



# HL7 Batch VXU Transfer Specification

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## **Revision History**

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1.2	10/1/2007	H. Redfield	Appendix B: Add HPV vaccine. Update CVX and description for Rotavirus vaccine. Appendix E: Update URL for explanation of LA2 HL7 data type.
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## ***HL7 Batch VXU Transfer Specification***

### ***Introduction***

The Texas Immunization Registry (ImmTrac) has been enhanced to accept batch files of Health Level Seven (HL7) Version 2.3.1 formatted VXU^V04 Messages (Unsolicited Vaccination Updates) from health care providers and insurance companies, health maintenance organizations, as well as any other organization that pays health care providers that administer immunizations to Texas children younger than 18 years of age. 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 and payors already store and process similar data in their own electronic information systems. ImmTrac's HL7 Batch VXU interface was designed to allow those providers and payors to keep using their own systems while also submitting data to ImmTrac as required by law.

### ***Scope of This Document***

The ANSI HL7 standard is used for data exchange by various entities in the health care 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.

### ***The HL7 Standard for Immunization Data Exchange***

ImmTrac supports the Centers for Disease Control's National Immunization Program (NIP) goal of keeping the use of HL7 for immunization data as uniform as possible. For this reason, the ImmTrac specifications are based on the NIP's *Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the Health Level Seven (HL7) Standard Protocol*, published as version 2.2 in June 2006, available online at:

<http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7guide.pdf>

Additional information regarding HL7 is available online at:

<http://www.hl7.org>

The CDC has worked with HL7 developers to create a set of messages that permit exchange of client and immunization data. 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 several segments, each of which is one line of text, beginning with a three-letter code identifying the segment type.
- Segments are in turn made up of several fields representing discreet data elements separated by the delimiter character, "|", and terminated by a carriage return.

***Example 1: Basic VXU Message***

```
MSH|^~\&|My-EMR|Metro Clinic|TxImmTrac|TxDSHS|20060817220122||VXU^V04|MC6643|P|2.4|
PID||||Green^Susan^Q|Redfield|20040908|F||||123 Main St^^Austin^TX^78888^US^^TX453|
RXA|0|999|20060903|20060903|20^DTaP^CVX|999|
```

Although the above example is very basic, it shows the essentials of an HL7 message. In this case, an HL7 message is being sent by My-EMR on behalf of the Metro Clinic for the purpose of updating a child's immunization history in ImmTrac. The message consists of three segments:

1. The Message Header segment (MSH) identifies the entity authorized to submit information to ImmTrac as Metro Clinic, and the receiver as TxImmTrac. It also identifies the message as being of type VXU, just one of the message types defined by HL7. The VXU represents an Unsolicited Vaccination Record Update and 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 Pharmacy Administration segment (RXA) tells that a DTaP vaccine, with CVX code 20, was administered on September 3, 2006 (20060903, in *yyyymmdd* format).

In *Example 1* above, the message could have included additional RXA segments to record more immunizations, as well as other optional fields and segments.

***Batch Submission of 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 batch files when transmitting many HL7-formatted Unsolicited Vaccination Update (VXU) messages together. This allows ImmTrac to process large

numbers of immunization updates outside of our busiest production hours in order to minimize the impact on performance for our online users.

The tables in subsequent sections describe the segments that are used to construct each VXU message type, as well as the File Header and Footer, and Batch Header and Footer segments.

## ***HL7 Segment Definitions***

Each HL7 segment consists of several fields that are separated by "|", which is the field separator character. 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:

<b>Sequence</b>	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.
<b>Element Name</b>	The HL7 name for the field.
<b>Data Type</b>	HL7 data type of the field. See <i>Appendix E</i> for the definition of HL7 data types.
<b>Required</b>	HL7 means required by HL7, and ImmTrac means required by ImmTrac. Blank indicates an optional field.
<b>Repeat #</b>	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.
<b>Len</b>	Maximum length of the field for ImmTrac.
<b>Table #</b>	Number of the HL7, NIP or ImmTrac-defined table defining valid values for the field. See <i>Appendix A</i> .

Each segment must be terminated by a carriage return. This carriage return is needed so that the HL7 messages are readable and printable, although the messages may appear somewhat cryptic due to the scarcity of white space.

## ***HL7 Data Types***

Each field has an HL7 data type. *Appendix E* 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.

## ***HL7 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, “\”.

### **Example 2: HL7 Segment and Field Syntax**

```
MSH|^~\&| .....  
XXX|field1|component1^component2^subcomponent3.1&subcomponent3.2^component4| .....  
YYY|repetition1~repetition2| .....  
ZZZ|data includes escaped \|\~ special characters| .....
```

In *Example 2* above, the Message Header segment uses the field separator, “|”, immediately after the 3-letter segment ID, “MSH”, that identifies the segment. This establishes what character serves as the field separator throughout the message. The next field, the encoding characters, establishes the other separator characters. They are, in order:

- the component separator character “^”
- the repetition character “~”
- the escape character “\”
- the sub-component separator character “&” that will apply throughout the message.

The hypothetical “XXX” segment includes field1 with no internal structure, but the next field has several components separated by “^”, and the third of these is made up of two sub-components separated by “&”.

The hypothetical “YYY” segment's first field permits repetition, in this example the two values “repetition1” and “repetition2”.

The hypothetical “ZZZ” segment's field has a text value that includes the characters “|” and “~”, and these are escaped with the backslash character “\” to prevent their normal structural interpretation.

Sub-components, repetition and text values requiring the escape character will be rare in data being sent to ImmTrac. Components within fields are common, since names and addresses are represented this way. Although HL7 permits the use of other delimiters besides those recommended, ImmTrac requires that the recommended delimiter characters be used.

## ***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 C* for a Segment Field to Table Identifier cross reference sorted by Segment Field, and *Appendix D* for the same information sorted by Table Identifier.



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>”.

### **MSH: Message Header Segment Definition**

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.

<b>Seq</b>	<b>MSH Element Name</b>	<b>Data Type</b>	<b>Required</b>	<b>Repeat #</b>	<b>Len</b>	<b>Table #</b>
1	Field Separator	ST	HL7		1	
2	Encoding Characters	ST	HL7		4	
3	Sending Application	HD			180	
4	Sending Facility	HD	ImmTrac		180	
5	Receiving Application	HD	ImmTrac		180	
6	Receiving Facility	HD			180	
7	Date/Time of Message	TS	ImmTrac		26	
9	Message Type	CM	HL7		7	0076,0003
10	Message Control ID	ST	HL7		20	
11	Processing ID	PT	HL7		3	0103
12	Version ID	VID	HL7		60	0104
15	Accept Acknowledgement Type	ID			2	0155

#### **Example:**

```
MSH|^~\&|My-EMR|MetroAUS|TxImmTrac|TxDSHS|20060817220122||VXU^V04|
MC6643|P|2.4|<CR>
```

#### **Field Notes:**

##### **MSH-1: Field Separator (required by HL7)**

Contains the separator character 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 (required by HL7)**

Contains the component separator, repetition separator, escape character, and sub-component separator, respectively, that will be in effect for the rest of this message. ImmTrac requires the HL7 recommended value of “^~\&”, (ASCII 94, 126, 92 and 38 respectively).

##### **MSH-3: Sending Application**

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 (required by ImmTrac)**

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 (required by ImmTrac)**

Identifies the receiving application, always “TxImmTrac”.

**MSH-6: Receiving Facility**

Identifies the message receiver, always “TxDSHS”, for Texas Department of State Health Services). This field is optional.

**MSH-7: Date/Time of Message (required by ImmTrac)**

Date and time the message was created by the sending application.

**MSH-9: Message Type (required by HL7)**

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 (required by HL7)**

The message control ID is an identifier assigned by the sending application that uniquely identifies a message among all those ever sent by the sending application.

**MSH-11: Processing ID (required by HL7)**

Used to indicate how to process the message (*see Table 0103*). ImmTrac requires the value “P” for production processing.

**MSH-12: Version ID (required by HL7)**

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*). For example, use a value of “2.3.1” to indicate HL7 Version 2.3.1 or “2.4” to indicate HL7 Version 2.4.

**MSH-15: Accept Acknowledgement Type**

This field 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.

**PID: Patient Identification Segment Definition**

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

Seq	PID Element Name	Data Type	Required	Repeat #	Len	Table #
3	Patient Identifier List	CX	HL7	Y	20*	0203
5	Patient Name	XPN	HL7		48	0200
6	Mother's Maiden Name	XPN			48	0200
7	Date/Time of Birth	TS	ImmTrac		26	
8	Sex	IS	ImmTrac		1	0001
10	Race	CE			80	0005
11	Patient Address	XAD		1	106	0190, 0212, 0289
13	Phone Number	XTN			40	0201
22	Ethnic Group	CE			80	0189
24	Multiple Birth Indicator	ID			1	0136

\*Each identifier

**Example:**

```
PID||444^^^PI~988776655^^^MA~111225555^^^SS||
  Green^Susan^Q|Redfield|20040908|F||2106-3^White^HL70005|
  123 Main St.^Apt. 223^Austin^TX^78888-2345^US^P^TX453
  ~^^TX^^US^BDL||
  ^PRN^^^512^7542270^^|H^Hispanic or Latino^HL70189||Y<CR>
```

**Field Notes:**

**PID-3: Patient Identifier List (required by HL7)**

Contains one or more identifiers used to uniquely identify the patient (e.g. medical record number, patient identifier, Medicaid number, SSN, etc.). Sub-components 1 (ID) and 5 (identifier type code) are required in the PID-3 field. An identifier type code of “PI” or “MR” should be used when specifying the unique identifier assigned to the patient by the submitting entity (see Table 0203).

**Note: For patient matching, ImmTrac strongly encourages the submitter to include the Medicaid number and SSN (without hyphens) whenever possible.**

*PID-3 example:*

|444^^^PI~988776655^^^MA~111225555^^^SS|

where: Submitter's patient identifier = 444

Medicaid number = 988776655

SSN = 111225555

**PID-5: Patient Name (required by HL7)**

Contains the legal name of the patient. See the XPN data type. The patient's last and first names are required in the first two components, respectively. If the name type code component is included, it should be valued "L" for Legal (*see Table 0200*).

**Note: ImmTrac cannot match patients with placeholder first names such as *Infant, Baby, Girl, Boy, etc.*, and does not support repetition of this field.**

**PID-6: Mother's Maiden Name**

Contains the family name under which the mother was born (i.e., before marriage). See the XPN data type. If the name type code component is included, it should be valued "M" for Maiden Name (*see Table 0200*). ImmTrac will only use the family name component from this field, extracting the mother's first name from the NK1 segment. ImmTrac does not support repetition of this field.

Note: ImmTrac encourages the inclusion of this field to help distinguish between patients with the same names and dates of birth.

**PID-7: Date of Birth (required by ImmTrac)**

Contains the patient's year, month and day of birth in the format YYYYMMDD. ImmTrac ignores any time component.

**PID-8: Sex (required by ImmTrac)**

Contains a code indicating the patient's sex (*see Table 0001*). ImmTrac requires that the sex be either "M" or "F".

**PID-10: Race**

Contains a code indicating the patient's race (*see Table 0005*). 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**

The first repetition of this field contains the residence or primary mailing address for the patient. 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". The county code

component 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. The second repetition of this field should be used to report the patient’s birth state and country, specifying an address type of “BDL” (*see Table 0190*). ImmTrac will only retain the birth state and country from this repetition.

*PID-11 example:*

```
|123 Main St.^Apt. 223^Austin^TX^78888-2345^US^P^^TX453|
```

where: Street address = 123 Main St.  
Other designator = Apt. 223  
City = Austin  
State = TX  
Zip code = 78888-2345  
Country code = US  
Address type code = P (permanent)  
County code = TX453

### **PID-13: Phone Number**

Contains the patient’s home 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 6<sup>th</sup> and 7<sup>th</sup> components for the area code and phone number respectively. This is the preferred specification (*see PID-13 example 1 below*).

If “PRN” is not specified in component 2, ImmTrac will assume the phone number is formatted as follows in component 1 (*see PID-13 example 2 below*):

```
[NNN][[(999)]999-9999[X99999][B99999][C any text].
```

ImmTrac does not support repetition of this field.

*PID-13 example 1 (preferred):*

```
|^PRN^^^512^5551234^^|
```

where: Telecommunication use code = PRN  
Area code = 512  
Phone number = 5551234

*PID-13 example 2:*

| (512)555-1234 |

where: Area code = (512)

Phone number = 555-1234

**PID-22: Ethnicity Group**

Can be used to further define the patient's ancestry as Hispanic (*see Table 0189*). ImmTrac does not support repetition of this field.

**PID-24: Multiple Birth Indicator**

Indicates whether the patient was part of a multiple birth (*see Table 0136*). Use "Y" to indicate that the patient was part of a multiple birth, otherwise this field can be omitted.

### **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.

<b>Seq</b>	<b>NK1 Element Name</b>	<b>Data Type</b>	<b>Required</b>	<b>Repeat #</b>	<b>Len</b>	<b>Table #</b>
1	Set ID – NK1	SI	HL7		4	
2	Name	XP	ImmTrac		48	0200
3	Relationship	CE	ImmTrac		60	0063
16	Date/Time of Birth	TS			26	

#### **Example:**

```
NK1|1|Green^Helen^Denise|MTH^Mother^HL70063|||||||||19700101|<CR>  
NK1|2|Green^Mark^Alan|FTH^Father^HL70063|<CR>
```

#### **Field Notes:**

##### **NK1-1: Set ID – NK1 (required by HL7)**

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 (required by ImmTrac)**

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 (required by ImmTrac)**

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**

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.

**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.

Seq	PV1 Element Name	Data Type	Required	Repeat #	Len	Table #
2	Patient Class	IS	HL7		1	0004
20	Financial Class	FC			50	0064

**Example:**

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

**Field Notes:**

**PV1-2: Patient Class (required by HL7)**

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.

**PV1-20: Financial Class**

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.

**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.

Seq	RXA Element Name	Data Type	Required	Repeat #	Len	Table #
1	Give Sub-ID Counter	NM	HL7		4	
2	Administration Sub-ID Counter	NM	HL7		4	
3	Date/Time Start of Administration	TS	HL7		26	
4	Date/Time End of Administration	TS	HL7		26	
5	Administered Code	CE	HL7		100	0292, 0396
6	Administered Amount	NM	HL7		20	
9	Administration Notes	CE			200	NIP001
10	Administering Provider	XCN			200	0200, 0203, 0360
11	Administered-at location	LA2			200	0212
15	Substance Lot Number	ST			20	
17	Substance Manufacturer Name	CE			60	0227, 0396

**Example:**

```
RXA|0|999|20060817091022|20060817091022|20^DTaP^CVX^90700^DTaP^C4|999|||
  00^New Immunization Record^NIP001|
  SMI001^Smith^John^G.^Jr.^Dr.^MD^^^^^OEI|
  ^^Metro Clinic^^^^321 Medical Dr.^Suite 325^Austin^TX^78756^US|||
  X-1234||MSD^MERCK^MVX|<CR>
RXA|0|999|20040908|20040908|08^HepB^CVX^90744^HepB^C4|999|||
  01^Historical information^NIP001|<CR>
```

**Field Notes:**

**RXA-1: Give Sub-ID Counter (required by HL7)**

The NIP’s guidelines recommend that this field’s value should always be zero. Not used by ImmTrac.

**RXA-2: Administration Sub-ID Counter (required by HL7)**

The NIP’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 (required by HL7)**

Contains the date the vaccine was administered. ImmTrac ignores any time component.

**RXA-4: Date/Time End of Administration (required by HL7)**

Contains the date the vaccine was administered. ImmTrac ignores any time component.

**RXA-5: Administered Code (required by HL7)**

Identifies the vaccine administered. ImmTrac only accepts CVX and CPT codes to identify the vaccine. If submitting the CVX code (*see Table 0292*), specify the CVX code in the first component and “CVX” in the third component (*see Table 0396*). If submitting the CPT code, specify the CPT code in the fourth component, and “C4” in the sixth component (*see Table 0396*), for example:

<i>Submitting only the CVX code:</i>	20^DTaP^CVX
<i>Submitting only the CPT code:</i>	^^90700^DTaP^C4
<i>Submitting CVX and CPT codes:</i>	20^DTaP^CVX^90700^DTaP^C4

ImmTrac will retain only the CPT code if both are submitted.

**RXA-6: Administered Amount (required by HL7)**

The NIP’s guidelines recommend that this field’s value should be “999” for registries that do not collect the administered amount. Not used by ImmTrac.

**RXA-9: Administration Notes**

ImmTrac is following the NIP’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 NIP001*). Any other value will be interpreted as meaning the immunization is historical. For example:

<i>New immunization:</i>	00^New Immunization Record^NIP001
<i>Historical immunization:</i>	01^Historical Information^NIP001

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.

ImmTrac does not support repetition of this field.

**RXA-10: Administering Provider**

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.

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 “OEI” as the identifier type code in component 13 to indicate the person being described is the “orderer” (*see Table 0203*). ImmTrac will store the “orderer” information with the immunization.

*RXA-10 example 1:*

Dr. Smith is a provider at the Metro Clinic, and ordered an immunization for our patient. Nurse Elaine White administered the immunization and clerk J. Kelly recorded the immunization in Metro Clinic’s EMR system. The RXA-10 field could look like this:

```
|SMI001^Smith^John^G.^Jr.^Dr.^MD^^^^^OEI|
```

where: Metro Clinic’s ID for Dr. Smith = SMI001  
Dr. Smith’s full name = Dr. John G. Smith Jr., MD

*RXA-10 example 2:*

Dr. Jones has his own practice, and is the only doctor. He ordered and administered the immunization being reported for our patient. The RXA-10 field could look like this:

```
|72980987^Jones^Robert^^^^MD^^^^^OEI|
```

where: Dr. Jones’ ID = 72980987  
Dr. Jones’ full name = Robert Jones, MD

Note that the ID number component cannot be blank even though Dr. Jones is the only doctor in his practice. ImmTrac requires this ID in order to associate Dr. Jones with the immunization he ordered.

ImmTrac does not support repetition of this field for the “vaccinator” and “recorder”.

**RXA-11: Administered-at Location**

Contains the name and address 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 name in component 4 of this field, and the address in components 9 through 14.

ImmTrac recommends use of the USPS format for recording street address, other designation (e.g. “Suite 325”), city, state and zip. See *Table 0212* for the two-character country code, if not “US”.

*RXA-11 example:*

```
|^^Metro Clinic^^^321 Medical Dr.^Suite 325^Austin^TX^78756^US|
```

where: Facility name = Metro Clinic  
Street address = 321 Medical Dr.  
Other designator = Suite 325  
City = Austin  
State = TX  
Zip code = 78756  
Country code = US

**RXA-15: Substance Lot Number**

Contains the manufacturer's lot number for the vaccine administered. ImmTrac does not support repetition of this field.

**RXA-17: Substance Manufacturer Name**

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*).

For example:

```
|AB^Abbott Laboratories^MVX|
```

ImmTrac does not support repetition of this field.

## **HL7 Batch File Structure**

HL7 provides special header and footer segments to structure batch files. These segments are not considered part of any message; instead they serve to bracket the VXU messages and provide information about the batch. A file of VXU messages submitted to ImmTrac will contain File Header and Footer segments, Batch Header and Footer segments, and VXU messages made up of multiple segments.

In the structure below, square brackets [ ] enclose optional segments and curly braces { } enclose segments that can be repeated. Although a VXU message could be composed of just MSH, PID and RXA segments, any number of NK1 and additional 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 follows.

```
FHS    (one File Header segment)
      {
        BHS    (one Batch Header segment)

              {one or more VXU messages, consisting of :
                MSH    (one Message Header segment )
                PID    (one Patient Identification segment)
                [{NK1}] (one or more optional Next of Kin segments)
                [PV1]  (one optional Patient Visit segment)
                {RXA}  (one or more Pharmacy/Treatment Admin segments)
              }

        BTS    (one Batch Trailer segment)
      }
FTS    (one File Trailer segment)
```

## **Batch Segments: Field Specifications and Usage**

The segment definitions above specify how to create VXU messages containing client and immunization data. Although each message can logically stand on it's own, HL7 provides special header and footer segments to structure files containing batches of VXU messages. These segments are not part of any message, but are used to bracket the VXU messages. ImmTrac

requires that submitters create batch files when transmitting many HL7-formatted Unsolicited Vaccination Update (VXU) messages together.

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: File Header Segment Definition**

The FHS segment is used to head a file. Although the NIP'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.

<b>Seq</b>	<b>FHS Element Name</b>	<b>Data Type</b>	<b>Required</b>	<b>Repeat #</b>	<b>Len</b>	<b>Table #</b>
1	File Field Separator	ST	HL7		1	
2	File Encoding Characters	ST	HL7		4	
3	File Sending Application	ST			15	
4	File Sending Facility	ST	ImmTrac		20	
5	File Receiving Application	ST	ImmTrac		15	
6	File Receiving Facility	ST			20	
7	File Creation Date/Time	TS	ImmTrac		26	
9	File Name/ID	ST	ImmTrac		20	
10	File Header Comment	ST			80	
11	File Control ID	ST	ImmTrac		20	
12	Reference File Control ID	ST			20	

### **Example:**

```
FHS|^~\&|My-EMR|MetroAUS|TxImmTrac|TxDSHS|20060817220122||  
MetroAUS.VXU.20060817a.hl7|Weekly VXU Transfer to ImmTrac|  
VXU20060817a||<CR>
```

### **Field Notes:**

#### **FHS-1: Field Separator (required by HL7)**

Same definition as the corresponding field in the MSH segment.

#### **FHS-2: Encoding Characters (required by HL7)**

Same definition as the corresponding field in the MSH segment.

#### **FHS-3: Sending Application**

Same definition as the corresponding field in the MSH segment.

**FHS-4: Sending Facility (required by ImmTrac)**

Identifies the 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.

**FHS-5: Receiving Application (required by ImmTrac)**

Identifies the receiving application, in this case TxImmTrac.

**FHS-6: Receiving Facility**

Same definition as the corresponding field in the MSH segment.

**FHS-7: File Creation Date/Time (required by ImmTrac)**

Date and time the file was created by the sending application.

**FHS-9: File Name/ID (required by ImmTrac)**

Name of the file as transmitted from the sending application. ImmTrac requires that all batch files of VXU messages follow a specific naming convention:

*Sending Facility Identifier.VXU.File Control ID.hl7*

See FHS-4 for a definition of the Sending Facility Identifier, and FHS-11 for a definition of the File Control ID.

**FHS-10: File Header Comment**

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

**FHS-11: File Control ID (required by ImmTrac)**

Used to uniquely identify a particular file among all files sent from the sending facility identified in FHS-4.

**FHS-12: Reference File Control ID**

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.

**FTS: File Trailer Segment Definition**

The FTS segment defines the end of a file. Although the NIP’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.

<b>Seq</b>	<b>FTS Element Name</b>	<b>Data Type</b>	<b>Required</b>	<b>Repeat #</b>	<b>Len</b>	<b>Table #</b>
1	File Batch Count	NM			10	
2	File Trailer Comment	ST			80	

**Example:**

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

**Field Notes:**

**FTS-1: Field Batch Count**

The number of batches contained in this file. For ImmTrac, the value will always be “1”.

**FTS-2: File Trailer Comment**

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

### **BHS: Batch Header Segment Definition**

The BHS segment defines the start of a batch. Although the NIP'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.

<b>Seq</b>	<b>BHS Element Name</b>	<b>Data Type</b>	<b>Required</b>	<b>Repeat #</b>	<b>Len</b>	<b>Table #</b>
1	Batch Field Separator	ST	HL7		1	
2	Batch Encoding Characters	ST	HL7		4	
3	Batch Sending Application	ST			15	
4	Batch Sending Facility	ST	ImmTrac		20	
5	Batch Receiving Application	ST	ImmTrac		15	
6	Batch Receiving Facility	ST			20	
7	Batch Creation Date/Time	TS	ImmTrac		26	
10	Batch Header Comment	ST			80	
11	Batch Control ID	ST	ImmTrac		20	
12	Reference Batch Control ID	ST			20	

#### **Example:**

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

#### **Field Notes:**

##### **BHS-1: Field Separator (required by HL7)**

Same definition as the corresponding field in the MSH segment.

##### **BHS-2: Encoding Characters (required by HL7)**

Same definition as the corresponding field in the MSH segment.

##### **BHS-3: Sending Application**

Same definition as the corresponding field in the MSH segment.

##### **BHS-4: Sending Facility (required by ImmTrac)**

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.

**BHS-5: Receiving Application (required by ImmTrac)**

Identifies the receiving application, in this case TxImmTrac.

**BHS-6: Receiving Facility**

Same definition as the corresponding field in the MSH segment.

**BHS-7: Batch Creation Date/Time (required by ImmTrac)**

Date and time the batch was created by the sending application.

**BHS-10: Batch Header Comment**

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

**BHS-11: Batch Control ID (required by ImmTrac)**

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**

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.

**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.

<i>Seq</i>	<i>BTS Element Name</i>	<i>Data Type</i>	<i>Required</i>	<i>Repeat #</i>	<i>Len</i>	<i>Table #</i>
1	Batch Message Count	NM			10	
2	Batch Comment	ST			80	

**Example:**

BTS|3|<CR>

**Field Notes:**

**BTS-1: Batch Message Count**

The number of messages contained in this batch/file.

**FTS-2: Batch Comment**

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

## ***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:

*|field1|||field4*

- Represent data fields that are present but explicitly null by empty double quotes “”.
- 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 HL7 segment terminator (always 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. Processing every child's entire immunization history over and over from every submitter will quickly overwhelm our ability to process these files in a timely manner.

## Examples

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 Metro Clinic, located in Austin, Texas. There are several doctors on the Metro Clinic 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.

### Sample Patient Chart Data (Example 3)

**Patient #444:** Susan Q. Green

This patient received a DTaP during a visit to Dr. Smith at the Metro Clinic's Medical Drive 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 Metro 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 Metro 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 Metro 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 (*see Example 4 below*).

<b>Information to Send to ImmTrac</b>	<b>Data Values to be Sent to ImmTrac</b>	<b>Location in VXU Message</b>
<b>Client #1</b>		PID segment
• Chart Number (Patient's Metro Clinic ID)	444	PID-3
• SSN	111-22-5555	PID-3
• Medicaid Number	988776655	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



<b>Information to Send to ImmTrac</b>	<b>Data Values to be Sent to ImmTrac</b>	<b>Location in VXU Message</b>
<ul style="list-style-type: none"> <li>Address and FIPS county of residence</li> </ul>	123 Main St, Apt. 223 Austin, TX 78888-2345 Travis (TX453)	PID-11
<ul style="list-style-type: none"> <li>Phone Number of Parent or Guardian</li> </ul>	(512) 754-2270	PID-13
<ul style="list-style-type: none"> <li>Hispanic or Latino?</li> </ul>	Yes	PID-22
<ul style="list-style-type: none"> <li>Multiple Birth Indicator (was client born as part of a multiple birth?)</li> </ul>	Yes	PID-24
<ul style="list-style-type: none"> <li>Responsible person (parent or guardian who cares for client)</li> </ul>		NK1Segment
<ul style="list-style-type: none"> <li>Name</li> </ul>	Helen Denise Green	NK1-2
<ul style="list-style-type: none"> <li>Relationship to client</li> </ul>	Mother	NK1-3
<ul style="list-style-type: none"> <li>Date of Birth (if Mother)</li> </ul>	1/1/1970	NK1-16
<ul style="list-style-type: none"> <li>Other Responsible Person</li> </ul>		NK1 Segment
<ul style="list-style-type: none"> <li>Name</li> </ul>	Mark Alan Green	NK1-2
<ul style="list-style-type: none"> <li>Relationship to client</li> </ul>	Father	NK1-3
<ul style="list-style-type: none"> <li>Date of Birth (if Mother)</li> </ul>		Omitted
<ul style="list-style-type: none"> <li>Vaccines For Children (VFC)</li> </ul>		PV1 Segment
<ul style="list-style-type: none"> <li>Current Status</li> </ul>	VFC Eligible – Medicaid	PV1-20
<ul style="list-style-type: none"> <li>Effective Date</li> </ul>	8/17/2006	PV1-20
<ul style="list-style-type: none"> <li>Immunization</li> </ul>		RXA segment
<ul style="list-style-type: none"> <li>Date Administered</li> </ul>	8/17/2006	RXA-3, RXA-4
<ul style="list-style-type: none"> <li>Vaccine</li> </ul>	DTaP	RXA-5
<ul style="list-style-type: none"> <li>CPT Code</li> </ul>	90700	RXA-5
<ul style="list-style-type: none"> <li>Administered at Metro Clinic?</li> </ul>	Y	RXA-9
<ul style="list-style-type: none"> <li>Lot # &amp; Manufacturer</li> </ul>	X-1234 Merck	RXA-15, RXA-17
<ul style="list-style-type: none"> <li>Ordering Provider (Name and Metro Clinic ID)</li> </ul>	Dr. John G. Smith Jr., MD SMI001	RXA-10
<ul style="list-style-type: none"> <li>Administering Location</li> </ul>	Metro Clinic 321 Medical Dr. Suite 325 Austin, TX 78756	RXA-11
<ul style="list-style-type: none"> <li>Immunization</li> </ul>		RXA segment
<ul style="list-style-type: none"> <li>Date Administered</li> </ul>	9/8/2004	RXA-3, RXA-4
<ul style="list-style-type: none"> <li>Vaccine</li> </ul>	HepB	RXA-5
<ul style="list-style-type: none"> <li>CPT Code</li> </ul>	90744	RXA-5
<ul style="list-style-type: none"> <li>Administered at Metro Clinic?</li> </ul>	N	RXA-9
<ul style="list-style-type: none"> <li>Ordering Provider (Name and Metro Clinic ID)</li> </ul>	Unknown	Omitted
<ul style="list-style-type: none"> <li>Administering Location</li> </ul>	Unknown	Omitted
<b>Client #2</b>		PID segment
<ul style="list-style-type: none"> <li>Chart Number (Patient's Metro Clinic ID)</li> </ul>	537	PID-3

<b>Information to Send to ImmTrac</b>	<b>Data Values to be Sent to ImmTrac</b>	<b>Location in VXU Message</b>
• SSN	888-44-6666	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 Travis (TX453)	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)		NK1 Segment
• Name	Cynthia Lee	NK1-2
• Relationship to client	Mother	NK1-3
• Date of Birth (if Mother)	2/1/1980	NK1-16
• Vaccines For Children (VFC)		PV1 Segment
• Current Status	Not Eligible	PV1-20
• Effective Date	8/17/2006	PV1-20
• Immunization		RXA segment
• Date Administered	8/4/2006	RXA-3, RXA-4
• Vaccine	HepB	RXA-5
• CPT Code	90744	RXA-5
• Administered at Metro Clinic?	No	RXA-9
• Ordering Provider (Name and Metro Clinic ID)	Unknown	Omitted
• Administering Location	St. Jude's Hospital	Omitted
<b>Client #3</b>		PID segment
• Chart Number (Patient's Metro Clinic ID)	727	PID-3
• SSN	343-56-7788	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

<b>Information to Send to ImmTrac</b>	<b>Data Values to be Sent to ImmTrac</b>	<b>Location in VXU Message</b>
<ul style="list-style-type: none"> <li>Address and FIPS county of residence</li> </ul>	309 Del Mar Blvd. Austin, TX 78757 Travis (TX453)	PID-11
<ul style="list-style-type: none"> <li>Phone Number of Parent or Guardian</li> </ul>	(512) 785-2233	PID-13
<ul style="list-style-type: none"> <li>Hispanic or Latino?</li> </ul>	No	Omitted
<ul style="list-style-type: none"> <li>Multiple Birth Indicator (was client born as part of a multiple birth?)</li> </ul>	No	Omitted
<ul style="list-style-type: none"> <li>Responsible person (parent or guardian who cares for client)</li> </ul>		NK1 Segment
<ul style="list-style-type: none"> <li>Name</li> </ul>	Brenda Phillips	NK1-2
<ul style="list-style-type: none"> <li>Relationship to client</li> </ul>	Mother	NK1-3
<ul style="list-style-type: none"> <li>Date of Birth (if Mother)</li> </ul>	3/1/1985	NK1-16
<ul style="list-style-type: none"> <li>Vaccines For Children (VFC)</li> </ul>		PV1 Segment
<ul style="list-style-type: none"> <li>Current Status</li> </ul>	VFC Eligible – Medicaid	PV1-20
<ul style="list-style-type: none"> <li>Effective Date</li> </ul>	8/12/2006	PV1-20
<ul style="list-style-type: none"> <li>Immunization</li> </ul>		RXA segment
<ul style="list-style-type: none"> <li>Date Administered</li> </ul>	8/10/2006	RXA-3, RXA-4
<ul style="list-style-type: none"> <li>Vaccine</li> </ul>	MMR	RXA-5
<ul style="list-style-type: none"> <li>CPT Code</li> </ul>	90707	RXA-5
<ul style="list-style-type: none"> <li>Administered at Metro Clinic?</li> </ul>	Y	RXA-9
<ul style="list-style-type: none"> <li>Lot # &amp; Manufacturer</li> </ul>	AB123 Merck	RXA-15, RXA-17
<ul style="list-style-type: none"> <li>Ordering Provider (Name and Metro Clinic ID)</li> </ul>	Dr. Emma R. Thomas, MD THO234	RXA-10
<ul style="list-style-type: none"> <li>Administering Location</li> </ul>	Metro Clinic 321 Medical Dr. Suite 325 Austin, TX 78756	RXA-11

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

ImmTrac has requested that Metro Clinic send client and immunization information to the state registry to help ensure that their patients' ImmTrac immunization records are kept up-to-date. Metro Clinic has registered its sending facility identifier "MetroAUS" with ImmTrac.

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|MetroAUS|TxImmTrac|TxDSHS|20060817220122||
MetroAUS.VXU.20060817a.hl7|Weekly VXU Transfer to ImmTrac|
20060817a||<CR>
BHS|^~\&|My-EMR|MetroAUS|TxImmTrac|TxDSHS|20060817220122||||
B1-200608||<CR>
MSH|^~\&|My-EMR|MetroAUS|TxImmTrac|TxDSHS|20060817220122||VXU^V04|
MC6643|P|2.4||<CR>
PID|||444^^^PI~988776655^^^MA~111225555^^^SS||
Green^Susan^Q|Redfield|20040908|F||2106-3^White^HL70005|
123 Main St.^Apt. 223^Austin^TX^78888-2345^US^P^TX453||
^PRN^^^512^7542270^^|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|20060817091022|20060817091022|20^DTaP^CVX^90700^DTaP^C4|999||
00^New Immunization Record^NIP001|
SMI001^Smith^John^G.^Jr.^Dr.^MD^^^OEI|
^^Metro Clinic^^^321 Medical Dr.^Suite 325^Austin^TX^78756^US|||
X-1234||MSD^MERCCK^MVX|<CR>
RXA|0|999|20040908|20040908|08^HepB^CVX^90744^HepB^C4|999||
01^Historical information^NIP001|<CR>
MSH|^~\&|My-EMR|MetroAUS|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^TX453||
^PRN^^^512^4587294^^|<CR>
NK1|1|Lee^Cynthia|MTH^Mother^HL70063|||||||19800201|<CR>
PV1||R|||||||V01^20060817|<CR>
RXA|0|999|20060804|20060804|08^HepB^CVX^90744^HepB^C4|999||
01^Historical information^NIP001|<CR>
MSH|^~\&|My-EMR|MetroAUS|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>
NK1|1|Phillips^Brenda|MTH^Mother^HL70063|||||||19850301|<CR>
PV1||R|||||||V02^20060812|<CR>
RXA|0|999|20060810112544|20060810112544|03^MMR^CVX^90707^MMR^C4|999|||
00^New Immunization Record^NIP001|
THO234^Thomas^Emma^^Dr.^MD^^^OEI|
^^Metro Clinic^^^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 Metro Clinic, registered in ImmTrac as “MetroAUS”. It was created on 8/17/2006 with a unique file control id of “20060817a”, and is named “MetroAUS.VXU.20060817a.hl7” per ImmTrac’s HL7 batch file naming convention.

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”. Metro Clinic is reporting Susan’s personal identifiers (Metro 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 Metro 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., MD at the office on Medical 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”. Metro 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”. Metro Clinic is reporting that Abigail received an MMR immunization ordered by Dr. Emma Thomas, MD on 8/10/2006 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.

## Appendix A: 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. NIP-assigned values appearing in HL7 tables are italicized.

<i>Type</i>	<i>Table</i>	<i>Name</i>	<i>Value</i>	<i>Description</i>
HL7	0001	<b>Sex</b>		
	0001		F	Female
	0001		M	Male
	0001		O	Other
	0001		U	Unknown
HL7	0003	<b>Event Type</b>		
	0003		V01	VXQ – Query for vaccination record
	0003		V02	VXX – Response to vaccination query returning multiple PID matches.
	0003		V03	VXR – Vaccination record response
	0003		V04	VXU – Unsolicited vaccination record update
HL7	0004	<b>Patient class</b>		
	0004		E	Emergency
	0004		I	Inpatient
	0004		O	Outpatient
	0004		P	Preadmit
	0004		R	Recurring Patient
	0004		B	Obstetrics
HL7	0005	<b>Race</b>		
	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

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0005		2131-1	Other Race
	0005		Null	Unknown
HL7	0008	<b>Acknowledgment Code</b>		
	0008		AA	Application Accept
	0008		AE	Application Error
	0008		AR	Application Reject
User	0063	<b>Relationship</b>		
	0063		ASC	Associate
	0063		BRO	Brother
	0063		CGV	Care giver
	0063		CHD	Child
	0063		DEP	Handicapped dependent
	0063		DOM	Life partner
	0063		EMC	Emergency contact
	0063		EME	Employee
	0063		EMR	Employer
	0063		EXF	Extended family
	0063		FCH	Foster Child
	0063		FND	Friend
	0063		FTH	Father
	0063		GCH	Grandchild
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MGR	Manager
	0063		MTH	Mother
	0063		NCH	Natural child
	0063		NON	None
	0063		OAD	Other adult
	0063		OTH	Other
	0063		OWN	Owner
	0063		PAR	Parent



<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	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	<b>Financial class</b>		
	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
HL7	0076	<b>Message Type</b>		
	0076		ACK	General acknowledgment message
	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	<b>Processing ID</b>		
	0103		D	Debugging
	0103		P	Production
	0103		T	Training
HL7	0104	<b>Version ID</b>		
	0104		2.3.1	Release 2.3.1 1999

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0104		2.4	Release 2.4 2000
HL7	0136	<b>Yes/No Indicator</b>		
	0136		Y	Yes
	0136		N	No
	0136		U	<i>Unknown</i>
HL7	0155	<b>Accept/Application Acknowledgment Conditions</b>		
	0155		NE	Never
	0155		ER	Error/reject conditions only
HL7	0162	<b>Route of Administration</b>		
	0162		ID	Intradermal
	0162		IM	Intramuscular
	0162		IN	Intranasal
	0162		IV	Intravenous
	0162		PO	Oral
	0162		SC	Subcutaneous
	0162		TD	Transdermal
	0162		MP	Multiple Puncture (Small Pox)
HL7	0163	<b>Administrative Site</b>		
	0163		LT	Left Thigh
	0163		LA	Left Arm
	0163		LD	Left Deltoid
	0163		LG	Left Gluteus Medius
	0163		LVL	Left Vastus Lateralis
	0163		LLFA	Left Lower Forearm
	0163		RA	Right Arm
	0163		RT	Right Thigh
	0163		RVL	Right Vastus Lateralis
	0163		RG	Right Gluteus Medius
	0163		RD	Right Deltoid
	0163		RLFA	Right Lower Forearm

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
HL7	0189	<b>Ethnic Group</b>		
	0189		H	Hispanic or Latino
	0189		N	Not Hispanic or Latino
	0189		Null	Unknown
HL7	0190	<b>Address Type</b>		
	0190		C	Current or Temporary
	0190		P	Permanent
	0190		M	Mailing
	0190		B	Firm/Business
	0190		O	Office
	0190		H	Home
	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	<b>Name Type</b>		
	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	<b>Telecommunication Use Code</b>		
	0201		PRN	Primary Residence Number
	0201		ORN	Other Residence Number
	0201		WPN	Work Number

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0201		ASN	Answering Service Number
	0201		EMR	Emergency Number
	0201		NET	Network (email) Address
	0201		BPN	Beeper Number
HL7	0202	<b>Telecommunication Equipment Type</b>		
	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
	0202		X.400	X.400 email address: Use only if telecommunication use code is NET
HL7	0203	<b>Identifier Type</b>		
	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
User	0212	<b>Nationality</b>		
	0212		CA	Canada
	0212		MX	Mexico

Type	Table	Name	Value	Description
	0212		US	United States of America
HL7	0227	<b>Manufacturers of vaccines (coding system = MVX)</b>		As of 7/14/2006 – See <a href="http://www.cdc.gov/vaccines/programs/iis/stds/mvx.htm">http://www.cdc.gov/vaccines/programs/iis/stds/mvx.htm</a> for the most current values
	0227		AB	Abbott
	0227		AD	Adams
	0227		ALP	Alpha
	0227		AR	Armour [Inactive – use AVB]
	0227		AVB	Aventis Behring (Inactive – use ZLB)
	0227		AVI	Aviron
	0227		BA	Baxter ( <b>Inactive</b> – use BAH)
	0227		BAH	Baxter Health Care
	0227		BAY	Bayer
	0227		BP	Berna ( <b>Inactive</b> – use BPC)
	0227		BPC	Berna Products Corporation
	0227		CEN	Centeon L.L.C. ( <b>Inactive</b> – use AVB)
	0227		CHI	Chiron Corporation (Inactive – use NOV)
	0227		CMP	Celltech Medeva Pahn ( <b>Inactive</b> – use PWJ)
	0227		CNJ	Cangene Corporation
	0227		CON	Connaught ( <b>Inactive</b> – use PMC)
	0227		DVC	DynPort
	0227		EVN	Evans ( <b>Inactive</b> – use NOV)
	0227		GEO	GeoVax
	0227		GRE	Greer
	0227		IAG	Immuno International AG ( <b>Inactive</b> – use BAH)
	0227		IM	Merieux ( <b>Inactive</b> – Use PMC)
	0227		IUS	Immuno-US
	0227		JPN	The Research foundation for Microbial Diseases of Osaka U.
	0227		KGC	Korea Green Cross
	0227		LED	Lederle ( <b>Inactive</b> – use WAL)

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0227		MA	Massachusetts Public Health (Inactive-Use MBL)
	0227		MBL	Massachusetts Biologic Laboratories
	0227		MED	MedImmune
	0227		MIL	Miles ( <b>Inactive</b> – use BAY)
	0227		MIP	BioPort
	0227		MSD	Merck
	0227		NAB	North American Biologicals, Inc.
	0027		NAV	North American Vaccine ( <b>Inactive</b> – use BAH)
	0227		NOV	Novartis
			NVX	Novavax, Inc.
	0227		NYB	New York Blood Center
	0227		ORT	Ortho
	0227		OTC	Organon Teknika
	0227		PD	Parkdale Pharmaceuticals (formerly Parke Davis)
	0227		PMC	Sanofi Pasteur (formerly Aventis Pasteur, Pasteur Merieux Connaught; includes Connaught Laboratories and Pasteur Merieux)
	0227		PRX	Praxis Biologics ( <b>Inactive</b> – use WAL)
	0227		PWJ	Powderject Pharmaceutical ( <b>Inactive</b> – use NOVL)
	0227		SCL	Sclavo
	0227		SI	Swiss Serum and Vaccine Inst. ( <b>Inactive</b> – use BPC)
	0227		SKB	GlaxoSmithKline
	0227		SOL	Solvay
	0227		TAL	Talecris
	0227		USA	United States Army Medical Research
	0227		VXG	VaxGen
	0227		WA	Wyeth-Ayerst ( <b>Inactive</b> – use WAL)
	0227		WAL	Wyeth-Ayerst
	0227		ZLB	ZLB Behring
	0227		OTH	Other

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0227		UNK	Unknown manufacturer
User	0289	<b>County/parish (Texas only)</b>		
	0289		TX001	Anderson
	0289		TX003	Andrews
	0289		TX005	Angelina
	0289		TX007	Aransas
	0289		TX009	Archer
	0289		TX011	Armstrong
	0289		TX013	Atascosa
	0289		TX015	Austin
	0289		TX017	Bailey
	0289		TX019	Bandera
	0289		TX021	Bastrop
	0289		TX023	Baylor
	0289		TX025	Bee
	0289		TX027	Bell
	0289		TX029	Bexar
	0289		TX031	Blanco
	0289		TX033	Borden
	0289		TX035	Bosque
	0289		TX037	Bowie
	0289		TX039	Brazoria
	0289		TX041	Brazos
	0289		TX043	Brewster
	0289		TX045	Briscoe
	0289		TX047	Brooks
	0289		TX049	Brown
	0289		TX051	Burleson
	0289		TX053	Burnet
	0289		TX055	Caldwell
	0289		TX057	Calhoun

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0289		TX059	Callahan
	0289		TX061	Cameron
	0289		TX063	Camp
	0289		TX065	Carson
	0289		TX067	Cass
	0289		TX069	Castro
	0289		TX071	Chambers
	0289		TX073	Cherokee
	0289		TX075	Childress
	0289		TX077	Clay
	0289		TX079	Cochran
	0289		TX081	Coke
	0289		TX083	Coleman
	0289		TX085	Collin
	0289		TX087	Collingsworth
	0289		TX089	Colorado
	0289		TX091	Comal
	0289		TX093	Comanche
	0289		TX095	Concho
	0289		TX097	Cooke
	0289		TX099	Coryell
	0289		TX101	Cottle
	0289		TX103	Crane
	0289		TX105	Crockett
	0289		TX107	Crosby
	0289		TX109	Culberson
	0289		TX111	Dallam
	0289		TX113	Dallas
	0289		TX115	Dawson
	0289		TX117	Deaf Smith
	0289		TX119	Delta



<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0289		TX121	Denton
	0289		TX123	De Witt
	0289		TX125	Dickens
	0289		TX127	Dimmit
	0289		TX129	Donley
	0289		TX131	Duval
	0289		TX133	Eastland
	0289		TX135	Ector
	0289		TX137	Edwards
	0289		TX139	Ellis
	0289		TX141	El Paso
	0289		TX143	Erath
	0289		TX145	Falls
	0289		TX147	Fannin
	0289		TX149	Fayette
	0289		TX151	Fisher
	0289		TX153	Floyd
	0289		TX155	Foard
	0289		TX157	Fort Bend
	0289		TX159	Franklin
	0289		TX161	Freestone
	0289		TX163	Frio
	0289		TX165	Gaines
	0289		TX167	Galveston
	0289		TX169	Garza
	0289		TX171	Gillespie
	0289		TX173	Glasscock
	0289		TX175	Goliad
	0289		TX177	Gonzales
	0289		TX179	Gray
	0289		TX181	Grayson

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0289		TX183	Gregg
	0289		TX185	Grimes
	0289		TX187	Guadalupe
	0289		TX189	Hale
	0289		TX191	Hall
	0289		TX193	Hamilton
	0289		TX195	Hansford
	0289		TX197	Hardeman
	0289		TX199	Hardin
	0289		TX201	Harris
	0289		TX203	Harrison
	0289		TX205	Hartley
	0289		TX207	Haskell
	0289		TX209	Hays
	0289		TX211	Hemphill
	0289		TX213	Henderson
	0289		TX215	Hidalgo
	0289		TX217	Hill
	0289		TX219	Hockley
	0289		TX221	Hood
	0289		TX223	Hopkins
	0289		TX225	Houston
	0289		TX227	Howard
	0289		TX229	Hudspeth
	0289		TX231	Hunt
	0289		TX233	Hutchinson
	0289		TX235	Irion
	0289		TX237	Jack
	0289		TX239	Jackson
	0289		TX241	Jasper
	0289		TX243	Jeff Davis

<i>Type</i>	<i>Table</i>	<i>Name</i>	<i>Value</i>	<i>Description</i>
	0289		TX245	Jefferson
	0289		TX247	Jim Hogg
	0289		TX249	Jim Wells
	0289		TX251	Johnson
	0289		TX253	Jones
	0289		TX255	Karnes
	0289		TX257	Kaufman
	0289		TX259	Kendall
	0289		TX261	Kenedy
	0289		TX263	Kent
	0289		TX265	Kerr
	0289		TX267	Kimble
	0289		TX269	King
	0289		TX271	Kinney
	0289		TX273	Kleberg
	0289		TX275	Knox
	0289		TX277	Lamar
	0289		TX279	Lamb
	0289		TX281	Lampasas
	0289		TX283	La Salle
	0289		TX285	LaVaca
	0289		TX287	Lee
	0289		TX289	Leon
	0289		TX291	Liberty
	0289		TX293	Limestone
	0289		TX295	Lipscomb
	0289		TX297	Live Oak
	0289		TX299	Llano
	0289		TX301	Loving
	0289		TX303	Lubbock
	0289		TX305	Lynn

<i>Type</i>	<i>Table</i>	<i>Name</i>	<i>Value</i>	<i>Description</i>
	0289		TX307	McCulloch
	0289		TX309	McLennan
	0289		TX311	McMullen
	0289		TX313	Madison
	0289		TX315	Marion
	0289		TX317	Martin
	0289		TX319	Mason
	0289		TX321	Matagorda
	0289		TX323	Maverick
	0289		TX325	Medina
	0289		TX327	Menard
	0289		TX329	Midland
	0289		TX331	Milam
	0289		TX333	Mills
	0289		TX335	Mitchell
	0289		TX337	Montague
	0289		TX339	Montgomery
	0289		TX341	Moore
	0289		TX343	Morris
	0289		TX345	Motley
	0289		TX347	Nacogdoches
	0289		TX349	Navarro
	0289		TX351	Newton
	0289		TX353	Nolan
	0289		TX355	Nueces
	0289		TX357	Ochiltree
	0289		TX359	Oldham
	0289		TX361	Orange
	0289		TX363	Palo Pinto
	0289		TX365	Panola
	0289		TX367	Parker

<i>Type</i>	<i>Table</i>	<i>Name</i>	<i>Value</i>	<i>Description</i>
	0289		TX369	Parmer
	0289		TX371	Pecos
	0289		TX373	Polk
	0289		TX375	Potter
	0289		TX377	Presidio
	0289		TX379	Rains
	0289		TX381	Randall
	0289		TX383	Reagan
	0289		TX385	Real
	0289		TX387	Red River
	0289		TX389	Reeves
	0289		TX391	Refugio
	0289		TX393	Roberts
	0289		TX395	Robertson
	0289		TX397	Rockwall
	0289		TX399	Runnels
	0289		TX401	Rusk
	0289		TX403	Sabine
	0289		TX405	San Augustine
	0289		TX407	San Jacinto
	0289		TX409	San Patricio
	0289		TX411	San Saba
	0289		TX413	Schleicher
	0289		TX415	Scurry
	0289		TX417	Shackelford
	0289		TX419	Shelby
	0289		TX421	Sherman
	0289		TX423	Smith
	0289		TX425	Somervell
	0289		TX427	Starr
	0289		TX429	Stephens

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0289		TX431	Sterling
	0289		TX433	Stonewall
	0289		TX435	Sutton
	0289		TX437	Swisher
	0289		TX439	Tarrant
	0289		TX441	Taylor
	0289		TX443	Terrell
	0289		TX445	Terry
	0289		TX447	Throckmorton
	0289		TX449	Titus
	0289		TX451	Tom Green
	0289		TX453	Travis
	0289		TX455	Trinity
	0289		TX457	Tyler
	0289		TX459	Upshur
	0289		TX461	Upton
	0289		TX463	Uvalde
	0289		TX465	Val Verde
	0289		TX467	Van Zandt
	0289		TX469	Victoria
	0289		TX471	Walker
	0289		TX473	Waller
	0289		TX475	Ward
	0289		TX477	Washington
	0289		TX479	Webb
	0289		TX481	Wharton
	0289		TX483	Wheeler
	0289		TX485	Wichita
	0289		TX487	Wilbarger
	0289		TX489	Willacy
	0289		TX491	Williamson

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0289		TX493	Wilson
	0289		TX495	Winkler
	0289		TX497	Wise
	0289		TX499	Wood
	0289		TX501	Yoakum
	0289		TX503	Young
	0289		TX505	Zapata
	0289		TX507	Zavala
HL7	0292	<b>Codes for Vaccines Administered</b>		<b>See Appendix B: I-CPT Codes and CVX Codes</b>
User	0360	<b>Degree</b>	<i>PN</i>	<i>Advanced Practice Nurse</i>
	0360		<i>BSN</i>	<i>Bachelor of Science in Nursing</i>
	0360		<i>CMA</i>	<i>Certified Medical Assistant</i>
	0360		<i>CNP</i>	<i>Certified Nurse Practitioner</i>
	0360		<i>CNM</i>	<i>Certified Nurse Midwife</i>
	0360		<i>CRN</i>	<i>Certified Registered Nurse</i>
	0360		<i>CNS</i>	<i>Certified Nurse Specialist</i>
	0360		<i>CPNP</i>	<i>Certified Pediatric Nurse Practitioner</i>
	0360		<i>MD</i>	<i>Doctor of Medicine</i>
	0360		<i>DO</i>	<i>Doctor of Osteopathy</i>
	0360		<i>EMT</i>	<i>Emergency Medical Technician</i>
	0360		<i>EMT-P</i>	<i>Emergency Medical Technician – Paramedic</i>
	0360		<i>FPNP</i>	<i>Family Practice Nurse Practitioner</i>
	0360		<i>LPN</i>	<i>Licensed Practical Nurse</i>
	0360		<i>MPH</i>	<i>Master of Public Health</i>
	0360		<i>MSN</i>	<i>Master of Science – Nursing</i>
	0360		<i>MDA</i>	<i>Medical Assistant</i>
	0360		<i>MT</i>	<i>Medical Technician</i>
	0360		<i>NP</i>	<i>Nurse Practitioner</i>
	0360		<i>PharmD</i>	<i>Doctor of Pharmacy</i>
	0360		<i>PA</i>	<i>Physician Assistant</i>

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	0360		PHN	Public Health Nurse
	0360		RMA	Registered Medical Assistant
	0360		RN	Registered Nurse
	0360		RPH	Registered Pharmacist
HL7	0396	<b>Coding System</b>		
	0396		999zzz or L	Local general code (where z is an alphanumeric character)
	0396		C4	CPT-4
	0396		C5	CPT-5
	0396		CVX	CDC vaccine codes
	0396		HL7nnnn	HL7-defined codes where nnnn is the HL7 table number
	0396		MVX	CDC vaccine manufacturer codes
	0396		NPI	National Provider Identifier
NIP	NIP001	<b>Immunization Information Source</b>		
	NIP001		00	New Immunization Record
	NIP001		01	Historical Information – source unspecified
	NIP001		02	Historical Information – from other provider
	NIP001		03	Historical Information – from parent's written record
	NIP001		04	Historical Information – from parent's recall
	NIP001		05	Historical Information – from other registry
	NIP001		06	Historical Information – from birth certificate
	NIP001		07	Historical Information – from school record
	NIP001		08	Historical Information – from public agency
NIP	NIP004	<b>Contraindications, Precautions and Immunities</b>		
	NIP004		03	Allergy to baker's yeast (anaphylactic)
	NIP004		04	Allergy to egg ingestion (anaphylactic)
	NIP004		05	Allergy to gelatin (anaphylactic)
	NIP004		06	Allergy to neomycin (anaphylactic)



<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	NIP004		07	Allergy to streptomycin (anaphylactic)
	NIP004		08	Allergy to thimerosal (anaphylactic)
	NIP004		10	Anaphylactic (life-threatening) reaction of previous doses of this vaccine
	NIP004		11	Collapse or shock like state within 48 hours of previous dose of DTP/DTaP
	NIP004		12	Convulsions (fits, seizures) within 3 days of previous dose of DTP/DTaP
	NIP004		13	Persistent, inconsolable crying lasting 3 hours within 48 hours of previous dose of DTP/DTaP
	NIP004		14	Current diarrhea, moderate to severe
	NIP004		15	Encephalopathy within 7 days of previous dose of DTP
	NIP004		16	Current fever with moderate-to-severe illness
	NIP004		17	Fever of 40.5 C (105 F) within 48 hours of previous dose of DTP/DTaP
	NIP004		18	Gullain-Barre syndrome (GBS) within 6 weeks of previous dose of DTP/DTaP
	NIP004		21	Current acute illness, moderate to severe (with or without fever) (e.g. diarrhea, otitis media, vomiting)
	NIP004		22	Chronic illness (e.g. chronic gastrointestinal disease)
	NIP004		23	Immune globulin (IG) administration, recent or simultaneous
	NIP004		24	Immunity: diphtheria
	NIP004		25	Immunity: Haemophilus influenzae type B (Hib)
	NIP004		HEPA_I	Immunity: hepatitis A
	NIP004		26	Immunity: hepatitis B
	NIP004		27	Immunity: measles
	NIP004		28	Immunity: mumps
	NIP004		29	Immunity: pertussis
	NIP004		30	Immunity: poliovirus
	NIP004		31	Immunity: rubella
	NIP004		32	Immunity: tetanus
	NIP004		33	Immunity: varicella (chicken pox)
	NIP004		33A	History of Varicella

<b>Type</b>	<b>Table</b>	<b>Name</b>	<b>Value</b>	<b>Description</b>
	NIP004		36	<i>Immunodeficiency due to any cause, including HIV (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppressive therapy, including steroids) (in recipient)</i>
	NIP004		37	<i>Neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)</i>
	NIP004		38	<i>Otitis media (ear infection) moderate to severe (with or without fever)</i>
	NIP004		39	<i>Pregnancy (in recipient)</i>
	NIP004		40	<i>Thrombocytopenia</i>
	NIP004		41	<i>Thrombocytopenic purpura (history)</i>
	NIP004		42	<i>Other contraindication/precaution/immunity not listed</i>
	NIP004		43	<i>Unknown (valid only for historical immunizations)</i>

## Appendix B: I-CPT Codes and CVX Codes (HL70292)

The following table is adapted from the HL7 Codes for Vaccines Administered table (0292) and includes additional information helpful in determining the correct vaccine to report in RXA-5-Administered Code and RXA-17-Substance Manufacturer Name. It is up-to-date as of 6/1/2006. For the most current values, see:

<http://www.cdc.gov/vaccines/programs/iis/stds/cpt.htm>

The I-CPT column is the ImmTrac CPT code that maps to the CDC's CVX code, for use in the second triplet of RXA-5.

<b>I-CPT</b>	<b>CVX (0292)</b>	<b>Group</b>	<b>Vaccine</b>	<b>Trade Name</b>	<b>Description</b>	<b>MVX (227)</b>	
90476	54	Adeno	Adeno T4	Adeno T4	Adenovirus type 4, live oral	WAL	
90477	55		Adeno T7	Adeno T7	Adenovirus type 7, live oral	WAL	
	82		Adeno, NOS		Recorded as CVX 54		
90581	24	Anthrax	Anthrax	Anthrax	Anthrax	MIP	
90585	19	BCG	BCG-TB	BCG-TB	Bacillus Calmette-Guerin TB	OTC	
90586			BCG-BC	BCG-BC	Bacillus Calmette-Guerin bladder cancer	OTC	
90728			BCG, NOS		BCG, NOS		
90725	26	Cholera	Cholera-Injectable	Cholera-I	Cholera injectable	CHI	
90592			Cholera-Oral	Cholera-O	Cholera Oral	CHI	
90719		Diphtheria	Diphtheria	Diphtheria	Diphtheria	PD	
90700	20	DTP/aP	DTaP	Acel-Imune	Diphtheria, tetanus, acellular pertussis	WAL	
				Certiva		BAH	
				Infanrix		SKB	
				Tripedia		PMC	
90701			01	DTP	DTP	Diphtheria, tetanus, whole cell pertussis	PMC
90702			28	DT	DT	Diphtheria tetanus pediatric	PMC
90720			22	DTP-Hib	Tetramune	DTP – Hib combination	WAL
90721			50	DTaP-Hib	TriHIBit	DTaP-Hib combination	PMC
90723			110	DTaP-HepB-Polio	Pediarix	DTaP-HepB-Polio combination	SKB
			106	DTaP, 5 pertussis antigens	DAPTACEL	Diphtheria, tetanus, acellular pertussis, 5 antigens	PMC
	107	DTaP, NOS		Recorded as CVX 20			
90655	15	Influenza	Influenza, Preservative-Free	Fluvirin, Preservative-Free	Influenza preservative free	CHI	
				Fluzone, Preservative-Free		PMC	
90656				Fluvirin, Preservative-Free		CHI	
				Fluzone, Preservative-Free		PMC	
90657			Influenza	Flu-Immune	Influenza split virus	WAL	
				Flu-Shield		WAL	
				Fluzone		PMC	
				Fluvirin		CHI	

<b>I-CPT</b>	<b>CVX (0292)</b>	<b>Group</b>	<b>Vaccine</b>	<b>Trade Name</b>	<b>Description</b>	<b>MXV (227)</b>	
90658				Fluogen		PD	
				Fluarix		SKB	
				Flu-Immune		WAL	
				Flu-Shield		WAL	
				Fluzone		PMC	
				Fluvirin		CHI	
				Fluogen		PD	
				Fluarix		SKB	
90659	16		Influenza, Whole virus		Influenza whole virus		
90660	111		Flu-nasal	Flu-Mist	Influenza live, for intranasal use	WAL	
90724	88		Influenza, NOS	Flu-Deleted	Influenza, NOS		
			Flu-Unspecified				
90632	52	HepA	HepA adult	Havrix adult	Hepatitis A adult	SKB	
				VAQTA adult		MSD	
90633	83		HepA ped-2 dose		Havrix ped/adol 2 dose	Hepatitis A pediatric/adolescent 2 dose	SKB
					VAQTA ped-2		MSD
90634	84		HepA ped-3 dose		Havrix ped/adol 3 dose	Hepatitis A pediatric/adolescent 3 dose	SKB
					VAQTA ped-3		MSD
90636	104			HepA-HepB Adult	Twinrix	Hepatitis A & Hepatitis B adult	SKB
90730	85			HepA, NOS		HepA, NOS	
	31		HepA-peds, NOS		Recorded as CVX 85		
90636	104	HepB	HepA-HepB Adult	Twinrix	Hepatitis A & Hepatitis B adult	SKB	
90723	110		DTaP-HepB-Polio	Pediarix	DTaP-HepB-Polio combination	SKB	
90731	45		HepB, NOS		HepB, NOS		
90740	44		HepB-dialysis 3 dose		Hepatitis B Dialysis 3 dose		
90743	43		HepB adult		Recombivax-Adult	Hepatitis B adult dose 1ml	MSD
					Engerix-B-Adult		SKB
90744	08		HepB pediatric		Recombivax-Peds	Hepatitis B pediatric/adolescent .5ml	MSD
					Engerix-B-Peds		SKB
90745	42		HepB, adolescent/high risk infant			HepB, adolescent/high risk infant	
90746	43		HepB adult		Recombivax-Adult	Hepatitis B adult dose 1ml	MSD
					Engerix-B-Adult		SKB
90747	44		HepB-dialysis 4 dose		Recombivax- dialysis	Hepatitis B Dialysis 4 dose	MSD
					Engerix-B dialysis		SKB
90748	51		HepB-Hib	Comvax		HepB-Hib Combination	MSD
			HepB-Unspecified				

<b>I-CPT</b>	<b>CVX (0292)</b>	<b>Group</b>	<b>Vaccine</b>	<b>Trade Name</b>	<b>Description</b>	<b>MVX (227)</b>
90645	47	Hib	Hib-HbOC	HibTITER	Haemophilus influenzae b HbOC 4 dose	WAL
90646	46		Hib-PRP-D	ProHIBit	Haemophilus influenzae b PRP-D booster	PMC
90647	49		Hib-OMP	PedvaxHIB	Haemophilus influenzae b OMP 3 dose	MSD
90648	48		Hib-PRP-T	OmniHib	Haemophilus influenzae b PRP-T 4 dose	PMC
				ActHib		
90720	22		DTP-Hib	Tetramune	DTP – Hib combination	WAL
90721	50		DTaP-Hib	TriHIBit	DTaP-Hib combination	PMC
90737	17				Hib,NOS	
90748	51		HepB-Hib	Comvax	HepB-Hib Combination	MSD
			Hib-Unspecified			
90649	62	HPV	HPV-Quad	Gardasil	Human Papilloma virus quadrivalent 3 dose	MSD
90281	86	Ig	Ig	Ig	Ig human	
90283	87		IgIV	IgIV	Ig IV human	
				Flebogamma		
90287	27		Botulinum-antitoxin	Botulinum-antitoxin	Botulinum antitoxin equine	
90288			Botulism	BabyBIG	Botulism Immune Globulin	
				Botulism		
				BIG		
90291	29		CMV-IgIV	CMV-IgIV	Cytomegalovirus Ig IV human	
90399			Ig	Ig	Unlisted immune globulin	
90296	12		Diphtheria-antitoxin	Diphtheria-antitoxin	Diphtheria antitoxin, equine	
90371	30		HBIg	HBIg	Hepatitis B Ig human	
90375	34		RIg	Rig	Rabies Ig human	
90376	34		RIg-HT	RIg-HT	Rabies Ig heat treated human	
90378	93		RSV-IgIM	RSV-IgIM	Respiratory syncytial virus Ig	
90379	71		RSV-IgIV	RSV-IgIV	Respiratory syncytial virus Ig IV	
90384			Rho(D)Full	Rho(D)Full	Rho(D)Ig Rhlg human full-dose	
90385			Rho(D)Mini	Rho(D)Mini	Rho(D)Ig Rhlg human mini-dose	
90386			Rho(D)IV	Rho(D)IV	Rho(D)Ig Rhlg human IV	
90389	13		TiG	BayTet	Tetanus Ig human	
				TiG		
90393	79	Vaccinia immune globulin	Vaccinia-Ig	VacciniaIg human		
90396	36	VZIg	VZIg	Varicella-zoster Ig human		
90665	66	Lyme	Lyme	LYMERix	Lyme disease	SKB
90735	39	Encephalitis	Japanese encephalitis	JE-Vax	Japanese encephalitis	JPN
90705	05	Measles	Measles	Measles	Measles live 1964-1974 (Eli Lilly)	MSD
			Attenuvax	Measles live	MSD	
90708	04	Measles-Rubella	M-R-VAX	Measles and rubella live	MSD	
			Measles-Rubella (MERU)		MSD	

<b>I-CPT</b>	<b>CVX (0292)</b>	<b>Group</b>	<b>Vaccine</b>	<b>Trade Name</b>	<b>Description</b>	<b>MXV (227)</b>
90704	07	Mumps	Mumps	Mumps	Mumps 1950-1978	MSD
				Mumpsvox	Mumps live	MSD
90709			Rubella-Mumps, NOS			
	38		Rubella-Mumps	Biavax II	Rubella and mumps live	MSD
				Mumps-Rubella (MURU)		MSD
90707	03	MMR	MMR	MMR II	Measles, mumps and rubella live	MSD
90710	94		MMRV	ProQuad	Measles, mumps, rubella, varicella live	MSD
90733	32	Meningococcal	Meningococcal	MENOMUNE	Meningococcal polysaccharide	PMC
90734	114		Meningococcal polysaccharide conjugate	Menactra	Meningococcal [Groups A, C, Y and W-135] Polysaccharide Diphtheria Toxoid Conjugate Vaccine	PMC
	108		Meningococcal, NOS		Meningococcal, NOS	
90715	115	Pertussis	Tdap > 7 Years	Adacel	Tdap > 7 years	PMC
				Boostrix		SKB
90712	02	Polio	Polio oral	ORIMUNE	Poliovirus OPV live oral	WAL
90713	10		Polio injectable	IPOL	Poliovirus inactivated IPV	PMC
90723	110		DTaP-HepB-Polio	Pediarix	DTaP-HepB-Polio combination	SKB
	89			Polio-Unspecified		Polio, NOS
90727	23	Plague	Plague	Plague	Plague	GRE
90732	33	Pneumo-Poly	Pneumococcal 23	PNU-IMUNE23	Pneumococcal polysaccharide 23 valent	WAL
				Pneumovax23		MSD
90669	100	Pneumococcal	Pneumo-conjugate	Prevnar	Pneumococcal conjugate	WAL
	109		Pneumococcal- Unspecified			
90675	18	Rabies	Rabies-intramuscular	RabAvert	Rabies intramuscular	CHI
				Imovax Rabies I.M.		PMC
90676	40		Rabies-intradermal	Imovax Rabies I.D.	Rabies intradermal	PMC
90726	90		Rabies-NOS		Rabies not otherwise specified	
90680	116	Rotavirus	Rotavirus	Rotateq	Rotavirus pentavalent live oral	MSD
90706	06	Rubella	Rubella	Rubella	Rubella live	MSD
				Meruvax II		MSD
90708	04		Measles-Rubella	Measles-Rubella (MERU)	Measles and rubella live	MSD
				M-R-VAX		MSD
90709			Rubella-Mumps NOS		Rubella-Mumps, NOS	
	38		Rubella-Mumps	Mumps-Rubella (MURU)	Rubella and mumps live	MSD
				Biavax II		MSD
	75		Smallpox	Smallpox	Dryvax	Vaccinia(Smallpox) dry
	105	Vaccinia (Smallpox), diluted		Vaccinia (smallpox), diluted	Vaccinia (smallpox), diluted	

<b>I-CPT</b>	<b>CVX (0292)</b>	<b>Group</b>	<b>Vaccine</b>	<b>Trade Name</b>	<b>Description</b>	<b>MXV (227)</b>
90718	09	Td	Td	Td	Tetanus and diphtheria adult	PMC
				DECAVAC (prior to 7/1/2005)		PMC
90714			Td preservative free	DECAVAC	Td preservative free – CPT code is effective 7/1/2005	PMC
90715	115	Tdap > 7 Years	Adacel	Tdap > 7 years	PMC	
			Boostrix		SKB	
90703	35	Tetanus	Tetanus	TT	Tetanus	PMC
	112		Tetanus Toxoid, NOS		Recorded as CVX 35	
90690	25	Typhoid	Typhoid-oral	Vivotif Berna/Ty21a	Typhoid oral	
90691	101		Typhoid-ViCPs	Typhim Vi	Typoid VI capsular polysaccharide	PMC
90692	41		Typhoid-H-P	Typhoid	Typhoid heat and phenol inactivated	
90693	53		Typhoid-AKD	Typhoid-AKD	Typhoid acetone-killed, dried (military)	
90714	91		Typhoid-NOS		Typhoid not otherwise specified (after 7/1/2005, no CPT code is associated with this vaccine group)	
90710	94	Varicella	MMRV	ProQuad	Measles, mumps, rubella, varicella live	MSD
90716	21		Varicella	Varivax	Varicella live	MSD
90717	37	Yellow Fever	Yellow Fever	YF-VAX	Yellow Fever live	PMC

### Appendix C: Table Identifiers by Segment Field

<b>Field Ref.</b>	<b>Field Name</b>	<b>HL7 Table</b>	<b>Table Name</b>
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
NK1.3	Relationship	0396	Coding System
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.10	Race	0396	Coding System
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.22	Ethnic Group	0396	Coding System
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	NIP001	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



## Appendix D: Segment Fields by Table Identifier

<b>HL7 Table</b>	<b>Table Name</b>	<b>Field Ref.</b>	<b>Field Name</b>
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	NK1.3	Relationship
0396	Coding System	PID.10	Race
0396	Coding System	PID.22	Ethnic Group
0396	Coding System	RXA.5	Administered Code
0396	Coding System	RXA.17	Substance Manufacturer Name
NIP001	Immunization Information Source	RXA.9	Administration Notes

## Appendix E: 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.

<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
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:            &lt;identifier (ST)&gt;^            &lt;text (ST)&gt;^            &lt;name of coding system (ST)&gt;^            &lt;alternate identifier (ST)&gt;^            &lt;alternate text (ST)&gt; ^            &lt;name of alternate coding system (ST)&gt;</p> <p>Components are defined as follows:            (1) Identifier (ST). Sequence of characters (the code) that uniquely identifies the item being referenced by the &lt;text&gt;. Different coding schemes will have different elements here.            (2) Text (ST). Name or description of the item in question.            (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.            (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 0163 would be designated in the "name of coding system" component as "HL70163."</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>

<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
2.8.5	CK - composite ID with check digit	<p>Components:            &lt;ID number (NM)&gt;^            &lt;check digit (NM)&gt;^            &lt;code identifying the check digit scheme employed (ID)&gt;^            &lt;assigning authority (HD)&gt;</p> <p>Components are defined as follows:            (1) ID number (NM).            (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.            (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>	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 components are not valued.
2.8.6	CM - composite	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.	The CM data type is maintained strictly for backward compatibility and may not be used for the definition of new fields.
2.8.12	CX - extended composite ID with check digit	<p>Components:            &lt;ID (ST)&gt;^            &lt;check digit (ST)&gt;^            &lt;code identifying the check digit scheme employed (ID)&gt;^            &lt;assigning authority (HD)&gt;^            &lt;identifier type code (IS)&gt;^            &lt;assigning facility (HD)&gt;</p> <p>Components are defined as follows:            (1) ID (ST).            (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.            (3) Code identifying the check digit scheme employed (ID).            (4) Assigning authority (HD).            Subcomponents of (4):            &lt;application identifier 1 (ID)&gt; &amp;            &lt;application identifier 2 (ID)&gt; &amp;            &lt;application identifier 3 (ID)&gt; &amp;            &lt;application identifier 4 (ID)&gt; &amp;            &lt;application identifier 5 (ID)&gt; &amp;            &lt;application identifier 6 (ID)&gt;            (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>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>

<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
		(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. Subcomponents of (6): <namespace ID (IS)>& <universal ID (ST)>& <universal ID type (ID)>	
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	Components: <entity identifier (ST)>^ <namespace ID (IS)>^ <universal ID (ST)>^ <universal ID type (ID)>  Components are defined as follows: (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.")	The entity identifier defines a given entity within a specified series of identifiers.
2.8.18	FC - financial class	Components: <financial class (IS)>^ <effective date (TS)>  Components are defined as follows: (1) Financial class (IS). The financial class assigned to a person. Refer to <i>User-defined Table 0064 - Financial class</i> for suggested values. (2) Effective date (TS). The effective date/time of the person's assignment to the financial class specified in the first component.	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. 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	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.  Components: <namespace ID (IS)>^ <universal ID (ST)>^ <universal ID type (ID)>	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.  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.

<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
		<p>Components are defined as follows:</p> <p>(1) Namespace ID (IS). Refer to <i>User-defined Table 0300 - Namespace ID</i> for suggested values.</p> <p>(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.</p> <p>(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>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>
	LA2 - Location with Address Variation 2	<p>This field specifies a location and its address.</p> <p>Components:            &lt;point of care (IS)&gt;^            &lt;room (IS)&gt;^            &lt;bed (IS)&gt;^            &lt;facility (HD)&gt;^            &lt;location status (IS)&gt;^            &lt;patient location type (IS)&gt;^            &lt;building (IS)&gt;^            &lt;floor (IS)&gt;^            &lt;street address (ST)&gt;^            &lt;other designation (ST)&gt;^            &lt;city (ST)&gt;^            &lt;state or province (ST)&gt;^            &lt;zip or postal code (ST)&gt;^            &lt;country (ID)&gt;^            &lt;address type (ID)&gt;^            &lt;other geographic designation (ST)&gt;</p> <p>Components are defined as follows:            (1-8) These components are defined as in the PL data type(1-8).            (9-16) These components are defined in the XAD data type (1-8)</p>	The fourth component identifies the name of the facility where the immunization was given. See <a href="http://www.cdc.gov/phin/library/documents/pdf/PHIN_Countermeasure_Administration_SubstanceAdministration.pdf">http://www.cdc.gov/phin/library/documents/pdf/PHIN_Countermeasure_Administration_SubstanceAdministration.pdf</a>

<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
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. 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 whether the message is part of a production, training, or debugging system. Refer to <i>HL7 Table 0103 - Processing ID</i> for valid values.	

<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
		(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.	
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[S]]]]]]][+/-ZZZZ]^ &lt;degree of precision&gt;</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",  YYYYMM specifies a precision of "month,"  YYYYMMDD specifies a precision of "day,"  YYYYMMDDHH is used to specify a precision of "hour",  YYYYMMDDHHMM is used to specify a precision of "minute",  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>[19760704010159-0600]  1:01:59 on July 4, 1976 EST</p> <p>[19760704010159-0500]  1:01:59 on July 4, 1976 EDT</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]^ &lt;degree of precision&gt; 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 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>

<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
		<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>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: &lt;version ID (ID)&gt;^ &lt;internationalization code (CE)&gt;^ &lt;international version ID (CE)&gt;</p> <p>Components are defined as follows: (1) Version ID (ID). Used to identify the HL7 version. Refer to <i>HL7 Table 0104 - Version ID</i> for valid values. (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>). (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: &lt;street address (ST)&gt;^ &lt;other designation (ST)&gt;^ &lt;city (ST)&gt;^ &lt;state or province (ST)&gt;^ &lt;zip or postal code (ST)&gt;^ &lt;country (ID)&gt;^ &lt;address type (ID)&gt;^ &lt;other geographic designation (ST)&gt;^ &lt;county/parish code (IS)&gt;^ &lt;census tract (IS)&gt;^ &lt;address representation code (ID)&gt;</p> <p>Components are defined as follows: (1) Street address (ST). The street or mailing address of a person or institution. (2) Other designation (ST). Second line of address (e.g., Suite 555, or Fourth Floor). (3) City (ST).</p>	<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.</p>



<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
		<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 tract 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 persons	<p>Components:</p> <p>&lt;ID number (ST)&gt;^</p> <p>&lt;family name (ST)&gt;&amp;&lt;last name prefix (ST)&gt;^</p> <p>&lt;given name (ST)&gt;^</p> <p>&lt;middle initial or name (ST)&gt;^</p> <p>&lt;suffix (e.g., Jr. or III) (ST)&gt;^</p> <p>&lt;prefix (e.g., Dr.) (ST)&gt;^</p> <p>&lt;degree (e.g., MD) (IS)&gt;^</p> <p>&lt;source table (IS)&gt;^</p> <p>&lt;assigning authority (HD)&gt;^</p> <p>&lt;name type code (ID)&gt;^</p> <p>&lt;identifier check digit (ST)&gt;^</p> <p>&lt;code identifying the check digit scheme employed (ID)&gt;^</p> <p>&lt;identifier type code (IS)&gt;^</p> <p>&lt;assigning facility ID (HD)&gt;^</p> <p>&lt;name representation code (ID)&gt;</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</i></p>	<p>ImmTrac uses this data type only to identify the provider that administered an immunization. See the field notes for segment RXA.</p> <p>See PN (1-6) for component definitions (2-7).</p>

HL7 Section Ref	Data Type	Description	Notes
		<p>0297 - CN ID source for suggested values. Used to delineate the first component.</p> <p>(9) Assigning authority (HD). Subcomponents of (9): &lt;namespace ID (IS)&gt;&amp; &lt;universal ID (ST)&gt;&amp; &lt;universal ID type (ID)&gt;</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). Subcomponents of (14): &lt;namespace ID (IS)&gt;&amp; &lt;universal ID (ST)&gt; &amp; &lt;universal ID type (ID)&gt;</p> <p>(15) Name representation code (ID). See <i>HL7 Table 4000 - Name/address representation</i> for valid values.</p>	
2.8.50	XON - extended composite name and identification number for organizations	<p>Components: &lt;organization name (ST)&gt;^ &lt;organization name type code (IS)&gt;^ &lt;ID number (NM)&gt;^ &lt;check digit (NM)&gt;^ &lt;code identifying the check digit scheme employed (ID)&gt;^ &lt;assigning authority (HD)&gt;^ &lt;identifier type code (IS)&gt;^ &lt;assigning facility ID (HD)&gt;^ &lt;name representation code (ID)&gt;</p> <p>Components are defined as follows: (1) Organization name (ST). The name of the specified organization. (2) Organization name type code (IS). Refer to <i>User-defined Table 0204 - Organizational name type</i>. (3-5) Defined as in CK (1-3). (6) Assigning authority (HD). Subcomponents of (9): &lt;namespace ID (IS)&gt;&amp; &lt;universal ID (ST)&gt;&amp; &lt;universal ID type (ID)&gt; (7) Identifier type code (IS). Refer to <i>user-defined table 0203 - Identifier type</i> for valid values. (8) Assigning facility (HD). Subcomponents of (8): &lt;namespace ID (IS)&gt;&amp; &lt;universal ID (ST)&gt;&amp; &lt;universal ID type (ID)&gt; (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).

<b>HL7 Section Ref</b>	<b>Data Type</b>	<b>Description</b>	<b>Notes</b>
2.8.51	XPN - extended person name	<p>Components:</p> <p>&lt;family name (ST)&amp;&lt;last name prefix (ST)&gt;^            &lt;given name (ST)&gt;^            &lt;middle initial or name (ST)&gt;^            &lt;suffix (e.g., Jr. or III) (ST)&gt;^            &lt;prefix (e.g., Dr.) (ST)&gt;^            &lt;degree (e.g., MD) (IS)&gt;^            &lt;name type code (ID)&gt;^            &lt;name representation code (ID)&gt;</p> <p>Components are defined as follows:            (1-6) These components are defined as in the PN data type.            (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.            (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 tele-communication number	<p>Format and Components:</p> <p>[NNN] [(999)]999-9999[X999999][B999999][C any text]^            &lt;telecommunication use code (ID)&gt;^            &lt;telecommunication equipment type (ID)&gt;^            &lt;email address (ST)&gt;^            &lt;country code (NM)&gt;^            &lt;area/city code (NM)&gt;^            &lt;phone number (NM)&gt;^            &lt;extension (NM)&gt;^            &lt;any text (ST)&gt;</p> <p>(1) [NNN] [(999)]999-9999[X999999][B999999][C any text]            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>