Virginia Immunization Information System

HL7 – 2.5.1 Transfer Specification

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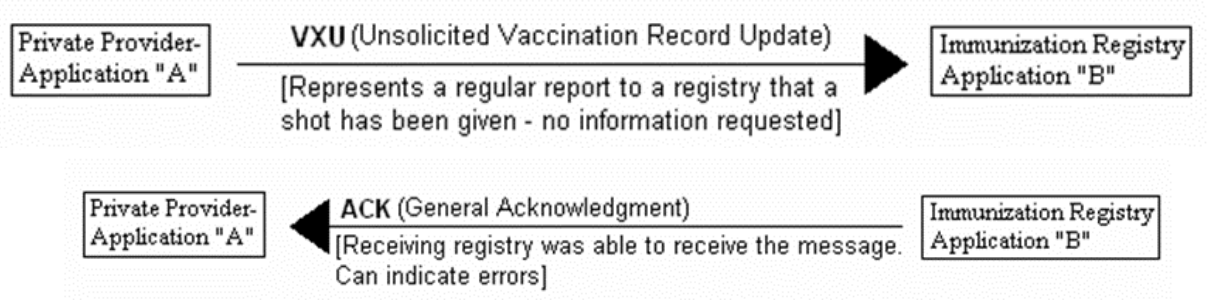
Virginia Immunization Information System

HL7 – 2.5.1 Batch & Real-time Transfer Specification

Introduction

The Virginia Immunization Information System (VIIS) system has made available an interactive user interface on the World Wide Web for authorized Virginia users to enter, query, and update patient immunization records. The Web interface makes VIIS information and functions available on desktops around the state. However, some immunization providers already store and process similar data in their own information systems and may wish to keep using those systems while also participating in the statewide central repository. Others may have different billing needs and may decide they don't want to enter data into two diverse systems. VIIS has been enhanced to accept HL7 Version 2.5.1 for batch and real time loads to submit patient and immunization information to VIIS.

Note: For instructions on how to do data exchange with VIIS, please reference Chapter 13 of the User Manual.



The Health Level Seven (HL7) Standard

The ANSI HL7 standard is widely used for data exchange in the health care industry. The full standard is quite lengthy, covering a variety of situations in patient care and health care finance and no single application is likely to use all of its content. The CDC has worked with Immunization Information Systems (IIS's) to create a set of HL7 messages that permit exchange of immunization data. This document covers the subset of HL7 that will be used for patient and immunization records exchanged between VIIS and outside systems.

- 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** separated by a delimiter character. Delimiters can be defined by the user in MSH-2. The recommend delimiters for immunization messages are
  - <CR>=Segment terminator;
  - "|" = Field Separator;
  - '^' =Component Separator;
  - '&' = Sub-Component Separator;
  - '~' Repetition Separator; and
  - '\' = Escape Character. (See them bolded in example below.)

```
MSH|^~\&||VALLEY CLINIC^036||VIIS^^^|19991005032342||VXU^V04^VXU_V04|682299|P^|2.5.1^^|||ER
PID|||79928^^^^PI|A5SMIT0071^^^^^|SMITH^MARY^T^^^^|JOHNSON^^^^^^^|19951212|F||||
ORC|RE||1^DCS|||||||||||||||||||||||||R
RXA|0|999|19970903|19970903|^^^90701^DTP^CPT|0.5
```

The details of how HL7 messages are put together, for VIIS purposes, will be explained later in this document. The example above shows the essentials of what a message looks like. In this example, a message is being sent on behalf of Valley Clinic with a provider organization id of '036' to VIIS. The message consists of three segments. NOTE: Valley Clinic may or may not be the actual transmitter of the message. The transmitter of the message will be identified by VIIS from log-in information or transport route and not from an HL7 message.

- The Message Header segment (**MSH**) identifies the owner (**VALLEY CLINIC**) of the information being sent and the receiver (**VIIS**). It also identifies the message as being of type **VXU.** The VXU is an Unsolicited Vaccination Record Update, which is one of the message types defined by HL7.

- The Patient Identification segment (**PID**) gives the patient's name (MARY T SMITH), birth date (19951212, in YYYYMMDD format), and other identifying fields.
- The Common Order segment (ORC) tells that the filter order number is 1, the unique identifier from the sending system.
- The Pharmacy Administration segment (**RXA**) tells that a DTP vaccine, with CPT code 90701, was administered on September 3, 1997 (formatted as YYYYMMDD). Many fields are optional and this example may have more information included in it. Some segments can be repeated within a single message. In this example, the message could have included a second RXA segment to record another immunization given.

Note*: While not all immunization messages are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.

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

Scope of This Document

The General Transfer Specification (GTS) documented here supports exchange of data between the VIIS repository and outside systems. This allows both the patient and immunization records to be available in both systems, so as to avoid the need to enter data twice. The remainder of this document specifies how HL7 file messages are constructed for the purposes of VIIS. This document covers only a small subset of the very extensive HL7 standard utilized by the VIIS system. Files of messages constructed from the guidelines in this document will fall within the HL7 standard, but there is a wide variety of other possible HL7 messages that are outside the scope of this document.

References

- See Version 2.5.1 of the Health Level 7 standard for a full description of all messages, segments, and fields. Information regarding HL7 is at www.hl7.org.
- The National Immunization Program within the Center for Disease Control (www.cdc.gov/nip) has published an Implementation Guide for Immunization Data with the purpose of keeping the use of HL7 for immunization data as uniform as possible. VIIS follows the HL7 message set by adhering to the CDC's National Immunization Program's Release 1.3 - HL7 Version 2.5.1 Implementation Guide for Immunization Messaging

HL7 Message Types Used in VIIS Transmissions

VIIS uses these message types: ADT, VXU, ACK, QBP and RSP.

The ADT is used for sending out client data without any immunizations. VIIS will NOT accept an ADT message (unsolicited demographic update) for a new client.
The VXU is used for sending client data and immunizations.
The ACK is used to acknowledge to the sender that a message has been received.
The QBP is used to query for a client's demographic, immunization and recommendation information (recommendations according to the ACIP schedule).
The RSP is used to respond to QBP messages.

The tables below show the segments that are used to construct each message type. Each segment is one line of text ending with the carriage return character. The carriage return is needed so that the HL7 messages are readable and printable. The messages may appear somewhat cryptic due to the scarcity of white space. (The standard has provisions for inclusion of binary data, but VIIS will not use these features.) Square brackets [ ] enclose optional segments and curly braces {} enclose segments that can be repeated. Any number of NK1 segments could be included in the message. The full HL7 standard allows additional segments within these message types, but they are unused by VIIS. In order to remain compliant with HL7, their use will not result in an error, but the recipient can ignore the content of the message. The segments that are documented here are sufficient to support the principal VIIS functions of storing data about clients and immunizations.

ADT

Update Patient Information

MSH	Message Header
PID	
[PD1]	Patient Identification
[{NK1}]	Next of Kin / Associated Parties
[{*OBX}]	Observation/Result

*The only OBX segment that is valid within an ADT message is one that specifies a CONTRAINDICATION in the OBX-03 Value Type field. (i.e., 30945-0^Contraindication^LN)

VXU

Unsolicited Vaccination Record Update

MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographic
[{NK1}]	Next of Kin / Associated Parties
{ORC	Common Order Segment
RXA	Pharmacy / Treatment Administration
[RXR]	Pharmacy / Treatment Route (Only one RXR per RXA segment)
[{OBX}]}	Observation/Result*

ACK

General Acknowledgment

MSH	Message Header
MSA	Message Acknowledgment
[{ERR}]	Error

*The only OBX segment that is valid within an ADT message is one that specifies a CONTRAINDICATION in the OBX-03 Value Type field. (i.e., 30945-0^Contraindication^LN)

RECOMMENDATIONS:

VIIS will NOT accept an ADT message (unsolicited demographic update) for a new patient. ADT message is only used to update existing patient demographic information to patients existing in VIIS. Therefore, it is best to include the demographic information in a VXU message whenever possible, as this message type accommodates BOTH immunization information and demographic update information. If submitting a new patient it must follow the VXU message format for the new patient within the file.

When a VXU^V04^VXU_V04 (Unsolicited Vaccination Record Update) message type is sent with no ORC associated to a RXA segment, then the client will be rejected. Similarly, an ORC segment with no associated RXA segment will result in message rejection.

QBP

Query by Parameter

MSH	Message Header
QPD	Query Parameter Definition Segment
RCP	Response Control Parameter

Organizations send the Query by Parameter (QBP) message to request a patient's complete immunization history. The patient record includes demographic and immunization information.

RSP

Response

MSH	Message Header
MSA	Message Acknowledgment Segment
[ERR]	Error
QAK	Query Acknowledgment Segment
QPD	Query Parameter Definition Segment
PID	Patient Identification
PD1	Patient Additional Demographic
{NK1}	Next of Kin / Associated Parties
{ORC	Common Order Segment
RXA	Pharmacy / Immunization administration
[RXR]	Pharmacy / Treatment Route
[{OBX}]}	Observation / Result

VIIS responds to QBP messages with a file that contains a Response (RSP) message.
Note:

In real-time processing, VIIS returns only one file. This response file contains the RSP message with the corresponding query, demographic and /or immunization information.

In batch file processing, VIIS sends two files: a response file and an outbound file. This response file only contains the query information in RSP message form. A separate outbound file relays the demographics and/or immunization history.

The RSP segments returned depend on how many VIIS records meet the search criteria.

- **VIIS finds one patien**t - When VIIS finds only one patient that matches the search, the RSP message displays the requested patient's demographic and immunization information. This response can display all segments listed under RSP Response message.

  Note:
  When available and when a single client is found, VIIS returns the SR State Registry Identifier and the PI Patient Internal Identifier (entered as any chart number) in the PID-3 Patient Identifier List field.

- **VIIS finds multiple patient**s - When VIIS finds multiple patients that match the request, the RSP message displays only demographic information for each possible match. This allows the organization to choose the correct patient based on information like the patient's sex or address. This response can display MSH, MSA, QAK, QPD, PID, PD1, and NK1 segments.

  Note:
  When VIIS finds **Z31** multiple candidates for an RSP Response message to a QBP Query, VIIS returns each patient's demographics. The requesting person must review each candidate until he/she finds the desired patient. The person then sends another QBP with the additional demographic information found during review. VIIS should now send a **Z32** response for one patient, which includes the complete immunization history.

- **VIIS does not find the patien**ts - When VIIS does not have the patient's record, the RSP message shows that VIIS did not find the record. The Response message displays NF for Not Found in field QAK-2 Query Response Status. This response can display only MSH, MSA, QAK, and QPD segments.

- **VIIS finds too many patien**ts - When VIIS finds more patients the organization lists in RCP-2 Quantity Limited Request, the RSP message shows that VIIS found too many records (>10). The RSP Response message displays TM for Too Many Candidates in field QAK-2 Query Response Status. This response can display only MSH, MSA, QAK, and QPD segments. We suggest organizations modifying the query and provide more information, such as client's sex, address or mother's maiden name etc.

Message Segments: Field Specifications and Usage

HL7 Segment Structure

Each segment consists of several fields that are separated by "|", which is the field separator character. The tables below define how each segment is structured and contain the following columns:

1.	**SEQ**	The ordinal position of the field in the segment. Since VIIS does not use all possible fields in the HL7 standard, these are not always consecutive.
2.	**LEN**	Maximum length of the field.
3.	**DT**	HL7 data type of the field. See below for definition of HL7 data types.
4.	**R/M**	R means required by HL7, and M means mandatory for VIIS. Blank indicates an optional field.
5.	**RP/#**	Y means the field may be repeated any number of times, an integer gives the maximum number of repetitions, and a blank means no repetition is permitted.
6.	**TBL#**	Number of the table giving valid values for the field.
7.	**ELEMENT NAME**	HL7 name for the field.

- **HL7 data types.** Each field has an HL7 data type. Appendix A of this document lists and defines the HL7 data types needed for VIIS. The elemental data types Numeric (NM) and String (ST) consist of one value, while some data types, such as Extended Person Name (XPN) are composites.
- **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**, "\".

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

In the example above, the Message Header segment uses the field separator, "|", immediately after the "MSH" code that identifies the segment. This establishes what character serves as the field separator throughout the message. The next field, the four characters "^~\&", establishes, in order, the component separator character, the repetition character, the escape character, and 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 these are escaped to prevent their normal structural interpretation.

In VIIS, sub-components, repetition and text values requiring the escape character will be rare. Components within fields are common, since names and addresses are represented this way. Although HL7 permits the use of other delimiters VIIS will always use the recommended delimiters when sending files and requires their use for files received.

Rules for Sending Systems

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

- 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 HL7 recommended encoding characters ("^~\&").
- Encode the data fields in the order given in the table defining segment 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.
- Data fields that are present but explicitly null are represented by empty double quotes "" or leaving the field blank. Leaving the field blank is preferable.
- Trailing separators may optionally be omitted. For example, |field1|field2||||| is equivalent to |field1|field2, when field3 and subsequent fields are not present.
- End each segment with the segment terminator (always the carriage return character, ASCII hex 0D).

The following rules are used by receiving systems to process HL7 messages.

- Treat data segments that are expected but not present as if all data fields in the segment were not present.
- Require use of HL7 recommended Field Separator |, and Encoding characters ^~\& for encoding messages.
- Ignore any data segment that is included but not expected, rather than treating it as an error. The HL7 message types used by VIIS may include many segments besides the ones in this document, and VIIS ignores them. VIIS will not send messages with segments not documented in this specification, but reserves the right to specify more segments at a later date. The rule to ignore unexpected segments facilitates this kind of change.
- Ignore data fields found but not expected within a segment.

The message segments below are needed to construct message types that are used by VIIS. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since VIIS does not use all the fields that HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, their field separators remain in order to indicate that the next field present is the fourth: field1|||field4.

Columns are defined as

SEQ - Sequence of element in message.
LEN - Length of field.
DT - Data type.
R/M - Field is required by HL7 to accept or mandated by VIIS legislation. If no designation, it is considered optional.

RP# - This field can be reported.
TB# - Approved corresponding code table.

ERR

The ERR segment is used to add error comments to acknowledgment messages.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	80	CM	R	Y		Error Code and Location

Field Notes:

ERR-1 A composite field with four components.

<segment ID (ST)>^<sequence (NM)>^<field position (NM)>^<field component ordinal number (NM)

The first component identifies the segment ID containing the error. The second component identifies the input file line number of the segment containing the error. The third component identifies by ordinal number the field containing the error. The fourth component identifies, by ordinal number, the field component containing the error (0 is used if not applicable). The remaining five components of the CE data type are not valued and their '^' separators are not generated. Note that error text is transmitted in field MSA-3. For example, if the NK1 segment is missing a mandatory field:

ERR|NK1^10^2^1

This error message identifies the NK1 segment occurring on line 10 of the input file whose mandatory second field (Name) is missing the mandatory first component (Family Name).

MSA

The MSA segment contains information sent while acknowledging another message.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0008	Acknowledgment Code
2	20	ST	R			Message Control ID
3	80	ST				Text Message

Field Notes:

MSA-1 Acknowledgement code giving receiver's response to a message. AA (Application Accept) means the message was processed normally. AE (Application Error) means an error prevented normal processing. An error message will be put in MSA-3, and for ACK messages the optional ERR segment will be included.

MSA-2 The message control ID from MSH-10 in the message being acknowledged. This allows the sending system to associate this response with the message being responded to.

MSA-3 Text of error message, used when MSA-1 does not have the normal value of AA.

MSH

The MSH segment defines the intent, source, destination and some specifics of the syntax of a message.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	1	ST	R			Field Separator
2	4	ST	R			Encoding Characters
3	180	HD				Sending Application
4	180	HD				Sending Facility
5	180	HD				Receiving Application
6	180	HD				Receiving Facility
7	26	TS				Date/Time Of Message
9	15	MSG	R			Message Type
10	20	ST	R			Message Control ID
11	3	PT	R		0103	Processing ID
12	60	VID	R		0104	Version ID
15	2	ID			0155	Accept Acknowledgment Type
16	2	ID			0155	Application Profile Identifier
21	427	EI	CE			Message Profile Identifier

Field Notes:

MSH-1 Determines the field separator in effect for the rest of this message. VIIS requires the HL7 recommended field separator of "|".

MSH-2 Determines the component separator, repetition separator, escape character, and sub-component separator in effect for the rest of this message. VIIS requires the HL7 recommended values of ^~\&.

MSH-3 Name of the sending application. When sending, VIIS will use "VIIS" followed by the current version number of the registry. This field is an optional convenience. See MSH-4 and MSH-6 for the fields principally used to identify sender and receiver of the message.

MSH-4 Identifies for whom the message is being sent (the owner of the message information). When sending, VIIS will use "VIIS".

When the message is being sent to VIIS you must use the VIIS Organization Code of the Provider Organization that **owns** the information in the MSH4.1 segment (e.g., T1234). Contact the VIIS Help Desk for the appropriate VIIS Organization Code.

Note 1: If a larger health system will be submitting data as one Organization rather than as individual organization locations, the Organization Code for the health system may be used. Verify with VIIS Help Desk to confirm the best Organization ID to use.

Note 2: For decrement of inventory to occur, the VIIS Organization code for the provider who owns the incoming information will be inserted in segment 4.1. For inventory to be deducted, the participating provider's VIIS Organization code will exist in VIIS, a match will be found.

MSH-5 Identifies the application receiving the message. When sending to VIIS this application is 'VIIS.'

MSH-6 Identifies the message receiver. When sending, VIIS will use the VIIS Organization Code assigned to the organization when first registered with VIIS.

MSH-7 Date and time the message was created. VIIS ignores any time component. See the TS data type.

MSH-9 This is a required field. Two components of this field give the HL7 message type (see **Table 0076**) and the HL7 triggering event (see **Table 0003**). Within HL7, the triggering event is considered to be the real-world circumstance causing the message to be sent. For VIIS purposes, this field should have the value ADT^A31^ADT_A05 for a message conveying only demographic information or the value VXU^V04^VXU_V04 for a message conveying demographic and immunization information. In acknowledgement messages the value ACK is sufficient and the second component may be omitted.

MSH-10 This is a required field. Message rejection will result if nothing is received in this field. The message control ID is a string (which may be a number) uniquely identifying the message among all those ever sent by the sending system. It is assigned by the sending system and echoed back in the ACK message sent in response to identify the specific record which contains errors. ***It is important to have this be an ID that the provider can use to identify the patient record.***

MSH-11 The processing ID to be used by VIIS is **P** for production processing. If this field is null, an informational message is generated indicating that VIIS is defaulting to **P**.

MSH-12 This is a required field. For the parser, the version number that is read in the first MSH segment, of the file, will be the version assumed for the whole file. For example, use a value of "2.3.1" to indicate HL7 Version 2.3.1, "2.4" to indicate HL7 Version 2.4, or "2.5.1" to indicate HL7 Version 2.5.1.

- If there is no version number found in the first MSH segment, a hard error will occur and the file will not be processed.

MSH-15 This field identifies the conditions where a system must return accept acknowledgments to this message. VIIS ignores this value from sending organizations.

MSH-16 Controls if VIIS creates an acknowledgment message. This field contains the conditions where VIIS returns application acknowledgment. If the field is empty, VIIS will assume the value of ER, then VIIS only acknowledges the message when it contains errors; if the field value is AL, VIIS will acknowledges all messages. A value of NE will result in no acknowledgment even if there were errors and a value of SU will result in acknowledgement only when there was successful completion.

MSH-21 Contains the profile used when responding to a query. VIIS requires this field when the MSH-9 Message Type contains RSP^K11^RSP_K11 for an RSP message type and VIIS finds one or more clients that match the search criteria. Message profiles contain detailed explanations of grammar, syntax, and usage for a message or message set.

PID

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	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	4	SI				Set ID – PID
3	**20**	**CX**	**R**	**Y**	**203**	**Patient ID (Internal ID)**
5	**48**	**XPN**	**R**	**Y**		**Patient Name**
6	48	XPN		Y		Mother's Maiden Name
7	**26**	**TS**	**R**			**Date/Time of Birth**
8	1	IS			0001	Sex
10	80	CE		Y	0005	Race
11	106	XAD		Y		Patient Address
13	40	XTN				Phone number – home
22	80	CE		Y	0189	Ethnic Group
24	1	ID			0136	Multiple Birth Indicator
25	2	NM				Birth Order
29	26	TS				Patient Death Date and Time

Field Notes:

PID-1 Set ID – PID. This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

PID-3 Sub-components 1 (ID) and 5 (identifier type code) are required in the PID-3 field. When a Provider Organization is sending to VIIS, use the sending system's Patient or Medical Record ID or other identifier if available. When VIIS is sending to an outside system it will use the patient's VIIS ID and Patient or Medical Record ID when it is available.

PID-5 See the XPN data type. Last name and first name are required in the first two components. If the Name Type Code component is included, use L-Legal ***NOTE: If patient does not have a first name, "NO FIRST NAME" must be entered. VIIS will not accept records where these fields are blank.*** VIIS does not support repetition of this field.

PID-6 See the XPN data type. In this context, where the mother's name is used for patient identification, VIIS uses only mother's first name and maiden name. A mother's legal name (not necessarily maiden name) might also appear in the context of an NK1 segment. VIIS does not support repetition of this field.

PID-7 Give the year, month, and day of birth (YYYYMMDD). VIIS ignores any time component.

PID-8 Use appropriate code. See **Table 0001**. Use F, M, or U. If blank (" ") is used, VIIS will default to U. Sending blank or U is highly discouraged.

PID-10 Use appropriate code. See **Table 0005**. VIIS stores and writes "Unknown" values as null. VIIS does not support repetition of this field.

PID-11 See the XAD data type. | Street^PO Box^City^State^Zip^country^^^County|
For example: |123 Main St^PO Box1^Richmond^VA^12345^US^^^Richmond|. VIIS does not support repetition of this field.

PID-13 See the XTN data type. Version 2..5.1 includes the support of the N, X, B and C sequences. VIIS does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code (ID) from **Table 0201**) VIIS will use the 6th 7th 8th and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, VIIS will assume that the phone number is specified in the first component in the [NNN] [(999)]999-9999[X99999][B99999][C any text] format.

PID-22 Use appropriate code. See **Table 0189**. VIIS stores and writes "Unknown" values as null. VIIS supports repetition of this field.

PID-24 Use **Y** to indicate that the client was born in a multiple birth. If Y is entered in this field, you must supply the required information in PID-25.

PID-25 Relevant when patient was born in a multiple birth. Use 1 for the first born, 2 for the second, etc. This field is useful in matching patient data to existing records.

Note: You must include Y in PID-24 and indicate the birth order in PID-25 for the birth order to be loaded in all HL7 versions.

PID-29 The date of death, if patient is deceased. Give the year, month, and day (YYYYMMDD). VIIS ignores any time component. If a death date is sent, then the Patient Registry Status in PD1-16 must indicate a value of "**P**" for permanently inactive/deceased.

PD1

The PD1 carries additional patient demographic information that is likely to change.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
11	80	CE			0215	Publicity Code
12	1	ID			0136	Protection Indicator
13	8	DT				Protection Indicator effective date
16	1	IS			0441	Immunization registry status
17	8	DT				Immunization registry status effective date
18	8	DT				Publicity Code effective date

Field Notes:

PD1-11 Controls whether recall/reminder notices are sent. VIIS will recognize "**01**" to indicate no recall/reminder notices or "**02**" recall/reminder notices any method. This is a setting users can take advantage of to locate those patients due for a vaccine within the VIIS User Interface. VIIS strongly suggests the value of "**02**" as this can be very beneficial to the patient. Patients will not be automatically contacted by VIIS.

PD1-12 Controls visibility of records to other organizations. Indicates whether or not consent has been given (or assumed) for record sharing.
Y – Protect access to data. Do not allow sharing of information data.
N – Do not protect access to the data. Allow sharing of immunization data.

Note: VIIS is intended to consolidate immunization data from multiple locations. It cannot allow new information to enter into the registry if "**Y**" is selected for the patient. VIIS strongly encourages "**Y**" to be used rarely so that immunization information can be accessed by all healthcare providers that treat the patient.

PD1-13 Effective date for protection indicator reported in PD1-12. Format is YYYYMMDD.

PD1-16 Identifies the registry status of the patient. See **Table NIP006**. If a code of **P** is specified, the PID-29 segment must have the Patient Death Date (YYYYMMDD) completed or the record will be rejected.

PD1-17 Effective date for registry status reported in PD1-16. Format is YYYYMMDD.

PD1-18 Effective date for publicity code reported in PD1-11. Format is YYYYMMDD.

NK1

The NK1 segment contains information about the patient's other related parties. Any associated parties may be identified. Utilizing *NK1-1-set ID*, multiple NK1 segments can be sent to patient accounts.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**4**	**SI**	**R**			**Set ID - NK1**
2	48	XPN	CE	Y		Name
3	60	CE	CE		0063	Relationship
4	106	XAD		Y		Address
5	40	XTN		Y		Phone Number

Field Notes:

NK1-1 Sequential numbers. Use "**1**" for the first NK1 within the message, "**2**" for the second, and so forth. Although this field is required by HL7, VIIS will ignore its value, and there is no requirement that the record for the same responsible person keep the same sequence number across multiple messages, in the case that information from the same record is transmitted more than once.

NK1-2 Name of the responsible person who cares for the client. See the XPN data type. VIIS does not support repetition of this field.

NK1-3 Relationship of the responsible person to the patient. See data type CE and **Table 0063** in the HL7 tables. Use the first three components of the CE data type, for example |MTH^Mother^HL70063|.

NK1-4 Responsible person's mailing address. See the XAD data type. VIIS does not support repetition of this field. If responsible person is Mother, the Address that is used in this field will become the patient's address.

NK1-5 Responsible person's phone number. VIIS does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code (ID) from **Table 0201** VIIS will use the 6th 7th 8th and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, VIIS will assume that the phone number is specified in the first component in the [NNN] [(999)] 999-9999[X99999][B99999][C any text] format.

ORC

The Order Request Segment is a new segment for VIIS HL7 2.5.1 and needs to be included if submitting to VIIS using version HL7 2.5.1 to record who entered the information, who ordered the shot and what facility ordered the shot.

Note: The "ordering" mentioned here is not related to ordering for inventory but ordering for person specific administration. Each RXA segment **must** be associated with one ORC, based on HL7 2.5.1 standard.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	2	IE	R			Order Control
2		EI				Placer Order Number
3		EI	R			Filler Order Number
10		XCN				Entered By
12		XCN				Ordering Provider

Field Notes:

ORC-1 Order Control. Determines the function of the order segment. The value for VXU and RSP shall be **RE**.

ORC-2 Placer Order Number. The Placer Order Number is used to uniquely identify this order among all orders sent by a provider organization. ORC-2 is a system identifier assigned by the placer software application. The Placer Order Number and the Filler Order number are essentially foreign keys exchanged between applications for uniquely identifying orders and the associated results across applications. The sending system may leave this field empty.

ORC-3 Filler Order Number. The Filler Order Number is used to identify uniquely this order among all orders sent by a provider organization that filled the order.

- This field shall hold a sending system's unique immunization ID. This value is not retained by VIIS.
- In the case where a historic immunization is being recorded, the sending system SHALL assign an identifier as if it were an immunization administered by a provider associated with the provider organization owning the sending system.
- In the case where an RXA is conveying information about an immunization that was not given (e.g. refusal) the Filler Order Number shall be **9999**.

ORC-10 Entered By. This identifies the individual that entered this particular order. It may be used in conjunction with an RXA to indicate who recorded a particular immunization.

ORC-12 Ordering Provider. This field contains the identity of the person who is responsible for creating the request (i.e, ordering physician). In the case where this segment is associated with a historic immunization record and the ordering provider is not known, then this field should not be populated.

RXA

The RXA carries pharmacy/immunization administration data. It is a repeating segment and can record unlimited numbers of vaccinations.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**4**	**NM**	**R**			**Give Sub-ID Counter**
2	**4**	**NM**	**R**			**Administration Sub-ID Counter**
3	**26**	**TS**	**R**			**Date/Time Start of Administration**
4	**26**	**TS**	**R**			**Date/Time End of Administration**
5	**100**	**CE**	**R**			**Administered Code**
6	**20**	**NM**	**R**			**Administered Amount**
9	200	CE		Y	NIP001	Administration Notes
10	200	XCN		Y		Administering Provider
11	200	CM				Administered-at location
15	20	ST	RE	Y		Substance Lot Number
17	60	CE	RE	Y	0227	Substance Manufacturer Name
18	200	CE		Y	NIP002	Substance Refusal Reason
20	2	ID			0322	Completion Status
21	2	ID			0323	Action code - RXA

Field Notes:

RXA-1 Required by HL7. Use "**0**" for VIIS.

RXA-2 Required by HL7. Use "**1**" for VIIS.

VIIS sends out vaccine series information in this field. For example, if a dose evaluates to (3 of 4) in the VIIS Vaccine Evaluator Wizard, then the system sends the number 3 in RXA-2. If the dose violates a specific VIIS Vaccine Evaluator Wizard rule, then the system sends **777** in RXA-2. In all other cases, the number **999** is sent in RXA-2. For combination vaccines, 1 is always sent in RXA-2, and the series count for each component antigen in the combination vaccine is sent in grouped OBX segments, which follow the RXA segment. Please see the field notes on OBX-3, OBX-4 and OBX-5.

The ability to send vaccine series information in RXA-2 only applies to HL7 Version 2.5.1. It applies to Batch HL7 VIIS-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract. Some configuration is needed to send vaccine series information in RXA-2

If the user configures the system so that it will **not** send series information, then the system always sends 1 in RXA-2.

In the following example, the dose of Encephalitis is the 3rd dose in the series.

RXA|0|3|20010207|20010207|39^Japanese encephalitis^CVX^90735^Japanese encephalitis^CPT|1.0|||01^^^^~32851911^VIIS immunization id^IMM_ID^^^||||||||||

RXA-3 Date the vaccine was given (YYYYMMDD) VIIS ignores any time component.

RXA-4 Required by HL7. Ignored by VIIS, which will use the value in RXA-3.

RXA-5 This field identifies the vaccine administered. VIIS accepts the **CVX Code**, **CPT Code**, **Vaccine Trade Name**, **NDC Code** or **Vaccine Group Code** for the vaccine administered. If using the **CVX** Code, give the **CVX** Code value in the first component and "**CVX**" in the third component. If using the **CPT** Code, the **Vaccine Group Code, NDC Code** or **Vaccine Trade Name**, use components four and six.

For example, give the **CPT code** in the fourth component and "**CPT**" in the sixth component, |^^^90700^DtaP^CPT|.

If using **Vaccine Group Code**, use "**WVGC**" as the name of the coding system.
If using **Vaccine Trade Name**, use "**WVTN**" as the name of the coding system.
If using **NDC Code**, use "NDC" as the name of the coding system.

See the CE data type and HL7 - **Table 0292** (**CVX Codes**), VIIS – Table CPT (**CPT Codes**), VIIS – Table **WVGC** (**Vaccine Group Codes**), VIIS – Table **NDC** (**NDC Codes**), and VIIS – Table **WVTN** (**Vaccine Trade Names**) for more values.

Note: For decrement of inventory to occur, vaccine information will appear in RXA-5. The vaccine will be a CVX, CPT, Vaccine Group Code, NDC code, or Vaccine Trade Name. For inventory to be deducted, matching vaccine information will be found in the participating provider's inventory in conjunction with a matching lot number and VIIS Organization Code. Additional lot matching information can be included in the OBX segment. See information on page 17.

RXA-6 Dose Magnitude is the number of age appropriate doses administered. For example, a dose magnitude of 2 of a pediatric formulation would be adequate for an adult. VIIS and HL7 require this field to contain a value. However, a value of **1.0** will be stored in its place.
Note: For RSP messages, RXA-6 will always return a value of 999.

RXA-9 VIIS will recognize **00** to indicate New Immunization Administered/Owned by the Sending Organization or **01** to indicate Historical Record – Source Unspecified. If the source for a historical record is known, please use values **02** through **08** in **Table NIP001**. For outgoing VIIS messages, the -Provider processing, corresponding immunization id will be provided in the second repeating segment.

Note: If this field is left blank, the immunization will be recorded as *historic* in VIIS.
ALL immunizations that were ***administered*** in your provider office should be recorded as "00" to ensure that the record is correctly associated with your organization in VIIS.

|00^^^^^~9999999^VIIS immunization id^IMM_ID^^^|

Note: For decrement of inventory to occur, the value 00, indicating New Immunization Administered/Owned by the Sending Organization, will appear in RXA-9.

RXA-10 Identifies the name of the administering clinician (**VEI**), ordering authority (**OEI**), and recorder (**REI**) of the immunization in VIIS. The recorder is not supported on incoming data transfers and only returns if the immunization is owned by the provider requesting the data. VIIS will use components 2 – 7 to record the names.

For incoming loads, it is recommended that license information (LPN, RN, MD) be put in the 5th component so that it processes as the clinician suffix in VIIS, as in the following example:

|^GROBBERTS^DELIA^S^RN^MS^^^^^^^VEI^^~^SHAFFER^TERRENCE^P^MD^DR^^^^^^^OEI^^|

For incoming loads, the system automatically creates clinician records in VIIS if a match is not found.

RXA-11 VIIS will use this field to identify the facility where the vaccine was administered. Place the facility name in component 4.

Note: For decrement of inventory to occur, use the Site Inventory ID provided by VIIS Help Desk or VIIS Staff in the 11.4. For example |^^^12345 |.

RXA-15 Manufacturer's lot number for the vaccine. VIIS does not support repetition of this field.

Note: For decrement of inventory to occur, a lot number will appear in RXA-15. For inventory to be deducted, a matching lot number will be found in the participating provider's inventory in conjunction with matching vaccine information and VIIS Organization Code.

RXA-17 Vaccine manufacturer from **Table 0227**, for example |AB^Abbott^MVX^^^|. The HL7 2.5.1 specification recommends use of the external code set **MVX**. "When using this code system to identify vaccines, the coding system component of the CE field should be valued as "**MVX**" not as "HL70227." VIIS does not support repetition of this field.

RXA-18 When applicable, this field records the reason the patient refused the vaccine. See **Table NIP002**. Any entry in this field indicates that the patient did not take the substance. The vaccine that was offered should be recorded in RXA-5, with the number **0** recorded for the dose number in RXA-2. Do not record contraindications, immunities or reactions in this field. VIIS does not support repetition of this field.

Notes on Refusals:

a) VIIS only stores the fact that a refusal of a vaccine occurred, not a specific type of refusal, so all outgoing refusals will be designated as "PARENTAL REFUSAL." Please see the example below.

b) VIIS will not write out refusals which do not have an applies-to-date. It will write out multiple refusals for the same vaccine on different dates for those patients who have them.

c) The VIIS system will accept incoming refusals of the same vaccine on different dates and file them both. However, if they both have the same applies-to date, then only one will be stored.

d) The sending organization will become the refusal owner. In general, only the organization who owns the refusal is permitted to edit it. However, in the case of parent and child organizations, the parent may edit the child's refusals and vice versa.

Here is a sample RXA segment for an MMR refusal given on the date 01/01/2007:

```
RXA|0|0|20070101|20070101|03^MMR^CVX|1.0||||||||||||00^PARENTAL
REFUSAL^NIP002^^^
```

RXA-20 For Batch HL7 VIIS-PO, Batch HL7, Bi-directional and Organizational Extract, this field records the value **PA** for doses which are partially administered. A partially administered dose refers to the scenario where the patient jumps and the needle breaks, resulting in an unknown quantity of vaccine entering the patient's system.

RXA-21 Action Code.

Allows an organization to add to or delete records. If it is left empty, then VIIS default to "**A**" for additions. To delete an existing immunization in VIIS, specify a value of "**D**". The immunization can only be deleted if it is owned by the same organization requesting the delete. No more than **5%** of all incoming immunizations in a batch load file can be flagged as delete requests. The total number of delete requests in a single file cannot exceed 50 total.

Note: For updates and additions, organizations shall use "**A**" additions in RXA-21, VIIS determines whether to update the record or add a new immunization.

Here is a sample RXA segment for an update and addition immunization:

```
RXA|0|1|20050919|20050919|^^^90713^Polio-InJect^CPT |1.0|||01^Historical
^^^^^^^^^|||||||||||||A|
```

RXR

The Pharmacy/Treatment Route Segment contains the alternative combination of route and site.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**60**	**CE**	**R**		**0162**	**Route**
2	60	CE			0163	Site

Field Notes:

RXR-1 This is the route of administration from **Table 0162**.

RXR-2 This is the site of the route of administration from **Table 0163**.

OBX

The Observation/Result Segment is used to transmit an observation.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	4	SI				Set ID-OBX
2	3	ID				Value type
3	**80**	**CE**	**R**			**Observation Identifier**
4	20	ST				Observation sub-ID
5	**65536**	**-**	**R**	**Y**		**Observation Value**
11	**1**	**ID**	**R**		**0085**	**Observation Result Status**
14	26	TS				Date/Time of the observation

Field Notes:

OBX-1 Sequential numbers. Use "**1**" for the first OBX within the message, "**2**" for the second, and so forth.

OBX-2 This field contains the data type which defines the format of the observation value in OBX-5. For incoming Provider to VIIS data, Data Exchange accepts **CE** for Coded Entry. However, for VIIS-Provider, the system will send out values of **CE**, **TS**, **NM** for **Coded Entry**, **Timestamp**, and **Number** respectively, depending on what is actually sent in OBX-5.

OBX-3 This field contains the observation's unique identifier. Organizations send **Logical Identifier Name** and **LOINC Codes**. The **Name of Coding System** in the third component must be **LN** for **LOINC**, First component and second component must report the following:

- **30945-0 Vaccination Contraindication/Precaution**, use **30945-0** in this field and enter a Contraindication, Precaution, or Immunity code (**NIP004**) in OBX-5.

  Example: `OBX|1|CE|30945-0^Contraindication^LN||21^acute illness^NIP^^^||||||F|`

- **31044-1 Reaction to Immunization**, use **31044-1** in this field and enter a Reaction code (**VIIS001**) in OBX-5.

  Example: `OBX|1|CE|31044-1^Reaction^LN||HYPOTON^hypotonic^VIIS^^^||||||F|`

- **30948-4 Vaccination Adverse Event Outcome**, use **30948-4** in this field and enter an Event Consequence code (**NIP005**) in OBX-5.

  Example: `OBX|1|CE|30948-4^Adverse Outcome^LN||E^er room^NIP^^^||||||F|`

- **64994-7 VFC Eligibility to Immunization**, use **64994-7** in this field and enter a VFC Eligibility code (from the **HL7 0064** table for Financial Class) in OBX-5.

  Example:
  RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||00^^^^^||||||||||||
  OBX|1|CE|64994-7^Vaccine fund pgm elig
  cat^LN^^^||V05^Underinsured^HL70064||||||F|

- **30963-3 Vaccine Funding Source to Immunization**, use **30963-3** in this field and enter a Vaccine Funding Source code (from the **NIP008** table) in OBX-5.

  Example:
  RXA|0|1|19860119|19860119|90713^Polio-InJect^CPT^IPOL^^WVTN|0|||00^^^^^||||||||||||
  OBX|1|CE|30963-3^Vaccine purchased with^LN^^^||PVF^Public funds^NIP008^^^||||||F||||||
  OBX|2|CE|64994-7^Vaccine fund pgm elig cat^LN^^^||V02^No Insurance^HL70064^^^||||||F||||||

  Note: For decrement of inventory, it is recommended to include the vaccine funding source code.

For Batch HL7 VIIS-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, the system uses this field to send the LOINC Codes for **Series information** for combination vaccines. For each component of a combination vaccine, the system sends out a grouped set of two OBX segments. The first segment identifies the component antigen, and the second segment identifies the Series count. OBX-3 is used to identify whether the component antigen or the valid series count is noted in OBX-5 respectively.

Here are the LOINC Codes that the system sends in OBX-3 for Series information for combination vaccines.

LOINC Code	Description
38890-0	Component Vaccine Type. This term is used to distinguish separate vaccine components of a multiple antigen vaccine. Included in LOINC 1/2005.
38890-0&30973-2	Dose Number in Series

In the following example, the LOINC Codes are highlighted in OBX-3. These two OBX segments together express that a dose of combination vaccine counts for the 1st dose of DTaP in the DTaP series.

OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|20^DTaP^CVX^90700^DTaP^CPT||||||F|
OBX|2|NM|38890-0&30973-2^Dose number in series^LN|1|1|||||||F|

Please see the end of the OBX field notes for a complete example of how VIIS sends Series information for combination vaccines.

For Batch HL7 VIIS-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, the system uses this field to send the LOINC Codes for **Recommendations**. For each recommendation, the system sends a grouped set of five OBX segments. Here are the LOINC Codes that the system sends out in OBX-3 for Recommendations.

The LOINC itself is sent in OBX-3 in order to identify what the value in OBX-5 represents.**LOINC Code**	**Description**
30979-9	Vaccines Due Next
30979-9&30980-7	Date Vaccine Due
30979-9&30973-2	Vaccine due next dose number
30979-9&30981-5	Earliest date to give
30979-9&30982-3	Reason applied by forecast logic to project this vaccine

In the following example, the LOINC Codes are highlighted in OBX-3 for a single recommendation of HepB.

```
OBX|11|CE|30979-9^Vaccines Due Next^LN^^^|3|45^HepB^CVX^90731^HepB^CPT||||||F|
OBX|12|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|3|20050103||||||F|
OBX|13|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|3|1||||||F|
OBX|14|TS|30979-9&30981-5^Earliest date to give^LN^^^|3|20050103||||||F|
OBX|15|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^^|3|^ACIP schedule||||||F|
```

Please see the end of the OBX field notes for a complete example of how VIIS sends Recommendations.

OBX-4 For sending out Series Information and Recommendations, the number in this field groups together related OBX segments. For example, a single recommendation for DTP/aP is sent in a grouped set of five OBX segments, all with the same sub-identifier in OBX-4. The sub-identifier increments sequentially.

For example, VIIS sends out five grouped OBX segments for each recommendation. The following is a single MMR recommendation, all sharing the same Observation sub-ID of 4 in OBX-4.

```
OBX|16|CE|30979-9^Vaccines Due Next^LN^^^|4|03^MMR^CVX^90707^MMR^CPT||||||F|
OBX|17|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|4|20050407||||||F|
OBX|18|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|4|2||||||F|
OBX|19|TS|30979-9&30981-5^Earliest date to give^LN^^^|4|20021105||||||F|
OBX|20|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^^|4|^ACIP schedule||||||F|
```

OBX-5 Text reporting Contraindication, Precaution, or Immunity (**NIP004**), Reaction (**MD001**), or Event Consequence (**NIP005**), Vaccine Funding Source (**NIP008**) or VFC Eligibility (**HL70064**). VIIS has imposed a **CE** data type upon this field. The first component of which is required.

(e.g., |PERTCONT^Pertussis contra^VIIS^^^|)

For Batch HL7 VIIS-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, this field holds the value observed for series information and recommendations. The value corresponds to the LOINC in OBX-3. For example, for recommendations, the fourth OBX segment is for the Earliest date. OBX-3 contains the code **30979-9&30981-5** and OBX-5 contains the actual earliest date as follows:

```
OBX|4|TS|30979-9&30981-5^Earliest date to give^LN^^^|1|20010519||||||F|
```

Please see the end of the OBX field notes for complete examples of how VIIS sends Series for combination vaccines and Recommendations.

OBX-11 Required for HL7. Use "**F**" for VIIS.
OBX-14 Records the date of the observation. VIIS ignores any time component.

NOTE 1: The only valid OBX Observation Identifier (OBX-03) for an **ADT^A31** message type is Contraindication/Precaution (**30945-0**).

NOTE 2: All OBX messages with an observation identifier of Vaccination Contraindication/Precaution will be returned in an outgoing file in a separate ADT message for the patient.

NOTE 3: Complete Example of VIIS's use of OBX to send Series Information for Combination Vaccines

A single dose of combination vaccine may have a different series dose count for each component. For Batch HL7 VIIS-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, the system sends a grouped set of two OBX segments for each component in a combination vaccine. For example, a single dose of Dtap-Hib is sent as below. The first and second OBX segments express the dose count of 1 for DTaP. The third and fourth OBX segments express the dose count of 3 for Hib.

```
RXA|0|999|19810807|19810807|50^DtaP-Hib^CVX^90721^DtaP-
Hib^CPT|1.0|||01^^^^^~32851914^VIIS immunization id^IMM_ID^^^||||||||||
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|20^DTaP^CVX^90700^DTaP^CPT||||||F|
OBX|2|NM|38890-0&30973-2^Dose number in series^LN|1|1||||||F|
OBX|3|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|17^Hib^CVX^90737^Hib^CPT||||||F|
OBX|4|NM|38890-0&30973-2^Dose number in series^LN|2|3||||||F|
OBX|5|TS|38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT
PUBLISHED^LN|2|19981216||||||F|
OBX|6|NM|38890-0&30973-2^Dose number in series^LN|2|3||||||F|
```

NOTE 4: Complete Example of VIIS's use of OBX to send Recommendation Information

For Batch HL7 VIIS-Provider, Batch HL7 Bi-directional, Real-time HL7, and Organizational Extract, a single recommendation is sent in a grouped set of five OBX-segments, which follow a place-holder RXA segment that does not represent any actual immunization administered to the patient. The five OBX segments in order express the Vaccine of the recommendation, the recommended date, the dose of the next vaccine due, the earliest date to give, and the reason for the recommendation, which is always the ACIP schedule.

```
RXA|0|0|20010407|20010407|998^No Vaccine Administered^CVX|999|0
OBX|1|CE|30979-9^Vaccines Due Next^LN^^^|1|20^DTP/aP^CVX^90700^DTP/aP^CPT||||||F|
OBX|2|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|1|20010607||||||F|
OBX|3|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|1|1||||||F|
OBX|4|TS|30979-9&30981-5^Earliest date to give^LN^^^|1|20010519||||||F|
OBX|5|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^^|1|^ACIP schedule||||||F|
OBX|6|CE|30979-9^Vaccines Due Next^LN^^^|2|85^HepA^CVX^90730^HepA^CPT||||||F|
OBX|7|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|2|20030407||||||F|
OBX|8|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|2|1||||||F|
OBX|9|TS|30979-9&30981-5^Earliest date to give^LN^^^|2|20020407||||||F|
OBX|10|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^^|2|^ACIP schedule||||||F|
OBX|11|CE|30979-9^Vaccines Due Next^LN^^^|3|45^HepB^CVX^90731^HepB^CPT||||||F|
OBX|12|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|3|20010407||||||F|
OBX|13|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|3|1||||||F|
OBX|14|TS|30979-9&30981-5^Earliest date to give^LN^^^|3|20010407||||||F|
OBX|15|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^^|3|^ACIP schedule||||||F|
```

Batch Files of HL7 Messages

The definitions above tell how to create messages containing patient demographic and immunization data. Each message can logically stand on its own and HL7 is compatible with various methods of online and batch transmission. VIIS uses batch files to transmit many messages together. HL7 provides special header and footer segments to structure batch files. These segments are not part of any message, but serve to bracket the messages defined above. The structure of a batch file is as follows.

```
FHS                (file header segment)
{ BHS              (batch header segment)
 { [MSH              (zero or more HL7 messages)
    ....
    ....
    ....
] }
  BTS               (batch trailer segment)
}
FTS                 (file trailer segment)
```

FHS

The File Header Segment is used to head a file (group of batches).

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**1**	**ST**	**R**			**File Field Separator**
2	**4**	**ST**	**R**			**File Encoding Characters**
3	15	ST				File Sending Application
4	20	ST				File Sending Facility
6	20	ST				File Receiving Facility
7	26	TS				File Creation Date/Time
9	20	ST				File Name/ID
10	80	ST				File Header Comment
11	20	ST				File Control ID
12	20	ST				Reference File Control ID

Field Notes:

FHS-1 Same definition as the corresponding field in the MSH segment.
FHS-2 Same definition as the corresponding field in the MSH segment.
FHS-3 Same definition as the corresponding field in the MSH segment.
FHS-4 Same definition as the corresponding field in the MSH segment.
FHS-6 Same definition as the corresponding field in the MSH segment.
FHS-7 Same definition as the corresponding field in the MSH segment.
FHS-9 Name of the file as transmitted from the initiating system.
FHS-10 Free text, which may be included for convenience, but has no effect on processing.
FHS-11 This field is used to identify a particular file uniquely among all files sent from the sending facility identified in FHS-4.
FHS-12 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

The File Trailer Segment defines the end of a file.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**10**	**NM**	**R**			**File Batch Count**
2	80	ST				File Trailer Comment

Field Notes:

FTS-1 The number of batches contained in this file. VIIS normally sends one batch per file and discourages sending multiple batches per file.
FTS-2 Free text, which may be included for convenience, but has no effect on processing.

BHS

The Batch Header Segment defines the start of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**1**	**ST**	**R**			**Batch Field Separator**
2	**4**	**ST**	**R**			**Batch Encoding Characters**
3	15	ST				Batch Sending Application
4	20	ST				Batch Sending Facility
6	20	ST				Batch Receiving Facility
7	26	TS				Batch Creation Date/Time
10	80	ST				Batch Comment
11	20	ST				Batch Control ID
12	20	ST				Reference Batch Control ID

Field Notes:

BHS-1 This field contains the separator between the segment ID and the first real field, *BHS-2-batch encoding characters*. As such it serves as the separator and defines the character to be used as a separator for the rest of the segment. VIIS requires | (ASCII 124).

BHS-2 This field contains the four characters in the following order: the component separator, repetition separator, escape characters and sub-component separator. VIIS requires ^~**&**, (ASCII 94, 126, 92 and 38 respectively).

BHS-3 Same definition as the corresponding field in the MSH segment.

BHS-4 Same definition as the corresponding field in the MSH segment.

BHS-6 Same definition as the corresponding field in the MSH segment.

BHS-7 Same definition as the corresponding field in the MSH segment.

BHS-10 Free text, which may be included for convenience, but has no effect on processing.

BHS-11 This field is used to uniquely identify a particular batch. It can be echoed back in *BHS-12-reference batch control ID* if an answering batch is needed. For VIIS purposes, the answering batch will contain ACK messages.

BHS-12 This field contains the value of *BHS-11-batch control ID* when this batch was originally transmitted. Not present if this batch is being sent for the first time. See definition for *BHS-11-batch control ID*.

BTS

The Batch Trailer Segment defines the end of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	**10**	**ST**	**M**			**Batch Message Count**
2	80	ST				Batch Comment

Field Notes:

BTS-1 This field contains the count of the individual messages contained within the batch.

BTS-2 Free text, which can be included for convenience, has no effect on processing.

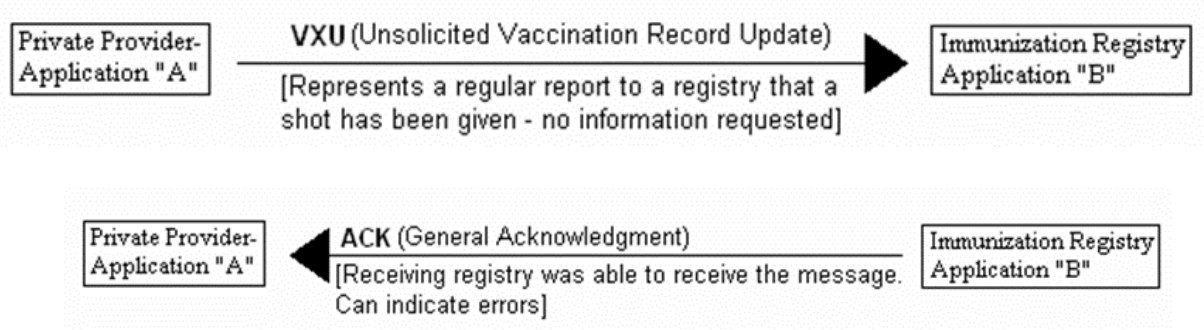
Interchange between VIIS and Outside Systems using the Batch user interface

The central repository of VIIS contains records of patients from around the state. Patient demographic and immunization records flow both ways between VIIS and outside systems. Data, for a particular client, is transmitted by VIIS to an outside system (Provider Organization) only if the patient is identified as having an Active relationship with that Organization AND the relationship was created by transmitting the patient's record to VIIS or by creating the relationship via the VIIS-Web User Interface. So, an exchange of information about a given patient is always initiated by the outside system. There are three options for exchanging data with VIIS:

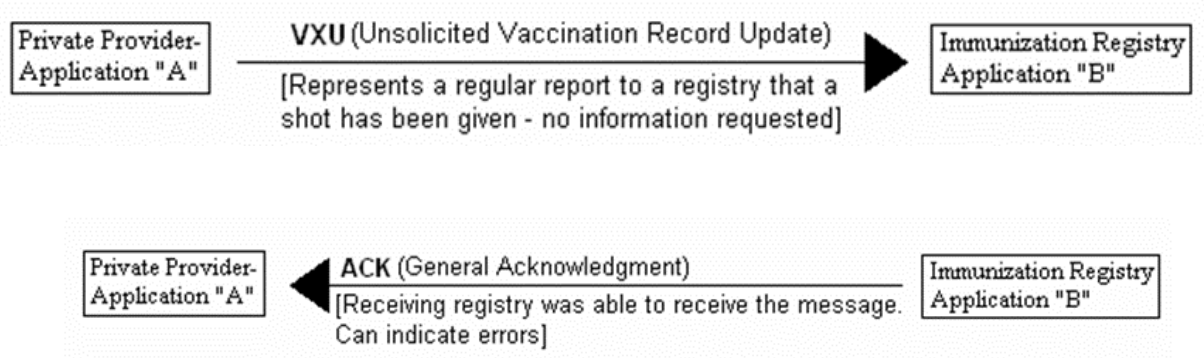
(1) The Provider Organization can send data to VIIS and request that no data is returned from VIIS, which is a Provider Organization to VIIS data transfer.
(2) The Provider Organization can request data from VIIS while not providing data to VIIS, which is a VIIS to Provider Organization data transfer.
(3) The Provider Organization can send data to VIIS and VIIS will return any updated information regarding any patients that have an Active relationship with that Provider Organization, which is a Bi-directional data transfer.

HL7 messages are always part of a two-way exchange between an initiating system and a responder. Sometimes the initial message implies specific data to be sent in a response. Other times, as is the case with VIIS patient demographic and immunization data, the principal response of the responder is to process the message and post whatever it contains to its own database. For these cases, the responder provides the ACK message type in an HL7 format, which contains no new application data, but allows the receiver to inform the initiator that the message has been received and processed successfully. If an error prevents successful processing, optional parts of the ACK message will allow this to be communicated as well.

For exchanges between VIIS and outside systems, which is a Provider Organization to VIIS data transfer, it is the responsibility of the outside system to initiate the transfer of the first file, containing ADT (only for updating demographic information) and/or VXU messages with patient demographic and immunization data for adding or updating patient demographic and immunization data. After processing those messages, VIIS responds with a response file of ACK messages.



For exchanges between VIIS and outside systems, which is a Bi-directional data transfer, it is the responsibility of the outside system to initiate the transfer of the first file, containing ADT (only for updating demographic information) and/or VXU messages with patient demographic and immunization date for adding or updating patient demographic and immunization data. After processing those messages, VIIS responds with a response file of ACK messages. At the same time or soon after, VIIS also creates another file of ADT and VXU messages, containing the full patient record (if the patient was new), to send to the Provider Organization that initiated the first transfer. It is the responsibility of the Provider Organization as receiver to transmit back a file of ACK messages.



The 15th field, in the MSH message header segment, allows the initiator to ask that the message be acknowledged only in the case of an error and VIIS supports this in order to minimize the number of ACK messages transmitted. In this case, the ACK file contains only error messages (an optional form of the ACK message type). The original messages, with no answering error messages, are implicitly acknowledged as successfully processed. If all messages in a batch are successful, the answering ACK file will only contain file batch headers and footers, with no actual ACK messages. For Step 2, in the above table, it is permissible for a Provider Organization to send a file containing only file batch headers and footers as a way of triggering the file that VIIS creates in Step 6. It is also possible that the file, VIIS creates in Step 6, will contain only file batch headers and footers if there are no records to send.

Examples

To illustrate how a VIIS HL7 file is put together we will document how the fictional organization, Valley Clinic (sending organization ID 036), formats patient demographic and immunization records to be transmitted to VIIS. The following table displays the information to be transmitted and it is organized into HL7 segments and fields. For example, PID-3 refers to the third field in the Patient Identification segment.

Information to transmit	Data value to be entered	HL7 Format
• Patient #1		PID segment
• Chart Number (ID on Valley Clinic's system)	45LR999	PID-3
• Name	GEORGE M MILLER JR	PID-5
• Mother's maiden name	MARTHA OLSON	PID-6
• Birth date	February 27, 1995	PID-7
• Sex	M	PID-8
• Address	123 MAIN ST RICHMOND, VA 23219	PID-11
• Birth Place	MD025, MD	PID-23
• Multiple Birth Indicator	Y (patient was born as part of a multiple birth)	PID-24
• Birth Order	2 (second birth of a multiple birth)	PID-25
• Additional Patient Demographics		PD1 segment
• Publicity Code	02	PD1-11
• Protection Indicator	N (patient records are visible by other provider organizations)	PD1-12
• Patient Registry Status	A (client is active in the registry)	PD1-14
• Responsible Person (parent or other person who cares for patient)		NK1 segment
• Name	MARTHA MILLER	NK1-2
• Relationship to patient	MTH	NK1-3
• Address	123 MAIN ST RICHMOND, VA 23219	NK1-4
• Phone	703 123 4567	NK1-5
• Responsible Person		NK1 segment
• Name	GEORGE MILLER	NK1-2
• Relationship to patient	FTH	NK1-3
• Order Request		ORC segment
• Order Control	'RE' typically entered, but is ignored by VIIS.	ORC-1
• Filler Order Number	Is used to identify uniquely this order among all orders sent by a provider organization that filled the order. '1572695^GW'	ORC-3
• Immunization		RXA segment
• Date administered	June 21,1998	RXA-3
• Vaccine	MMR	RXA-5
• CVX Code	20	RXA-5
• Dose size	0.5	RXA-6
• Administering Organization	West Pediatric	RXA-11
• Historic (not owned) Immunization	01	RXA-9
• Observation Result		OBX segment

Information to transmit	Data value to be entered	HL7 Format
• Set ID-OBX	1 (Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.)	OBX-1
• Value Type	CE	OBX-2
• Observation Identifier	64994-7 (LOINC identifying VFC Eligibility)	OBX-3
• Observation Value	V04 (VFC Eligibility code)	OBX-5
• Patient #2		PID segment
• Chart Number	23LK729	PID-3
• Name	MARIA CALIFANO	PID-5
• Mother's maiden name	ANGELICA DISTEFANO	PID-6
• Birth date	April 13, 1998	PID-7
• Sex	F	PID-8
• Order Request		ORC segment
• Order Control	'RE' typically entered, but is ignored by VIIS.	ORC-1
• Filler Order Number	Is used to identify uniquely this order among all orders sent by a provider organization that filled the order. '1572696^GW'	ORC-3
• Immunization		RXA segment
• Date administered	July 23, 1999	RXA-3
• Vaccine	DTaP	RXA-5
• CVX Code	20	RXA-5
• Dose size	0.5	RXA-6
• Historic Immunization	01	RXA-9
• Administering Organization	East Clinic	RXA-11
• Immunization		RXA segment
• Date administered	July 23,1999	RXA-3
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Dose size	0.5	RXA-6
• Ownership of Immunization	00	RXA-9
• Administering Provider	Dr John J Smith MD	RXA-10
• Administering Organization	Valley Clinic	RXA-11
• Lot number	BC19487	RXA-15
• Lot Manufacturer	AB (this manufacturer is Abbott - the code is found in the valid list in HL7 **Table 0227**.)	RXA-17
• Observation Result		OBX segment
• Set ID-OBX	1 (Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.)	OBX-1
• Value Type	CE	OBX-2
• Observation Identifier	64994-7 (LOINC identifying VFC Eligibility)	OBX-3
• Observation Value	V04 (VFC Eligibility code)	OBX-5
• Patient #3		PID segment
• Chart Number	92HG9257	PID-3
• Name	JOSEPH FISHER	PID-5
• Mother's maiden name	MARY LASOWSKI	PID-6
• Birth date	May 28, 1998	PID-7
• Sex	M	PID-8
• Order Request		ORC segment
• Order Control	'RE' typically entered, but is ignored by VIIS.	ORC-1
• Filler Order Number	Is used to identify uniquely this order among all orders sent by a provider organization that filled the order. '1572696^GW'	ORC-3
• Immunization		RXA segment
• Date administered	July 23, 1999	RXA-3

Information to transmit	Data value to be entered	HL7 Format
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Dose	0.5	RXA-6
• Ownership of Immunization	00	RXA-9
• Administering Provider	Dr John J Smith MD	RXA-10
• Administering Organization	Valley Clinic	RXA-11
• Lot number	AD18227	RXA-15
• Lot expiration date	December 12, 1999	RXA-16
• Lot manufacturer	FLYBYNIGHT LABORATORIES (this manufacturer is not found in the valid list in HL7 **Table 0227**. The message will still be accepted in VIIS, with the manufacturer set to unknown.)	RXA-17
• Observation Result		OBX segment
• Set ID-OBX	1 (Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.)	OBX-1
• Value Type	CE	OBX-2
• Observation Identifier	64994-7 (LOINC identifying VFC Eligibility)	OBX-3
• Observation Value	V04 (VFC Eligibility code)	OBX-5

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

```
FHS|^~\&||VALLEY CLINIC^036||VIIS|19990802091523||filename1.hl7|WEEKLY HL7
      UPLOAD|00009972<CR>
BHS|^~\&||VALLEY CLINIC^036||VIIS|19990802091523||||00010223<CR>
MSH|^~\&||VALLEY CLINIC^036||VIIS|19990802091524||ADT^A31|00000123|P|2.5.1|||AL<CR>
PID|||45LR999^^^^PI||MILLER^GEORGE^M^JR|OLSON^MARTHA|19950227|M|||123 MAIN
      ST^^BALTIMORE^MD^53000^US^^^FULTON|||||||000111222||||US^MD^1843|Y|2<CR>
PD1 ||||||||||02^REMINDER/RECALL - ANY MENTOD^HL70215|Y| |A<CR>
NK1|1|MILLER^MARTHA|MTH^Mother^HL70063|123 MAIN ST^^BALTIMORE^MD^53000^US^^^1843
      |(608)123-4567<CR>
NK1|2|MILLER^GEORGE|FTH^Father^HL70063<CR>
ORC|RE||1572695^GW|||||||||
RXA|0|999|19990723|19990621|^^^90707^MMR^CPT|0.5|||01||WEST PEDIATRIC<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig cat^LN|1|V04^^HL70064||||||F|||19990621|
MSH|^~\&||VALLEY CLINIC^036||VIIS|19990802091524||VXU^04|00000124|P|2.5.1|||ER<CR>
PID|||66782^^^SR^~23LK729^^^^PI|CALIFANO^MARIA|DISTEFANO^ANGELICA|19980413|F<CR>
ORC|RE||1572696^GW|||||||||
RXA|0|1|19990723|19990723|^^^90700^DTaP^CPT|0.5|||01|VALLEY CLINIC|EAST CLINIC<CR>
RXA|0|1|19990723|19990723|^^^90707^MMR^CPT|0.5VALLEY
      CLINIC|||00|^SMITH^JOHN^J^MD^^^^^^^OEI |Valley Clinic ||||BC18227|
      |AB^ABBOTT^HL70227<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig cat^LN|1|V04^^HL70064||||||F|||19990723|
MSH|^~\&||VALLEY CLINIC^036||VIIS|19990802091526||VXU^V04|00000125|P|2.5.1|||ER<CR>
PID|||927389^^^^SR^~92HG9257^^^^PI|FISHER^JOSEPH|LASOWSKI^MARY|19980528|M<CR>
ORC|RE||1572697^GW|||||||||
RXA|0|1|19990729|19990729|^^^90707^MMR^CPT|0.5VALLEY
      CLINIC|||00|^SMITH^JOHN^J^MD^^^^^^^OEI |Valley Clinic||||AD19487|
      19991212|ZZ^FLYBYNIGHT LABORATORIES^HL70227|||||A<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig cat^LN|1|V04^^HL70064||||||F|||19990729|
BTS|3<CR>
FTS|1<CR>
```

Note:

When a patient is being introduced to VIIS, the VXU message must precede the ADT message, since VIIS must have at least one immunization for a patient before being added to the database. Sending ADT and VXU messages for the same patient is redundant, since the VXU message is capable of reporting all information that is also found in the ADT.
In the example above, Valley Clinic sends a file of three HL7 messages to VIIS. Batch header/footer segments bracket the messages. The first message type is an ADT, which is used to send patient demographic data without including immunization information. This message type MUST follow a VXU message for the patient if the patient is new to the VIIS system. VIIS recommends that VXU's be used for updating both demographic and immunization information.

Patient George M Miller Jr. is identified by Valley Clinic's Patient ID, 45LR999, in his PID segment. The message could have included George's VIIS ID number in field PID-3, but does not have to, if it is not recorded in Valley Clinic's system. George's mother's maiden name, birth date, sex, and address also serve to identify him. Some other optional fields are not present, including some fields from the full HL7 standard not defined in this document because they are not used by VIIS. Fields not present do not diminish the number of "|" delimiters, so later fields can be identified by ordinal position in the segment. Two NK1 segments give some information for George's mother and father, just the minimum required for his father, with address and telephone fields for his mother.

The next two PID segments in the second and third messages give a VIIS patient ID in field PID-3. This must have been transmitted earlier from VIIS to Valley Clinic's system. In this case it is legitimate to omit more of the optional PID fields, since VIIS must have at least the minimum required information for these patients even to create a record. However, if there is a possibility that Valley Clinic has new or changed information to send to VIIS, these fields should be present, and it does no harm to repeat fields even if they have been transmitted previously.

VIIS answers the file from the above example with a file of ACK messages. Valley Clinic's message **00000123** (this is the record code entered in MSH-10 and used to identify the individual record) had the value **AL** in field MSH-15, asking for acknowledgements of all messages. The value **AA** in MSA-1 indicates that this message was processed without error. The next message, **00000124**, uses the value **ER** to ask for acknowledgement only in case of errors, so this message is acknowledged implicitly by the absence of an ACK message for it. This example while legitimate is for purposes of illustration and most providers will probably prefer to follow the VIIS recommendation of error acknowledgements only. The last message, **00000125**, did contain an error, and the ERR segment in its acknowledgement indicates the segment ID (RXA) of the segment, the line number (152) where it appears in the input file, the errant field (17)and the field component (1). The MSA segment contains the error message. Errors will be generated for missing required data, invalid data or any other deviance from the form and content of messages as specified in this document. If all three messages in the first file above had requested error acknowledgement only and none had any errors, then the answering file from VIIS would contain just the FSH, BHS, BTS, and FTS segments. All the messages would be implicitly acknowledged as successfully processed.

```
FHS|^~\&|VIIS|VIIS||VALLEY
      CLINIC|19990803200106||filename2.hl7||000023479|00009972<CR>
BHS|^~\&|VIIS|VIIS||VALLEY CLINIC|19990803200116||||00004321|00010223<CR>
MSH|^~\&|VIIS|VIIS||VALLEY CLINIC|19990803200117||ACK|00000456|P|2.4<CR>
MSA|AA|00000123<CR>
MSH|^~\&|VIIS|VIIS||VALLEY CLINIC|19990803200119||ACK|00000458|P|2.4<CR>
MSA|AE|00000125|INVALID MANUFACTURER CODE<CR>
ERR|RXA^152^17^1<CR>
BTS|2|<CR>
FTS|1<CR>
```

In the sample file exchange above, the outside system initiated the exchange with the file of ADT and VXU segments and VIIS responded with ACK segments. The format is identical when VIIS sends ADT and VXU segments out and the ACK responses are similar too. In the FHS, BHS, and MSH segments, the values of the fourth and sixth fields are reversed to show sender and receiver. VIIS always sends its own patient identifier in the required field PID-03 and includes the outside system's identifier in PID-03 if known. Outside systems are encouraged to store VIIS's patient ID, and use it in PID-03 when sending to VIIS. This provides a firm basis for patient identification makes processing easier for the VIIS system and avoids errors in storing patient information, such as creation of duplicate records when an insufficiently identified patient record cannot be matched with a record already in the VIIS database. Though VIIS makes a great effort to match patient records effectively, use of the VIIS patient ID is the best guarantee of clean and useful data.

Real-time Processing

"Real-time" processing refers to the ability to transmit an HL7 2.5.1 formatted QBP^Q11^QBP_Q11 Message (Query for Vaccination Record) and a VXU^V04 Message (Unsolicited Vaccination Update) and receive from VIIS the resulting HL7 2.5.1 Response Message in real time.

A provider organization will query a registry to get information on a certain client (i.e. send an HL7 2.5.1 QBP^Q11^QBP_Q11 message) and will receive an HL7 2.5.1Message Response (i.e. RSP^K11^RSP_K11 with one of three response profiles specified in MSH-21, or ACK) to that query in real time.

The RSP^K11_RSP_K11 Response Message will contain the response profile identifier in MSH-21, which will identify the response profile information that will follow in the message.

There are three Response Profiles (specified in MSH-21):

1. Z31^CDCPHINVS – Multiple candidate list (Analogous to the HL7 2.4 VXX Query response)
2. Z32^CDCPHINVS – Exact candidate match (Analogous to the HL7 2.4 VXR Query response)
3. Z34^CDCPHINVS – No candidate match found in the registry (Analogous to the HL7 2.4 QCK Query response)

In order to have this capability, provider organizations need to perform the following:

1. Obtain or develop, install and configure a client interface capable of transmitting an HL7 formatted Message file via the Electronic Business using eXtensible Markup Language (ebXML) infrastructure to securely transmit public health information over the Internet to the Public Health Information Network Messaging System (PHINMS) Message Receiver. Refer to Appendix C for transport options and configuration settings.
2. The provider organization will submit a text file containing HL7 2.5.1 formatted QBP^Q11^QBP_Q11 and VXU^V04_VXU_V04 Messages (up to 1000 messages are accepted) to be delivered via their ebXML-based client Message Sender to the VIIS PHINMS Message Receiver. VIIS will process the Messages and send back via the PHINMS Message Receiver a file of HL7 2.5.1 formatted Response Messages, one per associated query or vaccination update request.
3. It is the responsibility of the provider organization to obtain or develop, install and configure an ebXML client Message Sender for sending the HL7 2.5.1 formatted Message Requests and receiving the resulting HL7 2.5.1 formatted Message Response file generated by VIIS.
4. The provider organization will need to obtain from VIIS a CPA (Collaboration Protocol Agreement, otherwise known as a Party ID) for access to the VIIS Real-time system.

Full documentation and contact information for the PHINMS product may be found at the following link:
http://www.cdc.gov/phin/

Full documentation for the ebXML specification may be found at the following link:
http://www.ebxml.org/specs
PHINMS is ebXML version 2.0 compliant.

The following section outlines the various message types that are sent in real-time files.

Real-time files that provider organizations send to the VIIS can contain any of the following message types.

Real-time Process Message Types

VXU^V04^VXU_V04

Unsolicited Vaccination Update

MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographic
[{NK1}]	Next of Kin / Associated Parties
{ORC}	Order Control
RXA	Pharmacy / Treatment Administration (at least ONE RXA is REQUIRED by VIIS)
[RXR]	Pharmacy / Treatment Route (Only one RXR per RXA segment)
[{OBX}]	Observation/Result

QBP^Q11^QBP_Q11

Query for Vaccination Record

MSH	Message Header Segment
QRD	Query Parameter Definition Segment
RCP	Response control Parameter

RSP^K11^RSP_K11

Response To Vaccination Query

Real-time (response) files that the VIIS sends to provider organizations can contain any of the following message Profiles (specified in MSH-21 of the RSP^K11^RSP_K11 Message):

Z32^CDPHINVS

Response To Vaccination Query Returning the Vaccination Record (Returning Exact PID Match)

Profile (specified in MSH-21)

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
QAK	Query Acknowledgment Segment (One per message)
QPD	Query Parameter Definition Segment (One per message)
PID	Patient Identification Segment (One per matching client)
[PD1]	Additional Demographics
[{NK1}]	Next of Kin Segment (Optional, zero or more per matching client)
{ORC	Order Control
RXA	Pharmacy Administration
[RXR]	Pharmacy Route
[{OBX}]	Observation/Result Contraindications or Reactions
}	
[{OBX}]	Observation/Result Vaccines Due Next

Z31^CDCPHINVS

Response To Vaccination Query (Returning Multiple PID Matches)

Profile (specified in MSH-21)

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
QRD	Query Definition Segment (One per message)
QRF	Query Filter Segment (One per message—required by VIIS)
{	
PID	Patient Identification Segment (One per matching client)
[{NK1}]	Next of Kin Segment (Optional, zero or more per matching client)
}	

Z34^CDCPHINVS
Query General Acknowledgment (No PID Match Found)

Profile (specified in MSH-21)

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
[ERR]	Error
[QAK]	Query Acknowledgment Segment

ACK
General Acknowledgment

MSH	Message Header Segment
MSA	Message Acknowledgment Segment
[{ERR}]	Error

This document outlines the rules/specifications needed to construct an HL7 message. These same rules must be applied for Real-time message processing. **Note: Batch Message Headers (i.e. FHS, BHS) and footers (i.e. FTS, BTS) are NOT required for Real-time processing.

Real-time Process Message Segments

The message segments below are needed to construct message types that are used by VIIS. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since VIIS does not use all the fields that HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, their field separators remain in order to indicate that the next field present is the fourth: field1|||field4.

MSH Segment
Message Header Segment

For VXU and QBP message types, the MSH segment must be constructed according to normal HL7 format specifications (refer to Pg. 5 of this document). For Real-time processing, VIIS limits the number of MSH segments that can be processed in a single file. Files containing more than 1000 MSH segments will be rejected and an ACK message will be generated, informing the provider that 1000 is the maximum number of MSH segments that VIIS accepts for Real -time processing.

1. VXU^V04^VXU_V04 (Unsolicited Vaccination Record Update)
   As stated earlier in this document, the VXU message is used for sending client demographic and immunization specific data. This message type can be sent via Real-time. VXU segments should be constructed according to normal HL7 format specifications (refer to pages 5-17 of this document). A VXU message must be received in HL7 2.4 or HL7 2.5.1 format for Real-time processing. VIIS validates the version by reading the MSH-12 field. A VXU message must contain |2.5.1| in MSH-12 for HL7 2.5.1 Querying.

   Immunization deletions can be submitted for both batch HL7 and Real-time submissions. To indicate a deletion, the RXA-21 field must be populated with a value of "**D**". Below is an example of a RXA deletion segment. If the number of deletions received through batch exceeds 5% of the total number of immunizations or more than 50 immunizations are marked for deletion, VIIS will reject the file. Providers are only able to delete immunizations that were entered by their organization.

   ```
   RXA|0|999|19860715|19860715|09^Td^CVX|0|||05^^^^^||^^^208^^^^^^^^^^^^|||||||D|
   ```

   Note: For updates and additions, organizations shall use a value of "**A**" for additions in RXA-21, VIIS has specific criteria for determining whether to update the record or add a new immunization. It is important to not assume Updates will be or need to be specifically indicated.

   Here is a sample RXA segment for an update or addition immunization:
   ```
   RXA|0|1|20050919|20050919|09^Td^CVX |1.0|||01^Historical^^^^^^^^^|||||||||||A|
   ```

2. QBP^Q11_QBP^Q11 (Query for Vaccination Record)

When a health care provider (participating in an immunization registry) needs to obtain a complete patient vaccination record, a QBP (query) is sent to the immunization registry for the definitive (last updated) immunization record. The three segments that make up a QBP message are the MSH (message header), and QPD (query parameter definition). MSH-21 should contain **Z34^CDCPHINVS**. For a QBP message, the MSH-9 field must contain **|QBP^Q11^QBP_Q11|** and the segments must be in the following sequence order:

```
MSH|^~\&|||||20100824||QBP^Q11^QBP_Q11|MyMessageId|P^|2.5.1^^|||ER||||||Z34^CDCPHINVS
QPD|Z34^Request ImmunizationHistory^HL70471|Qry_01|1^^^^PI^|LAST^FIRST^MIDDLE
|MAIDEN^MOTHER|19620119|F|||
```

The QPD are outlined in detail below.

QPD Segment

Query Parameter Definition Segment is used to define a query. The QPD segment defines the parameters of the query. This segment is intentionally very similar to the PID segment containing permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1		CE	R			Message Query Name
2	32	ST	R			Query Tag
3		CX	R	Y		Patient Identifier List
4		XPN	R			Patient Name
5		XPN				Mother's Maiden Name
6	26	TS	R			Patient Date of Birth
7	1	IS				Patient Sex
8		XAD				Patient Address
9		XTN				Patient Home Phone Number
10	1	ID				Patient Multiple Birth Indicator
11	2	NM				Patient Birth Order

Field Notes:

QPD-1 Use "**Z34^Request Immunization history^HL70471**".

QPD-2 Unique to each query message instance.

QPD-3 This is a required field. Sub-components 1 (ID) and 5 (identifier type code see **Table 0203**) are required in the QPD-3 field. When a Provider Organization is sending to VIIS, use the sending system's Chart Number, Medical Record Number or other identifier if available.

QPD-4 This is a required field. See the XPN data type. Last name and first name are required in the first two components. If the Name Type Code component is included, use **L-Legal**.
NOTE: If client does not have a first name, **NO FIRST NAME** must be entered. VIIS does not support repetition of this field.

QPD-5 See the XPN data type. In this context, where the mother's name is used for client identification, VIIS uses only last name and first name. If not valued, Mother's maiden name is not considered when seeking matching clients.

QPD-6 This is a required field, contains the client's date of birth (YYYYMMDD). VIIS ignores any time component.

QPD-7 This field contains the client's sex. Refer to Use-defined **Table 0001** – Administrative sex for suggested values. Use **F**, **M**, or **U**.

QPD-8 This field contains the address of the client. See XAD data type. VIIS does not support repetition of this field.

QPD-9 This field contains the client's personal phone numbers. Refer to HL7 **Table 0201** – Telecommunication Use Code and HL7 **Table 0202** – Telecommunication Equipment Type for valid values. Ignored by VIIS because phone number is not one of the fields used for client matching..

QPD-10 Use **Y** to indicate that the client was born in a multiple birth.

QPD-11 Relevant when client was born in a multiple birth. Use **1** for the first born, **2** for the second, etc. This field is useful in matching client data to existing records.

Example:

```
MSH|^~\&|||||||QBP^Q11^QBP_Q11|793543|P|2.5.1|||||||||Z34^CDCPHINVS <CR>
QPD| Z34^Request Immunization History^HL70471
|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy^^^^^M|20050512|M|10 East Main
St^^Myfaircity^VA^^^L<CR>
RCP|I|5^RD^HL70126|R^real-time^HL70394<CR>
```

This query is being sent from a system with a name space identifier of MYEHR. It is requesting an immunization history for a person named Bobbie Q Child. His mother's maiden name was Suzy Que. He was born 5/12/2005 and lives at 10 East Main St, Myfaircity, Virginia. His medical record number with MYEHR is 123456. The most records that the requesting system wants returned if lower confidence candidates are returned is 5. Processing is expected to be "immediate".

RCP Segment

The Response Control Parameter Segment is required and used to restrict the amount of data that should be returned in response to a query. It lists the segments to be returned. In addition to fields one and two, the CDC IG includes definitions for fields three through seven. This guide does not include definitions for fields three through seven because VIIS does not parse/use those fields.

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	1	ID	O		0091	Query Priority
2		CQ	O			Quantity Limited Request

Field Notes:

RCP-1 This field contains the time frame that the response is expected. Refer to HL7 **Table 0091** – query priority for valid values. Table values and subsequent fields specify time frames for response. Only **I** for immediate shall be used for this field. VIIS defaults to **I** if this field is left empty.

RCP-2 This field contains the maximum length of the response that can be accepted by the requesting system. Valid entries are numerical values (in the first component) given with the units specified in the second component. VIIS requires **RD** in the second component.

Note: This field is the maximum total records to return. The Version 2.5.1 standard indicates the maximum number to return in each batch. No batching of responses is permitted in this Guide.

QAK Segment

The Query Acknowledgment Segment is required and contains information sent in an RSP message. It cannot be repeated.

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	32	ST	O			Query Tag
2	2	ID	R		0208	Query Response Status
3		CE	R			Message Query Name

Field Notes:

QAK-1 Query Tag. Echoes the QPD-2 Query Tag query identifier sent by the Organization requesting information through a QBP message. With this value, VIIS matches the RSP message to the query.

QAK-2 Query Response Status. This field allows the responding system to return a precise response status. It is especially useful in the case where no data is found that matches the query parameters, but where there is also no error. It is defined with HL7 **Table 0208** - Query Response Status.

QCK-3 Message Query Name. Echoes the QPD-1 Message Query Name sent by the Organization requesting information through a QBP message.

Example: Z34^CDCPHINVS Response profile (No client match found)

```
MSH|^~\&| VIIS ^^| VIIS ^^|||20110330||RSP^K11^RSP_K11|PHIN_QUERY01|P^|
2.5.1^^|||ER||||||Z34^CDCPHINVS
MSA|AA|PHIN_QUERY01
QAK|PHIN_QUERY01|NF|Z343^request Immunization history^HL70471
QPD|Z34^Request Immunization History^HL70471|PHIN_QUERY_01||Jane^Doe^^^^^L^
||20080612|||
```

ACK Segment

Acknowledgment Messages (ACK) are generated for message rejections and for informational error messages. Four conditions that result in entire message rejection are:

1. Sequencing (i.e. a PID segment must follow an MSH segment).
2. Required segment missing.

3. Required field missing from the [1..1] must have exactly one occurrence segment (i.e. a blank MSH-9 field, MSH-9 Message Type is a required field in required segment, without valid data, message cannot be processed).
4. Required field contains invalid data from the must have exactly one occurrence segment.

An ACK is also generated when an informational error message has occurred, but it has not resulted in message rejection (i.e. NK1 segment contains no last name). In this case, the segment is ignored but the remainder of the message is processed. An ACK message is generated with a message informing the sender of the problem. The error message in this case would NOT include "Message Rejected". The ACK contains the MSH, MSA and ERR segments. The MSH segment is generated according to normal HL7 processing guidelines. The MSA and ERR segments are detailed
below:

ERR

The ERR segment is used to add error comments to acknowledgment messages.

Note: ERR-1 field is not supported in Version 2.5.1.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1			X			Not supported for Version 2.5 and above.
2	18	ERL	RE			Error Location
3	705	CWE	R	Y	0357	HL7 Error Code

Field Notes:

ERR-2 Error Location. Identifies the location in a message related to the identified error, warning or message. Each error will have an ERR, so no repeats are allowed on this field. This field may be left empty if location is unable to be parsed.

ERR-3 HL7 Error Code. Identifies the HL7 error code. Refer to HL7 **Table 0357** – Message Error Condition Codes for valid values.

ERR-8 Error Message. This optional field further describes an error condition in HL7 2.5.1 ACK message. When a message has been rejected, VIIS generates "Message Rejection" as the first portion of the test describing the error message. Informational messages will not contain a "Message Rejection" statement.

MSA

Message Acknowledgment Segment

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0008	Acknowledgment code
2	20	ST	R			Message control ID
3	80	ST	O			Text message
4	15	NM	O			Expected sequence number
5	1	ID	B		0102	Delayed acknowledgment type
9	100	CE	O			Error condition

Field Notes:

MSA-1 The acknowledgment code indicates whether the message was accepted, rejected, error, etc…This is a required field. VIIS generates an "**AR**" for messages resulting in informational or rejection errors. An "**AA**" is generated for processed normally.

MSA-2 The message control ID is the unique ID that is sent by the sending system. This is a required field. It allows the sending system to associate each message with a response. In a response, this will be the same as the control ID that was sent in MSH-10 by the sending system.

MSA-3 This optional field further describes an error condition. When a message has been rejected, VIIS generates "Message Rejection" as the first portion of the text describing the error message. Informational messages will not contain a "Message Rejection" statement.

MSA-4 This optional numeric field is used in the sequence number protocol. VIIS does not generate this field.

MSA-5 Delayed Acknowledgement type. VIIS does not generate this field.

MSA-9 Error Condition. VIIS does not generate this field.

Appendix A -- HL7 Data Types

The following descriptions of HL7 data types are excerpted or adapted from the HL7 standard. See the field notes within each segment definition above on how to use data types in particular fields. Some data types have complex definitions much of which do not apply to VIIS usage, and for these we omit much of the HL7 definition of the data type, referring instead to the field notes in the segment definitions.

CE -- Coded Element (most uses)

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (ST)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (ST)>

Example:

```
|F-11380^CREATININE^I9^2148-5^CREATININE^LN|
```

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 maximum length of this data type must be at least 60.

- **Identifier (ST)**

  Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

- **Text (ST)**

  Name or description of the item in question. E.g., myocardial infarction or X-ray impression. Its data type is string (ST).

- **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 **name of coding system** components will be a unique code for a data item. Each system has a unique identifier. ASTM E1238-94, Diagnostic, procedure, observation, drug ID, and health outcomes coding systems are identified in the tables in Section 7.1.4 [of the full HL7 standard], "Coding schemes." Others may be added as needed. When an HL7 table is used for a CE data type, the ***name of coding system*** component is defined as ***HL7nnnn*** where ***nnnn*** is the HL7 table number.

- **Alternate Components**

  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.

Note:	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.

Note:	For HL7-defined tables which have not been adopted from some existing standard, the third component, "name of coding system," is constructed by appending the table number to the string "HL7." Thus, the field *RXR-2-site*, is a CE data type which refers to HL7 table number 0163. Its "name of coding system" component is "HL70163".

CQ – Composite Quantity with Units

This data type carries a quantity and attendant units. Its primary use in here will be for indicating the maximum number of records to return in a query response.
Example:

|10^RD| indicates 10 records.

- **Quantity (NM)**

  Specifies the numeric quantity or amount of an entity.

- **Units (CE)**

  Specifies the units in which the quantity is expressed.

CWE – Coded with Exceptions

Components: <Identifier (ST)> ^ <text (ST) ^ <Name of Coding (ID)> ^ <Alternate Identifier (ST) ^ <Alternate Text (ST) ^ <Name of Alternate (ID)> ^ <Coding System Version ID (ST)> ^ <Alternate Coding System Version ID (ST)> ^ < Original Text (ST)>
Subcomponents of facility (HD): <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>
Example:
From RXR: |C28161^IM^NCIT^IM^INTRAMUSCULAR^HL71062|

- **Identifier (ST)**

  Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

- **Text (ST)**

  Name or description of the item in question. E.g., myocardial infarction or X-ray impression. Its data type is string (ST).

- **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 **name of coding system** components will be a unique code for a data item. Each system has a unique identifier. ASTM E1238-94, Diagnostic, procedure, observation, drug ID, and health outcomes coding systems are identified in the tables in Section 7.1.4 [of the full HL7 standard], "Coding schemes." Others may be added as needed. When an HL7 table is used for a CE data type, the ***name of coding system*** component is defined as ***HL7nnnn*** where ***nnnn*** is the HL7 table number.

CX – Extended Composite ID with Check Digit

VIIS uses this data type only for client identification in Patient Identification (PID) segments. See the field notes for values used for VIIS.

EI – Entity Identifier

The Entity Identifier (EI) data type defines an entity within a specific series.

The four EI components specify an entity in a series
<entity identifier (ST)>^<namespace ID (IS)>^<universal ID (ST)>^<universal ID type (ID)>
For example, |z31^CDCPHINVS| in MSH-21.

- **Entity Identifier (ST)**
  A unique identifier from a series of identifiers.

- **Namespace ID (IS)**
  A user-defined identifier that specifies the assigning authority responsible for the data.

- **Universal ID (ST)**
  The unique Object Identifier (OID) within the defined Universal ID Type. It must follow the Universal ID Type syntactic rules. If populated, this component should be an OID.

- **Universal ID Type (ID)**
  Controller of Universal ID deciphering. If a Universal ID exists, this element should be the value ISO.

ERL – Error Location

The Error Location (ERL) data type identifies exactly where an error occurred.
The six ERL components specify where an error occurred
<segment ID (ST)>^<segment sequence (NM)>^<field position (NM)>^<field repetition (NM)>^<component number (NM)>^<sub-component number (NM)>
For example, |RXA^1^5^1^3|

- **Segment ID (ST)**
  The three-letter code that names the segment category.

- **Segment Sequence (NM)**
  Identifies the specific instance of the segment where the error occurred. These numbers use 1for the first instance, 2 for the second, and so forth.

- **Field Position (NM)**
  Determines the field number within the segment. These numbers use 1 for the first field, 2 for the second, and so forth. VIIS leaves the field number empty when referring to the entire segment as a whole.

- **Field Repetition (NM)**
  The first instance uses 1. If the Field Position is populated, then VIIS values the Field Repetition.

- **Component Number (NM)**
  Determines the component number within the field. These numbers use 1 for the first component, 2 for the second, and so forth. VIIS leaves the Component Number empty when referring to the entire field as a whole.

- **Sub-Component Number (NM)**
  Determines the Sub-Component number within the component. These numbers use 1 for the first component, 2 for the second, and so forth. VIIS leaves the Component Number empty when referring to the entire field as a whole.

HD -- Hierarchic Designator

The Hierarchic Designator (HD) determines the organization or system responsible for managing or assigning a defined identifier set. VIIS uses this data type only to identify sender and receiver in Message Header (MSH) segments. See the field notes for values used for VIIS.
The three HL components establish the entity responsible for defined identifiers
<namespace ID (IS)>^<universal ID (ST)>^<universal ID type (ID)>

For example, |VIIS7.3.1|

ID -- Coded Values for HL7 Defined Tables

The value of such a field follows the formatting rules for a ST field except that it is drawn from a table of legal values. There shall be an HL7 table number associated with ID data types. Examples of ID fields include religion and sex. This data type should be used only for HL7 tables. The reverse is not true, since in some circumstances it is more appropriate to use the CE data type for HL7 tables.

IS -- Coded Values for User Defined Tables

The value of such a field follows the formatting rules for a ST field except that it is drawn from a site-defined (or user-defined) table of legal values. There shall be an HL7 table number associated with IS data types. An example of an IS field is the *Event reason code* defined in Section 3.3.1.4 [of the full HL7 standard], “Event reason code.” This data type should be used only for user-defined tables. The reverse is not true, since in some circumstances, it is more appropriate to use the CE data type for user-defined tables.

LA2 – Location with Address Variation 2

The Location with Address Variation 2 (LA2) specifies a location and its address.

The sixteen LA2 components specify a location
<point of care (IS)> ^ <room (IS) ^ <bed (IS)> ^ <facility (HD) ^ <location status (IS) ^ <patient location type (IS)> ^ <building (IS)> ^ <floor (IS)> ^ < street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code (ST)> ^ <country (ID)> ^ <address type (ID)> ^ <other geographic designation (ST)>
For example, |^^^2345^^^^15^101 MAIN STREET^^METROPOLIS^NE|

MSG – Message Type

This field contains the message type, trigger event, and the message structure ID for the message in MSH-9 Message Type.

The three MSH components define the message type

<message code (ID)>^<trigger event (ID)>^<message structure (ID)>

For example, |VXU^V04^VXU_V04|

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. Examples:

```
|999|
|-123.792|
```

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.

SAD – Street Address

The street address (SAD) specifies an entity's street address and associated details.

The three SAD components contain address details
<street or mailing address (ST)>^<street name (ST)>^<dwelling number (ST)>
For example, |747 ABERG^^Albany^NE^68352 |

- **Street or Mailing Address (ST)**
  For a person or institution, states the first line of a street or mailing address.

SI -- Sequence ID

A non-negative integer in the form of a NM field. See the field notes in segments using this data type for specifications of SI fields.

ST -- String Data

String data is left justified with trailing blanks optional. 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. Example:

```
|almost any data at all|
```

To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence.

Usage note: the ST data type is intended for short strings (e.g., less than 200 characters). For longer strings the TX or FT data types should be used.

TS -- Time Stamp

```
Format:  YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>
```

Contains the exact time of an event, including the date and time. The date portion of a time stamp follows the rules of a date field and the time portion follows the rules of a time field. The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

In prior versions of HL7, an optional second component indicates the degree of precision of the time stamp (Y = year, M = month, D = day, H = hour, M = minute, S = second). This optional second component is retained only for purposes of backward compatibility.

By site-specific agreement, YYYYMMDD[HHMM[SS[.S[S[S[S]]]]]][+/-ZZZZ]^<degree of precision> may be used where backward compatibility must be maintained.

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, 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. In each of these cases, the time zone is an optional component. Maximum length of the time stamp is 26. Examples:

`|19760704010159-0600|`	1:01:59 on July 4, 1976 in the Eastern Standard Time zone.
`|19760704010159-0500|`	1:01:59 on July 4, 1976 in the Eastern Daylight Saving Time zone.
`|198807050000|`	Midnight of the night extending from July 4 to July 5, 1988 in the local time zone of the

sender.

|19880705| Same as prior example, but precision extends only to the day. Could be used for a birth date, if the time of birth is unknown.

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.

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.

XAD – Extended Address

Components: <street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code(ST)> ^ <country (ID)> ^ < address type (ID)> ^ <other geographic designation (ST)>^ <county/parish code (IS)> ^ <census tract (IS)> ^ <address representation code (ID)>

Example:

```
|1234 Easy St.^Ste. 123^Allegany^MD^95123^USA^B^^SF^^|
```

- **Street Address (SAD)**

  The street or mailing address of a person or institution.

- **Other designation (ST)**

  Second line of address. In general, it qualifies address. Examples: Suite 555 or Fourth Floor.

- **City (ST)**

  City address of a person or institution.

- **State or Province (ST)**

  State or province should be represented by the official postal service codes for that country.

- **Zip or Postal Code (ST)**

  Zip or postal codes should be represented by the official codes for that country. In the US, the zip code takes the form 99999[-9999], while the Canadian postal code takes the form A9A-9A9.

- **Country (ID)**

  Defines the country of the address. See Table 0212.

- **Address Type (ID)**

  Address type is optional.

- **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).

XCN -- Extended Composite ID Number and Name for Persons

VIIS uses this data type only to identify Provider Organizations that administer immunizations. See the field notes for segment RXA.

XPN -- Extended 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) (ST)> ^ <name type code (ID) > ^ <name representation code (ID)>

Example:

```
|Smith&St^John^J^III^DR^PHD^L|
```

- **Family Name (FN)**

  Usually the last name.

  Note: The Given Name (first name), Family Name (last name), and Second and Further Given Names or Initials thereof cannot contain special characters. VIIS accepts letters; spaces; period (.), hyphen (-), and apostrophe (‘) characters.

- **Given Name (ST)**

  Usually the first name.

- **Second and Further Given Names or Initials Thereof (ST)**

  Usually the middle name or initial, if available. Multiple Second and Further Given Names or Initials thereof may be included by separating them with spaces.

- **Name Type Code (ID)**
  Given information like maiden name, legal name, etc. If the field is empty, VIIS defaults to L for Legal Name.

- **Suffix (ST)**

  Used to specify a name suffix (e.g., Jr. or III).

- **Prefix (ST)**

  Used to specify a name prefix (e.g., Dr.).

- **Degree (ST)**

  Used to specify an educational degree (e.g., MD).

- **Name Type Code (ID)**

  A code that represents the type of name. Refer to *HL7 table 0200 - Name type* for valid values. Table 0200 - Name type. This is not viewable in the User Interface.

Value	Description
A	Alias Name
L	Legal Name
D	Display Name
M	Maiden Name
C	Adopted Name

Note:	The legal name is the same as the current married name.

- **Name Representation Code (ID)**

  This component can be used when names are represented in ideographic or non-alphabetic systems. VIIS ignores this component.

XTN -- Extended Telecommunication Number

```
Components:  [NNN] [(999)]999-9999 [X99999] [B99999] [C any text] ^ <telecommunication use code (ID)> ^
             <telecommunication equipment type (ID)> ^ <email address (ST)> ^ <country code (NM)> ^
             <area/city code (NM)> ^ <phone number (NM)> ^ <extension (NM)> ^ <any text (ST)>
```

Example:

```
(415)555-3210^ORN^FX^
```

[(999)] 999-9999 [X99999] [C any text]

Defined as the TN data type, except that the length of the country access code has been increased to three.

Telecommunication use code (ID)

A code that represents a specific use of a telecommunication number. Refer *to HL7 table 0201 - Telecommunication use code* for valid values.

Table 0201 - Telecommunication use code

Value	Description
PRN	Primary Residence Number
ORN	Other Residence Number
WPN	Work Number
VHN	Vacation Home Number
ASN	Answering Service Number
EMR	Emergency Number
NET	Network (email) Address
BPN	Beeper Number

Telecommunication equipment type (ID)

A code that represents the type of telecommunication equipment. Refer *to HL7 table 0202 - Telecommunication equipment type* for valid values. Table 0202 - Telecommunication equipment type

Value	Description
PH	Telephone
FX	Fax
MD	Modem
CP	Cellular Phone
BP	Beeper
Internet	Internet Address: Use Only If Telecommunication Use Code Is NET
X.400	X.400 email address: Use Only If Telecommunication Use Code Is NET

Email address (ST) Any text (ST)
Country code (NM)
Area/city code (NM)
Phone number (NM)
Extension (NM)

Appendix B -- HL7 Tables

The following tables give valid values for fields in the segments defined above, in the cases where the field definitions reference an HL7 table number. The tables are considered to be part of the HL7 standard, but those tables designated as type User have values determined by VIIS.

Type	Table	Name	Value	Description
HL7	0001	**Sex**		
	0001		F	Female
	0001		M	Male
	0001		U	Unknown
HL7	0003	**Event Type**		
	0003		A31	ADT/ACK - Update patient information
	0003		K11	RSP- Response to vaccination query (Real-Time)
	0003		Q11	QBP – Query for vaccination record (Real-Time)
	0003		V04	VXU – Unsolicited vaccination record update
HL7	0004	**Patient class**		
	0004		E	Emergency
	0004		I	Inpatient
	0004		O	Outpatient
	0004		P	Preadmit
	0004		R	Recurring
	0004		B	Obstetrics
HL7	0005	**Race**		
	0005		1002-5	American Indian or Alaska Native
	0005		2028-9	Asian
	0005		2076-8	Native Hawaiian or Other Pacific Islander
	0005		2054-5	Black or African-American
	0005		2106-3	White
	0005		2135-2	Hispanic or Latino
	0005		2186-5	Not Hispanic or Latino
	0005		2131-1	Other Race
	0005		Null	Unknown
HL7	0008	**Acknowledgment Code**		
	0008		AA	Application Accept
	0008		AE	Application Error
	0008		AR	Application Reject
User	0063	**Relationship**		
	0063		ASC	Associate
	0063		BRO	Brother
	0063		CGV	Care giver
	0063		CHD	Child
	0063		DEP	Handicapped dependent
	0063		DOM	Life partner
	0063		EMC	Emergency contact
	0063		EME	Employee
	0063		EMR	Employer
	0063		EXF	Extended family
	0063		FCH	Foster Child
	0063		FND	Friend
	0063		FTH	Father
	0063		GCH	Grandchild
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MGR	Manager
	0063		MTH	Mother
	0063		NCH	Natural child

	0063		NON	None
	0063		OAD	Other adult
	0063		OTH	Other
	0063		OWN	Owner
	0063		PAR	Parent
	0063		SCH	Stepchild
	0063		SEL	Self
	0063		SIB	Sibling
	0063		SIS	Sister
	0063		SPO	Spouse
	0063		TRA	Trainer
	0063		UNK	Unknown
	0063		WRD	Ward of court
HL7	0064	**Financial class (VFC Eligibility)**		
	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 – Underinsured
	0064		CH00	Not VFC Eligible - FAMIS
HL7	0076	**Message Type**		
	0076		ACK	General acknowledgment message
	0076		ADR	ADT response
	0076		ADT	ADT message
	0076		QBP	Query by Parameter
	0076		QCK	Query general acknowledgment
	0076		RSP	Segment pattern response
	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
	0076		ORU	Unsolicited observation results
HL7	0085	**Observation result status codes**		
	0085		O	Order detail description only
HL7	0103	**Processing ID**		
	0103		P	Production
HL7	0104	**Version ID**		
	0104		2.3.1	Release 2.3.1 1999
	0104		2.4	Release 2.4 2000
	0104		2.5.1	Release 2.5.1 2013
HL7	0136	**Yes/No Indicator**		
	0136		Y	Yes
	0136		N	No
HL7	0155	**Accept/Application Acknowledgment Conditions**		
	0155		AA	Application Accept
	0155		AE	Application Error
	0155		ER	Error/reject conditions only
HL7	0162	**Route of Administration**		
	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	**Administrative Site**		
	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		Nose	Nose
	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
HL7	0189	**Ethnic Group**		
	0189		2135-2	Hispanic
	0189		2186-5	Non-Hispanic
	0189		Null	Unknown
HL7	0203	**Identifier Type**		
	0203		MR	Medical Record Number
	0203		PI	Patient Internal Identifier
	0203		PN	Person Number
	0203		PRN	Provider Number
	0203		SR	State Registry Identifier
HL7	0212	**Nationality**		
	0212		CA	Canada
	0212		US	United States of America
HL7	0215	**Publicity Code**		
	0215		01	No reminder/recall
	0215		02	Yes reminder/recall – any method
HL7	0227	**Manufacturers of vaccines (code = MVX)**		
	0227		AB	Abbott Laboratories (includes Ross Products Division, Solvay)
	0227		ACA	Acambis, Inc. (acquired by Sanofi Pasteur in Sept 2008)
	0227		AD	Adams Laboratories
	0227		AKR	Akorn, Inc.
	0227		ALP	Alpha Therapeutic Corporation
	0227		AP	Sanofi Pastuer
	0227		AVB	Aventis Behring LLC
	0227		AVI	Aviron (Acquired by Medimmune)
	0227		BA	Baxter Healthcare Corporation (Inactive use BAH)
	0227		BAH	Baxter Healthcare Corporation (Hyland, Immuno Intl. AG, and N. Amer. Vac)
	0227		BAY	Bayer (Acquired by Talecris)
	0227		BPC	Berna Products Corporation (Includes Swiss Serum And Vaccine Institute Berne (Vib)
	0227		BRR	Barr Laboratories (Subsidiary of Teva Pharmaceuticals)
	0227		CEN	Centeon LLC (Inactive use AVB)
	0227		CHI	Chiron Corporation (Part of Novartis)
	0227		CNJ	Cangene Corporation
	0227		CRU	Crucell
	0227		CSL	BioCSL
	0227		DVC	DynPort Vaccine Company, LLC
	0227		DVX	Dynavax, Inc.
	0227		EVN	Evans Medical Limited (Part of Novartis)

	0227		GEO	GeoVax Labs, Inc.
	0227		GRE	Greer Laboratories, Inc.
	0227		GRF	Grifols
	0227		IAG	Immuno International Ag (Part of Baxter)
	0227		IDB	ID Biomedical (GSK)
	0227		INT	Intercell Biomedical
	0227		IUS	Immuno-U.S., Inc.
	0227		JPN	Research Foundation for Microbial Diseases of Osaka University (BIKEN)
	0227		KGC	Korea Green Cross Corporation
	0227		MA	Massachusetts Public Health Biologic Laboratories (Inactive use MBL)
	0227		MBL	Massachusetts Biologics Laboratories
	0227		MED	Medimmune, Inc. (acquisitions of U.S. Bioscience in 1999 and Aviron in 2002, as well as the integration with Cambridge Antibody Technology and the strategic alignment with our new parent company, AstraZeneca, in 2007.)
	0027		MIP	Emergent BioDefense Operations Lancing (Formerly Bioport renamed. Formerly Michigan Biologic Products Institute
	0227		MSD	Merck & Co., Inc.
	0227		NAB	NABI (formerly North American Biologicals)
	0227		NAV	North American Vaccine, Inc. (Inactive use BAH)
	0227		NOV	Novartis Pharmaceutical Corporation. (includes Chiron, PowderJect Pharmaceuticals, Celltech Medeva Vaccines and Evans Limited, Ciba-Geigy Limited and Sandoz Limited.)
	0227		NVX	Novavax, Inc
	0227		NYB	New York Blood Center
	0227		ORT	Ortho-Clinical Diagnostics (a J & J company, formerly Ortho Diagnostic Systems, Inc.)
	0227		OTC	Organon Teknika Corporation
	0227		OTH	Other manufacturer
	0227		PD	Parkedale Pharmaceuticals (formerly Parke-Davis)
	0227		PAX	PaxVax
	0227		PFR	Pfizer
	0227		PSC	Protein Sciences
	0227		PMC	Sanofi Pasteur (formerly Aventis Pasteur, Pasteur Merieux Connaught; includes Connaught Laboratories and Pasteur Merieux. Acquired ACAMBIS.)
	0227		PWJ	Powerject Pharmaceuticals (Celltech Medeva and Evans Medical, see Novartis
	0227		SA	Us Army Med Research (use USA)
	0227		SCL	Sclavo, Inc.
	0227		SKB	GlaxoSmithKline (includes SmithKline Beecham and Glaxo Wellcome)
	0227		SOL	Solvay Pharmaceuticals (Part of Abbott)
	0227		TAL	Talecris Biotherapeutics (includes Bayer Biologicals)
	0227		UNK	Unknown Manufacturer
	0227		USA	United States Army Medical Research and Material Command
	0227		VAL	Valneva
	0227		VXG	VaxGen
	0227		WA	Wyeth-Ayerst (Became WAL, now owned by Pfizer.)
	0227		WAL	Wyeth (acquired by Pfizer 10/15/2009)
	0227		ZLB	ZLB Behring (includes Aventis Behring and Armour Pharmaceutical Company)
HL7	0289	**County/parish (Virginia only)**		
	0289		VA001	Accomack
	0289		VA003	Albemarle
	0289		VA005	Alleghany
	0289		VA007	Amelia

	0289		VA009	Amherst
	0289		VA011	Appomattox
	0289		VA013	Arlington
	0289		VA015	Augusta
	0289		VA017	Bath
	0289		VA019	Bedford
	0289		VA021	Bland
	0289		VA023	Botetourt
	0289		VA025	Brunswick
	0289		VA027	Buchanan
	0289		VA029	Buckingham
	0289		VA031	Campbell
	0289		VA033	Caroline
	0289		VA035	Carroll
	0289		VA036	Charles City
	0289		VA037	Charlotte
	0289		VA041	Chesterfield
	0289		VA043	Clarke
	0289		VA045	Craig
	0289		VA047	Culpeper
	0289		VA049	Cumberland
	0289		VA051	Dickenson
	0289		VA053	Dinwiddie
	0289		VA057	Essex
	0289		VA059	Fairfax
	0289		VA061	Fauquier
	0289		VA063	Floyd
	0289		VA065	Fluvanna
	0289		VA067	Franklin
	0289		VA069	Frederick
	0289		VA071	Giles
	0289		VA073	Gloucester
	0289		VA075	Goochland
	0289		VA077	Grayson
	0289		VA079	Greene
	0289		VA081	Greensville
	0289		VA083	Halifax
	0289		VA085	Hanover
	0289		VA087	Henrico
	0289		VA089	Henry
	0289		VA091	Highland
	0289		VA093	Isle of Wight
	0289		VA095	James City
	0289		VA097	King and Queen
	0289		VA099	King George
	0289		VA101	King William
	0289		VA103	Lancaster
	0289		VA105	Lee
	0289		VA107	Loudoun
	0289		VA109	Louisa
	0289		VA111	Lunenburg
	0289		VA113	Madison
	0289		VA115	Mathews
	0289		VA117	Mecklenburg
	0289		VA119	Middlesex
	0289		VA121	Montgomery

	0289		VA125	Nelson
	0289		VA127	New Kent
	0289		VA131	Northampton
	0289		VA133	Northumberland
	0289		VA135	Nottoway
	0289		VA137	Orange
	0289		VA139	Page
	0289		VA141	Patrick
	0289		VA143	Pittsylvania
	0289		VA145	Powhatan
	0289		VA147	Prince Edward
	0289		VA149	Prince George
	0289		VA153	Prince William
	0289		VA155	Pulaski
	0289		VA157	Rappahannock
	0289		VA159	Richmond
	0289		VA161	Roanoke
	0289		VA163	Rockbridge
	0289		VA165	Rockingham
	0289		VA167	Russell
	0289		VA169	Scott
	0289		VA171	Shenandoah
	0289		VA173	Smyth
	0289		VA175	Southampton
	0289		VA177	Spotsylvania
	0289		VA179	Stafford
	0289		VA181	Surry
	0289		VA183	Sussex
	0289		VA185	Tazewell
	0289		VA187	Warren
	0289		VA191	Washington
	0289		VA193	Westmoreland
	0289		VA195	Wise
	0289		VA197	Wythe
	0289		VA199	York
	0289		VA510	Alexandria (city)
	0289		VA515	Bedford (city)
	0289		VA520	Bristol (city)
	0289		VA530	Buena Vista (city)
	0289		VA540	Charlottesville (city)
	0289		VA550	Chesapeake (city)
	0289		VA560	Clifton Forge (city)
	0289		VA570	Colonial Heights (city)
	0289		VA580	Covington (city)
	0289		VA590	Danville (city)
	0289		VA595	Emporia (city)
	0289		VA600	Fairfax (city)
	0289		VA610	Falls Church (city)
	0289		VA620	Franklin (city)
	0289		VA630	Fredericksburg (city)
	0289		VA640	Galax (city)
	0289		VA650	Hampton (city)
	0289		VA660	Harrisonburg (city)
	0289		VA670	Hopewell (city)
	0289		VA678	Lexington (city)
	0289		VA680	Lynchburg (city)

	0289		VA683	Manassas (city)
	0289		VA685	Manassas Park (city)
	0289		VA690	Martinsville (city)
	0289		VA700	Newport News (city)
	0289		VA710	Norfolk (city)
	0289		VA720	Norton (city)
	0289		VA730	Petersburg (city)
	0289		VA735	Poquoson (city)
	0289		VA740	Portsmouth (city)
	0289		VA750	Radford (city)
	0289		VA760	Richmond (city)
	0289		VA770	Roanoke (city)
	0289		VA775	Salem (city)
	0289		VA780	South Boston (city)
	0289		VA790	Staunton (city)
	0289		VA800	Suffolk (city)
	0289		VA810	Virginia Beach (city)
	0289		VA820	Waynesboro (city)
	0289		VA830	Williamsburg (city)
	0289		VA840	Winchester (city)
NIP	NIP001	**Immunization Information Source**		
	NIP001		00	New Immunization Administered (by Sending Organization)
	NIP001		01	Source Unspecified
	NIP001		02	Other Provider
	NIP001		03	Parent Written Record
	NIP001		04	Parent Recall
	NIP001		05	Other Registry
	NIP001		06	Birth Certificate
	NIP001		07	School Record
	NIP001		08	Public Agency
NIP	NIP002	**Substance Refusal Reason**		
	NIP002		00	Parental Refusal
	NIP002		01	Religious Exemption
NIP	NIP004	**Contraindications, Precautions**		
	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) - MMR IPV VZU
	NIP004		07	Allergy to streptomycin (anaphylactic)
	NIP004		08	Allergy to thimerosal (anaphylactic)
	NIP004		09	Allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)
	NIP004		14	Current diarrhea, moderate to severe
	NIP004		15	Encephalopathy within 7 days of previous vaccine containing DTaP/Tdap
	NIP004		16	Current fever with moderate-to-severe illness
	NIP004		18	Guillain-Barre Syndrome (GBS) within 6 weeks after vaccine containing Tetanus Toxoid-Containing Vaccine DTaP/Tdap/TT/DTP/DT.
	NIP004		PW	Guillain-Barre Syndrome (GBS) within 6 weeks after Influenza Vaccine
	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		24	Immunity: diphtheria
	NIP004		HEPA_I	Immunity: hepatitis A
	NIP004		26	Immunity: hepatitis B
	NIP004		27	Immunity: measles
	NIP004		28	Immunity: mumps
	NIP004		30	Immunity: poliovirus

	NIP004		31	Immunity: rubella
	NIP004		33	Immunity: varicella (chicken pox)
	NIP004		33A	History of Chicken Pox/Varicella
	NIP004		34	Immunodeficiency (family history)
	NIP004		35	Immunodeficiency (household contact)
	NIP004		36	Immunodeficiency (in recipient) OPV MMR VZU
	NIP004		M1	Medical Exemption: Hib
	NIP004		M2	Medical Exemption: Hep A
	NIP004		M3	Medical Exemption: Hep B
	NIP004		M4	Medical Exemption: HPV
	NIP004		M5	Medical Exemption: Influenza
	NIP004		M6	Medical Exemption: Meningo
	NIP004		M7	Medical Exemption: Pneumococcal
	NIP004		M8	Medical Exemption: Pneumo-Poly
	NIP004		MB	Medical Exemption: Td
	NIP004		MC	Medical Exemption: Tdap
	NIP004		M9	Medical Exemption: Polio
	NIP004		MD	Medical Exemption: Zoster
	NIP004		37	Neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)
	NIP004		38	Otitis media (ear infection) moderate to severe (with or without fever)
	NIP004		39	Pregnancy (in recipient)
	NIP004		40	Thrombocytopenia
	NIP004		41	Thrombocytopenic purpura (history)
NIP	NIP005	**Event Consequence**		
	NIP005		D	Patient Died
	NIP005		L	Life threatening illness
	NIP005		E	Required emergency room/doctor visit
	NIP005		H	Required hospitalization
	NIP005		P	Resulted in prolongation of hospitalization
	NIP005		J	Resulted in permanent disability
NIP	NIP006	**Patient Registry Status**		
	NIP006		A	Active
	NIP006		N	Inactive
	NIP006		P	Permanently inactive – deceased
	NIP006		M	Moved or Gone Elsewhere
NIP	NIP008	**Vaccine Purchased With Funds**		
	NIP008		PVF	Private Funds
	NIP008		PBF	Public Funds
VIIS	MD001	**Reaction Codes**		
	MD001		PERTCONT	Pertussis allergic reaction
	MD001		TETCONT	Tetanus allergic reaction
	MD001		HYPOTON	Hypotonic-hyporesponsive collapse within 48 hours of immunization
	MD001		SEIZURE	Seizure occurring within 3 days
	MD001		CRYING	Persistent crying lasting >= 3 hours within 48 hours of immunization
	MD001		FEVER105	Temperature >= 105 (40.5 C) within 48 hours of immunization
LN		**LOINC Codes - Contraindications, Reactions, VAERS, Eligibility, Funding Source**		
			30945-0	Vaccination Contraindication/Precaution
			31044-1	Reaction to Immunization
			30948-4	Vaccination Adverse Event Outcome
			64994-7	VFC Eligibility to Immunization
			30963-3	Vaccine Funding Source to Immunization
LN		**LOINC Codes - Series Information**		
			38890-0	Component Vaccine Type. This term is used to distinguish separate vaccine components of a multiple antigen vaccine. Included in LOINC 1/2005.
			38890-0&30973-2	Dose Number in Series
LN		**LOINC Codes - Recommendations**		

			30979-9	Vaccines Due Next
			30979-9&30980-7	Date Vaccine Due
			30979-9&30973-2	Vaccine due next dose number
			30979-9&30981-5	Earliest date to give
			30979-9&30982-3	Reason applied by forecast logic to project this vaccine
			30979-9&30982-3	Reason applied by forecast logic to project this vaccine
VIIS	WVGC	**Vaccine Group Code (WVGC)**		
	WVGC		Adeno	Adeno
	WVGC		Anthrax	Anthrax
	WVGC		BCG	BCG
	WVGC		Cholera	Cholera
	WVGC		Diphtheria	Diphtheria Antitoxin
	WVGC		DTP/aP	Diphtheria, Tetanus, Acellular Pertussis
	WVGC		Encephalitis	Encephalitis
	WVGC		Flu H1N1-09	Novel Influenza-09
	WVGC		HepA	Hepatitis A
	WVGC		HepB	Hepatitis B
	WVGC		Hib	Hib
	WVGC		HPV	Human Papilloma Virus
	WVGC		Ig	Ig
	WVGC		IG-RSV IgIM	IG-RSV IgIM
	WVGC		Influenza	Influenza
	WVGC		Lyme	Lyme
	WVGC		Measles	Measles Virus Vaccine
	WVGC		MMR	Measles, Mumps, Rubella
	WVGC		Meningo	Meningitis
	WVGC		Mumps	Mumps Virus Vaccine
	WVGC		Pertussis	Pertussis
	WVGC		Plague	Plague
	WVGC		Pneumococcal	Pneumonia Conjugate
	WVGC		Pneumo-Poly	Pneumonia Polysaccharide
	WVGC		Polio	Poliomyelitis
	WVGC		PPD Test	PPD Test
	WVGC		Rabies	Rabies
	WVGC		Rotavirus	Rotavirus
	WVGC		Rubella	Rubella Virus Vaccine
	WVGC		Tetanus	Tetanus
	WVGC		Td	Tetanus Diphtheria
	WVGC		Typhoid	Typhoid
	WVGC		Smallpox	Vaccinia
	WVGC		Varicella	Varicella
	WVGC		Yellow Fever	Yellow Fever
	WVGC		Zoster	Zoster
VIIS	WVTN	**Vaccine Trade Name (WVTN)**		
	WVTN		Acel-Imune	DTaP
	WVTN		ActHib	Hib-PRP-T
	WVTN		Adacel	TdaP > 7 years
	WVTN		Adeno T4	Adeno T4
	WVTN		Adeno T7	Adeno T7
	WVTN		AFLURIA	Influenza, seasonal, injectable
	WVTN		AFLURIA Pres-Free	Preservative-Free Influenza
	WVTN		Agriflu Pres-Free	Preservative-Free Influenza
	WVTN		Anthrax	Anthrax
	WVTN		Aplisol	TST-PPD intradermal
	WVTN		Attenuvax	Measles

	WVTN		BabyBIG	Botulism
	WVTN		BayTet	Tlg
	WVTN		BCG-Cancer	BCG-BC
	WVTN		BCG-TB	BCG-TB
	WVTN		Biavax II	Rubella-Mumps
	WVTN		BIG	Botulism
	WVTN		Boostrix	TdaP > 7 years
	WVTN		Botulinum-antitoxin	Botulinum-antitoxin
	WVTN		Botulism	Botulism
	WVTN		Certiva	DTaP
	WVTN		Cholera-I	Cholera-Inject
	WVTN		Cholera-O	Cholera-Oral
	WVTN		CMV-IgIV	CMV-IgIV
	WVTN		Comvax	HepB-Hib
	WVTN		DAPTACEL	DTaP,5 pertussis antigens
	WVTN		DECAVAC	Td Adult Pres-Free
	WVTN		Diphtheria	Diphtheria
	WVTN		Diphtheria-antitoxin	Diphtheria-antitoxin
	WVTN		Dryvax	Smallpox
	WVTN		DT	DT-Peds
	WVTN		DTP	DTP
	WVTN		Engerix-B Adult	HepB-Adult
	WVTN		Engerix-B dialysis	HepB-Dialysis 4 dose
	WVTN		Engerix-B Peds	HepB-Peds
	WVTN		Flebogamma	IgIV
	WNTN		Flu-Imune	Influenza
	WNTN		Flu-Shield	Influenza
	WNTN		Flu-Unspecified	Influenza, NOS
	WVTN		Fluad P-Free	Influenza Trivalent Adjuvanted P-Free
	WVTN		Fluarix P-Free	Influenza, preservative-free
	WVTN		Fluarix Quad P-Free	Influenza Quadrivalent P-Free
	WVTN		Flublok P-Free	Influenza Recombinant P-Free
	WVTN		Flublok Quad P-Free	Influenza Quad Recombinant P-Free
	WVTN		Flucelvax P-Free	Influenza MDCK Cell-Culture Der. P-Free
	WVTN		Flucelvax Quad P-Free	Influenza MDCK Quadrivalent P-free
	WVTN		Flucelvax Quadrivalent	Influenza, MDCK, quadrivalent
	WVTN		FluLaval	Influenza
	WVTN		FluLaval Quadrivalent	Influenza Quadrivalent
	WVTN		FluMist	Influenza, nasal
	WVTN		FluMist Quadrivalent	Flu-Nasal Quadrivalent
	WVTN		Fluogen	Influenza
	WVTN		Fluvirin	Influenza
	WVTN		Fluvirin P-Free	Influenza, preservative-free
	WVTN		Fluzone	Influenza
	WVTN		Fluzone High Dose P-Free	Influenza High-Dose Preservative Free
	WVTN		Fluzone Intrad P-Free	Influenza, intradermal, P-Free
	WVTN		Fluzone P-Free	Influenza, preservative-free
	WVTN		Fluzone Quad P-Free	Influenza Quadrivalent P-Free
	WVTN		Fluzone Quadrivalent	Influenza Quadrivalent
	WVTN		FluzoneQuadIntrad P-Free	Influenza, Intradermal, Quad P-Free
	WVTN		Gardasil	HPV, Quadrivalent
	WVTN		Havrix-Adult	HepA-Adult
	WVTN		Havrix-Peds 2 Dose	HepA-Ped 2 Dose
	WVTN		Havrix-Peds 3 Dose	HepA-Peds
	WVTN		HBIg	HBIg
	WVTN		Heplisav-B	Hep B, adjuvanted

	WVTN		Hiberix	HIB-PRP-T
	WVTN		Hib-TITER	Hib-HbOC
	WVTN		H1N1 Nasal	Novel Influenza-H1N1-09, nasal
	WVTN		H1N1 P-free, CSL	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 P-free, Novartis	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 P-free, Sanofi	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 CSL	Novel Influenza-H1N1-09
	WVTN		H1N1 Novartis	Novel Influenza-H1N1-09
	WVTN		H1N1 Sanofi Pasteur	Novel Influenza-H1N1-09
	WVTN		Ig	Ig
	WVTN		IgIV	IgIV
	WVTN		Imovax Rabies ID	Rabies-ID
	WVTN		Imovax Rabies IM	Rabies-IM
	WVTN		Infanrix	DTaP
	WVTN		IPOL	Polio-Inject
	WVTN		JE-Vax	Japanese Enceph
	WVTN		Kinrix	DTaP-IPV
	WVTN		LYMErix	Lyme
	WVTN		M-R-VAX	Measles-Rubella
	WVTN		Measles	Measles
	WVTN		Measles-Rubella (MERU)	Measles-Rubella
	WVTN		Menactra	Meningococcal-MCV4P
	WVTN		Menhibrix	Hib
	WVTN		MENOMUNE	Meningococcal-MPSV4
	WVTN		Meningo MCV4	Meningococcal MCV4
	WVTN		Menveo	Meningococcal-MCV4O
	WVTN		Meruvax II	Rubella
	WVTN		MMR II	MMR
	WVTN		Mumps	Mumps
	WVTN		Mumps-Rubella (MURU)	Rubella-Mumps
	WVTN		Mumpsvax	Mumps
	WVTN		OmniHib	Hib-PRP-T
	WVTN		ORIMUNE	Polio-Oral
	WVTN		Pediarix	DTAP/Polio/Hep B
	WVTN		PedvaxHIB	Hib-OMP
	WVTN		Pentacel	DtaP-Hib-IPV
	WVTN		Pentavalente	DTP-Hib-Hep B
	WVTN		Plague	Plague
	WVTN		Pneumovax 23	Pneumococcal 23
	WVTN		PNU-IMUNE 23	Pneumococcal 23
	WVTN		Prevnar 7	Pneumo-Conjugate Vaccine, 7 valent
	WVTN		Prevnar13	Pneumo-Conjugate Vaccine, 13 valent
	WVTN		ProHIBit	Hib-PRP-D
	WVTN		ProQuad	MMRV
	WVTN		Quadracel	DTaP-IPV
	WVTN		RabAvert	Rabies-IM
	WVTN		Recombivax Peds	HepB-Peds
	WVTN		Recombivax-Adult	HepB-Adult
	WVTN		Recombivax-Dialysis	HepB-Dialysis 4 dose
	WVTN		Rho(D)Full	Rho(D)Full
	WVTN		Rho(D)IV	Rho(D)IV
	WVTN		Rho(D)Mini	Rho(D)Mini
	WVTN		RIg	RIg
	WVTN		RIg-HT	RIg-HT
	WVTN		Rotarix	Rotavirus monovalent
	WVTN		RotaShield	Rotavirus tetravalent

	WVTN		RotaTeq	Rotavirus pentavalent
	WVTN		RSV-IgIM	RSV-IgIM
	WVTN		RSV-IgIV	RSV-IgIV
	WVTN		Rubella	Rubella
	WVTN		Shingrix	Zoster Vaccine Subunit
	WVTN		Td	Td (Adult), absorbed
	WVTN		TENIVAC	Td Adult Pres-Free
	WVTN		Tetramune	DTP-Hib
	WVTN		Tlg	Tlg
	WVTN		TriHIBit	DTaP-Hib
	WVTN		Tripedia	DTaP
	WVTN		TT	Tetanus toxoid, adsorbed
	WVTN		Tubersol	TST-PPD intradermal
	WVTN		Twinrix	HepA-HepB Adult
	WVTN		Typhim Vi	Typhoid-ViCPs
	WVTN		Typhoid	Typhoid-HP
	WVTN		Typhoid-AKD	Typhoid-AKD
	WVTN		Vaccinia, diluted	Vaccinia (smallpox), diluted
	WVTN		Vaccinia VIG	Vaccinia immune globulin VIG
	WVTN		VAQTA-Adult	HepA-Adult
	WVTN		VAQTA-Peds 2 Dose	HepA-Ped 2 Dose
	WVTN		VAQTA-Peds 3 Dose	HepA-Ped 3 Dose
	WVTN		Varivax	Varicella
	WVTN		Vivotif	Typhoid-Oral
	WVTN		VZIg	VZIg
	WVTN		YF-VAX	Yellow Fever
	WVTN		Zostavax	Zoster (shingles), live

Appendix C – Additional VIIS Tables

NDC Codes:

NDC	Trade name	CVX
49281-0547-58	Acthib	48
49281-0400-58	Adacel	115
49281-0400-88	Adacel	115
51285-0174-02	Adenovirus T4	54
51285-0175-02	Adenovirus T7	55
33332-0010-01	Afluria	140
33332-0013-02	Afluria	140
33332-0014-02	Afluria	140
33332-0015-02	Afluria	140
33332-0016-02	Afluria	140
33332-0110-10	Afluria	141
33332-0113-11	Afluria	141
33332-0114-11	Afluria	141
33332-0115-11	Afluria	141
33332-0116-11	Afluria	141
00052-0603-01	BCG TB	19
46028-0114-11	Bexsero	163
58160-0842-01	Boostrix	115
58160-0842-05	Boostrix	115
58160-0842-41	Boostrix	115
58160-0842-43	Boostrix	115
58160-0830-05	Cervarix	118
58160-0830-43	Cervarix	118
00006-4898-01	Comvax	51
49281-0286-58	Daptacel	106
49281-0291-10	Decavac	113
49281-0291-83	Decavac	113

49281-0225-58	DT	28
49281-0278-10	DT	28
54868-0734-00	Engerix-B	N/a
58160-0820-01	Engerix-B	08
58160-0820-43	Engerix-B	08
58160-0821-01	Engerix-B	43
58160-0821-05	Engerix-B	43
58160-0821-43	Engerix-B	43
66521-0000-11	Fluad	168
70461-0001-11	Fluad	168
70461-0002-01	Fluad P-Free	168
58160-0879-41	Fluarix	140
58160-0880-41	Fluarix	140
58160-0881-41	Fluarix	140
58160-0883-41	Fluarix	140
58160-0900-41	Fluarix Quadrivalent	150
58160-0901-41	Fluarix Quadrivalent	150
58160-0903-41	Fluarix Quadrivalent	150
58160-0905-41	Fluarix Quadrivalent	150
70461-0301-10	Flucelvax Quadrivalent	186
70461-0200-02.	Flucelvax Quadrivalent	186
42874-0012-01	Flublok	155
42874-0013-01	Flublok	155
42874-0014-01	Flublok	155
42874-0015-01	Flublok	155
42874-0016-10	Flublok	155
42874-0116-10	Flublok Quad P-Free	185
70461-0614-11	Fluceivax	153
62577-0613-11	Flucelvax	153
62577-0614-11	Flucelvax	153
63851-0612-11	Flucelvax	153
63851-0613-11	Flucelvax	153
70461-0200-11	Flucelvax Quadrivalent	171
19515-0845-01	Flulaval	141
19515-0850-41	Flulaval	141
19515-0889-02	Flulaval	141
19515-0890-02	Flulaval	141
19515-0893-02	Flulaval	141
19515-0891-01	Flulaval Quadrivalent	158
19515-0894-41	Flulaval Quadrivalent	150
19515-0895-01	Flulaval Quadrivalent	158
19515-0898-01	Flulaval Quadrivalent	158
19515-0901-41	Flulaval Quadrivalent	150
19515-0903-01	Flulaval Quadrivalent	158
19515-0908-41	Flulaval Quadrivalent	150
66019-0107-01	Flumist	111
66019-0108-01	Flumist	111
66019-0109-01	Flumist	111
66019-0110-01	Flumist	111
66019-0300-01	Flumist Quadrivalent	149
66019-0301-01	Flumist Quadrivalent	149
66019-0302-01	Flumist Quadrivalent	149
66019-0303-10	Flumist Quadrivalent	149
66521-0112-02	Fluvirin	140
66521-0112-10	Fluvirin	141
66521-0113-02	Fluvirin	140
66521-0113-10	Fluvirin	141
66521-0114-10	Fluvirin	141
66521-0115-02	Fluvirin	140
66521-0115-10	Fluvirin	141
66521-0116-11	Fluvirin	141
66521-0116-12	Fluvirin	140
66521-0117-11	Fluvirin	141
66521-0117-12	Fluvirin	140
66521-0118-11	Fluvirin	141
66521-0118-12	Fluvirin	140
70461-0119-02	Fluvirin	140
70461-0119-10	Fluvirin	141

76420-0482-01	Fluvirin	140
49281-0010-10	Fluzone	140
49281-0010-25	Fluzone	140
49281-0012-50	Fluzone	140
49281-0010-50	Fluzone	140
49281-0011-10	Fluzone	140
49281-0011-50	Fluzone	140
49281-0012-10	Fluzone	140
49281-0013-58	Fluzone	140
49281-0013-88	Fluzone	140
49281-0014-88	Fluzone	140
49281-0111-25	Fluzone	140
49281-0112-25	Fluzone	140
49281-0113-00	Fluzone	140
49281-0386-15	Fluzone	141
49281-0387-65	Fluzone	135
49281-0388-15	Fluzone	141
49281-0390-15	Fluzone	141
49281-0392-78	Fluzone	141
49281-0394-78	Fluzone	141
49281-0396-78	Fluzone	141
49281-0705-55	Fluzone	144
49281-0707-48	Fluzone	144
54868-6177-00	Fluzone	n/a
54868-6180-00	Fluzone	n/a
49281-0395-88	Fluzone High-dose	135
49281-0399-88	Fluzone High-dose	135
49281-0389-65	Fluzone High-dose	135
49281-0391-65	Fluzone High-dose	135
49281-0393-88	Fluzone High-dose	135
49281-0397-88	Fluzone High-dose	135
49281-0710-48	Fluzone ID Quadrivalent	166
49281-0703-55	Fluzone intradermal	144
49281-0709-48	Fluzone intradermal	144
49281-0413-58	Fluzone Quadrivalent	150
49281-0413-88	Fluzone Quadrivalent	150
49281-0416-58	Fluzone Quadrivalent	150
49281-0416-88	Fluzone Quadrivalent	150
49281-0513-00	Fluzone Quadrivalent	161
49281-0621-78	Fluzone Quadrivalent	158
49281-0625-78	Fluzone Quadrivalent	158
49281-0414-58	Fluzone Quadrivalent pf	150
49281-0414-88	Fluzone Quadrivalent pf	150
49281-0415-58	Fluzone Quadrivalent pf	150
49281-0516-00	Fluzone Quadrivalent pf	161
49281-0514-00	Fluzone Quadrivalent, peds	161
00006-4045-01	Gardasil	62
00006-4109-01	Gardasil	62
00006-4119-01	Gardasil 9	165
00006-4121-01	Gardasil 9	165
58160-0825-01	Havrix	83
58160-0825-43	Havrix	83
58160-0826-01	Havrix	52
58160-0826-05	Havrix	52
58160-0826-43	Havrix	52
43528-0002-05	Heplisav-B	189
58160-0806-01	Hiberix	48
00005-0104-41	Hib-titer	47
00005-0104-32	Hib-titer	47
49281-0248-58	Imovax rabies	175
58160-0810-01	Infanrix	20
58160-0810-43	Infanrix	20
49281-0860-78	Ipol	10
49281-0860-88	Ipol	10
42515-0001-00	Ixiaro	134
42515-0001-01	Ixiaro	134
58160-0812-01	Kinrix	130
58160-0812-43	Kinrix	130

49281-0589-58	Menactra	114
58160-0809-01	Menhibrix	148
49281-0487-58	Menomune	32
49281-0488-78	Menomune	32
46028-0218-11	Menveo	136
46028-0219-11	Menveo	136
00006-4681-01	M-M-R II	03
54868-0980-00	M-M-R II	03
58160-0811-41	Pediarix	110
58160-0811-43	Pediarix	110
00006-4897-01	Pedvaxhib	49
49281-0545-15	Pentacel	120
49281-0560-05	Pentacel	120
00006-4739-01	Pneumovax 23	33
00006-4837-01	Pneumovax 23	33
00006-4943-01	Pneumovax 23	33
54868-3339-09	Pneumovax 23	33
54868-4320-09	Pneumovax 23	33
00005-1970-49	Prevnar	100
00005-1971-01	Prevnar 13	133
00006-4171-01	Proquad	94
00006-4999-01	Proquad	94
49281-0562-58	Quadracel	130
63851-0511-11	Rabavert	176
00006-4093-01	Recombivax HB	43
00006-4094-01	Recombivax HB	43
00006-4980-00	Recombivax HB	08
00006-4981-01	Recombivax HB	08
00006-4992-01	Recombivax HB	44
00006-4995-01	Recombivax HB	43
58160-0851-01	Rotarix	119
00006-4047-01	Rotateq	116
58160-0819-12	Shingrix	187
58160-0823-11	Shingrix	187
49281-0215-58	Tenivac	113
49281-0215-88	Tenivac	113
00006-4133-01	Td	09
13533-0131-00	Td	09
14362-0111-03	Td	09
17478-0131-00	Td	09
21695-0413-01	Td	n/a
49281-0800-83	TT	35
49281-0820-10	TT	35
49281-0298-10	Tripedia	20
00005-0100-01	Trumenba	162
58160-0815-01	Twinrix	104
58160-0815-05	Twinrix	104
58160-0815-41	Twinrix	104
58160-0815-43	Twinrix	104
49281-0790-38	Typhim VI	101
49281-0790-88	Typhim VI	101
00006-4095-01	Vaqta	83
00006-4096-01	Vaqta	52
00006-4831-01	Vaqta	83
00006-4841-01	Vaqta	52
00006-4826-01	Varivax	21
00006-4827-01	Varivax	21
69401-0000-01	Vivotif	25
49281-0915-58	YF-vax	37
49281-0915-68	YF-vax	37
00006-4963-01	Zostavax	121

CPT Codes (CPT) and CVX Codes (292)

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90476	54	Adeno	Adeno T4	Adeno T4	Adenovirus type 4, live oral	BRR
90477	55		Adeno T7	Adeno T7	Adenovirus type 7, live oral	BRR
	82		Adeno, NOS		Adenovirus vaccine, unspecified	
90581	24	Anthrax	Anthrax	Anthrax	Anthrax	MIP
90585	19	BCG	BCG-TB	BCG-TB	Bacillus Calmette-Guerin TB	OTC
			BCG-BC	BCG-BC	Bacillus Calmette-Guerin bladder cancer	OTC
90728			BCG, NOS		BCG, NOS	
90725	26	Cholera	Cholera-Injectable	Cholera-I	Cholera injectable	NOV
90592			Cholera-Oral	Cholera-O	Cholera Oral	NOV
90719		Diphtheria	Diphtheria	Diphtheria	Diphtheria	PD
90700	20	DTP/aP	DTaP	Acel-Imune	Diphtheria, tetanus, acellular pertussis	PFR
				Certiva		NAV
				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	PFR
90721	50		DTaP-Hib	TriHIBit	DTaP-Hib combination	PMC
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB
90698	120		DTAP-Hib-IPV	Pentacel	DTAP-Hib-Polio combination	PMC
90696	130		DTAP-IPV	KINRIX	DTAP-Polio combination	SKB
				Quadracel	DTAP-Polio combination	PMC
	102		DTP-Hib-Hep B	Pentavalente	DTP-Hib-Hep B combination	
	106		DTAP, 5 pertussis antigens	DAPTACEL	Diphtheria, tetanus, acellular pertussis, 5 antigens	PMC
	107		DTaP, NOS		DTaP, unspecified	
90630	166	Influenza	Influenza, Intradermal, Quad P-Free	Fluzone Quad Intrad P-Free	Influenza Intradermal, quadrivalent, preservative free, injectable	PCM
90654	144		Influenza Intradermal, P-Free	Fluzone Intrad P-Free	Seasonal, Intradermal, preservative free	PMC
90655	140		Influenza, Preservative-Free	AFLURIA-PF	Influenza preservative free	CSL
				Agriflu		
				Fluvirin P-Free		SEQ
				Fluzone P-Free		PMC
90656				AFLURIA-PF		CSL
				Agriflu		SEQ
				Fluarix P-Free		SKB
				Flurivin P-Free		SEQ
				Fluzone P-Free		PMC
90657	141		Influenza	Afluria	Influenza split virus	CSL
				Flu-Immune		PFR
				Flu-Shield		PFR
				FluLaval		SKB
				Fluogen		PD
				Fluvirin		SEQ
				Fluzone		PMC
90658				Afluria		CSL
				Flu-Immune		PFR
				Flu-Shield		PFR
				FluLaval		SKB
				Fluogen		PD
				Fluvirin		SEQ
				Fluzone		PMC
90659	16		Influenza, Whole virus		Influenza whole virus	
90660	111		Flu-nasal	Flu-Mist	Influenza live, for intranasal use	MED
90661	153		Influenza MDCK Cell-Culture Der P-Free	Flucelvax P-Free	Influenza, injectable, MDCK, preservative free	SEQ
90662	135		Influenza High-Dose Preservative Free	Fluzone High-Dose P-Free	High-Dose Preservative Free	PMC
90687	158		Influenza Quadrivalent	Flulaval Quadrivalent	Influenza, Injectable, quadrivalent	IDB
				Fluzone Quadrivalent		PMC

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90688	158			Flulaval Quadrivalent		IDB
				Fluzone Quadrivalent		PMC
90672	149		Flu-Nasal Quadrivalent	Flumist Quadrivalent	Influenza, quadrivalent, live for intranasal use	MED
90673	155		Influenza Recombinant P-Free	Flublok P-Free	Recombinant, injectable, preservative free	PSC
90682	185		Influenza Quad Recombinant P-Free	Flublok Quad. P-Free	Influenza virus vaccine, quadrivalent (RIV4), derived from recombinant DNA, hemagglutinin (HA) protein only, preservative and antibiotic free, for intramuscular use	PSC
90685	150		Influenza Quadrivalent P-Free	Fluzone Quad P-Free	Quadrivalent, split virus, preservative free, intramuscular use	PMC
				Fluarix Quad P-Free		SKB
90686				Fluzone Quad P-Free		PMC
				Fluarix Quad P-Free		SKB
90674	171		Influenza MDCK Quadrivalent P-free	Flucelvax Quad P-Free	Influenza virus vaccine, quadrivalent (ccIIV4), derived from cell cultures, subunit, preservative and antibiotic free, 0.5 mL dosage, for intramuscular use	SEQ
90756	186		Influenza, MDCK, quadrivalent	Flucelvax Quadrivalent	Influenza, injectable, Madin Darby Canine Kidney, quadrivalent	SEQ
90653	168		Influenza Trivalent Adjuvanted P-Free	Fluad P-Free	Seasonal trivalent influenza vaccine, adjuvanted, preservative free	SEQ
90724	88		Influenza, NOS	Flu-Unspecified	Influenza, NOS	
	151		Influenza Nasal, Unspecified Formulation		Influenza Nasal, Unspecified Formulation	
90663	125	Flu H1N1-09	Novel Influenza-H1N1-09, nasal	H1N1 Flu-Nasal	Novel Influenza-H1N1-09, nasal	MED
	126		Novel Influenza-H1N1-09, preserve-free	H1N1 Afluria, P-free	Novel Influenza-H1N1-09, preserve-free	CSL
				H1N1 Fluvirin, P-free		NOV
				H1N1 Fluzone, P-free		PMC
	127		Novel Influenza-H1N1-09	H1N1 Afluria	Novel Influenza-H1N1-09	CSL
				H1N1 Fluvirin		NOV
				H1N1 Fluzone		PMC
	128		Novel Influenza-H1N1-09 all formulations		Novel Influenza-H1N1-09 all formulations	
	128	Flu H1N1-09	Novel Influenza-H1N1-09 all formulations	H1N1 Flu-Nasal	Novel Influenza-H1N1-09, live virus for nasal administration	MED
				H1N1 Afluria, P-free	Novel Influenza-H1N1-09, preservative –free	MED
				Novel influenza-H1N1-09,-I	Novel influenza-H1N1-09, injectable	
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	Hepatitus A pediatric/adolescent 3 dose	SKB
				VAQTA ped-3		MSD
90636	104		HepA-HepB Adult	Twinrix	Hepatitus A & Hepatitus B adult	SKB
90730	85		Hep A, NOS		Hep A, NOS	
	31		Hep A, Ped, NOS		Recorded as CVX 85	
90636	104	HepB	HepA-HepB Adult	Twinrix	Hepatitis A and hepatitis B (HepA-HepB), adult dosage, for intramuscular use	SKB
90723	110		DTAP-HepB-Polio	Pediarix	DTAP/Polio/Hep B	
90731	45		Hep B, NOS		Hepatitis B, NOS	
90740	44		Hep B-dialysis 3 dose		Hepatitis B vaccine, dialysis or immunosuppressed patient dosage (3 dose schedule), for intramuscular use	MSD
90743	43		HepB adult	Recombivax-Adult	Hepatitis B adult dose 1ml	MSD
				Engerix-B-Adult		SKB
90744	08		HepB pediatric	Recombivax-Peds		MSD

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
				Engerix-B-Peds	Hepatitis B pediatric/adolescent .5ml	SKB
90745	42		Hep B, adolescent/high risk infant		Hep B, 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		MSD
	102		DTP-Hib-Hep B	Pentavalente	DTP-Hib-Hep B Combination	
90739	189		Hep B, adjuvanted,	Heplisav-B	Hepatitis B, adult dosage (2 dose schedule), for intramuscular use	DVX
			HepB-Unspecified			
90644	148		Hib-MenCY-TT	Menhibrix	Meningococcal Groups C and Y and Haemophilus b	SKB
90645	47		Hib-HbOC	HibTITER	Hemophilus influenza b HbOC 4 dose	PFR
90646	46		Hib-PRP-D	ProHIBit	Hemophilus influenza b PRP-D booster	PMC
90647	49		Hib-OMP	PedvaxHIB	Hemophilus influenza b OMP 3 dose	MSD
90648	48	Hib	Hib-PRP-T	OmniHib	Hemophilus influenza b PRP-T 4 dose	SKB
				ActHib		PMC
				Hiberix		SKB
90720	22		DTP-Hib	Tetramune	DTP – Hib combination	PFR
90721	50		DtaP-Hib	TriHIBit	DtaP-Hib combination	PMC
90737	17				Hib, NOS	
90748	51		HepB-Hib	Comvax	HepB-Hib Combination	MSD
90698	120		DtaP-Hib-IPV	Pentacel	DtaP-Hib-IPV combination	PMC
	102		DTP-Hib-Hep B	Pentavalente	DTP-Hib-Hep B combination	
			Hib-Unspecified			
90649	62		HPV, Quadrivalent	Gardasil	Human Papilloma Virus, Quadrivalent	MSD
90650	118	HPV	HPV, Bivalent	Cervarix	Human Papilloma Virus, Bivanet	SKB
90651	165		HPV 9 Valent	Gardasil 9	Human Papilloma Virus, Valent	MSD
	137		HPV, NOS			
90281	86		Ig	Ig	Ig human	
90283	87		IgIV	IgIV	Ig IV human	
				Flebogamma		GRF
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	
90741	14		Immune Globulin(ISG)			
90399			Ig	Ig	Unlisted immune globulin	
90296	12		Diphteria-antitoxin	Diphteria-antitoxin	Diphtheria antitoxin, equine	
90371	30	Ig	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 RhIg human full-dose	
90385			Rho(D)Mini	Rho(D)Mini	Rho(D)Ig RhIg human mini-dose	
90386			Rho(D)IV	Rho(D)IV	Rho(D)Ig RhIg human IV	
90389	13		TiG	BayTet	Tetanus Ig human	
				TiG		
90393	79		Vaccinia immune globulin	Vaccinia-Ig	VaccinialG human	
90396	36		VZIg	VariZIG	Varicella-zoster Ig human	MIP
90665	66	Lyme	Lyme	LYMErix	Lyme disease	SKB
90735	39	Encephalitis	Japanese encephalitis - SC	JE-Vax	Japanese encephalitis - SC	JPN
90738	134		Japanese encephalitis - IM	Ixiaro	Japanese encephalitis - IM	VAL
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
90704	07	Mumps	Mumps	Mumpsvax	Mumps live	MSD
90709			Rubella-Mumps, NOS		Rubella and mumps live	

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
	38		Rubella-Mumps	Mumps-Rubella (MURU)	mumps and rubella live	MSD
				Biavax II		MSD
90707	03	MMR	MMR	MMR II	Measles, mumps, rubella, live	MSD
90710	94		MMRV	Proquad	Measles, mumps, rubella, and varicella vaccine (MMRV), live	MSD
90733	32	Meningo	Meningococcal MPSV4	Menomune	Meningococcal Polysaccharide Vaccine, Groups A, C, Y, W-135 Combined	PMC
90734	114		Meningococcal MCV4P	Menactra	Meningococcal Groups (A, C, Y, and W-135) Polysaccharide Diphtheria Toxoid Conjugate Vaccine	PMC
	136		Meningococcal MCV4O	Menveo	Meningococcal (Groups A, C, Y, and W-135) Oligosaccharide Diphtheria CRM197 Conjugate Vaccine	SKB
	147		Meningococcal MCV4		Meningococcal, MCV4, unspecified formulation (groups A, C, Y and W-135) This CVX should only be used for historical doses of meningococcal conjugate vaccine where the formulation is unknown.	
	108		Meningococcal, NOS		meningococcal vaccine, unspecified formulation	
90620	163	Meningococcal B	Meningococcal B, OMV	Bexsero	Meningococcal B, OMV	SKB
90621	162		Meningococcal B, Recombinant	Trumenba	Meningococcal B vaccine, fully recombinant	PFR
	164		Meningococcal B, NOS		Meningococcal B, NOS	
90715	115	Pertussis	TdaP > 7 Years	Boostrix	TdaP > 7 years	SKB
				Adacel		PMC
90712	02	Polio	Polio oral	ORIMUNE	Poliovirus OPV live oral	PFR
90713	10		Polio injectable	IPOL	Poliovirus inactivated IPV	PMC
90698	120		DTaP-Hib-IPV	Pentacel	DtaP-Hib-IPV combination	SKB
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB
90696	130		DTAP-IPV	KINRIX	DTAP-Polio combination	SKB
				Quadracel		PMC
	89		Polio-Unspecified		Polio, NOS	GRE
90727	23	Plague	Plague	Plague	Plague Pneumococcal polysaccharide 23 valent	PFR
90732	33	Pneumo-Poly	Pneumococcal 23	PNU-IMUNE23	Pneumococcal polysaccharide vaccine, 23-valent, adult or immunosuppressed patient dosage, for use in individuals 2 years or older, for subcutaneous or intramuscular use	MSD
				Pneumovax23		MSD
90669	100	Pneumococcal	Pneumo-conjugate	Prevnar 7		PFR
90670	133		Pneumococcal conjugate, 13 valent	Prevnar 13	Pneumococcal conjugate , 13 valent	PFR
	109		Pneumococcal-Unspecified			
	152		Pneumococcal Conjugate, NOS		Pneumococcal Conjugate, Unspecified	
90675	18	Rabies	Rabies-intramuscular	RabAvert	Rabies intramuscular	SKB
				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	74	Rotavirus	Rotavirus, Tet	RotaShield	Rotavirus tetravalent (before 01/01/2000)	
	122		Rotavirus		Rotavirus between 01/02/2000 and 12/31/2004)	MSD
	116		Rotavirus, Pent	RotaTeq	Rotavirus pentavalent (after 01/01/2005)	MSD
90681	119		Rotavirus-monovalent	Rotarix	Rotavirus-monovalent, live	SKB
90706	06	Rubella	Rubella	Rubella	Rubella live	MSD
				Meruvax II		MSD
90708	04		Measles-Rubella	Measles-Rubella (MERU)		MSD

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
				M-R-VAX	Measles and rubella virus vaccine, live, for subcutaneous use	
90709			Rubella-Mumps NOS		Rubella-Mumps, NOS	MSD
	38		Rubella-Mumps	Mumps-Rubella (MURU)	Rubella and mumps live	MSD
				Biavax II		MSD
	75	Smallpox	Smallpox	ACAM2000	Vaccinia(Smallpox)	PMC
				ACAM2000		ACA
				Dryvax		PFR
	105		Vaccinia (Smallpox), diluted	Vaccinia (smallpox), diluted	Vaccinia (smallpox), diluted	PMC
90718	09	Td	Td		Tetanus and diphtheria adult	
90714	113		Td preservative free	Td	Td preservative free – CPT code is effective 7/1/2005	MBL/GRF/ AKR
90714	113		Td preservative free	Decavac	Td preservative free – CPT code is effective 02/01/2012	PMC
				Tenivac		
90715	115		TdaP > 7 Years	Adacel	TdaP > 7 years	PMC
				Boostrix		SKB
	138		Td Adult, Not Adsorbed		Td Adult	PMC
	139		Td Adult, NOS		Td Adult unspecified formulation	
90703	35	Tetanus	Tetanus	TT	Recorded as CVX 35	PMC
	112		Tetanus Toxoid, NOS			
90690	25	Typhoid	Typhoid-oral	Vivotif	Typhoid oral	CRU/PAX
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)	UUSA
90714	91		Typhoid-NOS		Typhoid not otherwise specified (after 7/1/2005, no CPT code is associated with this vaccine group)	MSD
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	PMC
90750	187	Zoster	Zoster Vaccine Subunit	Shingrix	Zoster (shingles) vaccine (HZV), recombinant, sub-unit, adjuvanted, for intramuscular use	SKB
90736	121		Zoster (shingles), live	Zostavax	Zoster (shingles), live	MSD

Decrement of Inventory Requirements

Below is the criteria required in a 2.5.1 HL7 file to deduct inventory via data exchange. The VIIS Org Code and Site Inventory ID must already exist in VIIS at the time the HL7 file is submitted. The vaccine being submitted must be new/administered and a matching lot number and vaccine information must appear in the provider's inventory for deduction to occur. OBX segments are highly recommended as they provide for additional lot matching criteria.

Segment	Description	Notes
MSH-4.1	VIIS Org Code	This value is provided by VIIS Staff.
RXA-5	Administered Code	The vaccine administered. VIIS accepts the following vaccine code sets: CVX (CVX Codes), CPT (CPT Codes), VTN (Vaccine Trade Names), NDC (NDC Codes) and VGC (Vaccine Group Codes).
RXA-9	Immunization Source	Immunization source must be new, not historical '00'
RXA-11.4	Administering Org	The facility where the vaccine was administered. Place the Site Inventory ID in component 4, i.e. |^^^12345|
RXA-15	Manufacturer's Lot Number	Manufacturer's lot number for the vaccine
OBX-3	Vaccine Purchased With Funding	LOINC 30963-3
OBX-5		PVF – Public Funds or PBF Private Funds
OBX-3	Vaccine Funding Program Eligibility	LOINC 64994-7
OBX-5		Use VIIS VFC code set