

**Nebraska State Immunization
Information System**
HL7 – 2.5.1 & Real-time Transfer Specification

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Introduction 4

The Health Level Seven (HL7) Standard 4

Scope of This Document 5

References 5

HL7 Message Types Used in NESIIS Transmissions 5

 ADT 5

 VXU 5

 ACK 6

 QBP 6

 RSP 6

Message Segments: Field Specifications and Usage 7

 HL7 Segment Structure 7

 Rules for Sending Systems 8

 MSH 8

 PID 9

 PD1 11

 NK1 11

 PV1 12

 RXA 12

 RXR 14

 OBX 14

 ORC 17

Batch Files of HL7 Messages 18

 FHS 18

 FTS 18

 BHS 19

 BTS 19

Real-time Processing 25

Real-time Process Message Types 26

 VXU^V04^VXU_V04 26

 QBP^Q11^QBP_Q11 26

 RSP^K11^RSP_K11 26

 Z32^CDPHINVS 26

 Z31^CDCPHINVS 26

 Z34^CDCPHINVS 26

 ACK 27

Real-time Process Message Segments 27

 MSH Segment 27

 QPD Segment 28

 RCP Segment 29

 QAK 29

 ERR 30

 MSA 30

Appendix A -- HL7 Data Types 31

 CE -- Coded Element (most uses) 31

 CQ -- Composite Quantity with Units 32

 CWE -- Coded with Exceptions 32

 CX -- Extended Composite ID with Check Digit 32

 EI -- Entity Identifier 32

 ERL -- Error Location 33

 HD -- Hierarchic Designator 33

 ID -- Coded Values for HL7 Defined Tables 33

 IS -- Coded Values for User Defined Tables 34

 LA2 -- Location with Address Variation 2 34

 MSG -- Message Type 34

 NM -- Numeric 34

 SAD -- Street Address 34

 SI -- Sequence ID 34

 ST -- String Data 35

 TS 35

 XAD -- Extended Address 35

XCN -- Extended Composite ID Number and Name for Persons	36
XPN -- Extended Person Name	36
XTN	37
Appendix B -- HL7 Tables	38
Sex	39
Event Type	39
Patient class	39
Race	39
Acknowledgment Code	39
Relationship	39
Financial class	40
Message Type	40
Observation result status codes	40
Query Priority	40
Processing ID	40
Version ID	40
Yes/No Indicator	40
Accept/Application Acknowledgment Conditions	40
Route of Administration	40
Administrative Site	40
Ethnic Group	41
Identifier Type	41
Nationality	41
Publicity Code	41
Manufacturers of vaccines (code = MVX)	41
County/parish (Nebraska & some surrounding counties)	42
Substance Refusal Reason	45
Contraindications, Precautions	45
Event Consequence	46
Patient Registry Status	46
Vaccine Funding Code	46
Vaccine Contraindications	46
V2.5.1 Value	46
Evidence of Immunity	46
V2.5.1 Value	46
Reaction Codes	47
V2.5.1 Value	47
Vaccine Group Code (WVGC)	48
Vaccine Trade Name (WVTN)	48
CPT Codes (WCPT) and CVX Codes (292)	51
Trade Name	51

Nebraska State Immunization Information System

HL7 – 2.5.1 & Real-time Transfer Specification

Introduction

The Nebraska State Immunization Information System (NESIIS) has made available an interactive user interface on the World Wide Web for authorized users to enter, query and update client immunization records. The Web interface makes NESIIS information and functions available by using any computer or tablet device with a connection to the Internet. 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. NESIIS has been enhanced to accept HL7 Version 2.5.1 for immunization data. NESIIS also allows providers to submit client and immunization information using 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 NESIIS the resulting HL7 2.5.1 Response Message in real time. Specifications for HL7 2.5.1 Real-time start on page 25.

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 HL7 developers to create a set of messages that permit exchange of immunization data. This document covers the subset of HL7 that will be used for client and immunization records exchanged between NESIIS 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, “|”.

```
MSH|^~\&|VALSYS|VALCLIN|NESIIS|NESIIS|19991005032342||VXU^V04|682299|P^|2.4^^|||ER
PID|||79928^^^PI||SMITH^MARY^T|JOHNSON|19951212|F||||
ORC|RE||1^DCS|||||||||||||||||||||R
RXA|0|1|19970903|19970903|^^90701^DTP^CPT|0.5
```

The details of how HL7 messages are put together, for NESIIS 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 to NESIIS. 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 NESIIS from log-in information and not from an HL7 message.

- The Message Header segment (**MSH**) identifies the owner **VALLEY CLINIC** (VALCLIN) of the information being sent and the receiver (**NESIIS**). 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 client'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 sending system DCS.
- The Pharmacy Administration segment (**RXA**) tells that a DTP vaccine, with CPT code 90701, was administered on September 3, 1997 (formatted as 19970903). 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. NESIIS will provide a response according to the type of file initially submitted via data exchange. If data was batched, the NESIIS response will be a batch. Likewise, if the data submitted was a single record, NESIIS will respond to that single record.

Scope of This Document

The General Transfer Specification (GTS) documented here supports automated exchange of data between the NESIIS repository and outside systems. This allows both the client 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 NESIIS. It does not cover the methods that are used to transmit files between the NESIIS central repository and outside systems. It covers only a small subset of the very extensive HL7 standard. Files of messages constructed from the guidelines in this document will fall within the HL7 standard, but there are 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. NESIIS 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 NESIIS Transmissions

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

The ADT is used for sending out client data without any immunizations. NESIIS 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 response 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 NESIIS 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 NESIIS. 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 NESIIS functions of storing data about clients and immunizations.

ADT

Update Patient Information

MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographic
[[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

RECOMMENDATIONS:

NESIIS will NOT accept an ADT message (unsolicited demographic update) for a new client. 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.

When a VXU^V04^VXU_V04 (Unsolicited Vaccination Record Update) message type is sent with no valid RXA segment, the client will be rejected per current business rules.

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

*NESIIS responds to QBP messages with a file that contains a Response (RSP) message.

Note:

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

In batch file processing, NESIIS 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 NESIIS records meet the search criteria.

- **NESIIS finds one patient** - When NESIIS 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, NESIIS 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.

- **NESIIS finds multiple patients** - When NESIIS 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 NESIIS finds **Z31** multiple candidates for an **RSP Response** message to a **QBP Query**, NESIIS 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. NESIIS should now send a **Z32** response for one patient, which includes the complete immunization history.

- **NESIIS does not find the patients** - When NESIIS does not have the patient's record, the RSP message shows that NESIIS 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.
- **NESIIS finds too many patients** - When NESIIS finds more patients the organization lists in RCP-2 Quantity Limited Request, the RSP message shows that NESIIS found too many records. The 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 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 NESIIS 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 NESIIS. Blank indicates a required but may be empty field. CE means conditional but may be empty. |
| 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 NESIIS. 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 NESIIS, 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. HL7 permits the use of other delimiters besides the recommended ones and the delimiters used in each message are given in the Message Header segment. NESIIS 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 “”.
- 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 NESIIS may include many segments besides the ones in this document, and NESIIS ignores them. NESIIS 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 NESIIS. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since NESIIS 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

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	7	CM	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 Acknowledgment Type
21	427	EI	CE			Message Profile Identifier

Field Notes:

- MSH-1 Determines the field separator in effect for the rest of this message. NESIIS 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. NESIIS requires the HL7 recommended values of ^~\&.
- MSH-3 Name of the sending application. When sending, NESIIS will use “NESIIS” 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, NESIIS will use “NESIIS”. When the message is being sent to NESIIS and the Provider Organization owning the information is different than the organization transmitting the message, use either MSH-4.2 for the NESIIS Provider ID of the Provider Organization that owns the information preceded by a component separator (e.g., ^36) or MSH-4.1 for the short Provider Organization name (e.g., IRPH.) Contact the NESIIS Help Desk for the appropriate organization ID and short Provider Organization name. If the owner of the information and the transmitter of the information are the same Provider Organization, this field can be left blank. However, providers are encouraged to use this to identify themselves as the owner of the data using this field.
- MSH-6 Identifies the message receiver. When sending, NESIIS will use the short Provider Organization name assigned when the provider first registers with the NESIIS database and NESIIS-Web interface.
- MSH-7 Date and time the message was created. NESIIS ignores any time component. See the TS data type.
- MSH-9 This is a required field. Three components of this field give the HL7 message type (see Table 0076) and the HL7 triggering event (see Table 0003) and the HL7 Message Structure (HL7 Table 0354) . Within HL7, the triggering event is considered to be the real-world circumstance causing the message to be sent. For NESIIS purposes, this field should have the value VXU^V04^VXU_V04 for a message conveying client 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.
- MSH-11 The processing ID to be used by NESIIS is **P** for production processing. If this field is null, an informational message is generated indicating that NESIIS 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. Messages conforming to the specifications in this Guide shall indicate that the version is 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.
- **For NESIIS to PO providers, the Exchange Data screen will need to be set to the version number that the organization has selected, in which to receive their data files. Setting the version number “tells” the writer which HL7 version format to use when generating the file in (the default will be the most recent version).
- MSH-15 This field identify the conditions where a system must return accept acknowledgments to this message. NESIIS ignores this value from sending organizations.
- MSH-16 Controls if NESIIS creates an acknowledgment message. This field contains the conditions where NESIIS returns application acknowledgment. If the field is empty, NESIIS will assume the value of ER, then NESIIS only acknowledges the message when it contains errors; If the field value is AL, NESIIS will acknowledges all messages.
- MSH-21 Contains the profile used when responding to a query. NESIIS requires this field when the MSH-9 Message Type contains RSP^K11^RSP_K11 for an RSP message type and NESIIS 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	0203	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
19	16	ST				SSN Number – Patient
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 NESIIS, use the sending system's Chart Number or other identifier if available. When NESIIS is sending to an outside system it will use the client's NESIIS ID and chart number when it is available. If a Provider Organizations sends the client's NESIIS ID (use "SR" as the identifier type code) in addition to a chart number, the NESIIS ID will be used to locate the client.
- 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 client does not have a first name, NO FIRST NAME must be entered.** NESIIS 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 client identification, NESIIS uses only last name and first name. A mother's legal name might also appear in the context of an NK1 segment. NESIIS does not support repetition of this field.
- PID-7** Give the year, month, and day of birth (YYYYMMDD). NESIIS ignores any time component.
- PID-8** See Table 0001. Use F, M, or U.
- PID-10** See Table 0005. NESIIS stores and writes "Unknown" values as null. NESIIS does not accept Hispanic or Latino as a race option. Submit it in the Ethnic Group PID-22. NESIIS does not support repetition of this field.
- PID-11** See the XAD data type. NESIIS does not support repetition of this field. Send the patient's primary address and county of residence in this field. See User Table 0289 for a list of counties.
- PID-13** See the XTN data type. Version 2.4 includes the support of the N, X, B and C sequences. NESIIS does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code (ID) from table 0201) NESIIS will use the 6th 7th 8th and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, NESIIS 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-19** NOTE: Social security number is used for identification purposes only, and is not displayed in screens or distributed to Provider Organizations. Support of PID-19 is for backwards compatibility only. PID-22 See Table 0189. NESIIS stores and writes "Unknown" values as null. NESIIS supports repetition of this field.
- PID-24** Use Y to indicate that the client was born in a multiple birth event (twins, triplets, etc).
- PID-25** Relevant when client was born in a multiple birth event (twins, triplets, etc). Use 1 for the first born, 2 for the second, etc. This field is useful in matching client data to existing records.
- PID-29** The date of death, if client is deceased. Give the year, month, and day (YYYYMMDD). NESIIS 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 patient additional 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. NESIIS will recognize “01” to indicate no recall/reminder notices or “02” recall/reminder notices any method.

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: Nebraska is an opt-out state. By default this segment, if submitted, would be populated with a value of ‘N’.

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 0441. If a code of P is specified, the PID-29 segment must be filled in with Client Death Date or record will be rejected.

PD1-17 Effective date for registry status reported in PD1-16. Format is YYYYMMDD. If PD1-16 Immunization Registry status exists, an organization must value this field.

PD1-18 Effective date for publicity code reported in PD1-11. Format is YYYYMMDD. If PD1-11 Publicity Code exists, an organization must value this field.

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	R			Name
3	60	CE	R		0063	Relationship
4	106	XAD				Address
5	40	XTN				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, NESIIS 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. NESIIS does not support repetition of this field.

NK1-3 Relationship of the responsible person to the client. 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. NESIIS does not support repetition of this field.
Note: **The patient’s primary address should be sent in PID-11.**

NK1-5 Responsible person’s phone number. NESIIS does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code (ID) from table 0201) NESIIS will use the 6th 7th 8th and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, NESIIS will assume that the phone number is specified in the first component in the [NNN] [(999)]999-9999[X99999][B99999][C any text] format. The patient’s primary phone number should be sent in PID-13.

PV1

The PV1 segment is used to send visit-specific information.

The primary use in immunization messages in previous releases was to carry information about the client's eligibility status. This is now recorded at the immunization event (dose administered) level. Use of this segment for the purpose of reporting client eligibility for a funding program at the visit level is not supported for HL7 2.5.1.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
2	1	IS	R		0004	Patient Class
20	50	FC	M	Y	0064	Financial Class

Field Notes:

PV1-2 See table 0004. NESIIS will store and write a value of "R" (recurring patient) for this field.

PV1-20 See table 0064. This field has been replaced with OBX-5 in HL7 2.5.1. If PV1-20 is attempted to be used for Financial Class information in HL7 2.5.1, an Informational error will return stating, "Please use OBX-5 for Financial Class. No Value Stored".

RXA

The RXA carries pharmacy administration data. It is a child of an ORC segment, which is a repeating segment in the RSP and VXU messages. ORC is allowed to repeat an unlimited numbers of vaccinations in a message. Each RXA must be preceded by an ORC.

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	RE			Date/Time End of Administration
5	100	CE	R			Administered Code
6	20	NM	R			Administered Amount
7		CE	CE			Administered Units
9	200	CE		Y	NIP001	Administration Notes
10	200	XCN				Administering Provider
11	200	LA2				Administered-at location
15	20	ST		Y		Substance Lot Number
16	26	TS	CE			Substance Expiration Date
17	60	CE			0227	Substance Manufacturer Name
18	200	CE			NIP002	Substance Refusal Reason
20	2	CE				Completion Status
21	2	ID			0323	Action code - RXA

Field Notes:

RXA-1 Required by HL7. Use "0" for NESIIS.

RXA-2 Required by HL7. For PO-NESIIS loads, Data Exchange expects incoming values of 1 for this field in HL7 2.5.1. Other numeric values are ignored.

NESIIS Data Exchange sends out series information in this field, provided the system is configured to do so. For example, if a dose evaluates to (3 of 4) in the Immunization Evaluator, then the system sends the number 3 in RXA-2. If the dose violates a specific Immunization Evaluator rule, then the system sends 777 in RXA-2. In all other cases, the number 1 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 series information in RXA-2 only applies to HL7 Version 2.4 and 2.5.1. It applies to Batch HL7 NESIIS-PO, Batch HL7 Bi-directional, and Real-time HL7. Some configuration is needed to send series information in RXA-2.

If the user configures the system so that it will **not** send series information, then the system always sends 999 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^NESIIS immunization
  id^IMM_ID^^||||||||||
```

RXA-3 Date the vaccine was given. NESIIS ignores any time component.

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

RXA-5 This field identifies the vaccine administered. NESIIS accepts the CVX code, CPT code, Vaccine Trade Name, or Vaccine Group Code for the vaccine administered. If using a CVX code to identify the vaccine administered, give the CVX code in the first component and “CVX” in the third component [20^DTaP^CVX^^]. If using the CPT code, the vaccine group code (WVGC) or vaccine trade name (WVTN), use components four through 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. See the CE data type and HL7 - Table 0292 (CVX Codes), NESIIS – Table WCPT (CPT Codes), NESIIS – Table WVGC (Vaccine Group Codes), and NESIIS – Table WVTN (Vaccine Trade Names).

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. NESIIS and HL7 require this field to contain a value. However, a value of 1.0 will be stored in its place.

RXA-7 Administered Units. NESIIS assumes the unit to be a “dose”, therefore this field is ignored in NESIIS.

RXA-9 NESIIS will recognize 00 to indicate a new administered vaccine or 01 to indicate Historical Record. When sending, NESIIS will include the corresponding immunization ID in the second repeating segment.

```
|01^^^^~9999999^NESIIS immunization id^IMM_ID^^|
```

Note: If this field is left blank, the immunization will be recorded as historical in NESIIS.

RXA-10 Administering Provider. Identifies the name of the administering clinician (VEI).

```
|^SMITH^SALLY^S^^^^^^^VEI|
```

Note: In HL7 2.5.1, the ordering and entering providers are indicated in the associated ORC segment.

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

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

RXA-16 This field contains the expiration date of the medical substance administered. It may remain empty if the dose is from a historical record. Date the vaccine expires in YYYYMMDD format. NESIIS ignores any time component.

RXA-17 Vaccine manufacturer from Table 0227, for example [AB^Abbott^MVX^^]. For vaccines, code system MVX should be used to code this field, not HL70227. NESIIS 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. NESIIS does not support repetition of this field.

Notes on Refusals:

a) NESIIS 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) The NESIIS system 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 clients who have them.

c) The NESIIS 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|^^^MMR^MMR^WVGC|1.0|||||||00^PARENTAL REFUSAL^NIP002^^^
```

RXA-20 For Batch HL7 NESIIS-PO, Batch HL7 Bi-directional, and Real-time HL7, 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 dislodged 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 NESIIS default to A for additions. To delete an existing immunization in NESIIS, 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 addition, organizations shall use A additions in RXA-21, NESIIS determines whether to update the record or add a new immunization.

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

```
RXA|0|1|20050919|20050919|90713^Polio-  
InJect^C4^IPOL^^WVTN|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	R			Set ID-OBX
2	3	ID	R			Value type
3	80	CE	R			Observation Identifier
4	20	ST				Observation sub-ID
5	65536	-				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 PO-NESIIS data, Data Exchange accepts CE for Coded Entry. However, for NESIIS-PO, 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 (NESIIS001) in OBX-5.
 Example: OBX|1|CE|31044-1^Reaction^LN||HYPOTON^hypotonic^NESIIS^^^|||||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^^^|||||F|
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/0/999/20061017/20061017/^^90748^HepB-Hib^CPT|0||00^^^|||||F|
OBX|1|CE|30963-3^Vaccine purchased with^LN^^^||PBF^Public Funds^NIP008|||||F|

For Batch HL7 NESIIS-PO, Batch HL7 Bi-directional, and Real-time HL7, 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 NESIIS sends Series information for combination vaccines.

For Batch HL7 NESIIS-PO, Batch HL7 Bi-directional, and Real-time HL7, 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 NESIIS 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 will increment sequentially.

For example, NESIIS 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 (NESIIS001), Event Consequence (NIP005), Vaccine Funding Source (NIP008) or VFC Eligibility (HL70064). NESIIS has imposed a CE data type upon this field, the first component of which is required.
(e.g.,|PERTCONT^Pertussis contra^NESIIS^^^|)

For Batch HL7 NESIIS-PO, Batch HL7 Bi-directional, and Real-time HL7, 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 NESIIS sends Series for combination vaccines and Recommendations.

OBX-11 Required for HL7. Use "F" for NESIIS.

OBX-14 Records the date/time of the observation. The observation's date in YYYYMMDD format. NESIIS 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 client.

NOTE 3: Complete Example of NESIIS's use of OBX to send Series Information for Combination Vaccines is listed below:

A single dose of combination vaccine may have a different series dose count for each component. For Batch HL7 NESIIS-PO, Batch HL7 Bi-directional, and Real-time HL7, the system sends a grouped set of three OBX segments for each component in a combination vaccine. For example, a single dose of DTaP-Hib is sent as below. The first three OBX segments express the dose count of 1 for DTaP. The last three 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^NESIIS
immunization id^IMM_ID^^^|||||
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|20^DTaP^CVX^90700^DTaP^CPT|||||F|
OBX|2|TS|38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|1|20010730|||||F|
OBX|3|NM|38890-0&30973-2^Dose number in series^LN|1|1|||||F|
OBX|4|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|17^Hib^CVX^90737^Hib^CPT|||||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 NESIIS's use of OBX to send Recommendation Information is listed below:

For Batch HL7 NESIIS-PO, Batch HL7 Bi-directional, and Real-time HL7, 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 client. 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|
    
```

The ability to send Recommendations in these grouped OBX segments applies to HL7 2.5.1 and it applies to Batch HL7 NESIIS-PO, Batch HL7 Bi-directional, and Real-time HL7. Some configuration is needed to send Recommendations in this way. On the Manage Data Exchange Screen, the **Send HL7 Series/Recommend** option displays, and the user must select either “Recommendations Only” or “Both” from the pick list. (This option is hidden if Flat File or HL7 PO-NESIIS is chosen.)

ORC

The Order Request Segment.

This segment is a new segment for NESIIS HL7 2.5.1 and needs to be included if submitting to NESIIS 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.

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.

Batch Files of HL7 Messages

The definitions above tell how to create messages containing client and immunization data. Each message can logically stand on its own and HL7 is compatible with various methods of online and batch transmission. NESIIS 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

File Header Segment

The FHS 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	R			File Sending Facility
6	20	ST	R			File Receiving Facility
7	26	TS	R			File Creation Date/Time
9	20	ST	R			File Name/ID
10	80	ST				File Header Comment
11	20	ST	R			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

File Trailer Segment

The FTS 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. NESIIS 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

Batch Header Segment

The BHS 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	R			Batch Sending Facility
6	20	ST	R			Batch Receiving Facility
7	26	TS	R			Batch Creation Date/Time
10	80	ST				Batch Comment
11	20	ST	R			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. NESIIS 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. NESIIS 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 NESIIS 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

Batch Trailer Segment

The BTS segment defines the end of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	10	ST	R			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.

File Interchange between NESIIS and Outside Systems

The central repository of NESIIS contains records of clients from around the state. Client and immunization records flow both ways between NESIIS and outside systems. Data, for a particular client, is transmitted by NESIIS to an outside system

(Provider Organization) only if the client is identified as having a relationship with that Organization AND the relationship was created by transmitting the client's record to NESIIS. So, an exchange of information about a given client is always initiated by the outside system. There are three options for exchanging data with NESIIS:

- (1) The Provider Organization can send data to NESIIS and request that no data is returned from NESIIS.
- (2) The Provider Organization can request data from NESIIS while not providing data to NESIIS.
- (3) The Provider Organization can send data to NESIIS and NESIIS will return any updated information regarding the clients that have a relationship with that Provider Organization.

Note: client and immunization data can also be entered, queried, and modified using the NESIIS-Web interface. This provides an alternate way of identifying a client as having a relationship with a Provider Organization. The use of NESIIS-Web is not required to create a relationship between a Provider Organization and a client. The first transmission to NESIIS, for a client immunization record, will create the link that will cause NESIIS to transmit that client's record to the outside system.

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 NESIIS client and immunization data, the principal response of the receiving system is to process the message and post whatever it contains to its own database. For these cases, HL7 provides the ACK message type, 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 NESIIS and outside systems, it is the responsibility of the outside system to initiate the transfer of the first file, containing VXU messages with client and immunization data. After processing those messages, NESIIS responds with a file of ACK messages. At the same time or soon after, NESIIS also creates another file of VXU messages, containing the full client record, to send to the Provider Organization that initiated the first transfer. It is the responsibility of that Organization as receiver to transmit back a file of ACK messages. During this second exchange, in terms used by HL7, NESIIS is the initiator and the outside system is the respondent. However, it is the receipt of the first file initiated by the outside system that causes NESIIS to initiate sending its own data file.

Provider Organization		NESIIS	
		Outgoing	Receiving
1.	Creates a file of client and immunization records that have changed since they were last transmitted to NESIIS.		
2.	Transmits the file to NESIIS.		
3.			Processes the file received, creates a file of ACK messages.
4.		Transmits the ACK file back to the initiator of the original file.	
5.	Processes the ACK file to confirm success of the file transmission.		
6.		Creates a file of client and immunization records that have changed since they were last transmitted to this Provider Organization.	
7.		Transmits this file to the Provider Organization.	
8.	Processes the file received, creates a file of ACK messages.		
9.	Transmits the ACK file back to NESIIS		
10.			Processes the ACK file to confirm success of the file transmission.

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 NESIIS 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 1, 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 NESIIS creates in Step 6. It is also possible that the file NESIIS creates in Step 6, will contain only file batch headers and footers if there are no records to send.

Examples

To illustrate how a NESIIS HL7 file is put together we will document how the fictional organization, Valley Clinic, formats client and immunization records to be transmitted to NESIIS. 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
• Client #1		PID segment
• Chart Number (ID on Valley Clinic's system)	45LR999	PID-3
• Social Security Number	000111222	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
• Patient's Primary Address	123 MAIN ST LINCOLIN, NE 68509 NE109 (Lancaster County, NE)	PID-11
• Patient's Primary Phone Number	402 987 6543	PID-13
• Multiple Birth Indicator	Y (client was born as part of a multiple birth)	PID-24
• Birth Order	2 (second birth of a multiple birth)	PID-25
• Publicity Code	02	PD1-11
• Protection Indicator	Y (client 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 contact who cares for client)		NK1 segment
• Name	MARTHA MILLER	NK1-2
• Relationship to client	MTH	NK1-3
• Address	123 MAIN ST LINCOLIN, NE 68509 NE109 (Lancaster County, NE)	NK1-4
• Phone	402 123 4567	NK1-5
• Responsible Person		NK1 segment
• Name	GEORGE MILLER	NK1-2
• Relationship to client	FTH	NK1-3
• Immunization (historical)		RXA segment
• Date administered	July 23, 1999	RXA-3
• Vaccine	DTaP	RXA-5
• CPT Code	90700	RXA-5
• Dose size	0.5	RXA-6
• Administering Provider Organization	Valley Clinic	RXA-10
• Client #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
• Immunization (historical)		RXA segment
• Date administered	July 23, 1999	RXA-3
• Vaccine	DTaP	RXA-5
• CPT Code	90700	RXA-5
• Dose size	0.5	RXA-6
• Administering Provider Organization	Valley Clinic	RXA-10

Information to transmit	Data value to be entered	HL7 Format
• Immunization (historical)		RXA segment
• Date administered	July 23,1999	RXA-3
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Dose size	0.5	RXA-6
• Administering Provider Organization	Valley Clinic	RXA-10
• Client #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
• Immunization (new)		RXA segment
• Date administered	January 2, 2010	RXA-3
• Vaccine	Novel Influenza-H1N1-09	RXA-5
• CVX Code	127	RXA-5
• Dose	0.25	RXA-6
• Administering Clinician	Jane Doe (Note the clinician last name will not be recorded in the example. An informational error is generated as a result of an missing value in an optional field.)	RXA-10
• Lot number	NVB23423	RXA-15
• Lot manufacturer	sanofi pasteur	RXA-17
• Eligibility		OBX segment
• Vaccine fund pgm elig cat	64994-7	OBX-3
• VFC Eligibility code	Insured, vaccines covered	OBX-5
• Funding Source		OBX segment
• Vaccine purchased with	30963-3	OBX-3
• Vaccine Funding Source	Private funds	OBX-5
• Immunization (new)		RXA segment
• Date administered	December 05, 2010	RXA-3
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Dose	0.5	RXA-6
• Administering Clinician	Jane Doe	RXA-10
• Lot number	AD19487	RXA-15
• Lot manufacturer	Merck	RXA-17
• Eligibility		OBX segment
• Vaccine fund pgm elig cat	64994-7	OBX-3
• VFC Eligibility code	Uninsured	OBX-5
• Funding Source		OBX segment
• Vaccine purchased with	30963-3	OBX-3
• Vaccine Funding Source	Public funds	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|^~\&|VALSYS|VALCLIN||NESIIS|19990802091523||filename1.hl7|WEEKLY HL7 UPLOAD|00009972<CR>
BHS|^~\&|VALSYS|VALCLIN||NESIIS|19990802091523|||00010223<CR>
MSH|^~\&|VALSYS|VALCLIN||NESIIS|19990802091524||VXU^V04^VXU_V04|00000123|P|2.5.1|||AL<CR>
PID|||45LR999^^^PI^~000111222^SS||MILLER^GEORGE^M^JR|OLSON^MARTHA|19950227|M|||123 MAIN ST^^
LINCOLN^NE^68509^US^^NE109|| (402) 987-6543|||Y|2<CR>
PD1 |||02^REMINDER/RECALL ANY MENTOD^HL70215|Y|A<CR>
NK1||MILLER^MARTHA|MTH^Mother^HL70063|123 MAIN ST^^ LINCOLN^NE^68509^US^^NE109|(402)123-
4567<CR>
```

```

NK1|2|MILLER^GEORGE|FTH^Father^HL70063<CR>
ORC|RE||1^DCS|||||||||||||||||||||||||R
RXA|0|999|19990723|19990723|^^^90700^DTaP^CPT|0.5|||01|VALCLIN<CR>
MSH|^~\&|VALSYS|VALCLIN|NESIIS|19990802091524||VXU^V04^VXU_V04|00000124|P|2.5.1|||ER<CR>
PID|||23LK729^^^PI^||CALIFANO^MARIA|DISTEFANO^ANGELICA|19980413|F<CR>
ORC|RE||2^DCS|||||||||||||||||||||R
RXA|0|999|19990723|19990723|^^^90700^DTaP^CPT|0.5|||01|VALCLIN<CR>
ORC|RE||3^DCS|||||||||||||||||||||R
RXA|0|999|19990723|19990723|^^^90707^MMR^CPT|0.5|||01|VALCLIN<CR>
MSH|^~\&|VALSYS|VALCLIN|NESIIS|19990802091526||VXU^V04^VXU_V04|00000125|P|2.5.1|||ER<CR>
PID|||927389^^^SR^~92HG9257^^^PI^||FISHER^JOSEPH|LASOWSKI^MARY|20080703|M<CR>
ORC|RE||4^DCS|||||||||||||||||||||R
RXA|0|999|20100102|20100102|127^H1N1^CVX^^^|0.25|||00|^JANE^^^^^^^^^VEI^^^|||NVB23423||PMC^
sanofi pastuer^HL70227^^^|||<CR>
OBX|1|CE|64994-7^Vaccine fund pgm elig cat^LN^^^|V01^Insured, Vaccines
Covered^HL70064|||||F|
OBX|2|CE|30963-3^Vaccine purchased with^LN^^^|PVF^Private Funds^NIP008|||||F|
ORC|RE||5^DCS|||||||||||||||||||||R
RXA|0|999|20101205|20101205|^^^90707^MMR^CPT|0.5|||00|^DOE^JANE^^^^^^^^^VEI^^^|||AD19487||MS
D^MERCK^HL70227|||||A<CR>
OBX|1|CE|64994-7^Vaccine fund pgm elig cat^LN^^^|V03^Uninsured^HL70064|||||F|
OBX|2|CE|30963-3^Vaccine purchased with^LN^^^|PBF^Public Funds^NIP008|||||F|
BTS|3<CR>
FTS|1<CR>

```

Note: When a client is being introduced to NESIIS, the VXU message is recommended, since NESIIS must have at least one immunization for a client before being added to the database. In the example above, Valley Clinic sends a file of three HL7 messages to NESIIS. Batch header/footer segments bracket the messages.

Client George M Miller Jr. is identified by Valley Clinic's chart number, 45LR99 and SSN 00111222, in his PID segment. The message could have included George's NESIIS 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, his birth date, gender 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 NESIIS. 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 PID segments in the third messages give a NESIIS client ID in field PID-3. This must have been transmitted earlier from NESIIS to Valley Clinic's system. In this case it is legitimate to omit more of the optional PID fields, since NESIIS must have at least the minimum required information for these clients even to create a record. However, if there is a possibility that Valley Clinic has new or changed information to send to NESIIS, these fields should be present, and it does no harm to repeat fields even if they have been transmitted previously.

```

FHS|^~\&|NESIIS7.2.6|NESIIS||VALCLIN|20110128101125||351849.674703.36.2011.01.28|||||<CR>
BHS|^~\&|NESIIS7.2.6|NESIIS||VALCLIN|20110128101125||351849.674703.36.2011.01.28|||||<CR>
MSH|^~\&|NESIIS7.2.6|NESIIS||VALCLIN|20110128101125||351849.674703.36.2011.01.28|||||ACK|00000
123|P|2.5.1<CR>
MSA|AA|00000123
MSH|^~\&|NESIIS7.2.6|NESIIS||VALCLIN|20110128101125||351849.674703.36.2011.01.28|||||ACK|00000
124|P|2.5.1<CR>
MSH|^~\&|NESIIS7.2.6|NESIIS||VALCLIN|20110128101125||351849.674703.36.2011.01.28|||||ACK|00000
125|P|2.5.1<CR>
MSA|AR|00000125|<CR>
ERR||RXA^15^10^0|INFORMATIONAL ERROR - Administering provider last name is required to use
administering provider field.<CR>
BTS|3<CR>
FTS|1<CR>

```

NESIIS answers the file from the above example with a file of ACK messages. Valley Clinic's message 00000123 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 rejected. 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 MSA Message Acknowledgment Segment for it. This example while legitimate is for purposes of illustration and most providers will probably prefer to follow the NESIIS 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 (15) where it appears in the input file, the errant field (10) and the field component (0). 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 NESIIS

would contain just the FSH, BHS, MSH, BTS, and FTS segments. All the messages would be implicitly acknowledged as successfully processed.

In the sample file exchange above, the outside system initiated the exchange with the file of VXU segments and NESIIS responded with ACK segments. The format is identical when NESIIS sends 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. NESIIS always sends its own client identifier in the required field PID-3 and includes the outside system's identifier in PID-3 if known. Outside systems are encouraged to store NESIIS's client ID, and use it in PID-03 when sending to NESIIS. This provides a firm basis for client identification makes processing easier for the NESIIS system and avoids errors in storing client information, such as creation of duplicate records when an insufficiently identified client record cannot be matched with a record already in the NESIIS database. Though NESIIS makes a great effort to match client records effectively, use of the NESIIS client 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 NESIIS 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 2.4 Message 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 (eXML) infrastructure to securely transmit public health information over the Internet to the Public Health Information Network Messaging System (PHINMS) Message Receiver.

The State of Nebraska provides full configuration setup and support for PHINMS. At the appropriate time in testing you will be placed in contact with a State representative to assist in creating this connection. Alternatively, the provider may choose to develop their own eXML Message Sender to communicate with the PHINMS Message Receiver.
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 eXML-based client Message Sender to the NESIIS PHINMS Message Receiver. NESIIS 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 eXML 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 NESIIS.
4. The provider organization will need to obtain from NESIIS a CPA (Collaboration Protocol Agreement) for access to the NESIIS Real-time system.

Full documentation and contact information for the PHINMS product may be found at the following link:

<http://www.cdc.gov/phinf/>

Full documentation for the eXML specification may be found at the following link:

<http://www.ebxml.org/specs>

PHINMS is eXML 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 NESIIS 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
[PV1]	Patient Visit
{ORC}	Order Control
RXA	Pharmacy / Treatment Administration (at least ONE RXA is REQUIRED by NESIIS)
[RXR]	Pharmacy / Treatment Route (Only one RXR per RXA segment)
[[OBX]]	Observation/Result

OBP^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 NESIIS 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)
[PV1]	
{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 NESIIS)
{	
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 NESIIS. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since NESIIS 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, NESIIS 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 NESIIS accepts for Real-time processing.

1. VXU^04^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. NESIIS 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 2.5.1 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, NESIIS will reject the file. Providers are only able to delete immunizations that were entered by their organization.

```
RXA|0|999|19860715|19860715|^04^0718^Td^CPT|0|||05^^^^^|^208^^^^^^^^^^^^^^^|D|
```

Note: For updates and additions, organizations shall use a value of “A” for additions in RXA-21, NESIIS 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 a update or addition immunization:

```
RXA|0|1|20050919|20050919|90713^Polio-  
InJect^C4^IPOL^WVTN|1.0|||01^Historical^^^^^^^^^|A|
```

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

MSH-21 should contain Z34^CDCPHINVS.

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). 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 Immunization
History^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

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 NESIIS, use the sending system's Char 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. NESIIS 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, NESIIS 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). NESIIS 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. NESIIS 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 NESIIS 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^GA^^L<CR>
RCP||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, Georgia. His medical record number with MYEHR is 12345. 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

Response Control Parameter Segment

The required RCP segment is used to restrict the amount of data that should be returned in response to query. It lists the segments to be returned. 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 NESIIS 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. NESIIS 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. NESIIS 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

Query Acknowledgment Segment

The Required Query Acknowledgment (QAK) segment 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, NESIIS 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|^~\&|NESIIS^^|NESIIS^^||20110330||RSP^K11^RSP_K11|PHIN_QUERY01|P^|2.5.1^^|ER|||||Z34^CDCPHINVS
MSA|AA|PHIN_QUERY01
QAK|PHIN_QUERY01|NF|Z34^request Immunization history^HL70471
QPD|Z34^Request Immunization History^HL70471|PHIN_QUERY_01||Jane^Doe^^^^L^||20080612||

This concludes real-time processing.

ACK**Acknowledgment Messages (with Errors)**

ACK messages 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, NESIIS generates "Message Rejection" as the first portion of the text describing the error message. Informational messages will not contain "Message Rejection".

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. NESIIS 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, NESIIS generates “Message Rejection” as the first portion of the text describing the error message. Informational messages will not contain “Message Rejection”.
- MSA-4 This optional numeric field is used in the sequence number protocol. NESIIS does not generate this field.
- MSA-5 Delayed Acknowledgement type. NESIIS does not generate this field.
- MSA-9 Error Condition. NESIIS 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 does not apply to NESIIS 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

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

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 1 for 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. NESIIS 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 NESIIS 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. NESIIS 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. NESIIS 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. NESIIS uses this data type only to identify sender and receiver in Message Header (MSH) segments. See the field notes for values used for NESIIS.

The three HL components establish the entity responsible for defined identifiers

<namespace ID (IS)>^<universal ID (ST)>^<universal ID type (ID)>

For example, |NESIIS7.3.1|

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. NESIIS ignored any time component. Precision must be at least to the day.

The two TD components carry time and precision

<time (DTM)>^<degree of precision (ID)>

For example, |20010902|

XAD – Extended Address

Components: <street address (SAD)> ^ <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^San Francisco^CA^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

NESIIS 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. NESIIS accepts letters; spaces; and 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 Thereofs 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, NESIIS 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

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. NESIIS 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)
Country code (NM)
Area/city code (NM)

Phone number (NM)

Extension (NM)

Any text (ST)

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 NESIIS.

Type	Table	Name	Value	Description
HL7	0001	<u>Sex</u>		
	0001		F	Female
	0001		M	Male
	0001		U	Unknown
HL7	0003	<u>Event Type</u>		
	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	<u>Patient class</u>		
	0004		R	Recurring
HL7	0005	<u>Race</u>		
	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		2131-1	Other Race
	0005		Null	Unknown
HL7	0008	<u>Acknowledgment Code</u>		
	0008		AA	Application Accept
	0008		AE	Application Error
	0008		AR	Application Reject
User	0063	<u>Relationship</u>		
	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

Type	Table	Name	Value	Description
	0063		WRD	Ward of court
HL7	0064	<u>Financial class</u>		
	0064	Age: All	V00	VFC eligibility not determined/unknown
	0064	Age: All	V01	Not VFC eligible - Insured
	0064	Age: <19 yrs	V02	VFC eligible – Medicaid/Medicaid Managed Care
	0064	Age: <19 yrs	V03	VFC eligible – Uninsured
	0064	Age: <19 yrs	V04	VFC eligible – American Indian/Alaskan Native
	0064	Age: <19 yrs	V05	VFC eligible – Federally Qualified Health Center Patient (under-insured)
	0064	Age: All	NE01	Not VFC eligible – State-specific eligibility ‘SVAP’ (Not S-Chip plan)
	0064	Age: >=19 yrs	NE02	Not VFC eligible – Local-specific eligibility ‘Medicare’
	0064	Age: >=19 yrs	NE03	Not VFC eligible – Uninsured (Adult)
	0064	Age: >=19 yrs	NE04	Not VFC eligible – Underinsured (Adult)
HL7	0076	<u>Message Type</u>		
	0076		ACK	General acknowledgment message
	0076		ADT	ADT message
	0076		QBP	Query by parameter
	0076		RSP	Segment pattern response
	0076		VXU	Unsolicited vaccination record update
HL7	0085	<u>Observation result status codes</u>		
	0085		O	Order detail description only
HL7	0091	<u>Query Priority</u>		
	0091		I	Immediate
HL7	0103	<u>Processing ID</u>		
	0103		P	Production
HL7	0104	<u>Version ID</u>		
	0104		2.3.1	Release 2.3.1 1999
	0104		2.4	Release 2.4 2000
	0104		2.5.1	Release 2.5.1 April 2007
HL7	0136	<u>Yes/No Indicator</u>		
	0136		Y	Yes
	0136		N	No
HL7	0155	<u>Accept/Application Acknowledgment Conditions</u>		
	0155		AL	Always
	0155		ER	Error/reject conditions only
	0155		NE	Never
HL7	0162	<u>Route of Administration</u>		
	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	<u>Administrative Site</u>		
	0163		BN	Bilateral Naris
	0163		LT	Left Thigh
	0163		LA	Left Arm
	0163		LD	Left Deltoid
	0163		LG	Left Gluteus Medius
	0163		LVL	Left Vastus Lateralis
	0163		LLFA	Left Lower Forearm
	0163		RA	Right Arm

Type	Table	Name	Value	Description
	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	<u>Ethnic Group</u>		
	0189		2135-2	Hispanic
	0189		2186-5	Non-Hispanic
	0189		Null	Unknown
HL7	0203	<u>Identifier Type</u>		
	0203		BR	Birth Registry Number
	0203		MA	Medicaid Number
	0203		MC	Medicare Number
	0203		MR	Medical Record Number
	0203		PI	Patient Internal Identifier
	0203		PN	Person Number
	0203		PRN	Provider Number
	0203		PT	Patient External Identifier
	0203		RRI	Regional Registry ID
	0203		SR	State Registry Identifier
	0203		SS	Social Security Number
User	0212	<u>Nationality</u>		
	0212		CA	Canada
	0212		US	United States of America
User	0215	<u>Publicity Code</u>		
	0215		01	No reminder/recall
	0215		02	Yes reminder/recall – any method
HL7	0227	<u>Manufacturers of vaccines (code = MVX)</u>		
	0227		AB	Abbott
	0227		AD	Adams
	0227		ALP	Alpha
	0227		AR	Armour (Inactive – use ZLB)
	0227		AVB	Aventis Behring (Inactive use ZLB)
	0227		AVI	Aviron
	0227		BA	Baxter (Inactive - use BAH)
	0227		BAH	Baxter Health Care
	0227		BAY	Bayer
	0227		BP	Berna (Inactive – use BPC)
	0227		BPC	Berna Products Corporation
	0227		CEN	Centeon L.L.C. (Inactive – use ZLB)
	0227		CHI	Chiron Corporation (Inactive – use NOV)
	0227		CMP	Celltech Medeva Pahn (Inactive – use NOV)
	0227		CNJ	Cangene Corporation
	0227		CON	Connaught (Inactive – use PMC)
	0227		CSL	CSL Biotherapies
	0227		DYN	DynPort Vaccine Company, LLC
	0227		EVN	Evans (Inactive – use NOV)
	0227		GRE	Greer
	0227		IAG	Immuno International AG (Inactive – use BAH)
	0227		IM	Merieux (Inactive – Use PMC)
	0227		IUS	Immuno-US
	0227		JPN	The Research foundation for Microbial Diseases of Osaka U.
	0227		KGC	Korea Green Cross
	0227		LED	Lederle (Inactive – use WAL)

Type	Table	Name	Value	Description
	0227		MA	Massachusetts Public Health (Inactive -Use MBL)
	0227		MBL	Massachusetts Biologic Laboratories
	0227		MED	MedImmune
	0227		MIL	Miles (Inactive – use BAY)
	0227		MIP	BioPort
	0227		MSD	Merck
	0227		NAB	North American Biologicals, Inc.
	0027		NAV	North American Vaccine (Inactive – use BAH)
	0227		NYB	New York Blood Center
	0227		NOV	Novartis
	0227		NVX	Novavax, Inc
	0227		OTC	Organon Teknika
	0227		ORT	Ortho
	0227		PD	Parkdale Pharmaceuticals (formerly Parke Davis)
	0227		PFR	Pfizer, Inc.
	0227		PMC	Aventis Pasteur Inc. (formerly Pasteur Merieux Connaught)
	0227		PRX	Praxis Biologics (Inactive – use WAL)
	0227		PWJ	Powderject Pharmaceutical
	0227		SCL	Sclavo
	0227		SOL	Solvay Pharmaceuticals
	0227		SKB	GlaxoSmithKline
	0227		SI	Swiss Serum and Vaccine Inst. (Inactive – use BPC)
	0227		TAL	Talecris Biotherapeutics (includes Bayer Biologicals)
	0227		USA	United States Army Medical Research
	0227		VXG	VaxGen
	0227		WA	Wyeth-Ayerst (Inactive – use WAL)
	0227		WAL	Wyeth-Ayerst (Inactive – use PFR)
	0227		ZLB	ZLB Behring (includes Aventis Behring and Armour Pharmaceutical Co)
	0227		OTH	Other
	0227		UNK	Unknown manufacturer
User	0289	County/parish (Nebraska & some surrounding counties)		
	0289	<i>Nebraska Counties</i>	NE001	Nebraska Adams
	0289		NE003	Nebraska Antelope
	0289		NE005	Nebraska Arthur
	0289		NE007	Nebraska Banner
	0289		NE009	Nebraska Blaine
	0289		NE011	Nebraska Boone
	0289		NE013	Nebraska Box Butte
	0289		NE015	Nebraska Boyd
	0289		NE017	Nebraska Brown
	0289		NE019	Nebraska Buffalo
	0289		NE021	Nebraska Burt
	0289		NE023	Nebraska Butler
	0289		NE025	Nebraska Cass
	0289		NE027	Nebraska Cedar
	0289		NE029	Nebraska Chase
	0289		NE031	Nebraska Cherry
	0289		NE033	Nebraska Cheyenne
	0289		NE035	Nebraska Clay
	0289		NE037	Nebraska Colfax
	0289		NE039	Nebraska Cuming
	0289		NE041	Nebraska Custer
	0289		NE043	Nebraska Dakota

Type	Table	Name	Value	Description
	0289		NE045	Nebraska Dawes
	0289		NE047	Nebraska Dawson
	0289		NE049	Nebraska Deuel
	0289		NE051	Nebraska Dixon
	0289		NE053	Nebraska Dodge
	0289		NE055	Nebraska Douglas
	0289		NE057	Nebraska Dundy
	0289		NE059	Nebraska Fillmore
	0289		NE061	Nebraska Franklin
	0289		NE063	Nebraska Frontier
	0289		NE065	Nebraska Furnas
	0289		NE067	Nebraska Gage
	0289		NE069	Nebraska Garden
	0289		NE071	Nebraska Garfield
	0289		NE073	Nebraska Gosper
	0289		NE075	Nebraska Grant
	0289		NE077	Nebraska Greeley
	0289		NE079	Nebraska Hall
	0289		NE081	Nebraska Hamilton
	0289		NE083	Nebraska Harlan
	0289		NE085	Nebraska Hayes
	0289		NE087	Nebraska Hitchcock
	0289		NE089	Nebraska Holt
	0289		NE091	Nebraska Hooker
	0289		NE093	Nebraska Howard
	0289		NE095	Nebraska Jefferson
	0289		NE097	Nebraska Johnson
	0289		NE099	Nebraska Kearney
	0289		NE101	Nebraska Keith
	0289		NE103	Nebraska Keya Paha
	0289		NE105	Nebraska Kimball
	0289		NE107	Nebraska Knox
	0289		NE109	Nebraska Lancaster
	0289		NE111	Nebraska Lincoln
	0289		NE113	Nebraska Logan
	0289		NE115	Nebraska Loup
	0289		NE117	Nebraska McPherson
	0289		NE119	Nebraska Madison
	0289		NE121	Nebraska Merrick
	0289		NE123	Nebraska Morrill
	0289		NE125	Nebraska Nance
	0289		NE127	Nebraska Nemaha
	0289		NE129	Nebraska Nuckolls
	0289		NE131	Nebraska Otoe
	0289		NE133	Nebraska Pawnee
	0289		NE135	Nebraska Perkins
	0289		NE137	Nebraska Phelps
	0289		NE139	Nebraska Pierce
	0289		NE141	Nebraska Platte
	0289		NE143	Nebraska Polk
	0289		NE145	Nebraska Red Willow
	0289		NE147	Nebraska Richardson
	0289		NE149	Nebraska Rock
	0289		NE151	Nebraska Saline
	0289		NE153	Nebraska Sarpy

Type	Table	Name	Value	Description	
	0289		NE155	Nebraska	Saunders
	0289		NE157	Nebraska	Scotts Bluff
	0289		NE159	Nebraska	Seward
	0289		NE161	Nebraska	Sheridan
	0289		NE163	Nebraska	Sherman
	0289		NE165	Nebraska	Sioux
	0289		NE167	Nebraska	Stanton
	0289		NE169	Nebraska	Thayer
	0289		NE171	Nebraska	Thomas
	0289		NE173	Nebraska	Thurston
	0289		NE175	Nebraska	Valley
	0289		NE177	Nebraska	Washington
	0289		NE179	Nebraska	Wayne
	0289		NE181	Nebraska	Webster
	0289		NE183	Nebraska	Wheeler
	0289		NE185	Nebraska	York
	0289		CO075	Colorado	Logan
	0289		CO095	Colorado	Phillips
	0289		CO115	Colorado	Sedgwick
	0289		CO123	Colorado	Weld
	0289		CO125	Colorado	Yuma
	0289		IA071	Iowa	Fremont
	0289		IA085	Iowa	Harrison
	0289		IA129	Iowa	Mills
	0289		IA133	Iowa	Monona
	0289		IA149	Iowa	Plymouth
	0289		IA155	Iowa	Pottawattamie
	0289		IA193	Iowa	Woodbury
	0289		KS013	Kansas	Brown
	0289		KS023	Kansas	Cheyenne
	0289		KS039	Kansas	Decatur
	0289		KS089	Kansas	Jewell
	0289		KS117	Kansas	Marshall
	0289		KS123	Kansas	Mitchell
	0289		KS131	Kansas	Nemaha
	0289		KS137	Kansas	Norton
	0289		KS147	Kansas	Phillips
	0289		KS153	Kansas	Rawlins
	0289		KS157	Kansas	Republic
	0289		KS183	Kansas	Smith
	0289		KS201	Kansas	Washington
	0289		MO005	Missouri	Atchison
	0289		MO087	Missouri	Holt
	0289		SD007	South Dakota	Bennett
	0289		SD009	South Dakota	Bon Homme
	0289		SD023	South Dakota	Charles Mix
	0289		SD027	South Dakota	Clay
	0289		SD047	South Dakota	Fall River
	0289		SD053	South Dakota	Gregory
	0289		SD113	South Dakota	Shannon
	0289		SD121	South Dakota	Todd
	0289		SD123	South Dakota	Tripp
	0289		SD135	South Dakota	Yankton

Type	Table	Name	Value	Description
	0289		WY015	Wyoming Goshen
	0289		WY021	Wyoming Laramie
	0289		WY027	Wyoming Niobrara
	0289		WY031	Wyoming Platte
HL7	0322	<u>Completion status</u>		
	0322		CP	Complete
	0322		PA	Partially administered
HL7	0323	<u>Action code</u>		
	0323		A	Add
	0323		D	Delete
	0323		U	Update
HL7	0354	<u>Message Structure</u>		
	0354		ACK	ACK for all Trigger Events
	0354		QBP_Q11	QBP for Q11 Trigger Event
	0354		RSP_K11	RSP for K11 Trigger Event
	0354		VXU_V04	VXU for V04 Trigger Event
HL7	0357	<u>Message Error Condition Codes</u>		
	0357	<u>Error Status Codes</u>	100	Segment sequence error
	0357		101	Required field missing
	0357		102	Data type error
	0357		103	Table value not found
	0357	<u>Rejection Status Codes</u>	200	Unsupported message type
	0357		201	Unsupported event type
	0357		202	Unsupported processing ID
	0357		203	Unsupported version ID
	0357	<u>Status Code</u>	207	Application internal error
NIP	NIP001	<u>Immunization Information Source</u>		
	NIP001		00	New Immunization Record
	NIP001		01	Historical Information
NIP	NIP002	<u>Substance Refusal Reason</u>		
	NIP002		00	Parental Refusal
	NIP002		01	Religious Exemption
NIP	NIP004	<u>Contraindications, Precautions</u>		Note: This table has been replaced by separate tables for contraindications, indications, reactions, and immunities
	NIP004		MA	Physician documented exemption due to medical reasons for DTP/aP vaccine group
	NIP004		MB	Physician documented exemption due to medical reasons for Pediatric DT vaccine
	NIP004		MC	Physician documented exemption due to medical reasons for Hepatitis A vaccine group
	NIP004		MD	Physician documented exemption due to medical reasons for Hepatitis B vaccine group
	NIP004		ME	Physician documented exemption due to medical reasons for Hib vaccine group
	NIP004		MF	Physician documented exemption due to medical reasons for MMR vaccine group
	NIP004		MG	Physician documented exemption due to medical reasons for Meningococcal vaccine group
	NIP004		MH	Physician documented exemption due to medical reasons for Pneumococcal vaccine group
	NIP004		MI	Physician documented exemption due to medical reasons for Polio vaccine group
	NIP004		MJ	Physician documented exemption due to medical reasons for Rotavirus vaccine group
	NIP004		MK	Physician documented exemption due to medical reasons for Adult Td vaccine group
	NIP004		ML	Physician documented exemption due to medical reasons for Varicella vaccine group

Type	Table	Name	Value	Description
	NIP004		RABEXP	Client has been exposed to Rabies
NIP	NIP005	<u>Event Consequence</u>		
	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	<u>Patient Registry Status</u>		
	NIP006		A	Active
	NIP006		N	Inactive
	NIP006		M	Moved or Gone Elsewhere (In NESIIS used for Moved out of State)
	NIP006		P	Permanently inactive - deceased
NIP	NIP008	<u>Vaccine Funding Code</u>	PVF	Private funds
	NIP008		PBF	Public funds
HL7	0396	<u>Vaccine Contraindications</u>		
	V2.5.1 Coding System	V2.5.1 Value	V2.3.1 NIP004 Value	Description
	CDCPHINVS	VXC18	03	Allergy to baker's yeast (anaphylactic)
	SCT	91930004	04	Allergy to egg ingestion (anaphylactic)
	SCT	294847001	05	Allergy to gelatin (anaphylactic)
	SCT	300916003	LA	Allergy to latex
	SCT	294468006	06	Allergy to neomycin (anaphylactic)
	SCT	294466005	07	Allergy to streptomycin (anaphylactic)
	CDCPHINVS	VXC19	08	Allergy to thimerosal (anaphylactic)
	CDCPHINVS	VXC20	09	Allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)
	NIP004	14	14	Current diarrhea, moderate to severe
	CDCPHINVS	VXC22	15	Encephalopathy within 7 days of previous dose of DTP
	CDCPHINVS	VXC23	16	Current fever with moderate-to-severe illness
	NIP004	18	18	Gullain-Barre syndrome (GBS) within 6 weeks of previous dose of DTP/DTaP
	CDCPHINVS	VXC24	21	Current acute illness, moderate to severe (with or without fever) (e.g. diarrhea, otitis media, vomiting)
	CDCPHINVS	27624003	22	Chronic illness (e.g. chronic gastrointestinal disease)
	NIP004	23	23	Immune globulin (IG) administration, recent or simultaneous
	NIP004	34	34	Immunodeficiency (family history)
	NIP004	35	35	Immunodeficiency (household contact)
	CDCPHINVS	VXC27	36	Immunodeficiency (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppressive therapy, including steroids) (in recipient)
	CDCPHINVS	VXC26	37	Neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)
	NIP004	38	38	Otitis media (ear infection) moderate to severe (with or without fever)
	SCT	77386006	39	Pregnancy (in recipient)
	SCT	302215000	40	Thrombocytopenia
	SCT	161461006	41	Thrombocytopenic purpura (history)
HL7	0396	<u>Evidence of Immunity</u>		
	V2.5.1 Coding System	V2.5.1 Value	V2.3.1 NIP004 Value	Description
	SCT	397428000	24	Immunity: diphtheria
	SCT	91428005	25	Immunity: Haemophilus influenzae type B (Hib)
	SCT	40468003	HEPA_I	Immunity: hepatitis A
	SCT	66071002	26	Immunity: hepatitis B

Type	Table	Name	Value	Description
	SCT	14189004	27	Immunity: measles
	SCT	36989005	28	Immunity: mumps
	SCT	27836007	29	Immunity: pertussis
	SCT	398102009	30	Immunity: poliovirus
	SCT	36653000	31	Immunity: rubella
	SCT	76902006	32	Immunity: tetanus
	NIP004	33	33	Immunity: varicella (chicken pox)
	SCT	38907003	33A	History of Varicella
HL7	0396	Reaction Codes		
	V2.5.1 Coding System	V2.5.1 Value	V2.3.1 NESIIS 001 Value	Description
	NESIIS001	PERTCONT	PERTCONT	Pertussis allergic reaction
	NESIIS001	TETCONT	TETCONT	Tetanus allergic reaction
	NESIIS001	ERVISIT	ERVISIT	Required emergency room/doctor visit
	SCT	39579001	ANAPH	Anaphylaxis
	CDPHINVS	VXC10	HYPOTON	Hypotonic-hyporesponsive collapse within 48 hours of immunization
	CDPHINVS	VXC11	SEIZURE	Seizure occurring within 3 days
	CDPHINVS	VXC9	CRYING	Persistent crying lasting >= 3 hours within 48 hours of immunization
	CDPHINVS	VXC12	FEVER105	Temperature >= 105 (40.5 C) within 48 hours of immunization

NESIIS	WVGC	<u>Vaccine Group Code (WVGC)</u>		
	WVGC		Adeno	Adeno
	WVGC		Anthrax	Anthrax
	WVGC		BCG	BCG
	WVGC		Cholera	Cholera
	WVGC		Diphtheria	Diphtheria Antitoxin
	WVGC		DTP/aP	Diphtheria, Tetanus, Acellular Pertussis (< 7 years old)
	WVGC		Encephalitis	Encephalitis
	WVGC		Flu H1N1-09	Novel Influenza-H1N1-09
	WVGC		HepA	Hepatitis A
	WVGC		HepB	Hepatitis B
	WVGC		Hib	Hib
	WVGC		HPV	Human Papilloma Virus
	WVGC		Ig	Ig
	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		Rabies	Rabies
	WVGC		Rotavirus	Rotavirus
	WVGC		Rubella	Rubella Virus Vaccine
	WVGC		Tetanus	Tetanus
	WVGC		Td	Tetanus Diphtheria
	WVGC		Tdap	Diphtheria, Tetanus, Acellular Pertussis (=> 7 years old)
	WVGC		Typhoid	Typhoid
	WVGC		Smallpox	Vaccinia
	WVGC		Varicella	Varicella
	WVGC		Yellow Fever	Yellow Fever
	WVGC		Zoster	Zoster
NESIIS	WVTN	<u>Vaccine Trade Name (WVTN)</u>		
	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, P-free	Influenza, seasonal, P-free
	WVTN		Agriflu, P-free	Influenza, seasonal, P-free
	WVTN		Anthrax	Anthrax
	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		Cervarix	HPV, Bivalent
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) preservative 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
WVTN		Flu-Imune	Influenza, seasonal, injectable
WVTN		Flu-Mist	Influenza, seasonal, live, intranasal
WVTN		Flu-Shield	Influenza, seasonal, injectable
WVTN		Fluarix, P-free	Influenza, seasonal, P-free
WVTN		FluLaval	Influenza, seasonal, injectable
WVTN		Fluogen	Influenza, seasonal, injectable
WVTN		Fluvirin	Influenza, seasonal, injectable
WVTN		Fluvirin, P-free	Influenza, seasonal, P-free
WVTN		Fluzone	Influenza, seasonal, injectable
WVTN		Fluzone, P-free	Influenza, seasonal, P-free
WVTN		Fluzone High-Dose P-free	Influenza , seasonal, High-Dose, P-free
WVTN		Fluzone Intraderm P-free	Influenza, seasonal, intradermal, P-free
WVTN		Gardasil	HPV, Quadrivalent
WVTN		H1N1 Flu-Mist	Novel Influenza-H1N1-09, nasal
WVTN		H1N1 Afluria	Novel Influenza-H1N1-09
WVTN		H1N1 Afluria, P-free	Novel Influenza-H1N1-09, preserve-free
WVTN		H1N1 Fluvirin	Novel Influenza-H1N1-09
WVTN		H1N1 Fluvirin, P-free	Novel Influenza-H1N1-09, preserve-free
WVTN		H1N1 Fluzone	Novel Influenza-H1N1-09
WVTN		H1N1 Fluzone, P-free	Novel Influenza-H1N1-09, preserve-free
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		Hib-TITER	Hib-HbOC
WVTN		Hiberix	Hib-PRP-T
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		Ixiaro	Japanese encephalitis-IM
WVTN		JE-Vax	Japanese encephalitis-SC
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		MENOMUNE	Meningococcal (MPSV4)
WVTN		Menveo	Meningococcal (MCV4O)
WVTN		Meruvax II	Rubella
WVTN		MMR II	MMR
WVTN		MMRV	MMRV
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		Pertussis	Pertussis
WVTN		Plague	Plague
WVTN		Pneumovax 23	Pneumococcal 23
WVTN		PNU-IMUNE 23	Pneumococcal 23
WVTN		Prevnar 7	Pneumo-Conjugate
WVTN		Prevnar 13	Pneumo-Conjugate 13
WVTN		ProHIBit	Hib-PRP-D
WVTN		Proquad	MMRV
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		Rlg	Rlg
WVTN		Rlg-HT	Rlg-HT
WVTN		RotaShield	Rotavirus, Tetravalent
WVTN		RotaTeq	Rotavirus, Pentavalent
WVTN		Rotarix	Rotavirus, monovalent
WVTN		RSV-IgIM	RSV-IgIM
WVTN		RSV-IgIV	RSV-IgIV
WVTN		Rubella	Rubella
WVTN		Td	Td (adult), absorbed
WVTN		Td P-free	Td (adult) preservative free
WVTN		TENIVAC	Td (adult) preservative free
WVTN		Tetramune	DTP-Hib
WVTN		Tlg	Tlg
WVTN		TriHIBit	DTaP-Hib
WVTN		Tripedia	DTaP
WVTN		TT	Tetanus
WVTN		Twinrix	HepA-HepB Adult
WVTN		Typhim Vi	Typhoid-ViCPs
WVTN		Typhoid	Typhoid-HP
WVTN		Typhoid-AKD	Typhoid-AKD
WVTN		Vaccinia (smallpox), diluted	Vaccinia (smallpox), diluted
WVTN		Vaccinia immune globulin VIG	Vaccinia immune globulin VIG
WVTN		VAQTA-Adult	HepA-Adult
WVTN		VAQTA-Peds 2 Dose	HepA-Ped 2 Dose

	WVTN		Varivax	Varicella
	WVTN		Vivotif Berna/Ty21a	Typhoid-Oral
	WVTN		VZlg	VZlg
	WVTN		YF-VAX	Yellow Fever
	WVTN		Zostavax	Zoster (shingles), live

CPT Codes (WCPT) and CVX Codes (292)

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG	
90476	54	Adeno	Adeno T4	Adeno T4	Adenovirus type 4, live oral	WAL	
90477	55		Adeno T7	Adeno T7	Adenovirus type 7, live oral	WAL	
	82		Adeno, unspecified formulation		Recorded as CVX 54		
90581	24	Anthrax	Anthrax	Anthrax	Anthrax	MIP	
90585	19	BCG	BCG-TB	BCG-TB	Bacillus Calmette-Guerin TB	OTC	
90586			BCG-BC	BCG-BC	Bacillus Calmette-Guerin bladder cancer	OTC	
90728			BCG, unspecified formulation		BCG, unspecified formulation		
90725	26	Cholera	Cholera-Injectable	Cholera-I	Cholera injectable	NOV	
90592			Cholera-Oral	Cholera-O	Cholera Oral	NOV	
90719		Diphtheria	Diphtheria	Diphtheria	Diphtheria toxoid, intramuscular use	PD	
90700	20	DTP/aP	DTaP	Acel-Imune	Diphtheria, tetanus, acellular pertussis	WAL	
				Certiva		BAH	
				Infanrix		SKB	
				Tripedia		PMC	
90701	01		DTP	DTP	Diphtheria, tetanus, whole cell pertussis	PMC	
90702	28		DT	DT	Diphtheria tetanus pediatric	PMC	
90720	22		DTP-Hib	Tetramune	DTP – Hib combination	WAL	
90721	50		DTaP-Hib	TriHIBit	DtaP-Hib combination	PMC	
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB	
90698	120		DtaP-Hib-IPV	Pentacel	DtaP-Hib-IPV combination	PMC	
90696	130		DTaP-IPV	Kinrix	DTaP-IPV combination	SKB	
90700	106		DTAP, 5 pertussis antigens	DAPTACEL	Diphtheria, tetanus, acellular pertussis, 5 antigens	PMC	
						DTaP, unspecified formulation	
						DTP-HIB-HepB	
	107						
	102						
90664	125	Flu H1N1-09	Novel Influenza-H1N1-09, nasal	H1N1 Flu-Mist	Influenza virus vaccine, pandemic formulation, live, for intranasal use	MED	
90666	126		Novel Influenza-H1N1-09, preserve-free	H1N1 Afluria, P-free	Influenza virus vaccine, pandemic formulation, split-virus, preservative free, for intramuscular use	CSL	
				H1N1 Fluvirin, P-free		NOV	
				H1N1 Fluzone, P-free		PMC	
90668	127		Novel Influenza-H1N1-09	H1N1 Afluria	Influenza virus vaccine, pandemic formulation, split-virus, for intramuscular use	CSL	
				H1N1 Fluvirin		NOV	
				H1N1 Fluzone		PMC	
90663	128		Novel Influenza-H1N1-09 all formulations		Influenza virus vaccine, pandemic formulation, H1N1		
90654	144	Influenza	Influenza, seasonal, intradermal, P-free	Fluzone Intraderm P-free	Influenza, seasonal, intradermal, P-free	PMC	
90655	140		Influenza, seasonal, P-free	Fluvirin, P-free		Influenza, seasonal, injectable, preservative free	NOV
				Fluzone, P-free			PMC
				Fluarix, P-free			SKB
				Afluria, P-free			CSL
				Agriflu, P-free			NOV
				Fluvirin, P-free			NOV
				Fluzone, P-free			PMC
				Fluarix, P-free			SKB
				Afluria, P-free			CSL
	Agriflu, P-free	NOV					
90662	135		Influenza High-Dose, P-free	Fluzone High-Dose P-free	Influenza, seasonal, high dose, preservative-free	PMC	
90657	141		Influenza, seasonal, injectable	Flu-Immune	Influenza, seasonal, injectable	WAL	
				FluLaval		SKB	
				Flu-Shield		WAL	

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90658				Fluzone		PMC
				Afluria		CSL
				Fluvirin		NOV
				Fluogen		PD
				Flu-Immune		WAL
				FluLaval		SKB
				Flu-Shield		WAL
				Fluzone		PMC
				Afluria		CSL
				Fluvirin		NOV
				Fluogen		PD
90660	111		Influenza, live, intranasal	Flu-Mist	Seasonal influenza virus vaccine, live, attenuated, for intranasal use	WAL
90659	16		Influenza, Whole virus		Seasonal influenza whole virus	
90724	88		Influenza, unspecified formulation	Flu-Deleted	Seasonal influenza, unspecified formulation <i>CVX 15 has been retired by the CDC and replaced by CVX 140 and 141</i> <i>If CVX 15 is sent it will be recorded as CVX 88 Influenza, unspecified formulation</i>	
90632	52	HepA	HepA adult	Havrix-Adult	Hepatitis A adult	SKB
	VAQTA-Adult			MSD		
90633	83		HepA ped-2 dose	Havrix-Peds 2 Dose	Hepatitis A pediatric/adolescent 2 dose	SKB
	VAQTA-Peds 2 Dose			MSD		
90634	84		HepA ped-3 dose	Havrix-Peds 3 Dose	Hepatitis A pediatric/adolescent 3 dose	SKB
						MSD
90636	104	HepA-HepB Adult	Twinrix	Hepatitis A & Hepatitis B adult	SKB	
90730	85	Hep A, unspecified formulation		Hep A, unspecified formulation		
	31	Hep A-peds, unspecified formulation		Recorded as CVX 85		
90636	104	HepB	HepA-HepB Adult	Twinrix	Hepatitis A & Hepatitis B adult	SKB
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB
90731	45		Hep B, unspecified formulation		Hep B, unspecified formulation	
90740	44		Hep B-dialysis 3 dose		Hepatitis B Dialysis 3 dose	
90743	43		HepB adult	Recombivax-Adult	Hepatitis B adult dose 1ml	MSD
				Engerix-B Adult		SKB
90744	08		HepB pediatric	Recombivax-Peds	Hepatitis B pediatric/adolescent .5ml	MSD
				Engerix-B Peds		SKB
90745	42		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	HepB-Hib Combination	MSD
90645	47		Hib	Hib-HbOC	HibTITER	Hemophilus influenza b HbOC 4 dose
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-PRP-T		OmniHib	Hemophilus influenza b PRP-T 4 dose	PMC
				ActHib		PMC
				Hiberix		SKB
90720	22	DTP-Hib		Tetramune	DTP – Hib combination	WAL
90721	50	DtaP-Hib		TriHIBit	DtaP-Hib combination	PMC
90737	17	Hib, unspecified formulation			Hib, unspecified formulation	
90748	51	HepB-Hib		Comvax	HepB-Hib combination	MSD
90698	120	DtaP-Hib-IPV		Pentacel	DtaP-Hib-IPV combination	PMC
90649	62	HPV	HPV, Quadrivalent	Gardasil	Human Papilloma Virus, quadrivalent	MSD
90650	118		HPV, Bivalent	Cervarix	Human Papilloma Virus, bivalent	SKB
	137		HPV, unspecified formulation		HPV, unspecified formulation	
90281	86	Ig	Ig	Ig	Ig human	
90283	87		IgIV	IgIV	Ig IV human	
				Fiebogamma		
90287	27	Botulinum-antitoxin	Botulinum-antitoxin	Botulinum antitoxin equine		

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90288			Botulism	BabyBIG	Botulism Immune Globulin	
				Botulism		
				BIG		
90291	29		CMV-IgIV	CMV-IgIV	Cytomegalovirus Ig IV human	
90399			Ig	Ig	Unlisted immune globulin	
90296	12		Diphtheria-antitoxin	Diphtheria-antitoxin	Diphtheria antitoxin, equine, any route	
90371	30		HBIG	HBIG	Hepatitis B Ig human	
90375	34		RIg	Rig	Rabies Ig human	
90376	34		RIg-HT	RIg-HT	Rabies Ig heat treated human	
90378	93		RSV-IgIM	RSV-IgIM	Respiratory syncytial virus Ig	
90379	71		RSV-IgIV	RSV-IgIV	Respiratory syncytial virus Ig IV	
90384			Rho(D)Full	Rho(D)Full	Rho(D)Ig Rhlg human full-dose	
90385			Rho(D)Mini	Rho(D)Mini	Rho(D)Ig Rhlg human mini-dose	
90386			Rho(D)IV	Rho(D)IV	Rho(D)Ig Rhlg human IV	
90389	13		TiG	BayTet	Tetanus Ig human	
				TiG		
90393	79		Vaccinia immune globulin	Vaccinia-Ig	VacciniaIg human	
90396	36		VZIG	VZIG	Varicella-zoster Ig human	
	117		VZIG (IND)	VariZIG		CNJ
			Varicella IG			
90665	66	Lyme	Lyme	LYMErix	Lyme disease	SKB
90735	39	Encephalitis	Japanese encephalitis-SC	JE-Vax	Japanese encephalitis-Subcutaneous administration	JPN
90738	134		Japanese encephalitis-IM	Ixiaro	Japanese Encephalitis-Intramuscular administration	NOV
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	Mumps	Mumps 1950-1978	MSD
				Mumpsavax	Mumps live	MSD
90709			Rubella-Mumps, unspecified formulation			
	38		Rubella-Mumps	Biavax II	Rubella and mumps live	MSD
				Mumps-Rubella (MURU)		MSD
90707	03	MMR	MMR	MMR II	Measles, mumps and rubella live	MSD
90710	94		MMRV	Proquad	Measles, mumps, rubella, varicella live	MSD
90733	32	Meningo	Meningococcal MPSV4	MENOMUNE	meningococcal polysaccharide vaccine (MPSV4)	PMC
90734	114		Meningococcal MCV4P	Menactra	meningococcal polysaccharide (groups A, C, Y and W-135) diphtheria toxoid conjugate vaccine (MCV4P)	PMC
	136		Meningococcal MCV4O	Menveo	meningococcal oligosaccharide (groups A, C, Y and W-135) diphtheria toxoid conjugate vaccine (MCV4O)	NOV
	147		MCV4, unspecified formulation		Meningococcal, MCV4, unspecified formulation(groups A, C, Y and W-135)	
	108		Meningococcal, unspecified formulation		Meningococcal, unspecified formulation	
	11	Pertussis	Pertussis	Pertussis	Pertussis vaccine	
90727	23	Plague	Plague	Plague	Plague	GRE
90712	02	Polio	Polio oral	ORIMUNE	Poliovirus OPV live oral	WAL
90713	10		Polio injectable	IPOL	Poliovirus inactivated IPV	PMC
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB
90698	120		DtaP-Hib-IPV	Pentacel	DtaP-Hib-IPV combination	PMC
90696	130		DTaP-IPV	Kinrix	DTaP-IPV combination	SKB
	89		Polio, unspecified formulation		Polio, unspecified formulation	
90732	33	Pneumo-Poly	Pneumococcal 23	PNU-IMUNE 23	Pneumococcal polysaccharide 23 valent	WAL
				Pneumovax 23		MSD
90669	100	Pneumococcal	Pneumo-conjugate	Prevnar 7	Pneumococcal conjugate polyvalent	WAL
90670	133		Pneumo-conjugate 13	Prevnar 13	Pneumococcal conjugate vaccine, 13 valent	PFR
	109		Pneumococcal , unspecified formulation		Pneumococcal , unspecified formulation	
90675	18	Rabies	Rabies-intramuscular	RabAvert	Rabies intramuscular	NOV

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
				Imovax Rabies IM		PMC
90676	40		Rabies-intradermal	Imovax Rabies ID	Rabies intradermal	PMC
90726	90		Rabies, unspecified formulation		Rabies, unspecified formulation	
90680	74	Rotavirus	Rotavirus, Tet	RotaShield	Rotavirus tetravalent live oral (removed on 10/16/1999)	WAL
90680	116		Rotavirus, Pent	RotaTeq	Rotavirus pentavalent (after 02/02/2006)	MSD
90681	119		Rotavirus, monovalent	Rotarix	Rotavirus monovalent	SKB
	122		Rotavirus, unspecified formulation		Rotavirus, unspecified formulation (between 10/16/1999 and 02/01/2006)	
90706	06	Rubella	Rubella	Rubella Meruvax II	Rubella live	MSD MSD
90708	04		Measles-Rubella	Measles-Rubella (MERU) M-R-VAX	Measles and rubella live	MSD MSD
90709			Rubella-Mumps, unspecified formulation		Rubella-Mumps, unspecified formulation	
	38		Rubella-Mumps	Mumps-Rubella (MURU) Biavax II	Rubella and mumps live	MSD MSD
	75	Smallpox	Smallpox	Dryvax	Vaccinia(Smallpox) dry	WAL
	105		Vaccinia (Smallpox), diluted	Vaccinia (smallpox), diluted	Vaccinia (smallpox), diluted	
90718	09	Td	Td (adult), adsorbed	Td	Tetanus and diphtheria adult	PMC MBL
	09					
90714	113		Td (adult) preservative free	DECAVAC TENIVAC Td P-free	Td preservative free – CPT code is effective for immunizations given on or after 7/1/2005	PMC PMC MBL
	138		Td (Adult), not adsorbed		tetanus and diphtheria toxoids, not adsorbed, for adult use	
	139		Td (Adult), unspecified formulation		Td (adult) unspecified formulation	
90715	115		Tdap > 7 Years	Adacel Boostrix	Tdap > 7 years	PMC SKB
90715	115	Tdap	Tdap > 7 Years	Adacel Boostrix	Tdap > 7 years	PMC SKB
90703	35	Tetanus	Tetanus Toxoid, adsorbed	TT	Tetanus Toxoid, adsorbed	PMC
	112		Tetanus Toxoid, , unspecified formulation		Tetanus Toxoid, unspecified formulation	
	142		Tetanus Toxoid, not adsorbed		Tetanus Toxoid, not adsorbed	
90690	25	Typhoid	Typhoid-oral	Vivotif Berna/Ty21a	Typhoid oral	
90691	101		Typhoid-ViCPs	Typhim Vi	Typhoid VI capsular polysaccharide	PMC
90692	41		Typhoid-H-P	Typhoid	Typhoid heat and phenol inactivated	
90693	53		Typhoid-AKD	Typhoid-AKD	Typhoid acetone-killed, dried (military)	
90714	91		Typhoid, unspecified formulation		Typhoid, unspecified formulation (after 7/1/2005, no CPT code is associated with this vaccine group)	
90710	94	Varicella	MMRV	Proquad	MMRV	MSD
90716	21		Varicella	Varivax	Varicella live	MSD
90717	37	Yellow Fever	Yellow Fever	YF-VAX	Yellow Fever live	PMC
90736	121	Zoster	Zoster (shingles), live	Zostavax	Zoster (shingles), live	MSD