization information to ImmTrac, each of the "other sites or clinics" must be assigned and use a separate, unique ImmTrac Provider Number. Contact ImmTrac Customer Support at (800) 348-9158 to receive information about registering with ImmTrac and obtaining ImmTrac PFS Numbers.

The rules for using the PFS are as follows:

- The ImmTrac Provider Number of the main site is transmitted in FHS-4, BHS-4 and MSH-4.
- The ImmTrac Provider Number is included in the Pharmacy/Treatment Administration segment, RXA-11.4, if the reporting site, or one of its other sites/clinics, administered the vaccine (i.e., New Immunization). Use the ImmTrac Provider Number that corresponds to the site that actually administered the vaccine. In this case the history flag, RXA-9, component 1, would be 00.
- The ImmTrac Provider Number is **not** included in the Pharmacy/Treatment Administration segment, RXA-11, component 4, segment if the reporting site is submitting historic information for vaccines not given at the site nor at one of its sites/clinics.

3.5 File Naming Convention

When the first data file has been created and is ready to send to ImmTrac, please contact ImmTrac Customer Support. Please follow the file naming convention of "PICYYORD.HL7", where PIC is the Provider Import Code furnished by ImmTrac, YY is the year of transmission, and ORD is the Ordinal Date (the last two digits of the year followed by the ordinal number of the day) of the day when the file is sent. The extension HL7 is required. It is required that the Provider Import Code be used on every file. If the sending system cannot generate an Ordinal Date, then another format may be used. Contact ImmTrac Customer Support for the alternate formats supported.

An example of a file name for a provider with Provider Import Code DOCTORHOSP, sent on January 4, 2014, is DOCTORHOSP14004.HL7

If you need to send more than one file on the same day with the same filename, you may include a letter or number on the end of the filename to distinguish between the two. Ex: DOCTORHOSP14004A.HL7 and DOCTORHOSP14004B.HL7. During test, multiple files may be sent in the same day/week. **Note that in production, multiple files are an exception, and must be planned with ImmTrac to reduce any negative impacts that may occur for other Providers sending files simultaneously.**

3.6 File Transfer

A file can be sent to ImmTrac via secure FTP to ImmTrac's secure FTP server.

Each authorized provider will be provided an ID and password to login to the secure FTP server to upload their HL7 immunization data file. DSHS recommends Providers send files on a preset weekly schedule.

Call ImmTrac Customer Support for more information on how to use the secure FTP method at (800) 348-9158. Please note: When sending files via the ImmTrac web site, the file size limit is 15MB. If the import file is larger than this, please split it into smaller files before sending. You will need ImmTrac authorization prior to sending multiple files.

4 Batch Segment Definition

4.1 HL7 Batch File Structure

ImmTrac requires that submitters create one weekly batch file each week, transmitting many HL7-formatted Unsolicited Vaccination Update (VXU) messages together. The information in this section describes how to package multiple events into a single file for efficient transmission to ImmTrac.

The segments used for identifying batches (FHS, BHS, BTS, FTS) do not contain client data; instead, they describe the batch structure itself.

A VXU message can be composed of just MSH, PID, RXA, and for 2.5.1, ORC, segments. A PV1, Any number of NK1 and additional ORC/RXA segments could also be included in the message as long as they are in the proper order.

The complete HL7 standard allows even more segments within the VXU message type, but ImmTrac will ignore any segments not defined in the structure below. The segments documented here are sufficient to support the principal ImmTrac activities of storing data about clients and immunizations.

The structure of a batch file is documented in the following table:

Segment Name	Purpose	Repetition Allowed	Notes
FHS	File Header	No	Required for each batch file
BHS	Batch Header	No	Required for each batch file
MSH	Message Header	Every VXU message has one MSH segment.	
PID	Patient Identification	Every VXU message has one PID segment.	
NK1	Next of Kin	Yes	Optional in any message
PV1	Patient Visit	No	Optional in any message
ORC	Common Order	Every VXU message (version 2.5.1) has one ORC segment.	Required for 2.5.1 messages, optional for previous message versions
RXA	Pharmacy/Treatment Administration	Yes	No limit on number of repetitions
BTS	Batch Trailer	No	Required for each batch file
FTS	File Trailer	No	Required for each batch file

4.2 FHS: File Header Segment

The FHS segment is used to head a file. Although the NCIRD's guidelines indicate that the FHS/FTS pair is optional when there is only one batch of messages, ImmTrac **requires** an FHS in every batch submission. The FHS must be the first segment in the file, and only one FHS is allowed per file.

Example File Header Segment (FHS)

```
FHS|^~\&|My-EMR|999999999|TxImmTrac|TxDSHS|20060817220122||DRHOSP14115.HL7|Weekly VXU Transfer to  
ImmTrac|VXU20060817a||<CR>
```

Seq	Element Name	Data Type	Required	Repeat #	Len	Notes
FSH-1	File Field Separator	ST	HL7		1	Same definition as the corresponding field in the MSH segment.
FSH-2	File Encoding Characters	ST	HL7		4	Same definition as the corresponding field in the MSH segment.
FSH-3	File Sending Application	ST			15	Same definition as the corresponding field in the MSH segment.
FSH-4	File Sending Facility	ST	ImmTrac		20	The 10 digit PFS number entity that owns the information in the file. The entity must be registered in ImmTrac under this identifier. Contact the ImmTrac Help Desk to register the sending facility identifier.
FSH-5	File Receiving Application	ST	ImmTrac		15	Same definition as the corresponding field in the MSH segment.
FSH-6	File Receiving Facility	ST			20	Same definition as the corresponding field in the MSH segment.
FSH-7	File Creation Date/Time	TS	ImmTrac		26	Date and time the file was created by the sending application.
FSH-9	File Name/ID	ST	ImmTrac		20	Name of the file as transmitted from the sending application. ImmTrac requires that all batch files of VXU messages follow a specific naming convention: ProviderImportCodeYYDDD.hl7
FSH-10	File Header Comment	ST			80	Free text, which may be included for convenience, but has no effect on processing.
FSH-11	File Control ID	ST	ImmTrac		20	Used to uniquely identify a particular file among all files sent from the sending facility identified in FHS-4.
FSH-12	Reference File Control ID	ST			20	Contains the value of FHS-11-File Control ID when this file was originally transmitted. Not present if this file is being transmitted for the first time.

4.3 FTS: File Trailer Segment

The FTS segment defines the end of a file. Although the NCIRD's guidelines indicate that the FHS/FTS pair is optional when there is only one batch of messages, ImmTrac requires a FTS in every batch submission. The FTS must be the last segment in the file, and only one FTS is allowed per file.

Example File Trailer Segment (FTS)

FTS|1|Weekly VXU Transfer to ImmTrac Complete|<CR>

Seq	FTS Element Name	Data Type	Required	Repeat #	Len	Notes
1	File Batch Count	NM			10	The number of batches contained in this file. For ImmTrac, the value will always be "1".
2	File Trailer Comment	ST			80	Free text, which may be included for convenience, but has no effect on processing.

4.4 BHS: Batch Header Segment

The BHS segment defines the start of a batch. Although the NCIRD's guidelines allow multiple batches per file, ImmTrac limits the number of batches per file to one. The BHS must be the first segment after the required FHS segment, and must precede any VXU messages.

Example Batch Header Segment (BHS)

BHS|^~\&|My-EMR|999999999|TxImmTrac|TxDSHS|20060817220122|||free comment|B1-200608||<CR>

Seq	BHS Element Name	Data Type	Required	Repeat #	Len	Notes
BHS-1	Batch Field Separator	ST	HL7		1	Same definition as the corresponding field in the MSH segment.
BHS-2	Batch Encoding Characters	ST	HL7		4	Same definition as the corresponding field in the MSH segment.
BHS-3	Batch Sending Application	ST			15	Same definition as the corresponding field in the MSH segment.
BHS-4	Batch Sending Facility	ST	ImmTrac		20	The 10 digit PFS # that identifies the entity that owns the information in the batch. The entity must be registered in ImmTrac under this identifier. Contact the ImmTrac Help Desk to register the sending facility identifier.

Seq	BHS Element Name	Data Type	Required	Repeat #	Len	Notes
BHS-5	Batch Receiving Application	ST	ImmTrac		15	Same definition as the corresponding field in the MSH segment.
BHS-6	Batch Receiving Facility	ST			20	Same definition as the corresponding field in the MSH segment.
BHS-7	Batch Creation Date/Time	TS	ImmTrac		26	Date and time the batch was created by the sending application.
BHS-10	Batch Header Comment	ST			80	Free text, which may be included for convenience, but has no effect on processing.
BHS-11	Batch Control ID	ST	ImmTrac		20	Used to uniquely identify a particular batch among all batches sent from the sending facility identified in BHS-4.
BHS-12	Reference Batch Control ID	ST			20	Contains the value of BHS-11-Batch Control ID when this batch was originally transmitted. Not present if this batch is being transmitted for the first time.

4.5 *BTS: Batch Trailer Segment Definition*

The BTS segment defines the end of a batch. ImmTrac requires a single BTS in every batch submission, following the last VXU message. The required BTS must precede the required FTS segment.

Example Batch Trailer Segment (BTS)

BTS | 3 | <CR>

Seq	Element Name	Data Type	Required	Repeat #	Len	Table #
1	Batch Message Count	NM			10	The number of messages contained in this batch/file.
2	Batch Comment	ST			80	Free text, which may be included for convenience, but has no effect on processing.

5 Required VXU Message Segments: Field specifications and Usage

The HL7 VXU message is used for sending unsolicited client data and immunizations. The following sections define each segment type that can appear in a VXU message, along with ImmTrac specific notes about the fields contained within each segment.

See *Appendix IV* for a Segment Field to Table Identifier cross reference sorted by Segment Field, and *Appendix III* for the same information sorted by Table Identifier.

5.1 Required HL7 Segments

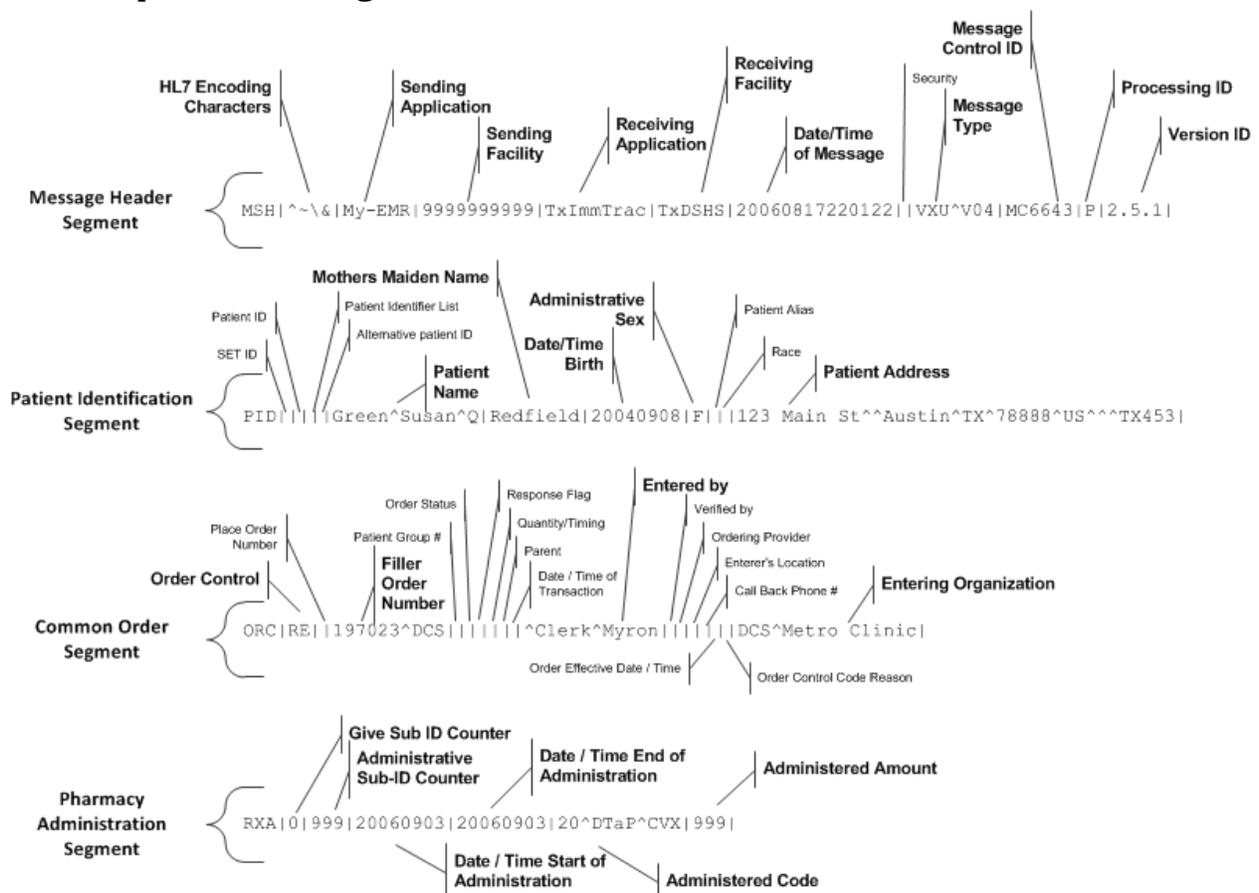


Figure 1 Required HL7 Segment/Element diagram

Each HL7 segment consists of fields separated by "|" (pipe delimiter). A definition table is included in this document for each segment that might appear in a batch file of vaccination updates. These definition tables specify how each segment is structured and contain the following columns:

Column	Definition
Seq	The ordinal position of the field in the segment. These are not always consecutive since ImmTrac does not use every field in the HL7 standard, and counting starts after the three letter segment identifier.
Element Name	The HL7 name for the field.
Data Type	HL7 data type of the field. See <i>Appendix V</i> for the definition of HL7 data types.
Required	HL7 means required by HL7, and ImmTrac means required by ImmTrac. Blank indicates an optional field.
Repeat #	Y means the field may be repeated any number of times, while an integer gives the maximum number of repetitions recognized by ImmTrac. A blank means that repetitions of the field are not recognized by ImmTrac.
Len	Maximum length of the field for ImmTrac.
Value	Default value used for the field or number of the HL7, NCIRD or ImmTrac-defined table defining valid values for the field. See <i>Appendix I</i> .
Notes	Any additional notes related to the field helpful to the providers

Each segment must be terminated by a carriage return (denoted in this document by <CR>, ASCII code 013) with no line feed. The carriage return allows the HL7 messages to be read and printed, although the messages may appear somewhat cryptic due to the scarcity of white space.

Note: In an HL7 message, each segment is a single text line, ending with the carriage return character. In the examples that follow, long lines are artificially broken for display purposes and the carriage return is denoted by "<CR>". Do not send the literal character <CR>.

5.2 MSH: Message Segment Header

The MSH segment is required, and must be included in all message types. It contains information used to identify the intent, source and destination of the message, as well as certain specifics about the syntax of the message.

Example MSH Segment

```
MSH|^~\&|MyEMR|999999999|TxImmTrac|TxDSHS|20060817||VXU^V04|MyEMR123456789012345|P|2.4|||NE<CR>
```

Seq	Element Name	Data Type	Required	Repeat #	Len	Value	Notes
MSH-1	Field Separator	ST	HL7		1		Contains the separator characters that will be in effect for the rest of this message. ImmTrac requires the HL7 recommended field separator of " " (ASCII 124).
MSH-2	Encoding Characters	ST	HL7		4	^~\&	Contains the component separator, repetition separator, escape character, and sub-component separator, respectively, which will be in effect for the rest of this message. ImmTrac requires the HL7 recommended values of "^~\&", (ASCII 94, 126, 92 and 38 respectively).
MSH-3	Sending Application	HD	HL7 Required but could be empty		180	Sender Defined	Name of the sending application. This field is optional as ImmTrac uses MSH-4 to identify the entity that is sending the message.
MSH-4	Sending Facility	HD	ImmTrac		180		The PFS number for the site representing 'parent facility' for the organization. Identifies the entity that owns the information in the message. The entity must be registered in ImmTrac under this identifier. Contact the ImmTrac Help Desk at 1-800-348-9158 to register the sending facility identifier.
MSH-5	Receiving Application	HD	ImmTrac		180	TXImmTrac	
MSH-6	Receiving Facility	HD			180	TxDSHS	
MSH-7	Date/Time of Message	TS	ImmTrac		26		Date and time the message was created by the sending application.
MSH-9	Message Type	MSG	HL7		7	VXU^V04 See code tables 0076,0003	The two components of this field give the HL7 message type (see Table 0076) and the HL7 triggering event (see Table 0003). For ImmTrac purposes, this field should have the value "VXU^V04" indicating an unsolicited vaccination record update.
MSH-10	Message Control ID	ST	HL7		20	Sender determined	Identifier assigned by the sending application that uniquely identifies a message among all those ever sent by the sending application. It is essential that each message must have a unique Message Control ID

Seq	Element Name	Data Type	Required	Repeat #	Len	Value	Notes
							and that Message Control ID should never repeat for any other message or in any other file sent by the organization.
MSH-11	Processing ID	PT	HL7		3	P	Used to indicate how to process the message (see Table 0103). ImmTrac requires the value "P" for production processing.
MSH-12	Version ID	VID	HL7		60	2.3.1 or 2.4 or 2.5.1 or 2.7.1 See code table 0104	The version number that is read in the first MSH segment of the file will be the version assumed for the whole file (see Table 0104).
MSH-15	Accept Acknowledgement Type	ID			2	See code table 0155	Controls whether an acknowledgement is generated for the message sent (see Table 0155). ImmTrac is using the original acknowledge mode and will default the value to "NE", meaning no acknowledgement will be sent.

Seq	Element Name	Data Type	Required	Repeat #	Len	Value	Notes
PID-8	Sex	IS	ImmTrac		1	See code table 0001	Must be "M" or "F"
PID-10	Race	CE				See code table 0005	Contains a code indicating the patient's race. If it is necessary to further define the patient's ancestry as Hispanic, use field PID-22- Ethnicity Group. ImmTrac does not support repetition of this field.
PID-11	Patient Address	XAD	ImmTrac	1		See code tables 0190, 0212, 0289	<p>The first repetition should be the primary address.. ImmTrac will only retain an address type of "H", "P" or "M" (see Table 0190) and recommends use of the USPS format for recording street address, other designation (e.g. "Apt. 312"), city, state and zip. See Table 0212 for the two-character country code, if not "US".</p> <p>The county code component, if included, must specify the FIPS county code (see Table 0289). Note that since county code is a specific component of this data type, it should be reported in this field and not in PID-12. Also, a post office box should never be included in the "other designation" component of a street address. According to the FIPS guidance, the two letter state code (available at www.itl.nist.gov/div897/pubs/fip5-2.htm) plus the numeric county code should be used (e.g., AZ001 represents Apache County, Arizona and TX001 represents Anderson County, Texas).</p>
PID-13	Phone Number.Area/City Code Phone Number.Local Number	XTN				See code table 0201	<p>ImmTrac will only import the first instance and it should be the primary phone number. ImmTrac only recognizes a telecommunication use code of "PRN" in component 2, indicating the primary residence number (see Table 0201). If "PRN" is specified, ImmTrac will use the 6th and 7th components for the area code and phone number respectively. This is the preferred specification</p> <p>If "PRN" is not specified in component 2, ImmTrac will assume the phone number is formatted as follows: [NNN] [(999)] 999-9999 [X99999] [B99999] [C any text].</p> <p>ImmTrac does not support repetition of this field.</p>
PID-22	Ethnic Group	CE				See code table 0189	<p>Can be used to further define the patient's ancestry as Hispanic (see Table 0189).</p> <p>ImmTrac does not support repetition of this field.</p>
PID-24	Multiple Birth Indicator	ID			1	See code table 0136	Indicates whether the patient was part of a multiple birth (see Table 0136). If including this field, use "Y" to indicate that the patient was part of a multiple birth. This field can be null or omitted.

5.4 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. Therefore, the ORC segment is required for HL7 version 2.5.1 or later, but is not required for HL7 versions 2.3.1 or 2.4.

ImmTrac does not support repetition of the ORC Segment

Example ORC Segment

ORC|RE<CR>

Seq	Element Name	Data Type	Required	Repeat #	Length	Value	Notes
ORC-1	Order Control	ID	HL7		2	RE	Determines the function of the order segment, the value for VXU shall be RE.
ORC-2	Placer Order Number	EI	HL7 – Required but may be empty				Contains the placer order number is used to uniquely identify this order among all orders sent by a provider organization. Currently not used by ImmTrac.
ORC-3	Filler Order Number	EI	HL7				Contains the id of the vaccination in the sending system. For all vaccinations whether historical or administered, please indicate a vaccination id that can be used to uniquely identify this vaccination event or procedure in the sending system. In the future ImmTrac may use this information to link multiple updates on the same vaccination event together, but ORC-3 is not currently used by ImmTrac.
ORC-10	Entered By	XCN	HL7 – Required but may be empty				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. Currently not used by ImmTrac.
ORC-12	Ordering Provider	XCN	HL7 – Required but may be empty				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. Currently not used by ImmTrac.

5.5 RXA: Pharmacy/Treatment Administration Segment Definition

The RXA carries pharmacy administration data. It is a repeating segment and can record unlimited numbers of vaccinations. ImmTrac requires at least one RXA segment be included in a VXU message.

Example RXA Segments

RXA segment for New Immunizations:

```
RXA|0|999|20060817091022|20060817091022|20^DTaP^CVX|999|||00^New Immunization Record^NCIRD001|
72980987^Jones^Robert^^^^^^TX^^^^MD|^1234567890^^^^^321 Medical Dr.^Suite 325^Austin^TX^78756^US|||X-
1234|MSD^MERCK^MVX|<CR>
```

RXA segment for Historical Immunizations:

```
RXA|0|999|20040908|20040908|90744^HepB^C4|999|||01^Historical information^NCIRD001|<CR>
```

Seq	Element Name	Data Type	Required	Repeat #	Len	Value	Notes
RXA-1	Give Sub-ID Counter	NM	HL7		4	0	The NCIRD's guidelines recommend that this field's value should always be zero. Not used by ImmTrac.
RXA-2	Administration Sub-ID Counter	NM	HL7		4	999	The NCIRD's guidelines recommend that this field's value should be "999" for registries that do not record dose number. Not used by ImmTrac.
RXA-3	Date/Time Start of Administration	TS	HL7 ImmTrac		26		Contains the date the vaccine was administered. ImmTrac ignores any time component.
RXA-4	Date/Time End of Administration	TS	HL7 – Required but may be empty		26		If populated, this should be the same as Start time (RXA-3)
RXA-5	Administered Code	CE	HL7 ImmTrac		100	See code table 0292, 0396	ImmTrac will only accept the first set of components; it can either accept CPT or CVX code and will ignore the alternate set of components. If submitting the CPT code, specify the CPT code in the first component, and "C4" in the third component (see Table 0396), Note that if CPT is specified, the validation engine changes this code to the appropriate CVX code before processing.
RXA-6	Administered Amount	NM	HL7		20	999	The NCIRD's guidelines recommend that this field's value should be "999" for registries that do not collect the administered amount. Not used by ImmTrac.

Seq	Element Name	Data Type	Required	Repeat #	Len	Value	Notes
RXA-9	Administration Notes	CE	ImmTrac		200	NCIRD001	<p>ImmTrac is following the NCIRD's guidelines by using this field to indicate whether the immunization being reported was administered (new) or came from other records (historical). The submitter should assign the value "00" to the identifier component of this field to indicate that the immunization is new (see Table NCIRD001). Any other value will be interpreted as meaning the immunization is historical. Historical means the vaccination was not administered by this reporting organization but is known to have been given at a previous date by some other organization. For example, information transcribed from a patient's paper shot record is considered historical.</p> <p>Example New immunization 00^New Immunization Record^NCIRD001 </p> <p>Example Historical immunization 01^Historical Information^NCIRD001 </p> <p>ImmTrac strongly encourages submitters to specify whether the immunization being reported is new so that the provider and facility information from RXA-10 and RXA-11 can be stored with the immunization.</p>
RXA-10	Administering Provider	XCN	ImmTrac Required but may be empty		200	See code table 0360	<p>The HL7 standard states that this field can be used to identify the provider who ordered the immunization (the "orderer"), the person physically administering the vaccine (the "vaccinator"), and/or the person who recorded the immunization (the "recorder"). However, ImmTrac is only interested in identifying and storing the "orderer", and only when the immunization is specified as "new" in RXA-9.</p> <p>For each "new" immunization, submitters should include their unique identifier for the "orderer" in component 1 of this field (the ID number) and the orderer's name in components 2 through 7 (the person name). In addition, the submitter should specify the Assigning Authority in component 9 as TX and identifier type code in component 13 to indicate the person being described is the "orderer" (potential values MD, NP, PA, RN etc. see Code Table 0203). ImmTrac will store the "orderer" information with the immunization.</p> <p>ImmTrac does not support repetition of this field for the "vaccinator" and "recorder".</p>
RXA-11	Administered-at-location.Facility.NameSpaceID	LA2	ImmTrac – Conditionally mandatory if RXA-9 is 00		200		<p>Contains the name, address and PFS# of the facility where the immunization was administered. ImmTrac will only retain the administered-at location when the immunization is specified as "new" in RXA-9. Submitters should specify the facility's PFS# component 4 of this field, and the address in components 9 through 14. The PFS number must appear in RXA11.4, as follows ^^123456789</p>

Seq	Element Name	Data Type	Required	Repeat #	Len	Value	Notes
RXA-15	Substance Lot Number	ST	ImmTrac Required but may be empty		20		Contains the manufacturer's lot number for the vaccine administered. ImmTrac does not support repetition of this field.
RXA-17	Substance Manufacturer Name	CE	ImmTrac Required but may be empty		60	See code table 0227, 0396	Contains the manufacturer of the vaccine administered (see Table 0227). The HL7 2.4 specification recommends use of the external code set MVX, and ImmTrac requests that the coding system component of the CE field be valued as "MVX" (see Table 0396)

6 Optional VXU Message Segments

ImmTrac does not require the following message segments. If included in the file, the validation engine will validate the information contained within the segments and provide error/warning messages as appropriate.

6.1 NK1 Next of Kin Segment Definition

The NK1 segment contains information about the patient's next of kin and other associated parties. This segment is optional, and allowed to repeat, providing information about multiple associated parties. ImmTrac retrieves information about the patient's mother, father and guardian from this segment.

Example NK1 Segment

```
NK1|1|Green^Helen^Denise|MTH^Mother^HL70063|||19700101|<CR>
```

```
NK1|2|Green^Mark^Alan|FTH^Father^HL70063|<CR>
```

Seq	NK1 Element Name	Data Type	Required	Repeat #	Len	Value	Notes
NK1-1	Set ID – NK1	SI	HL7		4		Contains a number that identifies the occurrence of this NK1 segment within its association with the PID segment. Using the NK1-1 Set ID, multiple NK1 segments can be associated with one PID segment. Use "1" as the Set ID for the first occurrence of the NK1 segment within the message, "2" for the second, and so forth.
NK1-2	Name	XPN	HL7, ImmTrac		48	See code table 0200	Contains the name of the next of kin or associated party. ImmTrac will only retain the names of the mother, father and/or legal guardian of the patient. ImmTrac does not support repetition of this field. Note: The mother's maiden name should be reported in PID-6, never in NK1-2.
NK1-3	Relationship	CE	HL7, ImmTrac		60	See code table 0063	Defines the relationship between the patient and the name of the next of kin or associated party (see Table 0063). Use only the first three components of the CE data type, for example: MTH^Mother^HL70063 ImmTrac will only retain the names of the mother, father and/or legal guardian of the patient, and does not support repetition of this field.
NK1-16	Date/Time of Birth	TS			26	YYYYMMDD	Contains the next of kin's year, month and day of birth in the format YYYYMMDD. ImmTrac will only retain the mother's date of birth, and ignores any time component.

6.2 PV1: Patient Visit Segment Definition

The PV1 segment is used to send visit-specific information about the patient. ImmTrac uses the PV1 segment to retrieve the patient's Vaccine For Children (VFC) status.

Example PV1 Segment

```
PV1||R|||||||||||||||V02^20060817|<CR>
```

Seq	PV1 Element Name	Data Type	Required	Repeat #	Len	Value	Notes
PV1-2	Patient Class	IS	HL7		1	See code table 0004	Contains a code indicating a patient's class or category. It is required by HL7, although it does not have a consistent industry-wide definition (see Table 0004). ImmTrac currently ignores this field.
PV-20	Financial Class				50	See code table 0064	Contains the financial class assigned to the patient and the associated effective date, and is used to identify sources of reimbursement. ImmTrac will only retain the VFC eligibility code (see Table 0064), and will apply the VFC code specified in the first component to every non-historical immunization administered on the effective date specified in the second component. ImmTrac does not support repetition of this field, and requests that the patient's VFC status on the date of the visit be reported. Texas has added an additional VFC code value to table 0064 to be able to handle a unique financial code specific to the state. The code value is TXA01 with a description of "VFC eligible-Underinsured, Not FQHC/Rural".

7 VXU Message Example

The following examples demonstrate how a clinic would format client and immunization data to be submitted to ImmTrac in a batch file of HL7 VXU messages.

Our fictitious facility is the KidzDoctor Clinic, located in Austin, Texas. There are several doctors on the KidzDoctor staff, including Dr. John G. Smith and Dr. Emma Thomas. The clinic uses the My-EMR electronic medical record system, which is capable of sending batches of HL7 VXU messages to ImmTrac.

7.1.1 Patients' Chart Data

Patient #444: Susan Q. Green

This patient received a DTaP during a visit to Dr. Smith at the KidzDoctor Clinic's Briarpark location on 8/17/2006. Her birth dose of HepB was received at an unknown location.

Patient #537: Samuel H. Lee

This patient visited the KidzDoctor Clinic on 8/17/2006, two weeks after his birth. Although he did not receive an immunization during the visit, the nurse recorded that his birth dose of HepB was administered on 8/4/2006 at St. Jude's Hospital.

Patient #727: Abigail Phillips

This patient received an MMR during a visit to Dr. Thomas at the KidzDoctor Clinic's Medical Drive location on 8/10/2006. There are no other records of previous immunizations on file for this patient.

The following table displays the information in the KidzDoctor Clinic's electronic medical records system for these three patients whose client and immunization data will be submitted to ImmTrac in a batch file of VXU messages.

Information to Send to ImmTrac	Data Values to be Sent to ImmTrac	Location in VXU Message
Client #1		
Chart Number (Patient's KidzDoctor Clinic ID)	444	PID-3
Medicaid Number	988776655	PID-3
SSN	111225555	PID-3
Name	Susan Q. Green	PID-5
Mother's Maiden Name	Redfield	PID-6
Birth date	9/8/2004	PID-7
Sex	Female	PID-8
Race	Caucasian	PID-10
Address and FIPS county of residence	123 Main St, Apt. 223 Austin, TX 78888-2345 Travis (TX453)	PID-11
Phone Number of Parent or Guardian	(012) 754-2270	PID-13
Hispanic or Latino	Yes	PID-22
Multiple Birth Indicator (was client born as part of a multiple birth?)	Yes	PID-24
First Responsible person (parent or guardian who cares for client)	Helen Denise Green	NK1-2
Relationship to client	Mother	NK1-3
Date of Birth (if Mother)	1/1/1970	NK1-16

Second Responsible person (parent or guardian who cares for client)	Mark Alan Green	NK1-2
Relationship to client	Father	NK1-3
Date of Birth (if Mother)		Omitted
VFC Current Status	VFC Eligible – Medicaid	PV1-20
Effective Date	8/17/2006	PV1-20
Date First Immunization Administered	04/03/2013	RXA-3, RXA-4
Vaccine	DTaP	RXA-5
CVX Code	20	RXA-5
Administered at a KidzDoctor Clinic?	Yes	RXA-9
Ordering Provider (Name and License # and assigning authority)	Dr. John G. Smith Jr. SMI001 TX MD	RXA-10
Administering Location	1124800189 3131 Briarpark Dr. Suite 108 Dallas, TX 77042	RXA-11
Lot # & Manufacturer	X-1234 Merck	RXA-15, RXA-17
Date Second Immunization Administered	9/8/2004	RXA-3, RXA-4
Vaccine	HepB	RXA-5
CVX Code	08	RXA-5
Administered at MetroKidzDoctor Clinic?	No	RXA-9
Ordering Provider (Name and MetroKidzDoctor Clinic ID)	Unknown	Omitted
Administering Location	Unknown	Omitted
Client #2		
Chart Number (Patient's MetroKidzDoctor Clinic ID)	537	PID-3
SSN	888446666	PID-3
Medicaid Number	None	PID-3
Name	Samuel H. Lee	PID-5
Mother's Maiden Name	Lee	PID-6
Birth date	8/3/2006	PID-7
Sex	Male	PID-8
Race	Caucasian	PID-10
Address and FIPS county of residence	2038 Lance Way Austin, TX 78756	PID-11
Phone Number of Parent or Guardian	(512) 458-7294	PID-13
Hispanic or Latino?	No	Omitted
Multiple Birth Indicator (was client born as part of a multiple birth?)	No	Omitted
Responsible person (parent or guardian who cares for client)	Cynthia Lee	NK1-2
Relationship to client	Mother	NK1-3
Date of Birth (if Mother)	2/1/1980	NK1-16
Date Immunization Administered	8/4/2006	RXA-3, RXA-4

Vaccine	HepB	RXA-5
CPT Code	08	RXA-5
Administered at MetroKidzDoctor Clinic?	No	RXA-9
Ordering Provider (Name and License # and assigning authority)	Unknown	Omitted
Administering Location	St. Jude's Hospital	Omitted
Client #3		
Chart Number (Patient's MetroKidzDoctor Clinic ID)	727	PID-3
SSN	343567788	PID-3
Medicaid Number	515463456	PID-3
Name	Abigail S. Phillips	PID-5
Mother's Maiden Name	Watkins	PID-6
Birth date	8/9/2005	PID-7
Sex	Female	PID-8
Race	African-American	PID-10
Address and FIPS county of residence	309 Del Mar Blvd. Austin, TX 78757 Travis (TX453)	PID-11
Phone Number of Parent or Guardian	(512) 785-2233	PID-13
Hispanic or Latino?	No	Omitted
Multiple Birth Indicator (was client born as part of a multiple birth?)	No	Omitted
Date Immunization Administered	8/10/2006	RXA-3, RXA-4
Vaccine	MMR	RXA-5
CVX Code	03	RXA-5
Administered at a KidzDoctor Clinic?	Yes	RXA-9
Ordering Provider (Name, License # and assigning authority)	Dr. Emma R. Thomas THO234 TX MD	RXA-10
Administering Location	1124800777 321 Medical Dr. Suite 325 Austin, TX 78756	RXA-11
Lot # & Manufacturer	AB123 Merck	RXA-15, RXA-17

7.1.1.1 HL7 Batch VXU file from Sample Chart Data (Example 4)

ImmTrac has requested that KidzDoctor Clinic send client and immunization information to the state registry to help ensure that their patients' ImmTrac immunization records are kept up-to-date. KidzDoctor Clinic has registered its primary facility with ImmTrac and obtained the PFS Number 9999999999 and Import Code 'KIDZDRCLIN'. There are two other sites related to this clinic who shares the same ownership and database. They were registered under Immtrac with the PFS numbers 1124800189 and 1124800777.

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

```
FHS|^~\&|My-EMR|999999999|TxImmTrac|TxDSHS|20060817220122||KIDZDRCLIN06229.HL7|Weekly
VXU Transfer to ImmTrac|20060817a||<CR>
BHS|^~\&|My-EMR|999999999|TxImmTrac|TxDSHS|20060817220122|||B1-200608||<CR>
MSH|^~\&|My-EMR|999999999|TxImmTrac|TxDSHS|20060817220122||VXU^V04|MC6643|P|2.4|<CR>
PID|||444^^^^PI~98877665^^^^MA~11122555^^^^SS||Green^Susan^Q|Redfield|20040908|F||21
06-3^White^HL70005|123 Main St.^Apt. 223^Austin^TX^78888-
2345^US^P^^TX453||^PRN^^^^012^7542270^^|H^Hispanic or Latino^HL70189||Y<CR>
NK1|1|Green^Helen^Denise|MTH^Mother^HL70063|||19700101|<CR>
NK1|2|Green^Mark^Alan|FTH^Father^HL70063|<CR>
PV1|R|||v02^20060817|<CR>
RXA|0|999|20130403080000|20130403080000|20^DTaP^CVX|0.5|ML||00^New immunization
record^NIP001|SMI001^Smith^John^G.^Jr.^Dr.^TX^^MD|^1124800189^^^^3131 Briarpark
Dr., Ste 108^^Dallas^TX^77042^US|||02577WO||SKB^GlaxoSmithKline^MVX<CR>
RXA|0|999|20040908|20040908|08^HepB^CVX|999|||01^Historical information^NCIRD001|<CR>
MSH|^~\&|My-EMR|999999999|TxImmTrac|TxDSHS|20060817220125||VXU^V04|MC6644|P|2.4|<CR>
PID|||537^^^^PI~888446666^^^^SS||Lee^Samuel^H|Lee|20060803|M||2106-
3^White^HL70005|2038 Lance Way^^Austin^TX^78756^US^P|^PRN^^^^512^4587294^^|<CR>
NK1|1|Lee^Cynthia|MTH^Mother^HL70063|||19800201|<CR>
RXA|0|999|20060804|20060804|08^HepB^CVX^90744^HepB^C4|999|||01^Historical
information^NCIRD001|<CR>
MSH|^~\&|My-EMR|999999999|TxImmTrac|TxDSHS|20060817220130||VXU^V04|MC6645|P|2.4|<CR>
PID|||727^^^^PI~515463456^^^^MA~343567788^^^^SS||Phillips^Abigail^S|Watkins|20050809|F
||2054-5^Black^HL70005|309 Del Mar
Blvd.^Austin^TX^78757^US^P^^TX453||^PRN^^^^512^7852233^^|<CR>
RXA|0|999|20060810112544|20060810112544|03^MMR^CVX^90707^MMR^C4|999|||00^New
immunization record^NIP001|THO234^Thomas^Emma^^Dr.^TX^^MD|^1124800777^^^^321
Medical Dr.^Suite 325^Austin^TX^78756^US|||ABC123||MSD^MERCK^MVX<CR>
BTS|3|<CR>
FTS|1|Weekly VXU Transfer to ImmTrac Complete|<CR>
```

The File Header segment identifies the file as being sent from the KidzDoctor Clinic, registered in ImmTrac with the PFS Number 999999999. The file was created on 8/17/2006, so the ordinal date is 06229 and the file name will be KIDZDRCLINIC06229.HL7 where KIDZDRCLINIC represents the Provider Import Code provided by ImmTrac. The Batch Header segment identifies the unique batch as "B1-200608".

The first VXU message is for pediatric patient Susan Q. Green, with a unique message control id of "MC6643". KidzDoctor Clinic is reporting Susan's personal identifiers (KidzDoctor Clinic ID, Medicaid number and SSN) as well as her date of birth, gender, race and ethnicity. Also included is information about both her mother and father, including her mother's maiden name. In addition, her permanent address and contact phone number are included.

Susan visited the KidzDoctor Clinic on 8/17/2006, at which time she was identified as being eligible for the Vaccines for Children program, based on her Medicaid eligibility. She received a DTaP immunization ordered by Dr. John G. Smith, Jr., with medical license number SMI001 licensed in TX as an MD at the office on Briarpark Drive. The vaccine lot number and manufacturer are also being reported. Her birth HepB was recorded in her chart, and is being sent to ImmTrac with no vaccine lot number or manufacturer.

The second VXU message is for pediatric patient Samuel H. Lee, with a unique message control id of "MC6644". KidzDoctor Clinic is reporting Samuel's personal and demographic information to assist ImmTrac in finding a match. Although Samuel did not receive an immunization during his visit, his birth HepB was recorded in his chart and is being sent to ImmTrac as a historical immunization.

The third VXU message is for pediatric patient Abigail Phillips, with a unique message control id of "MC6645". KidzDoctor Clinic is reporting that Abigail received an MMR immunization on 8/10/2006 ordered by Dr. Emma Thomas, with medical license number THO234 licensed in TX as an MD administered at the office on Medical Drive, and has included the vaccine lot number and manufacturer in the data being sent to ImmTrac.

The batch trailer and file trailer segments indicate that there were three messages included in the batch, and only one batch included in the file, as required by ImmTrac.

ImmTrac will extract the relevant information from this batch file of HL7 VXU messages and schedule an import of the data during off-peak production hours. As required by Texas law, ImmTrac will generate a notification file for providers indicating whether the patients included in the HL7 file were successfully matched to their ImmTrac records. This file can be retrieved using the same method that was utilized to submit the HL7 VXU file, but currently it is not in HL7 format.

8 Appendix I – HL7 Tables

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

Type	Table	Name	Value	Description
HL7	0001	Sex		
	0001		F	Female
	0001		M	Male
HL7	0004	Patient class		
	0004		R	Recurring Patient
HL7	0005	Race		
	0005		1002-5	American Indian or Alaska Native
	0005		2028-9	Asian
	0005		2076-8	Native Hawaiian or Other Pacific Islander
	0005		2054-5	Black or African-American
	0005		2106-3	White
	0005		2135-2	Hispanic or Latino
	0005		2186-5	Not Hispanic or Latino
	0005		2131-1	Other Race
	0005		Null	Unknown
User	0063	Relationship		
	0063		ASC	Associate
	0063		BRO	Brother
	0063		CGV	Care giver
	0063		CHD	Child
	0063		DEP	Handicapped dependent
	0063		DOM	Life partner
	0063		EMC	Emergency contact
	0063		EME	Employee
	0063		EMR	Employer
	0063		EXF	Extended family
	0063		FCH	Foster Child
	0063		FND	Friend

Type	Table	Name	Value	Description
	0063		FTH	Father
	0063		GCH	Grandchild
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MGR	Manager
	0063		MTH	Mother
	0063		NCH	Natural child
	0063		NON	None
	0063		OAD	Other adult
	0063		OTH	Other
	0063		OWN	Owner
	0063		PAR	Parent
	0063		SCH	Stepchild
	0063		SEL	Self
	0063		SIB	Sibling
	0063		SIS	Sister
	0063		SPO	Spouse
	0063		TRA	Trainer
	0063		UNK	Unknown
	0063		WRD	Ward of court
HL7	0064	Financial class		
	0064		V00	VFC eligibility not determined/unknown
	0064		V01	Not VFC eligible
	0064		V02	VFC eligible – Medicaid/Medicaid Managed Care
	0064		V03	VFC eligible – Uninsured
	0064		V04	VFC eligible – American Indian/Alaskan Native
	0064		V05	VFC eligible – Federally Qualified Health Center Patient (under-insured)
	0064		V06	VFC eligible – State-specific eligibility (e.g. S-Chip plan)
	0064		V07	VFC eligible – Local-specific eligibility
	0064		TXA01	VFC eligible-Underinsured, Not FQHC/Rural
HL7	0076	Message Type		
	0076		ACK	General acknowledgment message

Type	Table	Name	Value	Description
	0076		QCK	Query general acknowledgment
	0076		VXQ	Query for vaccination record
	0076		VXX	Vaccination query response with multiple PID matches
	0076		VXR	Vaccination query record response
	0076		VXU	Unsolicited vaccination record update
HL7	0103	Processing ID		
	0103		D	Debugging
	0103		P	Production
	0103		T	Training
HL7	0104	Version ID		
	0104		2.3.1	Release 2.3.1 1999
	0104		2.4	Release 2.4 2000
	0104		2.5.1	Release 2.5.1 2007; required for stage 2 Meaningful Use
	0104		2.7.1	Release 2.7.1, 2012
HL7	0136	Multiple Birth Indicator		
	0136		Y	Yes
	0136		N	No (if not Y, then usually omitted)
	0136		U	Unknown (if not Y, then usually omitted)
HL7	0155	Accept/Application Acknowledgment Conditions		
	0155		NE	Never
HL7	0189	Ethnic Group		
	0189		H	Hispanic or Latino
	0189		N	Not Hispanic or Latino
	0189		U	Unknown (If not known, then usually omitted)
HL7	0190	Address Type		
	0190		C	Current or Temporary
	0190		P	Permanent
	0190		M	Mailing
	0190		B	Firm/Business
	0190		O	Office
	0190		H	Home

Type	Table	Name	Value	Description
	0190		N	Birth (nee)
	0190		F	Country of Origin
	0190		L	Legal
	0190		BDL	Birth Delivery Location
	0190		BR	Residence at Birth
	0190		RH	Registry Home
	0190		BA	Bad Address
HL7	0200	Name Type		
	0200		A	Alias Name
	0200		L	Legal Name
	0200		D	Display Name
	0200		M	Maiden Name
	0200		C	Adopted Name
	0200		B	Name at Birth
	0200		P	Name of Partner/Spouse
	0200		U	Unspecified
HL7	0201	Telecommunication Use Code		
	0201		PRN	Primary Residence Number
	0201		ORN	Other Residence Number
	0201		WPN	Work Number
	0201		ASN	Answering Service Number
	0201		EMR	Emergency Number
	0201		NET	Network (email) Address
	0201		BPN	Beeper Number
HL7	0202	Telecommunication Equipment Type		
	0202		PH	Telephone
	0202		FX	Fax
	0202		MD	Modem
	0202		CP	Cellular Phone
	0202		BP	Beeper
	0202		Internet	Internet Address: Use only if telecommunication use code is NET

Type	Table	Name	Value	Description
	0202		X.400	X.400 email address: Use only if telecommunication use code is NET
			TDD	Telecommunications Device for the Deaf
			TTY	Teletypewriter
HL7	0203	Identifier Type		
	0203		BR	Birth Registry Number
	0203		MA	Medicaid Number
	0203		MC	Medicare Number
	0203		MR	Medical Record Number
	0203		PI	Patient Internal Identifier
	0203		PN	Person Number
	0203		PRN	Provider Number
	0203		PT	Patient External Identifier
	0203		RRI	Regional Registry ID
	0203		SR	State Registry Identifier
	0203		SS	Social Security Number
	0203		VEI	Vaccinator Employee Number
	0203		OEI	Orderer Employee Number
	0203		REI	Recorder Employee Number
HL7	0227	Manufacturers of vaccines (coding system = MVX)		As of 7/14/2006 – See http://www2a.cdc.gov/vaccines/IS/ISStandards/vaccines.asp?rpt=mvx for the most current values
User	0289	County/parish (Texas only)		County Codes are not used

Type	Table	Name	Value	Description
HL7	0292	Codes for Vaccines Administered		<p>For the most current values, see the CVX Vaccination Code List at the following URL: http://www.dshs.state.tx.us/immunize/immtrac/attestation.shtm</p> <p>NOTE: Use the character string: VAR-HadVAR- if the patient had chicken pox. "VAR-HadVAR" denotes evidence of immunity due to the patient having had Varicella disease. This code was created by ImmTrac for ImmTrac usage only. RXA segments containing evidence of varicella should be configured as follows:</p> <p>RXA 0 999 20111212 VAR-HadVAR^EIV^CVX 999 01^Historical information-source unspecified^NIP0001 A</p> <p>-or-</p> <p>RXA 0 999 20111012 VAR-HadVAR^EIV^C4 999 01^Historical information-source unspecified^NIP0001 A</p> <p>The highlighted date is the only change in any VAR-HadVAR RXA segment</p>
NCIRD	NCIRD001	Immunization Information Source		
	NCIRD001		00	New Immunization Record
	NCIRD001		01	Historical Information – source unspecified (Note: Codes 02-08 will be marked as historical, unspecified in ImmTrac.

9 Appendix II – Table Identifiers by Segment Field

Field Ref.	Field Name	HL7 Table	Table Name
MSH.9	Message Type	0003	Trigger Event
MSH.9	Message Type	0076	Message Code
MSH.11	Processing ID	0103	Processing ID
MSH.12	Version ID	0104	Version ID
MSH.15	Accept Acknowledgment Type	0155	Acknowledgment Type
NK1.2	Name	0200	Name Type
NK1.3	Relationship	0063	Associated Party Relationship
PID.3	Patient Identifier List	0203	Identifier Type
PID.5	Patient Name	0200	Name Type
PID.6	Mother's Maiden Name	0200	Name Type
PID.8	Administrative Sex	0001	Sex
PID.10	Race	0005	Race
PID.11	Patient Address	0190	Address Type
PID.11	Patient Address	0289	County
PID.11	Patient Address	0212	Country
PID.13	Phone Number – Home	0201	Telecommunication Use
PID.22	Ethnic Group	0189	Ethnic Group
PID.24	Multiple Birth Indicator	0136	Indicator
PV1.2	Patient Class	0004	Patient Class
PV1.20	Financial Class	0064	Financial Class
RXA.5	Administered Code	0292	Administered Vaccine
RXA.5	Administered Code	0396	Coding System
RXA.9	Administration Notes	NCIRD001	Immunization Information Source
RXA.10	Administering Provider	0203	Identifier Type
RXA.10	Administering Provider	0360	Degree
RXA.11	Administered-at Location	0190	Address Type
RXA.11	Administered-at Location	0212	Country
RXA.17	Substance Manufacturer Name	0227	Manufacturer (MVX)
RXA.17	Substance Manufacturer Name	0396	Coding System

10 Appendix III – Segment Fields by Table Identifier

HL7 Table	Table Name	Field Ref.	Field Name
0001	Sex	PID.8	Administrative Sex
0003	Trigger Event	MSH.9	Message Type
0004	Patient Class	PV1.2	Patient Class
0005	Race	PID.10	Race
0063	Associated Party Relationship	NK1.3	Relationship
0064	Financial Class	PV1.20	Financial Class
0076	Message Code	MSH.9	Message Type
0103	Processing ID	MSH.11	Processing ID
0104	Version ID	MSH.12	Version ID
0136	Indicator	PID.24	Multiple Birth Indicator
0155	Acknowledgment Type	MSH.15	Accept Acknowledgment Type
0189	Ethnic Group	PID.22	Ethnic Group
0190	Address Type	PID.11	Patient Address
0190	Address Type	RXA.11	Administered-at Location
0200	Name Type	NK1.2	Name
0200	Name Type	PID.5	Patient Name
0200	Name Type	PID.6	Mother's Maiden Name
0201	Telecommunication Use	PID.13	Phone Number – Home
0203	Identifier Type	PID.3	Patient Identifier List
0203	Identifier Type	RXA.10	Administering Provider
0212	Country	PID.11	Patient Address
0212	Country	RXA.11	Administered-at Location
0227	Manufacturer (MVX)	RXA.17	Substance Manufacturer Name
0289	County	PID.11	Patient Address
0292	Administered Vaccine	RXA.5	Administered Code
0360	Degree	RXA.10	Administering Provider
0396	Coding System	RXA.5	Administered Code
0396	Coding System	RXA.17	Substance Manufacturer Name
NCIRD001	Immunization Information Source	RXA.9	Administration Notes

11 Appendix IV – HL7 Data Types Referenced by ImmTrac

The following descriptions of HL7 data types are excerpted from the HL7 standard. Some data types have complex definitions that do not apply to ImmTrac; and in these cases, we have abbreviated the HL7 definition to reflect only what is applicable to ImmTrac. Refer to the field notes within each segment definition above for which data types to use in each field.

HL7 Section Ref	Data Type	Description	Notes
2.8.3	CE - coded element with formatted values	<p>This data type transmits codes and the text associated with the code. To allow all six components of a CE data type to be valued, the suggested length of a field of this data type is at least 60.</p> <p>Components: <identifier (ST)>^ <text (ST)>^ <name of coding system (ST)>^ <alternate identifier (ST)>^ <alternate text (ST)> ^ <name of alternate coding system (ST)></p> <p>Components are defined as follows:</p> <p>(1) Identifier (ST). Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.</p> <p>(2) Text (ST). Name or description of the item in question.</p> <p>(3) Name of coding system (ST). Each coding system is assigned a unique identifier. This component will serve to identify the coding scheme being used in the identifier component. The combination of the identifier and the name of the coding system components will be a unique code for a data item.</p> <p>(4-6) These three components are defined analogously to the above for the alternate or local coding system. If the Alternate Text component is absent, and the Alternate Identifier is present, the Alternate Text will be taken to be the same as the Text component. If the Alternate Coding System component is absent, it will be taken to mean the locally defined system.</p>	<p>For HL7-defined tables, the third component, name of coding system, is constructed by appending the table number to the string "HL7." For example, the HL7 table number 0063 would be designated in the "name of coding system" component as "HL70063."</p> <p>The second set of codes must carry the same meaning as the first set. For example, for immunization data, a first set using CVX codes followed by a second set using CPT codes may be used to record the administration of a single vaccine.</p> <p>The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.</p>
2.8.5	CK - composite ID with check digit	<p>Components: <ID number (NM)>^ <check digit (NM)>^ <code identifying the check digit scheme employed</p>	<p>This data type is used for certain fields that commonly contain check digits, e.g., <i>PID-3-Patient identifier list</i>. If a user is not using check digits for a CK field, the second and third</p>

HL7 Section Ref	Data Type	Description	Notes
		<p>(ID)>^ <assigning authority (HD)></p> <p>Components are defined as follows:</p> <p>(1) ID number (NM).</p> <p>(2) Check digit (NM). This is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.</p> <p>(3) Code identifying the check digit scheme employed (ID). Check digit scheme codes are defined in <i>HL7 Table 0061 - Check digit scheme</i>. Note: Mod 10 and Mod 11 check digit algorithms are defined in the HL7 Standard Section 2.8.5.3.</p>	<p>components are not valued.</p>
2.8.6	CM - composite	<p>A field that is a combination of other meaningful data fields. Each portion is called a component. The specific components of CM fields are defined within the field descriptions.</p>	<p>The CM data type is maintained strictly for backward compatibility and may not be used for the definition of new fields.</p>
2.8.12	CX - extended composite ID with check digit	<p>Components:</p> <p><ID (ST)>^ <check digit (ST)>^ <code identifying the check digit scheme employed (ID)>^ <assigning authority (HD)>^ <identifier type code (IS)>^ <assigning facility (HD)></p> <p>Components are defined as follows:</p> <p>(1) ID (ST).</p> <p>(2) Check digit (ST). Defined as in the CK data type except as a ST. The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.</p> <p>(3) Code identifying the check digit scheme employed (ID).</p> <p>(4) Assigning authority (HD).</p> <p>Subcomponents of (4):</p> <p><application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> &</p>	<p>Refer to <i>User-defined Table 0203 - Identifier type</i> for suggested values for component 5.</p> <p>ImmTrac uses this data type only for client identification in Patient Identification (PID) segments. See the field notes for values used for ImmTrac.</p>

HL7 Section Ref	Data Type	Description	Notes
		<p><application identifier 5 (ID)> & <application identifier 6 (ID)></p> <p>(5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to <i>User-defined Table 0203 - Identifier type</i> for suggested values.</p> <p>(6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.</p> <p>Subcomponents of (6):</p> <p><namespace ID (IS)>& <universal ID (ST)>& <universal ID type (ID)></p>	
2.8.15	DT - date	Format: YYYY[MM[DD]]	The precision of a date may be expressed by limiting the number of digits used with the format specification YYYY[MM[DD]].
2.8.17	EI - entity identifier	<p>Components:</p> <p><entity identifier (ST)>^ <namespace ID (IS)>^ <universal ID (ST)>^ <universal ID type (ID)></p> <p>Components are defined as follows:</p> <p>(1) Entity identifier (ST). This component is usually defined to be unique within the series of identifiers created by the assigning authority, defined by a hierarchic designator, represented by components (2) through (4). (These are as defined here at 2.8.20, "HD - hierarchic designator.")</p>	The entity identifier defines a given entity within a specified series of identifiers.
2.8.18	FC - financial class	<p>Components:</p> <p><financial class (IS)>^ <effective date (TS)></p> <p>Components are defined as follows:</p> <p>(1) Financial class (IS). The financial class assigned to a person. Refer to <i>User-defined Table 0064 - Financial class</i> for suggested values.</p> <p>(2) Effective date (TS). The effective date/time of the person's assignment to the financial class specified in the first component.</p>	Used in immunization registries to classify VFC eligibility.
2.8.19	FT - formatted text data	This data type is derived from the string data type by allowing the addition of embedded formatting instructions. These instructions are limited to those that are intrinsic and independent of the circumstances under which the field is being used.	

HL7 Section Ref	Data Type	Description	Notes
		The FT field is of arbitrary length (up to 64K) and may contain formatting commands enclosed in escape characters.	
2.8.20	HD - hierarchic designator	<p>A unique name that identifies the system that was the source of the data. The HD is designed to be used either as a local version of a site-defined application identifier or a publicly assigned UID. Syntactically, the HD is a group of two application identifiers: one defined by the first component, and one defined by the second and third components.</p> <p>Components: <namespace ID (IS)>^ <universal ID (ST)>^ <universal ID type (ID)></p> <p>Components are defined as follows: (1) Namespace ID (IS). Refer to <i>User-defined Table 0300 - Namespace ID</i> for suggested values. (2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component. (3) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to <i>HL7 Table 0301 - Universal ID type</i> for valid values.</p>	<p>Used in fields that formerly used the IS data type. When only the first HD component is valued, it looks like a simple IS data type.</p> <p>Designed to be an application identifier, either as a local version of a site-defined application identifier or a publicly assigned universal ID (UID). The HD is a group of two application identifiers: one defined by the first component, and one defined by the second and third components.</p> <p>If the first component is present, the second and third components are optional. The second and third components must either both be valued (both non-null), or both be not valued (both null).</p> <p>ImmTrac uses this data type only to identify sender and receiver in Message Header (MSH) segments. See the field notes for values used for ImmTrac.</p>
2.8.21	ID - coded value for HL7-defined tables	The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. Examples of ID fields include <i>MSH-12-Version ID</i> and <i>PID-24-Multiple Birth Indicator</i> .	This data type should be used only for HL7 tables. Not all HL7 tables require the use of this data type, since in some circumstances, it is more appropriate to use the CE data type for HL7 tables.
2.8.22	IS - coded value for user-defined tables	The value of such a field follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values. An example of an IS field is <i>PID-8-Sex</i> .	<p>This data type should be used only for user-defined tables. . . Not all user-defined tables require the use of this data type, since in some circumstances, it is more appropriate to use the CE data type for user-defined tables.</p> <p>There shall be an HL7 table number associated with IS data types.</p>
2.8.23	LA2 - Location with Address	This field specifies a location and its address.	The fourth component identifies the name of the facility where

HL7 Section Ref	Data Type	Description	Notes
	Variation 2	<p>Components:</p> <p><point of care (IS)>^</p> <p><room (IS)>^</p> <p><bed (IS)>^</p> <p><facility (HD)>^</p> <p><location status (IS)>^</p> <p><patient location type (IS)>^</p> <p><building (IS)>^</p> <p><floor (IS)>^</p> <p><street address (ST)>^</p> <p><other designation (ST)>^</p> <p><city (ST)>^</p> <p><state or province (ST)>^</p> <p><zip or postal code (ST)>^</p> <p><country (ID)>^</p> <p><address type (ID)>^</p> <p><other geographic designation (ST)></p> <p>Components are defined as follows:</p> <p>(1-8) These components are defined as in the PL data type(1-8).</p> <p>(9-16) These components are defined in the XAD data type (1-8)</p>	<p>the immunization was given. See http://www.cdc.gov/phn/library/documents/pdf/PHIN_Countermeasures_Administration_SubstanceAdministration.pdf</p>
2.8.24	MSG – Message Type	This field contains the message type, trigger event, and the message structure ID for the message.	<p>Message Code: Specifies the message type code. Refer to HL7 Table 0076 – Message Type for valid values. This table contains values such as ACK, ADT, ORU etc.</p> <p>Trigger Event: Specifies the trigger event code. Refer to HL7 Table 0003 – Event Type for valid values. This table contains values like A01, V01, R01 etc</p> <p>Message Structure: Specifies the abstract message structure code. Refer to HL7 Table 0354</p>
2.8.26	NM - numeric	A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point, the number is assumed to be an integer. Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, "01.20" and "1.2", are identical.	

HL7 Section Ref	Data Type	Description	Notes
		Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.	
2.8.28	PL - person location	Components: <point of care (IS)>^ <room (IS)>^ <bed (IS)>^ <facility (HD)>^ <location status (IS)>^ <person location type (IS)>^ <building (IS)>^ <floor (IS)>^ <location description (ST)>	Used to specify a patient location within a healthcare institution. See HL7 Standard for component definitions and tables to use.
2.8.30	PN - person name	Components: <family name (ST)>&<last name prefix (ST)>^ <given name (ST)>^ <middle initial or name (ST)>^ <suffix (e.g., Jr. or III) (ST)>^ <prefix (e.g., Dr.) (ST)>^ <degree (e.g., MD) (IS)> Components are defined as follows: (1) Family name (ST) & Last name prefix (ST). Surname/last name. Last name prefix is for use with Germanic languages (e.g., van in Ludwig van Beethoven). (2) Given name (ST). (3) Middle initial or name (ST). (4) Suffix (ST). Used to specify a name suffix (e.g., Jr. or III). (5) Prefix (ST). Used to specify a name prefix (e.g., Dr.). (6) Degree (IS). Used to specify an educational degree (e.g., MD). See <i>User-defined Table 0360 - Degree</i> for values.	Note: To “translate” the last name prefix and the family name, prepend the last name prefix to the family name component. If the last name prefix is not null, the last name prefix should not also be present as part of the family name component.
2.8.31	PT - processing type	Components: <processing ID (ID)>^ <processing mode (ID)> Components are defined as follows: (1) Processing ID (ID). A value that defines	

HL7 Section Ref	Data Type	Description	Notes
		<p>whether the message is part of a production, training, or debugging system. Refer to <i>HL7 Table 0103 - Processing ID</i> for valid values.</p> <p>(2) Processing mode (ID). A value that defines whether the message is part of an archival process or an initial load. Refer to <i>HL7 Table 0207 - Processing mode</i> for valid values. The default (blank) means current processing.</p>	
2.8.38	SI - sequence ID	A non-negative integer in the form of an NM field.	See the field notes in segments using this data type for specifications of SI fields.
2.8.40	ST - string data	Any displayable (printable) ACSII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined delimiter characters. To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence. String data is left justified with trailing blanks optional.	The ST data type is intended for short strings (fewer than 200 characters). For longer strings, the TX or FT data types should be used.
2.8.44	TS - time stamp	<p>Contains the exact time of an event, including the date and time.</p> <p>Format: YYYY[MM[DD[HHMM[SS[.S[S[S]]]]]]][+/-ZZZZ]^ <degree of precision></p> <p>The date portion of a time stamp follows the rules of a date field (DT) and the time portion follows the rules of a time field (TM). The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).</p> <p>In the current and future versions of HL7, the precision is indicated by limiting the number of digits used, unless the optional second component is present. Thus,</p> <p>YYYY is used to specify a precision of "year",</p> <p>YYYYMM specifies a precision of "month,"</p> <p>YYYYMMDD specifies a precision of "day,"</p> <p>YYYYMMDDHH is used to specify a precision of "hour",</p> <p>YYYYMMDDHHMM is used to specify a precision of "minute",</p> <p>YYYYMMDDHHMMSS is used to specify a precision of "seconds", and YYYYMMDDHHMMSS.SSSS is used to specify a precision of ten thousandths of a second.</p> <p>In each of these cases, the time zone is an optional component. Maximum length of the time stamp is 26.</p> <p>Examples:</p>	<p>In prior versions of HL7, an optional second component indicates the degree of precision of the time stamp (Y = year, L = month, D = day, H = hour, M = minute, S = second). This optional second component is retained only for purposes of backward compatibility. Immunization registries will not value this component. Instead, the precision of the data may be indicated by limiting the number of digits valued.</p> <p>By site-specific agreement, YYYYMMDD[HHMM[SS[.S[S[S]]]]][+/-ZZZZ]^<degree of precision> may be used where backward compatibility must be maintained.</p> <p>The HL7 Standard strongly recommends that all systems routinely send the time zone offset but does not require it. All HL7 systems are required to accept the time zone offset, but its implementation is application specific. For many applications the time of interest is the local time of the sender. For example, an application in the Eastern Standard Time zone receiving notification of an admission that takes place at 11:00 PM in San</p>

HL7 Section Ref	Data Type	Description	Notes
		<p> 19760704010159-0600 1:01:59 on July 4, 1976 EST</p> <p> 19760704010159-0500 1:01:59 on July 4, 1976 EDT</p> <p> 198807050000 Midnight of the night extending from July 4 to July 5, 1988 in the local time zone of the sender.</p> <p> 19880705 Same as prior example, but precision extends only to the day. Could be used for a birthdate, if the time of birth is unknown.</p>	<p>Francisco on December 11 would prefer to treat the admission as having occurred on December 11 rather than advancing the date to December 12.</p> <p>One exception to this rule would be a clinical system that processed patient data collected in a clinic and a nearby hospital that happens to be in a different time zone. Such applications may choose to convert the data to a common representation. Similar concerns apply to the transitions to and from daylight saving time. HL7 supports such requirements by requiring that the time zone information be present when the information is sent. It does not, however, specify which of the treatments discussed here will be applied by the receiving system.</p>
2.8.45	TX - text data	String data meant for user display (on a terminal or printer). Not necessarily left justified. Leading spaces may contribute to clarity of the presentation to the user.	
2.8.47	VID - version identifier	<p>Components:</p> <p><version ID (ID)>^ <internationalization code (CE)>^ <international version ID (CE)></p> <p>Components are defined as follows:</p> <p>(1) Version ID (ID). Used to identify the HL7 version. Refer to <i>HL7 Table 0104 - Version ID</i> for valid values.</p> <p>(2) Internationalization code (CE). Used to identify the international affiliate country code. ISO 3166 provides a list of country codes that may be used (see <i>User-defined Table 0212 - Nationality</i>).</p> <p>(3) International version ID (CE). Used when the international affiliate has more than a single local version associated with a single U.S. version.</p>	
2.8.48	XAD - extended address	<p>Components:</p> <p><street address (ST)>^ <other designation (ST)>^ <city (ST)>^ <state or province (ST)>^</p>	<i>HL7 Table 0190 - Address type</i> allows user to designate the type of address (e.g., mailing, residence at birth, birth delivery location). When this field is allowed to repeat, several addresses can be recorded in the field, with each type noted.

HL7 Section Ref	Data Type	Description	Notes
		<p><zip or postal code (ST)>^ <country (ID)>^ <address type (ID)>^ <other geographic designation (ST)>^ <county/parish code (IS)>^ <census tract (IS)>^ <address representation code (ID)></p> <p>Components are defined as follows:</p> <p>(1) Street address (ST). The street or mailing address of a person or institution.</p> <p>(2) Other designation (ST). Second line of address (e.g., Suite 555, or Fourth Floor).</p> <p>(3) City (ST).</p> <p>(4) State or province (ST). State or province should be represented by the official postal service codes for that country.</p> <p>(5) Zip or postal code (ST). Zip or postal codes should be represented by the official codes for that country. In the U.S., the zip code takes the form 99999[-9999], while the Canadian postal codes take the form A9A-9A9.</p> <p>(6) Country (ID). Defines the country of the address. ISO 3166 provides a list of country codes that may be used (see <i>User-defined Table 0212 - Nationality</i>).</p> <p>(7) Address type (ID). Type is optional and defined by <i>HL7 Table 0190 - Address type</i>.</p> <p>(8) Other geographic designation (ST). includes county, bioregion, SMSA, etc.</p> <p>(9) County/Parish Code (IS). A code that represents the county in which the specified address resides. Refer to user-defined table 0289 - County/parish. When this component is used to represent the county (or parish), component 8 "other geographic designation" should not duplicate it (i.e., the use of "other geographic designation" to represent the county is allowed only for the purpose of backward compatibility, and should be discouraged in this and future versions of HL7).</p> <p>(10) Census Tract (IS). An optional code that represents the census track in which the specified address resides. Refer to <i>User-defined Table 0288 - Census tract</i> for values.</p> <p>(11) Address representation code (ID). See <i>HL7 Table 4000 - Name/address representation</i>.</p>	
2.8.49	XCN - extended composite ID number and name for	<p>Components:</p> <p><ID number (ST)>^ <family name (ST)>&<last name prefix (ST)>^</p>	ImmTrac uses this data type only to identify the provider that administered an immunization. See the field notes for segment RXA.

HL7 Section Ref	Data Type	Description	Notes
	persons	<p><given name (ST)>^ <middle initial or name (ST)>^ <suffix (e.g., Jr. or III) (ST)>^ <prefix (e.g., Dr.) (ST)>^ <degree (e.g., MD) (IS)>^ <source table (IS)>^ <assigning authority (HD)>^ <name type code (ID)>^ <identifier check digit (ST)>^ <code identifying the check digit scheme employed (ID)>^ <identifier type code (IS)>^ <assigning facility ID (HD)>^ <name representation code (ID)></p> <p>Components are defined as follows:</p> <p>(1) ID number. This string refers to the coded ID according to a user-defined table. If the first component is present, either the source table or the assigning authority must be valued.</p> <p>(2-7) These components are defined as in the PN data type(1-6).</p> <p>(8) Source table (IS). Refer to <i>user-defined table 0297 - CN ID source</i> for suggested values. Used to delineate the first component.</p> <p>(9) Assigning authority (HD).</p> <p>Subcomponents of (9):</p> <p><namespace ID (IS)>& <universal ID (ST)>& <universal ID type (ID)></p> <p>(10) Name type code (ID). A code that represents the type of name. Refer to <i>User-defined Table 0200 - Name type</i> for valid values.</p> <p>(11) Identifier check digit (ST).</p> <p>(12) Code identifying the check digit scheme employed (ID).</p> <p>(13) Identifier type code (IS). Refer to <i>user-defined table 0203 - Identifier type</i> for valid values.</p> <p>(14) Assigning facility (HD).</p> <p>Subcomponents of (14):</p> <p><namespace ID (IS)>& <universal ID (ST)> & <universal ID type (ID)></p> <p>(15) Name representation code (ID). See <i>HL7 Table 4000 - Name/address representation</i> for valid</p>	<p>See PN (1-6) for component definitions (2-7).</p>

HL7 Section Ref	Data Type	Description	Notes
		values.	
2.8.50	XON - extended composite name and identification number for organizations	<p>Components:</p> <p><organization name (ST)>^</p> <p><organization name type code (IS)>^</p> <p><ID number (NM)>^</p> <p><check digit (NM)>^</p> <p><code identifying the check digit scheme employed (ID)>^</p> <p><assigning authority (HD)>^</p> <p><identifier type code (IS)>^</p> <p><assigning facility ID (HD)>^</p> <p><name representation code (ID)></p> <p>Components are defined as follows:</p> <p>(1) Organization name (ST). The name of the specified organization.</p> <p>(2) Organization name type code (IS). Refer to <i>User-defined Table 0204 - Organizational name type</i>.</p> <p>(3-5) Defined as in CK (1-3).</p> <p>(6) Assigning authority (HD).</p> <p>Subcomponents of (9):</p> <p><namespace ID (IS)>&</p> <p><universal ID (ST)>&</p> <p><universal ID type (ID)></p> <p>(7) Identifier type code (IS). Refer to <i>user-defined table 0203 - Identifier type</i> for valid values.</p> <p>(8) Assigning facility (HD).</p> <p>Subcomponents of (8):</p> <p><namespace ID (IS)>&</p> <p><universal ID (ST)>&</p> <p><universal ID type (ID)></p> <p>(9) Name representation code (ID). See <i>HL7 Table 4000 - Name/address representation</i> for valid values.</p>	See CK (1-3) for XON components (3-5).
2.8.51	XPN - extended person name	<p>Components:</p> <p><family name (ST)>&<last name prefix (ST)>^</p> <p><given name (ST)>^</p> <p><middle initial or name (ST)>^</p> <p><suffix (e.g., Jr. or III) (ST)>^</p> <p><prefix (e.g., Dr.) (ST)>^</p> <p><degree (e.g., MD) (IS)>^</p> <p><name type code (ID)>^</p>	

HL7 Section Ref	Data Type	Description	Notes
		<p><name representation code (ID)></p> <p>Components are defined as follows:</p> <p>(1-6) These components are defined as in the PN data type.</p> <p>(7) Name type code (ID). A code that represents the type of name. Refer to <i>HL7-defined Table 0200 - Name type</i> for valid values.</p> <p>(8) Name representation code (ID). Refer to <i>HL7-defined Table 4000 - Name/address representation</i> for valid values.</p>	
2.8.52	XTN - extended telecommunication number	<p>Format and Components:</p> <p>[NNN] [(999)]999-9999[X99999][B99999][C any text]^</p> <p><telecommunication use code (ID)>^</p> <p><telecommunication equipment type (ID)>^</p> <p><email address (ST)>^</p> <p><country code (NM)>^</p> <p><area/city code (NM)>^</p> <p><phone number (NM)>^</p> <p><extension (NM)>^</p> <p><any text (ST)></p> <p>(1) [NNN] [(999)]999-9999[X99999][B99999][C any text]</p> <p>Defined as the TN data type, except that the length of the country access code has been increased to three.</p> <p>For codes, refer to <i>HL7-defined Table 0201 - Telecommunication use code</i> and <i>HL7-defined Table 0202 - Telecommunication equipment type</i>.</p>	<p>Note: To interoperate with CEN's Telecommunication data attribute group, HL7 allows use of the second component for email addresses. When used for an Internet address, the first component will be null; the second component will have the code NET, and the type of Internet address is specified with Internet or X.400 in the third component. When used for an Internet address, the first component of the XTN data type will be null. If the @-sign is being used as a subcomponent delimiter, the HL7 subcomponent escape sequence may be used (See Section 2.9 of the HL7 Standard).</p>