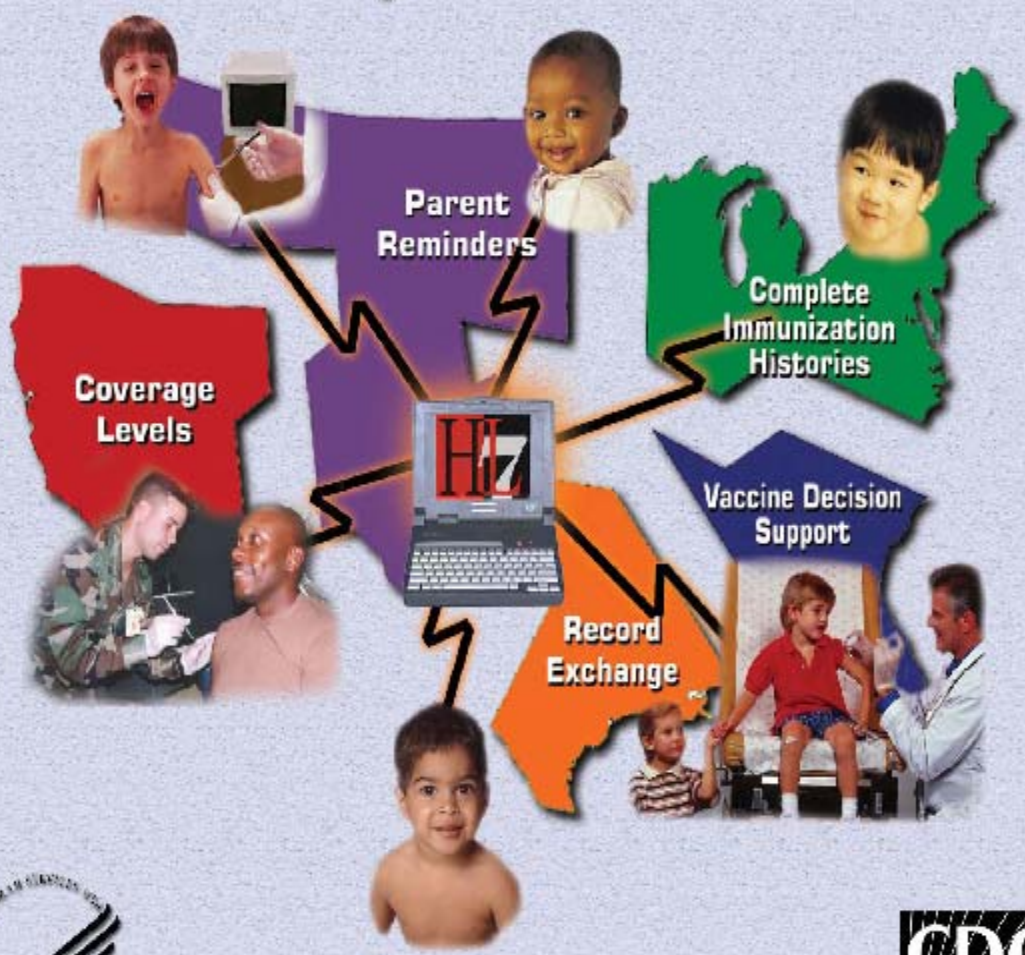
UPDATED VERSION

Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the Health Level Seven (HL7) Standard Protocol

Implementation Guide Version 2.2

June 2006



DEPARTMENT OF HEALTH AND HUMAN SERVICES

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CDC

Centers for Disease Control and Prevention

Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the Health Level Seven (HL7) Standard Protocol

Implementation Guide Version 2.2
June 2006

Centers for Disease Control and Prevention
National Center for Immunization and Respiratory Diseases
Immunization Services Division
Immunization Information Systems Support Branch

DEPARTMENT OF HEALTH AND HUMAN SERVICES

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CENTERS FOR DISEASE CONTROL AND PREVENTION

Version 2.2 June 2006 Notes

This document replaces previous National Immunization Program (NIP) Guidelines for Immunization Data Transactions versions dated September 2002 and earlier. This version 2.2 (referenced herein as the Guide) incorporates changes to the 2002 Guide. The revised, added, or deleted material is indicated by vertical lines in the margin, and is summarized in the table below the contact information following this section. Additionally, Appendix 5 provides additional narrative and shows the new material and previous version's material

Any needed additions or revisions to the Guide have been coordinated with the American Immunization Registry Association (AIRA). Previous changes were coordinated with the Committee on Immunization Registry Standards for Electronic Transactions (CIRSET), whose functions have now been merged with AIRA. Members have indicated their intention to implement the Guide as written and to resist adding Z segments or otherwise changing the implementation to one that is not consistent with this document.

To claim conformance with this Guide, registries must support the four immunization data transaction messages described on page 3: the VXQ (Query for Vaccination Record), the VXR (Response to Vaccination Query Returning the Vaccination Record), the VXX (Response to Vaccination Query Returning Multiple PID Matches), and the VXU (Unsolicited Vaccination Record Update). As necessary, registries should support the use of ACK and QCK messages described in the Guide. For registries that are developing HL7-based electronic VAERS reporting, the ORU message definition supplied in the Guide is the standard for compliance. Supporting all four VX* message types is also a recommended requirement for registry certification.

Registries are encouraged to implement HL7 communication with providers and data sources other than registries. In these cases, the four VX* messages mentioned above may alone prove insufficient. ADT messages are discussed in this document and are available for communication with providers and other non-registry data sources. However, even with non-registry data sources, the VX* messages are preferred when possible and appropriate.

A conformant registry must also follow the HL7 protocol as described in the standard and further defined in this Guide. Registries should include segments and fields required by HL7 exactly as defined by the standard and described in this Guide. For example, the third field in the Patient Identification Segment (PID-3) is required by HL7 to contain the list of patient identifiers, identified by type code. It can retain an unlimited number of identifiers. Registries should not restrict the utility of this field in their implementation by arbitrarily limiting the supported identifiers to their own registry identifier. Other functions described herein, such as reporting vaccine adverse events using HL7, are provided as information to registries. If these functions are implemented, however, registries should follow the guidelines as written.

The HL7 2.3.1 standard version is the standard for registries and for registry certification. XML versions of the HL7 versions 2.3, 2.4 and 2.5 exist and are used by registries. These cannot, however, be considered a substitute for the standard version embodied in this document. Any registry using an XML approach has the responsibility to be able to communicate with other registries or providers using the HL7 standard version. In order to be certified, any registry using an XML approach must be able to receive, process, and respond using the standard HL7 2.3.1 message test sets.

This Guide is intended for use by immunization registries that want to participate in a strictly-defined record exchange agreement that limits the amount of optionality normally expected when using the HL7 standard. The Guide describes the most frequently used segments in their entirety, while giving a minimum description of segments containing only a few useful fields for registries. The Guide fully describes the fields within the segments used frequently by immunization registries, while the others are omitted in this document. With this limited scope, this *Guide* can in no way serve as a substitute for a thorough study of the entire set of HL7 specifications for electronic data interchange in health care environments. For more complete information about HL7, visit the website at www.hl7.org

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Summary of Revised, Added, or Deleted Material (from Version 2.1, September 2002)
(Note: See Appendix 5 for narrative about updates listed below)

Page(s) Deleted	*Page(s) Inserted*	*Page#*	*Section Number - Summary of Change in Material/Topic*
		Follows title page	*Version 2.2 Notes*
		Follows Notes	*Contact Information update*
		3	*Immunization Data Transaction Messages: clarification*
		16	*7.2.1 Unsolicited Transmission of an Observation (ORU) Example VAERS ORU Message: VAERS Item 2 new LOINC for sibling replacing separate LOINCs for brother and sister*
		52	*3.3.3 - PV1 Segment clarification re: VFC or Mediciad Eligibility*
	75.1-75.2	*75.1*	*7.3.2.4 - OBX Observation sub-ID for Combination vaccines with possible separate VISs for individual vaccine components (page 75.2 continues old text)*
		80	*3.2 Patient Administration Message Definitions & Use of Optional Admission/Discharge/Transfer (ADT) Messages: clarification*
		A1-12 to A1-17	*HL7-defined Tables 0227 & 0292 - Current MVX & CVX code tables replace older versions*
		A1-24 to A1-27	*NIP defined Table NIP003 - Observation Identifiers: Dose Number for Combination Vaccines & Vaccine Component (of a combination vaccine) clarification & observation examples furnished*
		A1-26 to A1-27	*NIP defined Table NIP003 - Observation Identifiers: Examples furnished for Vaccines Due Next & VAERS ORU Message; new LOINC for sibling replacing separate LOINCs for brother and sister for VAERS ORU Message*
		A5-1 to A5-2	*Added narrative about updates*

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HL7 Definitions

Message: A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event.

Segment: A segment is a logical grouping of data fields. Segments within a defined message may be required or optional, may occur only once, or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique 3-character code.

Field: A field is a string of characters. Each field is identified by the segment it is in and its position within the segment; e.g., PID-5 is the fifth field of the PID segment. Optional data fields may be omitted. Whether a field is required, optional, or conditional in a segment is specified in the segment attribute tables. The designations are: R=Required, O=Optional, C=Conditional on the trigger event or on some other field(s). The field definition should define any conditionality for the field: X=Not used with this trigger event, B=Left in for backward compatibility with previous versions of HL7. A maximum length of the field is stated as normative information. Exceeding the listed length should not be considered an error.

Component: A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are required to be valued.

Item number: Each field is assigned a unique item number. Fields that are used in more than one segment will retain their unique item number across segments.

Null and empty fields: The null value is transmitted as two double quote marks (“”). A null-valued field differs from an empty field. An empty field should not overwrite previously entered data in the field, while the null value means that any previous value in this field should be overwritten.

Data type: A data type restricts the contents and format of the data field. Data types are given a 2- or 3-letter code. Some data types are coded or composite types with several components. The applicable data type is listed and defined in each field definition. Appendix 2 provides a complete listing of data types used in this document and their definitions.

Delimiters: The delimiter values are given in MSH-2 and used throughout the message. Applications must use agreed upon delimiters to parse the message. The recommended delimiters for immunization messages are <CR> = Segment Terminator; | = Field Separator; ^ = Component Separator; & = Sub-Component Separator; ~ = Repetition Separator; and \ = Escape Character.

Message syntax: Each message is defined in special notation that lists the segment 3-letter identifiers in the order they will appear in the message. Braces, {}, indicate that one or more of the enclosed group of segments may repeat, and brackets, [ ], indicate that the enclosed group of segments is optional.

Z segments: All message types, trigger event codes, and segment ID codes beginning with Z are reserved for locally defined messages. No such codes will be defined within the HL7 Standard. The users of this guide have agreed to eliminate Z segments from their implementations in order to produce a standard method that will be used nationally to transmit immunization data.

Basic Message Construction Rules

Encoding Rules for Sending

- Encode each segment in the order specified in the abstract message format.

- Place the Segment ID first in the segment.

- Precede each data field with the field separator.

- Encode the data fields in the order and data type specified in the segment definition table.

- End each segment with the segment terminator.

- Components, subcomponents, or repetitions that are not valued at the end of a field need not be represented by component separators. The data fields below, for example, are equivalent:

    ^XXX&YYY&&^ is equal to ^XXX&YYY^
    |ABC^DEF^^| is equal to |ABC^DEF|

Encoding Rules for Receiving

- If a data segment that is expected is not included, treat it as if all data fields within were not present.

- If a data segment is included that is not expected, ignore it; this is not an error.

- If data fields are found at the end of a data segment that are not expected, ignore them; this is not an error.

IMMUNIZATION DATA TRANSACTION MESSAGES

Information systems that maintain immunization records need to be able to transmit patient-specific immunization histories electronically to other systems to allow healthcare providers to have access to these records at the time health care is given. Electronic tracking of immunization records also allows providers to track their own progress in reaching age-appropriate immunization coverage levels easily and efficiently.

The data transmissions between registries will occur as the result of four activities: (1) a query from one system for a patient's vaccination record that is held in another system (VXQ); (2) a response to a query containing multiple patient "matches" to the query, but not returning vaccination records (VXX); (3) a response to a query containing the vaccination record (VXR); and (4) an unsolicited update to a vaccination record (VXU).

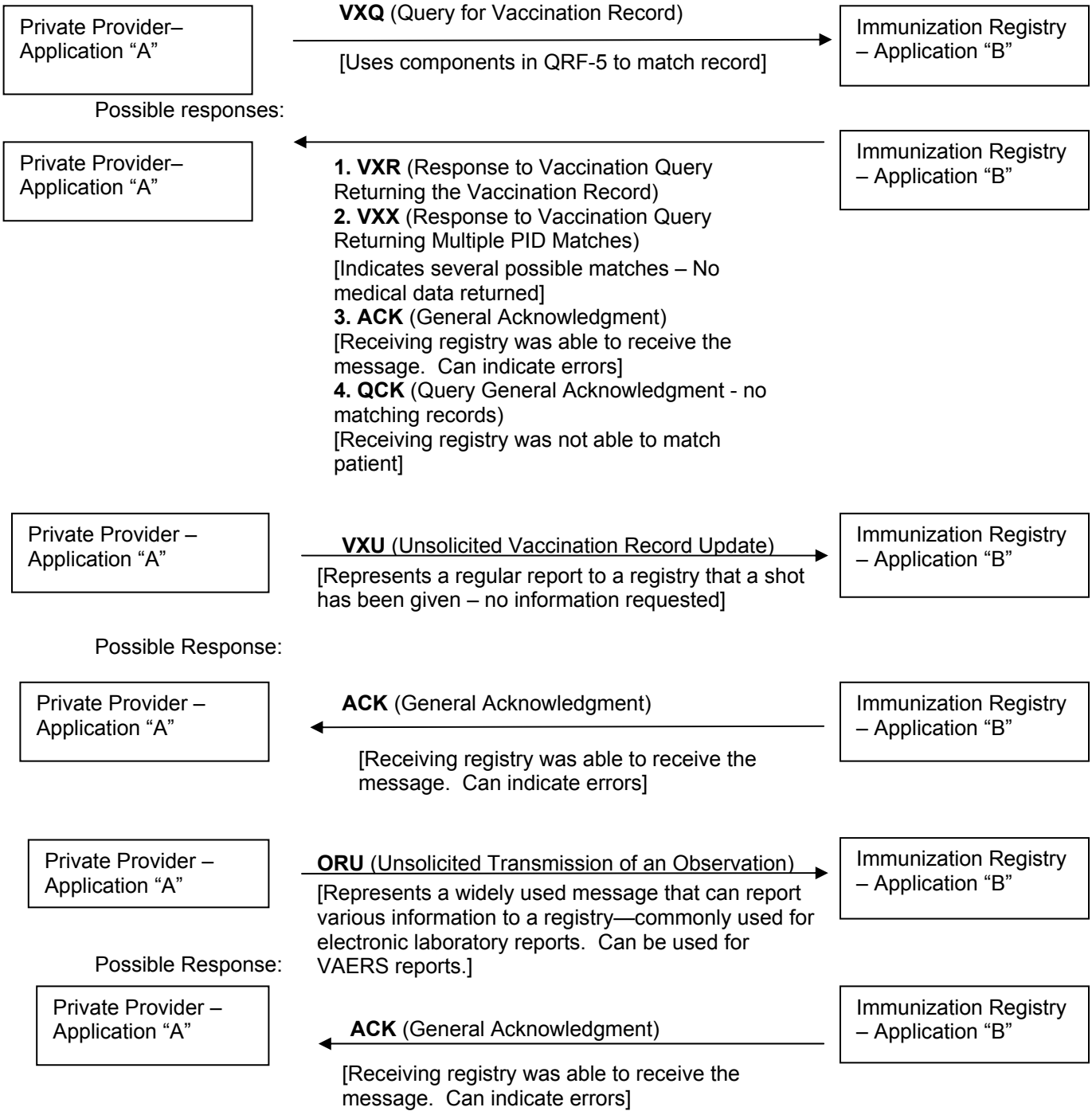
Trigger event V01 will initiate the Query for Vaccination Record (VXQ) message. Two responses are possible: (1) event type V02--Response to Vaccination Query Returning Multiple PID Matches (VXX), or (2) event type V03--Response to Query Returning Vaccination Record (VXR). Trigger event type V04 will initiate the Unsolicited Update to Vaccination Record (VXU) message. Addition of new patients can be accomplished by using either VXU (V04) or ADT. The interaction model at the end of this section graphically depicts this process.

Version 2.3.1 of the HL7 Standard gives the following explanation in Section 2.2.4, Queries. “In all cases, the HL7 Standard consists of a simple exchange of messages between a pair of applications: the unsolicited update and its acknowledgment, or the query and its response. The underlying operational model is that of a client and a server. An application interfaces with another application using an event code that identifies the transaction. The other application responds with a message that includes data or an error indication. The initiating application may receive a reject status from the other application or from lower level software indicating that its message was not received correctly.”

For standard immunization exchanges, the VXQ message (event V01) querying for a patient’s immunization record and its two standard responses, VXX (event V02) reporting multiple matches to the query parameters, or VXR (event V03) reporting the specifically requested patient immunization history, are defined in Sections 4.12 through 4.14 of the HL7 Standard. In the event that a query was not received correctly, the response would be an ACK (see Sections 2.13, 2.13.1, and 2.18.1 of the *Guide*). In the event that a query was received and processed correctly, but no matching records were found, the response would be a QCK (see Sections 2.13, 2.13.1, and 2.18.1 of the *Guide*). In the case of an unsolicited update to a record, a VXU (event V04) message would be sent. The response to the VXU is an ACK, or Acknowledgment Message (see Sections 2.13, 2.13.1, and 2.18.1 of the *Guide*).

Each message is defined in special notation called the message syntax that lists the allowed segments by their three-letter identifiers in the order they will appear in the message. Braces, {}, indicate that the enclosed segment(s) may repeat one or more times, and brackets, [ ], indicate that the enclosed segment(s) is optional. The syntax and an example of each of the defined messages follow. In HL7 transmissions, messages are transmitted as a single string of ASCII characters. The segment is terminated with the carriage return symbol, the ASCII Hex0D. In the examples in this document, the three-letter segment identifiers are bolded, each segment begins on a new line, and carriage return segment endings are shown as <CR> to allow human reading. In a message transmission, an HL7 parser “reads” the characters that are transmitted, using the delimiters to divide fields and components. The notation of message and event type in MSH-9 informs the parser which segments will follow, which segments are required, and which can repeat. Similarly, each segment begins with its three-letter identifier, alerting the parser to which fields will follow, which fields are required, and which can repeat. Each segment is defined in the standard, with each field defined. Required fields and allowed field or component repetitions are so noted. For the purposes of this document, the optional segments (PD1, PV1, PV2, IN1, IN2, IN3, RXR, OBX, and NTE) and optional fields within the messages are defined only if needed for immunization registries or if required by HL7.

The following graphic depicts these data exchanges:



4.14.1 Query for Vaccination Record (VXQ)

Definition: When a health care provider participating in an immunization registry needs to obtain a complete patient vaccination record, he will send a query (using a V01 trigger event) to the immunization registry for the definitive (last updated) immunization record.

The query will follow this format:

VXQ	Vaccination Query	HL7 Chapter
MSH	Message Header Segment	2
QRD	Query Definition Segment	2
[QRF]	Query Filter Segment	2

VXQ Example #1 (Query with many identifiers**)**

MSH|^~\&||GA0000||MA0000|199705221605||VXQ^V01|19970522GA40|T|2.3.1|||NE|AL|<CR>
QRD|199705221605|R|I|19970522GA05|||25^RD|^KENNEDY^JOHN^FITZGERALD^JR|VXI^VACCINE INFORMATION^HL70048|^SIIS|<CR>
QRF|MA0000||||256946789~19900607~MA~MA99999999~88888888~KENNEDY^JACQUELINE^LEE~BOUVIER~898666725~KENNEDY^JOHN^FITZGERALD~822546618|<CR>

In this query, the Georgia state registry (GA0000) is sending a request to the Massachusetts state registry (MA0000) for the immunization record of John Fitzgerald Kennedy, Jr., who was born on June 7, 1990. The request is being sent on May 22, 1997, at 4:05 p.m. All known patient identifiers are included in the sample query for use in matching records. These identifiers are defined by their position in the QRF segment. The responding system is expected to return all query items in its response. If the requestor knew only the patient's Social Security number and birth date, this is how the QRF-5 would appear:

|256946789~19900607|

If in addition to the Social Security number and birth date, the patient's birth state and mother's current and maiden name were known, this is how the QRF-5 would appear:

|256946789~19900607~MA~~~KENNEDY^JACQUELINE^LEE~BOUVIER|

Note: Responses when some information has been found in the receiving system are outlined below. If there are processing errors or no data are found to match the query, the response message would be a general acknowledgment message with errors noted or explanatory information provided. A full discussion of error responses follows below.

VXQ Example #2 (Query with only a name identifier)

MSH|^~\&||GA0000||MA0000|199705221605||VXQ^V01|19970522GA40|T|2.3.1|||NE|AL|<CR>
QRD|199705221605|R|I|19970522GA05|||25^RD|^KENNEDY^JOHN|VXI^VACCINE INFORMATION^HL70048|^SIIS|<CR>

This query shows a request for the immunization record using only the patient's name. A limited number of identifiers may result in the receiving registry's matching multiple records.

4.14.2 **Response to Vaccination Query Returning Multiple PID Matches (VXX)**

Definition: In response to a query for the definitive patient vaccination record, the system holding the record will return it to the system originating the query. If the query results in multiple "matches;" i.e., more than one patient record matches the identifiers in the query so that there is no unique identification, the response to the query (a V02 trigger event) will follow this format:

VXX	Vaccination Response	HL7 Chapter
MSH	Message Header Segment	2
MSA	Message Acknowledgment Segment	2
QRD	Query Definition Segment	2
[QRF]	Query Filter Segment	2
{ PID	Patient Identification Segment	3
[{NK1}]	Next of Kin Segment	3
}		

VXX Example (Response with many matches)

MSH|^~\&||MAVACREC||GAVACREC|199705221610||VXX^V02|19970522MA53|T|2.3.1|||NE|AL|<CR>
MSA|AA|19970522GA40|<CR>
QRD|199705221605|R|I|19950522GA05|||25^RD|^KENNEDY^JOHN|VXI^VACCINE INFORMATION^HL70048|^SIIS|<CR>
PID|1||||KENNEDY^JOHN|<CR>
NK1|1|KENNEDY^JANET^MARIE|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||265909900^^^^SS|<CR>
PID|2||||KENNEDY^JOHN|<CR>
NK1|1|KENNEDY^JACQUELINE|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||898666725^^^^SS|<CR>
NK1|2|KENNEDY^JOHN^FITZGERALD|FTH^FATHER^HL70063|||||||||||||||||||||||||||||||822546618^^^^SS|<CR>
PID|3||||KENNEDY^JOHN|<CR>
NK1|1|KENNEDY^JACKIE^ANN|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||288763102^^^^SS|<CR>
PID|4||||KENNEDY^JOHN|<CR>
NK1|1|KENNEDY^J^CILENE|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||190966725^^^^SS|<CR>
NK1|2|KENNEDY^JACK|FTH^FATHER^HL70063|||||||||||||||||||||||||||||||786118768^^^^SS|<CR>

In this VXX example, each Patient Identification Segment (PID) returns, along with its associated Next of Kin/Associated Parties Segment(s) (NK1). In this message, the query contained only the patient name of John Kennedy. The responding system, Massachusetts state registry, found four patient matches to the query, as reflected in the PID segments. Their associated NK1 segments provide information about the patient's associated parties that will allow the querying system, Georgia state registry, to send a more precise query.

Note: To protect confidentiality some registries will not allow this function to return values in any field that was not valued in the query. Each registry will implement its own policies in this regard. We recommend that registries consult the guidelines for privacy, confidentiality, and security of data on the NIP website at <www.cdc.gov/nip/registry>.

4.14.3 **Response to Vaccination Query Returning the Vaccination Record (VXR)**

Definition: When the patient has been uniquely identified (there is only one "match" to the query), the response to the query (a V03 trigger event) will follow this format:

VXR	Vaccination Response	HL7 Chapter
MSH	Message Header Segment	2
MSA	Message Acknowledgment Segment	2
QRD	Query Definition Segment	2
[QRF]	Query Filter Segment	2
PID	Patient Identification Segment	3
[PD1]	Additional Demographics	3
[{NK1}]	Next of Kin/Associated Parties	3
[PV1	Patient Visit	3
[PV2]]	Patient Visit Additional Information	3
[{IN1	Insurance	6
[IN2]	Insurance Additional Information	6
[IN3]	Insurance Additional Information-Cert.	6
}]		
[{ [ORC]	Common Order Segment	4
RXA	Pharmacy Administration	4
[RXR]	Pharmacy Route	4
[{ OBX	Observation/Result	7
[{NTE}]	Notes (Regarding Immunization)	2
}]		
}]		

VXR Example #1 (Response to VXQ Example #1)

The example below reflects a vaccination record response from an immunization registry to a query from an immunization registry in one state to another state registry, but is typical of a response from an immunization registry to one of its participating private health care providers. The example demonstrates the use of optional segments in the message to provide more detail about the patient. Having made an exact match, this response provides the immunization history and other information. For example, the OBX segments document the Vaccine Information Statement (VIS) date, specify dose number for each component in a combination vaccine, record an adverse event, and document the reaction to a PPD test.

MSH|^~\&||MA0000||GA0000|199705221610||VXR^V03^V03|19970522MA53|T|2.3.1|||NE|AL|<CR>
MSA|AA|19970522GA40|<CR>
QRD|199705221605|R|I|19970522GA05|||25^RD|^KENNEDY^JOHN^FITZGERALD^JR|VXI^VACCINE INFORMATION^HL70048|^SIIS|<CR>
QRF|MA0000||||256946789~19900607~MA~MA99999999~88888888~KENNEDY^JACQUELINE^ LEE~BOUVIER~898666725~KENNEDY^JOHN^FITZGERALD~822546618|<CR>
PID|||1234^^^^SR^~1234-12^^^^LR^~3872^^^^MR~221345671^^^^SS^~430078856^^^^MA^ ||KENNEDY^JOHN^FITZGERALD^JR^^^L|BOUVIER^^^^^^M|19900607|M|KENNEDY^BABY BOY^^^^^^ B|2106-3^WHITE^HL70005|123 MAIN ST^APT 3B^LEXINGTON^MA^00210^^M^MSA CODE^MA034~345 ELM ST^^BOSTON^MA^00314^^BDL~^^^^^^BR^^MA002||(617)555-1212^PRN ^PH^^^617^5551212^^||EN^ENGLISH^HL70296^^^|||||||N^NOT HISPANIC OR LATINO^HL70189^2186-5^NOT HISPANIC OR LATINO^CDCRE1|CHILDREN'S HOSPITAL|<CR>
PD1|||CHILDREN'S CLINIC^L^1234^^^^FI^LEXINGTON HOSPITAL&5678&XX|12345^WELBY^ MARCUS^^^DR^MD^^^L^^^DN|||||||03^REMINDER/RECALL - NO CALLS^HL70215|Y|19900607 |||A|19900607|19900607|<CR>
NK1|1|KENNEDY^JACQUELINE^LEE|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||898666725^^^^SS|<CR>
NK1|2|KENNEDY^JOHN^FITZGERALD|FTH^FATHER^HL70063|||||||||||||||||||||||||||||||822546618^^^^SS|<CR>
PV1||R|||||||||||||||||V02^19900607~H02^19900607|<CR>
RXA|0|1|19900607|19900607|08^HEPB-PEDIATRIC/ADOLESCENT^CVX^90744^HEPB-PEDATRIC /ADOLESCENT^C4|.5|ML^^ISO+||03^HISTORICAL INFORMATION - FROM PARENT'S WRITTEN

RECORD^NIP0001|^JONES^LISA|^^^CHILDREN'S
HOSPITAL||5|MCG^^ISO+|MRK12345|199206|MSD ^MERCK^MVX|<CR>
RXA|0|0|19901207|19901207|20^DTAP^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN^ROBERT^A^^DR^
MD|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W22532806|19901230|
PMC^PASTEUR MERIEUX CONNAUGHT^MVX|00^PARENTAL DECISION^NIP002||RE|<CR>
OBX|1|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN||19900605||||||F|<CR>
OBX|2|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN||19901207||||||F|<CR>
RXA|0|1|19910907|19910907|50^DTAP-HIB^CVX^90721^DTAP-HIB^C4|.5|ML^^ISO+||00^NEW
IMMUNIZATION RECORD^NIP001|1234567890^SMITH^SALLY^S^^^^^^^^^VEI~
1234567891^O'BRIAN^ROBERT^A^^DR^MD^^^^^^OEI|^^^CHILD HEALTHCARE CLINIC^^^^^101
MAIN STREET^^BOSTON^MA||||W46932777|199208|PMC^PASTEUR MERIEUX CONNAUGHT
^MVX|||CP|A|19910907120030|<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163|<CR>
OBX|1|NM|30936-9^DTAP/DTP DOSE COUNT IN COMBINATION VACCINE^LN||4||||||F|<CR>
OBX|2|NM|30938-5^HAEMOPHILUS INFLUENZAE TYPE B (HIB) DOSE COUNT IN COMBINATION
VACCINE^LN||4||||||F|<CR>
RXA|0|1|19910907|19910907|03^MMR^CVX|.5|ML^^ISO+|||1234567890^SMITH^SALLY^S^^^^^^^^^VEI
~1234567891^O'BRIAN^ROBERT^A^^DR^MD^^^^^^OEI|^^^CHILD HEALTHCARE CLINIC^^^^^101
MAIN STREET^^BOSTON^MA||||W2348796456|19920731|MSD^MERCK^MVX|<CR>
RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163|<CR>
RXA|0|5|19950520|19950520|20^DTAP^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN^ROBERT^A^^DR^M
D|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W22532806|19950705|
PMC^PASTEUR MERIEUX CONNAUGHT ^MVX|<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163|<CR>
RXA|0|2|19950520|19950520|03^MMR^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN^ROBERT^A^^DR^M
D|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W2341234567|19950630|
MSD^ MERCK^MVX|<CR>
RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163|<CR>
OBX||FT|30948-4^VACCINATION ADVERSE EVENT AND TREATMENT, IF
ANY^LN||ANAPHYLAXIS||||||F|<CR>
NTE|||PATIENT DEVELOPED HIGH FEVER APPROX 3 HRS AFTER VACCINE INJECTION|<CR>
NTE|||VAERS FORM SUBMITTED BY PROVIDER|<CR>
RXA|0|1|19960415|19960415|96^TST-PPD INTRADERMAL^CVX|5|TU|<CR>
OBX||NM|1648-5^TUBERCULOSIS REACTION WHEAL 3D POST 5 TU ID^LN||1|MM||N|||F|||19960418|<CR>

VXR Example #2 Returning Vaccines Due Next Data from the Registry Algorithm

MSH|^~\&||GA0000||CHILD HEALTHCARE CLINIC|199007221606||VXR^V03^V03|1990072253|
T|2.3.1|||NE|AL|<CR>
MSA|AA|19900722GA40|<CR>
QRD|199007221605|R|I|19900722GA05|||25^RD|^KENNEDY^JOHN^FITZGERALD^JR|VXI^VACCINE
INFORMATION^HL70048|^SIIS|<CR>
QRF|MA0000||||256946789~19900607~MA~MA99999999~88888888~KENNEDY^JACQUELINE^LEE~B
OUVIER~898666725~KENNEDY^JOHN^FITZGERALD~822546618|<CR>
PID|||1234^^^^SR^~1234-12^^^^LR^~3872^^^^MR~221345671^^^^SS^~430078856^^^^MA^
||KENNEDY^JOHN^FITZGERALD^JR^^^L|BOUVIER^^^^^^M|19900607|M|KENNEDY^BABY
BOY^^^^^^B|2106-3^WHITE^HL70005|123 MAIN ST^APT^3B^LEXINGTON^MA^00210^^M^MSA
CODE^MA034~345 ELM ST^^BOSTON^MA^00314^^BDL^^^^^^BR^^MA002||(617)555-
1212^PRN^PH^^^617^5551212^^||EN^ENGLISH^HL70296^^^|||||||N^NOT OF HISPANIC ORIGIN^
HL70189|CHILDREN'S HOSPITAL|<CR>
NK1|1|KENNEDY^JACQUELINE^LEE|32^MOTHER^HL70063|||||||||||||||||||||||||||||898666725^^^^SS|<CR>
RXA|0|0|19900722|19900722|998^No Vaccine Administered^CVX|999|<CR>
OBX|1|CE|30979-9^Vaccine due next^LN|1|20^DTAP^CVXI|||||F|<CR>
OBX|2|TS|30979-9&30980-7^Date vaccine due^LN|1|19900807I|||||F|<CR>
OBX|3|NM|30979-9&30973-2^Vaccine due next dose number^LN|1|01|||||FI<CR>
OBX|4|TS|30979-9&30981-5^Earliest date to give^LN|1|19900803I|||||F|<CR>
OBX|5|CE|30979-9&30982-3^Reason applied by forecast logic to project this vaccine^LN|1|^ACIP
schedule||||||F|<CR>
OBX|6|CE|30979-9^Vaccines due next, Vaccine type^LN|2|08^Hep B, pediatric^CVX|||||||F|<CR>
OBX|7|TS|30979-9&30980-7^Date vaccine due^LN|2|19900722|||||F|<CR>
OBX|8|NM|30979-9&30973-2^Vaccine due next dose number^LN|2|1|||||F|<CR>
OBX|9|TS|30979-9&30981-5^Earliest date to give^LN|2|19900722|||||F|<CR>
OBX|10|CE|30979-9&30982-3^Reason applied by forecast logic to project this vaccine^LN|2|^ACIP
schedule||||||F|<CR>

This example shows the response to a query from the Child Healthcare Clinic to the Georgia Immunization Registry for the record of a one-month-old child. The child's birth information came from Vital Statistics, but the registry has no record of any vaccines having been given. This response gives no vaccine administration data in the required RXA segment, but is able to return a forecast of next vaccines due in the associated OBX segments. The example shows the use of a "placeholder" RXA, but in a typical exchange, the immunization registry will be returning a history of vaccines in repeating RXA segments, then adding the next vaccines due after the last RXA. The list of vaccines due next is not dependant on any one vaccine, but rather the history as a whole, so there should be no misinterpretation of the message in the case where the OBX list showing next vaccines due follows an RXA reporting a real vaccine. The LOINC® descriptions for the OBX-3 fields are so specific that they offer further insurance against misinterpretation. If a user chooses to insert a "place-holder" RXA after the vaccine history and before the next vaccines due list, it should be acceptable to the receiver.

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4.14.4 **Unsolicited Vaccination Record Update (VXU)**

Definition: When a provider using one system wishes to update the patient's vaccination record being held in another system, he will transmit an unsolicited update of the record (a V04 trigger event).

An unsolicited update will follow this format:

VXU	Unsolicited Vaccination Update	HL7 Chapter
MSH	Message Header Segment	2
PID	Patient Identification Segment	3
[PD1]	Additional Demographics	3
[{NK1}]	Next of Kin/Associated Parties	3
[PV1	Patient Visit	3
[PV2]]	Patient Visit Additional Information	3
[{IN1	Insurance	6
[IN2]	Insurance Additional Information	6
[IN3]	Insurance Additional Information-Cert.	6
}]		
[{ [ORC]	Common Order Segment	4
RXA	Pharmacy Administration	4
[RXR]	Pharmacy Route	4
[{ OBX	Observation/Result	7
[{NTE}]	Notes (Regarding Immunization)	2
}]		
}]		

VXU Example #1 (Message with only required fields valued)

The example below of an unsolicited update of a vaccination record demonstrates a message with only the minimum number of fields valued. This message provides all the NIP-required core data elements (see Appendix 3 for the complete core data set) as well as the fields required by HL7 to form a correct message. **In the body of this *Implementation Guide* these required items are represented in boldface type.** Some software vendors have expressed an interest in attaching a "patch" to an existing system, possibly a billing system that does not otherwise use HL7, that would automatically generate this message from data in an existing application.

MSH|^~\&|||||||VXU^V04|19970522MA53|P|2.3.1|<CR>
PID|||221345671^^^^SS||KENNEDY^JOHN^FITZGERALD^JR|BOUVIER^^^^^^M|19900607|M|||~^^^^MA^^^BDL|<CR>
NK1|1|KENNEDY^JACQUELINE^LEE|MTH^MOTHER^HL70063|<CR>
RXA|0|1|19900607|19900607|08^HEPB-PEDIATRIC/ADOLESCENT^CVX|.5|ML^^ISO+|||||||| MRK12345||MSD^MERCK^MVX|<CR>

VXU Example #2 (Unsolicited update showing use of optional segments)

The example below of an unsolicited update of a vaccination record demonstrates the use of this message to update an entire immunization record and to use some of the optional segments in the message to provide additional information. For example, the PD1 segment records the medical home and states whether reminder/recall notices should be sent for this patient. The PV1 segment reports that the patient is a recurring patient who is VFC eligible and is a Medicaid patient. The effective date of his VFC and Medicaid status is June 7, 1990.

MSH|^~\&||MA0000||GA0000|19970901||VXU^V04|19970522MA53|T|2.3.1|||NE|AL|<CR>
PID|||1234^^^^SR^~1234-12^^^^LR^~3872^^^^MR~221345671^^^^SS^~430078856^^^^MA^ ||KENNEDY^JOHN^FITZGERALD^JR^^^L|BOUVIER^^^^^^M|19900607|M|KENNEDY^BABY BOY^^^^^^ B| 2106-3^WHITE^HL70005|123 MAIN ST^APT 3B^LEXINGTON^MA^00210^^M^MSA CODE^MA034~345 ELM ST^^BOSTON^MA^00314^^BDL~^^^^^^BR^^MA002||(617)555-1212^PRN^ PH^^^617^5551212^^||EN^ENGLISH^HL70296^^^|||||||N^NOT HISPANIC OR LATINO^HL70189^2186-5^NOT HISPANIC OR LATINO^CDCRE1|CHILDREN'S HOSPITAL|<CR>

PD1|||CHILDREN’S CLINIC ^L^1234^^^^FI^LEXINGTON HOSPITAL&5678&XX|12345^WELBY^MARCUS^^^DR^MD^^^L^^^DN|||||||03^REMINDER/RECALL - NO CALLS^HL70215|Y|19900607|||A|19900607|19900607|<CR>
NK1|1|KENNEDY^JACQUELINE^LEE|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||898666725^^^^SS|<CR>
NK1|2|KENNEDY^JOHN^FITZGERALD|FTH^FATHER^HL70063|||||||||||||||||||||||||||||||822546618^^^^SS|<CR>
PV1||R|||||||||||||||A|||V02^19900607~H02^19900607|<CR>
RXA|0|1|19900607|19900607|08^HEPB-PEDIATRIC/ADOLESCENT^CVX^90744^HEPB-PEDATRIC/ADOLESCENT^C4|.5|ML^^ISO+||03^HISTORICAL INFORMATION - FROM PARENT’S WRITTEN RECORD^NIP0001|^JONES^LISA|^^^CHILDREN’S HOSPITAL||5|MCG^^ISO+|MRK12345|199206|MSD^MERCK^MVX|<CR>
RXA|0|4|19910907|19910907|50^DTAP-HIB^CVX^90721^DTAP-HIB^C4|.5|ML^^ISO+||00^NEW IMMUNIZATION RECORD^NIP0001|1234567890^SMITH^SALLY^S^^^^^^^^^VEI~1234567891^O’BRIAN^ROBERT^A^^DR^MD^^^^^^OEI|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W46932777|199208|PMC^PASTEUR MERIEUX CONNAUGHT^MVX|||CP|A|19910907120030|<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163|<CR>
RXA|0|1|19910907|19910907|03^MMR^CVX|.5|ML^^ISO+|||1234567890^SMITH^SALLY^S^^^^^^^^^VEI~1234567891^O’BRIAN^ROBERT^A^^DR^MD^^^^^^OEI|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W2348796456|19920731|MSD^MERCK^MVX|<CR>
RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163|<CR>
RXA|0|5|19950520|19950520|20^DTAP^CVX|.5|ML^^ISO+|||1234567891^O’BRIAN^ROBERT^A^^DR|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W22532806|19950705|PMC^PASTEUR MERIEUX CONNAUGHT^MVX|<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163|<CR>
RXA|0|2|19950520|19950520|03^MMR^CVX|.5|ML^^ISO+|||1234567891^O’BRIAN^ROBERT^A^^DR|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W2341234567|19950630|MSD^MERCK^MVX|<CR>
RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163|<CR>

7.2.1 **Unsolicited Transmission of an Observation (ORU)**

The ORU is a very versatile HL7 message. Using this message, one can construct almost any clinical report as a three-level hierarchy, with the patient information (PID segment) at the upper level, an order record (OBR segment) at the next level, and one or more observation records (OBX segment) at the third level.

ORU^R01	**Observational Results (Unsolicited)**	**Chapter**
MSH	**Message Header**	**2**
{		
[		
PID	**Patient Identification**	**3**
[PD1]	Additional Demographics	3
[{NK1}]	**Next of Kin/Associated Parties**	3
[{NTE}]	Notes and Comments	2
[PV1	Patient Visit	3
[PV2]]	Patient Visit - Additional Info	3
]		
{		
[ORC]	**Order common**	**4**
OBR	**Observations Report ID**	**7**
{ [NTE] }	Notes and comments	2
{		
[OBX]	**Observation/Result**	**7**
{ [NTE] }	Notes and comments	2
}		
{ [CTI] }	Clinical Trial Identification	7
}		
}		
[DSC]	Continuation Pointer	2

The HL7 ORU message can transmit a report of an adverse event possibly caused by a vaccine. The message is tightly coded and defined to provide unambiguous reporting that can be processed electronically. Each item on the VAERS-1 (FDA) form can be reported in one of the fields in this message. The standard ORU message allows for the optional use of PD1, PV1, PV2, CTI, and DSC segments, but these segments will not be used in the VAERS ORU message. For this reason, the limited discussion of some of these segments in this implementation guide in connection with other messages does not reference the VAERS message. The segments that are highlighted in the syntax above are those needed by the VAERS message.

Background on the Vaccine Adverse Event Reporting System (VAERS)

VAERS is a passive surveillance system, a repository for voluntarily submitted reports. An active surveillance system, in contrast, would follow all individuals in a defined population to determine their responses to vaccination. To encourage reporting of any possibly vaccine-induced adverse event, the criteria for reporting to VAERS are unrestrictive; the system accepts and includes any report submitted, no matter how tenuous the possible connection with vaccination might seem. The virtually universal exposure of the population to vaccines makes it vitally important to understand even the very rare complications of vaccination. Therefore, it is essential to continue to collect information on vaccine-related adverse events, even after the vaccines have been approved for general use. For this reason, the Federal Government has established a surveillance system to monitor adverse events that occur following vaccination. The National Childhood Vaccine Injury Act of 1986 mandated that all health care providers report certain adverse events that occur following vaccination. Adverse events are defined for VAERS reporting as health effects that occur after immunization that may be related to the vaccine. Adverse event data are continually monitored in order to detect previously unknown adverse events or increases in known adverse events. Several investigations of VAERS data have uncovered previously unrecognized problems that may occur rarely in vaccine recipients.

Immunization registries have the potential to provide a mechanism for the more efficient and comprehensive reporting of adverse events associated with vaccines. Physicians increasingly are establishing electronic connections with local and state registries using the standard HL7 protocol. HL7 messages to report immunizations and to access the repository of immunization histories in the registry have been specified in other parts of this Guide. Immunization registries and vendors of physicians' electronic information systems should be able to extend the common immunization record exchange functions of registries to allow physicians to submit VAERS reports about their patients with a minimum of staff time and duplication of data entry. This Guide contains the specifications for electronic transmission of VAERS reports to immunization registries and to the VAERS processing contractor using a standard HL7 message, the ORU. The VAERS ORU specifications are incorporated throughout the document. For example, the PID segment is used in both VAERS and immunization messages, but its definition is provided in only one place.

The optionality of items in the VAERS ORU message is governed by requirements of the HL7 syntax for an ORU message and by the VAERS reporting rules. The directions on the back of the VAERS form are for the submitter to complete the form to the best of their abilities. It states further that "Items 3, 4, 7, 8, 10, 11, and 13 are considered essential and should be completed whenever possible."

A separate implementation guide for only the VAERS message is available at <www.cdc.gov/nip/registry/hl7vaers.pdf>. This guide describes the ORU message, defines each data field in the message, and provides an example of a complete message using the VAERS-1 (FDA) form. The guide includes tables of codes that are especially relevant to this message. Future versions of VAERS reports may change from the VAERS-1 (FDA) form. Developers are advised to confirm the current reporting version and format before implementation, but the VAERS-1 (FDA) form will continue to be supported for the near future.

The following VAERS ORU message example places the message in a grid that allows users to easily see the item number of the VAERS-1 (FDA) form being addressed, the example segment with the item question expressed as a LOINC® code, and the identification of the table needed to provide the answer to the question (if coded). The code tables needed to provide data in the OBX-5 and descriptions of required data types are provided in appendices 1 and 2. A copy of the VAERS-1 (FDA) form is provided as Appendix 4.

Example VAERS ORU Message

VAERS Item Number	EXAMPLE SEGMENTS THAT ANSWER THE VAERS QUESTIONS	Code Tables To Be Used
Unnumbered Questions in Top Third of Page and **Questions 1- 5**	**MSH**|^~\&||GA0000||VAERS PROCESSOR|20010316||ORU^R01|20010422GA03|T|2.3.1|||NE|AL|<CR> **PID**|||1234^^^^SR~1234-12^^^^LR~00725^^^^MR||Doe^John^Fitzgerald^JR^^^L||20001007|M||2106-3^White^HL70005|123 Peachtree St^APT 3B^Atlanta^GA^30210^^M^^GA067||(678)555-1212^PRN|<CR> **NK1**|1|Jones^Jane^Lee^^^RN|VAB^Vaccine administered by (Name)^HL70063|<CR> **NK1**|2|Jones^Jane^Lee^^^RN|FVP^Form completed by (Name)-Vaccine provider^HL70063|101 Main Street^^Atlanta^GA^38765^^O^^GA121||(404)554-9097^WPN|<CR> **ORC**|RE||||||||||1234567^Welby^Marcus^J^Jr^Dr.^MD^L|||||||||Peachtree Clinic|101 Main Street^^Atlanta^GA^38765^^O^^GA121|(404)554-9097^WPN|101 Main Street^^Atlanta^GA^38765^^O^^GA121|<CR> **OBR**|1|||^CDC VAERS-1 (FDA) Report|||20010316|<CR> **OBX**|1|NM|21612-7^Reported Patient Age^LN||05|mo^month^ANSI|||||F|<CR>	HL7 User-defined table 0063 NA Table NIP003 HL7 Figure 7-11, ANSI unit codes
6	**OBX**|2|TS|30947-6^Date form completed^LN||20010316||||||F|<CR>	Table NIP003
7	**OBX**|3|FT|30948-4^Vaccination adverse events and treatment, if any^LN|1|fever of 106F, with vomiting, seizures, persistent crying lasting over 3 hours, loss of appetite||||||F|<CR>	Table NIP003
8	**OBX**|4|CE|30949-2^Vaccination adverse event outcome^LN|1|E^required emergency room/doctor visit^NIP005||||||F|<CR> **OBX**|5|CE|30949-2^Vaccination adverse event outcome^LN|1|H^required hospitalization^NIP005||||||F|<CR> **OBX**|6|NM|30950-0^Number of days hospitalized due to vaccination adverse event^LN|1|02|d^day^ANSI||||F|<CR>	Table NIP003 Table NIP005 Note: Patient death and date information is derived from PID-29-30.
9	**OBX**|7|CE|30951-8^Patient recovered^LN||Y^Yes^ HL70136||||||F|<CR>	Table NIP003 HL7 Table 0136
10	**OBX**|8|TS|30952-6^Date of vaccination^LN||20010216|||||F|<CR>	Table NIP003
11	**OBX**|9|TS|30953-4^Adverse event onset date and time^LN||200102180900||||||F|<CR>	Table NIP003
12	**OBX**|10|FT|30954-2^Relevant diagnostic tests/lab data^LN||Electrolytes, CBC, Blood culture||||||F|<CR>	Table NIP003 NA
13	**OBR**|2|||30955-9^All vaccines given on date listed in #10^LN|<CR> **OBX**|1|CE|30955-9&30956-7^Vaccine type^LN|1|08^HepB-Adolescent/pediatric ^CVX||||||F|<CR> **OBX**|2|CE|30955-9&30957-5^Manufacturer^LN|1|MSD^Merck^MVX||||||F|<CR> **OBX**|3|ST|30955-9&30959-1^Lot number^LN|1|MRK12345||||||F|<CR> **OBX**|4|CE|30955-9&30958-3^ Route^LN|1|IM^Intramuscular ^HL70162||||||F|<CR> **OBX**|5|CE|30955-9&31034-2^Site^LN|1|LA^Left arm^ HL70163||||||F|<CR> **OBX**|6|NM|30955-9&30960-9^Number of previous doses^LN|1|01||||||F|<CR> **OBX**|7|CE|30955-9&30956-7^Vaccine type^LN|2|50^DTaP-Hib^CVX|||||F|<CR**>** **OBX**|8|CE|30955-9&30957-5^ Manufacturer^LN|2|WAL^Wyeth-Ayerst^MVX|||||F|<CR> **OBX**|9|ST|30955-9&30959-1^Lot number^LN|2|W46932777||||||F|<CR> **OBX**|10|CE|30955-9&30958-3**^** Route^LN|2|IM^Intramuscular^HL70162||||||F|<CR>	Table NIP003 The OBR-4 LOINC® code 30955-9 is repeated in each subcomponent of this item and joined with a second LOINC® code by an "&." HL7 Table 0227 HL7 Table 0292 NA HL7 Table 0162

	OBX|11|CE|30955-9&31034-2^Site^LN|2|LA^Left arm^HL70163||||||F|<CR> **OBX**|12|NM|30955-9&30960-9^Number of previous doses^LN|2|01||||||F|<CR>	HL7 Table 0163 NA
14	**OBR|**3|||30961-7^Any other vaccinations within 4 weeks prior to the date listed in #10^LN|<CR> **OBX**|1|CE|30961-7&30956-7^Vaccine type^LN|1|10^IPV^CVX||||||F|<CR> **OBX**|2|CE|30961-7&30957-5^Manufacturer^LN|1|PMC^Aventis Pasteur^MVX||||||F|<CR> **OBX**|3|ST|30961-7&30959-1^Lot number^LN|1|PMC123456||||||F|<CR> **OBX**|4|CE|30961-7&30958-3^Route^LN|1|SC^Subcutaneaous^HL70162||||||F|<CR> **OBX**|5|CE|30961-7&31034-2^Site^LN|1|LA^Left arm^HL70163||||||F|<CR> **OBX**|6|NM|30961-7&30960-9^Number of previous doses^LN|1|01||||||F|<CR> **OBX**|7|TS|30961-7&31035-9^date given^LN|1|20001216|||||F|<CR>	Table NIP003 The OBR-4 LOINC® code 30961-7 is repeated in each subcomponent of this item and joined with a second LOINC® code by an "&." HL7 Table 0227 HL7 Table 0292 NA HL7 Table 0162 HL7 Table 0163 NA NA
15	**OBX**|8|CE|30962-5^Vaccinated at^LN||PVT^Private doctor's office/hospital ^NIP007||||||F|<CR>	Table NIP003 Table NIP007
16	**OBX**|9|CE|30963-3^Vaccine purchased with^LN||PBF^Public funds^NIP008 ||||||F|<CR>	Table NIP003 Table NIP008
17	**OBX**|10|FT|30964-1^Other medications^LN||None||||||F|<CR>	Table NIP003 NA
18	**OBX**|11|FT|30965-8^Illness at time of vaccination (specify)^LN||None|||||F|<CR>	Table NIP003 NA
19	**OBX**|12|FT|30966-6^Pre-existing physician diagnosed allergies, birth defects, medical conditions^LN||Past conditions convulsions||||||F|<CR>	Table NIP003 NA
20	**OBX**|13|CE|30967-4^Was adverse event reported previously^LN||N^no^NIP009||||||F|<CR>	Table NIP003 Table NIP009
21	**OBR|**4||30968-2^Adverse event following prior vaccination in patient^LN|<CR> **OBX**|1|FT|30968-2&30971-6^Adverse event^LN||None||||||F|<CR> **OBR|**5||35286-4^Adverse event following prior vaccination in sibling^LN|1|<CR> **OBX**|1|FT|35286-4&30971-6^Adverse event^LN||vomiting, fever, otitis media||||||F|<CR> **OBX**|2|NM|35286-4&30972-4^Onset age^LN||04|mo^month^ANSI|||||F|<CR> **OBX**|3|CE|35286-4&30956-7^Vaccine Type ^LN||10^IPV^CVX||||||F|<CR> **OBX**|4|NM|35286-4&30973-2^Dose number in series^LN||02||||||F|<CR> **OBR|**6||35286-4^Adverse event following prior vaccination in sibling^LN|2|<CR> **OBX**|1|FT|35286-4&30971-6^Adverse event^LN||None||||||F|<CR>	Table NIP003 The OBR-4 LOINC® code 30968-2 is repeated in each subcomponent of this item and joined with a second LOINC® code by an "&." NA Table NIP003 NA NA HL7 table 0292 NA Table NIP003 NA NA
22	**OBR**|7||^For children 5 and under|<CR>	

	OBX|1|NM|8339-4^Body weight at birth^LN||82|oz^ounces^ANSI|||||F|<CR>	Table NIP003 HL7 Figure 7-11, ANSI unit codes
23	**OBX**|2|NM|30974-0^Number of brothers and sisters^LN||2||||||F|<CR>	Table NIP003
24	**OBR**|8|||^Only for reports submitted by manufacturer/immunization project|<CR> **OBX**|1|ST|30975-7^Mfr./Imm. Proj. report no.^LN||12345678||||||F|<CR>	Table NIP003
25	**OBX**|2|TS|30976-5^Date received by manufacturer/immunization project^LN|| 12345678||||||F|<CR>	Table NIP003
26	**OBX**|3|CE|30977-3^15 day report^LN||N^No^HL70136||||||F|<CR>	Table NIP003 HL7 Table 0136
27	**OBX**|4|CE|30978-1^Report type^LN||IN^Initial^NIP010||||||F|<CR>	Table NIP010

This example shows an HL7 message being sent on March 31, 2001, from the Georgia Immunization Registry to the VAERS processor. The message contains a VAERS report for patient John Fitzgerald Doe, Jr., white male, who resides at 123 Peachtree St., Atlanta, GA 30210. His date of birth was October 7, 2000. Additional identifying information given in the message is: telephone number, 678-555-1212; State registry number 1234; local registry number 1234-12; medical record number 00725. Jane Lee Jones administered the vaccine and also completed the VAERS form. Her mailing address and work telephone number are provided. Dr. Marcus J. Welby, Jr., MD, of the Peachtree Clinic, 101 Main Street, Atlanta, GA 38765, ordered the vaccine, and his telephone number is provided.

The VAERS form was completed on March 16, 2001, and reported fever of 106°, with seizures, persistent crying lasting over 3 hours, and loss of appetite. This event required an emergency room visit and a 2-day hospitalization. The patient recovered. The patient was vaccinated on February 16, 2001, at the reported age of 5 months, with Hep B and DTaP-Hib. The onset of the adverse event was February 18, 2001, at 9:00 am.

2.13 **Acknowledgment Messages (With errors or finding no match to query parameters)**

Definition: The general default acknowledgment message returning error conditions has the following syntax.

2.13.1	ACK	General Acknowledgment	HL7 Chapter
	MSH	Message Header	2
	MSA	Message Acknowledgment	2
	[ERR]	Error	2

Definition: The query general default acknowledgment message returning error conditions or explaining why the requested data are not being returned has the following syntax.

2.18.1	QCK	Query General Acknowledgment	HL7 Chapter
	MSH	Message Header	2
	MSA	Message Acknowledgment	2
	[ERR]	Error	2
	[QAK]	Query Acknowledgment Segment	2

General Acknowledgment Example #1 (ACK with error)

Acknowledgment Example #1 shows an unsolicited update being rejected by Massachusetts Vaccine Records because a required field was empty. The error was located in the PID segment, where the patient identifier list (PID-3) was missing.

MSH|^~\&||MA0000||GA0000|199705221305||ACK^|19970522GA40|T|2.3.1|<CR>
MSA|AE|19970522GA40|NO PATIENT IDENTIFIER LIST|<CR>
ERR|PID^^3^ID|<CR>

Query General Acknowledgment Example #2 (QCK with no matching records found)

Acknowledgment Example #2 illustrates a response after Massachusetts Vaccine Records processed the query message, but found no match to the query parameters in its records.

MSH|^~\&||MA0000||GA0000|199705221730||QCK^|19970522MA75|T|2.3.1|<CR>
MSA|0|19970522GA40|<CR>
ERR|0^MESSAGE ACCEPTED^HL70357|<CR>
QAK|19970522GA05|NF|<CR>

SEGMENTS

Each message is composed of a series of segments. Each segment is identified by its unique three-letter code. The segments used in the immunization messages are defined below. The segments are listed in the most logical order for immunization messages and do not strictly adhere to the order in which they are presented in the HL7 Standard. However, for ease of reference, the number preceding each segment and field name indicates its reference place in the HL7 Standard, Version 2.3.1. Because the segments here are re-ordered, these reference numbers are not always in sequential order.

The following format is used in this document for listing and defining message segments and fields. First, the message segment's use is defined, and a segment attribute table listing all fields defined in the segment is shown. In the segment attribute table, the following attributes are given for each field: sequence number within the segment, length of field, data type, whether required (R), optional (O), conditional (C), or for backwards compatibility (B), whether repeating (Y), the applicable table number for values, the field item number, and the field name.

Following the table, an example of the segment is provided, and selected fields are listed and defined. For each defined field, the HL7 segment code and reference number are listed, followed by the field name. Items in parentheses after the field name show respectively data type and length of field, whether the field is required or optional, and lists "repeating" if the field is allowed to repeat. The HL7 item number follows the parenthesis and is given for reference convenience. As part of the definitions, usage notes for immunization registries are provided, a description of the data type is given in small font, and a statement about how the field is valued in the example is given. Fields that we do not anticipate immunization registries using are not defined. Users interested in learning more about fields not discussed in this document should refer to the full text of the HL7 Standard.

SEGMENT DEFINITIONS

2.24 MESSAGE CONTROL SEGMENTS

These segments are necessary to support the functionality described in the Control/Query chapter of the HL7 Standard.

2.24.1 Message Header (MSH) Segment

Used to define the intent, source, destination, and some specifics of the syntax of a message.

MSH Attributes

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
1	**1**	**ST**	**R**			**00001**	**Field separator**
2	**4**	**ST**	**R**			**00002**	**Encoding characters**
3	180	HD	O			00003	Sending application
4	180	HD	O			00004	Sending facility
5	180	HD	O			00005	Receiving application
6	180	HD	O			00006	Receiving facility
7	26	TS	O			00007	Date/Time of message
8	40	ST	O			00008	Security
9	**7**	**CM**	**R**		**0076** **0003**	**00009**	**Message type**
10	**20**	**ST**	**R**			**00010**	**Message control ID**
11	**3**	**PT**	**R**			**00011**	**Processing ID**
12	**60**	**VID**	**R**		**0104**	**00012**	**Version ID**
13	15	NM	O			00013	Sequence number
14	180	ST	O			00014	Continuation pointer
15	2	ID	O		0155	00015	Accept acknowledgment type
16	2	ID	O		0155	00016	Application acknowledgment type
17	2	ID	O			00017	Country code
18	10	ID	O	Y	0211	00692	Character set
19	60	CE	O			00693	Principal language of message
20	20	ID	O		0356	01317	Alternate character set handling scheme

Example:
MSH|^~\&||GA0000||VAERS PROCESSOR|20010331605||ORU^R01|20010422GA03|T|2.3.1|||NE|AL|<CR>

This example MSH segment shows a Version 2.3.1 ORU message being sent from the Georgia immunization registry to the VAERS processor on March 31, 2001, at 4:05 pm. The message control ID indicates that this is the third HL7 message of the day from this registry.

2.24.1.0 MSH field definitions

MSH 2.24.1.1 Field separator (ST-1, Required) 00001

Definition: The character to be used as the field separator for the rest of the message.

The recommended value is |, as shown in our examples.

MSH 2.24.1.2 Encoding characters (ST-4, Required) 00002

Definition: Four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator.

The recommended values are ^~\&, as shown in our examples.

MSH 2.24.1.3 Sending application (HD-180, Optional) 00003

Definition: Uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all the applications that participate in the exchange of HL7 messages within the enterprise. Immunization programs may use this field to identify the software name and version. We do not define it further in this document.

Data type HD: Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)>
Components are defined as follows:

(1) Namespace ID (IS). Refer to *User-defined Table 0300 - Namespace ID* for suggested values.
(2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component.
(3) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.

In our examples, we have not valued this field.

MSH 2.24.1.4 Sending facility (HD-180, Optional) 00004

Definition: This field contains the address of the sending facility. Site-defined. Immunization programs may use this field to identify which state immunization registry is sending the query. The address consists of the two-letter postal code plus digits. The digits of the state central registry will be all 0's; e.g., GA0000. Facilities and registries within the state will be assigned numeric codes by the state; e.g., GA0322.

Data type HD: Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)>
Components are defined as follows:

(1) Namespace ID (IS). Refer to *User-defined Table 0300 - Namespace ID* for suggested values.
(2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component.
(3) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.

In our query examples, we show the Georgia state registry as the sending facility.

MSH 2.24.1.5 Receiving application (HD-180, Optional) 00005

Definition: Uniquely identifies the receiving application among all other applications within the network enterprise. The network enterprise consists of all the applications that participate in the exchange of HL7 messages within the enterprise. Immunization programs may use this field to identify the software name and version. We do not define it further in this document.

Data type HD: Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)>
Components are defined as follows:

(1) Namespace ID (IS). Refer to *User-defined Table 0300 - Namespace ID* for suggested values.
(2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component.
(3) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.

In our examples, we have not valued this field.

MSH 2.24.1.6 Receiving facility (HD-180, Optional) 00006

Definition: This field identifies the receiving application among multiple identical applications running on behalf of different organizations. Site-defined. Immunization programs may use this field to identify which state immunization registry is to receive the query. The address consists of the two-letter postal code plus digits. The digits of the state central registry will be all 0's; e.g., MA0000. Facilities and registries within the state will be assigned numeric codes by the state; e.g., MA0322.

Data type HD: Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)>
Components are defined as follows:

(1) Namespace ID (IS). Refer to *User-defined Table 0300 - Namespace ID* for suggested values.
(2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component.
(3) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.

In our query examples, we show Massachusetts state registry as the receiving system.

MSH 2.24.1.7 Date/time of message (TS-26, Optional) 00007

Definition: Date/time the sending system created the message.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender. In the query examples, a message is being sent on May 22, 1995, at 4:05 p.m.

MSH 2.24.1.8 Security (ST-40, Optional) 00008

Definition: This field may be used to implement security features, but its use is not further specified by HL7.

In our examples, we have not valued this field.

MSH 2.24.1.9 Message type (CM-7, Required) 00009

Definition: The receiving system uses this field to know the data segments to recognize and, possibly, the application to which to route this message. The second component is not required on acknowledgment messages. The third component is not required for immunization registries, since in the VXQ, VXR, VXX, and VXU messages, the message structure is the same designation as the trigger event type shown in component two.

The specific components of fields using the CM data type are defined within the field descriptions.
The components for this field are: <message type (ID)>^<trigger event (ID)>^<message structure (ID)>
Refer to *HL7 Table 0076 - Message type*, *HL7 Table 0003 - Event type*, and *HL7 Table 0354 - Message structure* for values.

In the VXR example, the third component is valued for illustration although we do not anticipate immunization registries using this component.

The unsolicited transmission of a vaccination record update message would appears as: |VXU^V04|. The unsolicited transmission of an observation message, such as a VAERS report, would appear as: |ORU^R01|.

MSH 2.24.1.10 Message control ID (ST-20, Required) 00010

Definition: Number or other identifier that uniquely identifies the message. The receiving system echoes this ID back to the sending system in the message acknowledgment segment (MSA). Each immunization registry will design its own method for assigning control IDs.

VXQ Example #1 shows a potential identification method consisting of date (YYYYMMDD)+state 2-letter code+sequential number indicating the number of queries from the Georgia registry for this date. In the example, this is the 40th HL7 message to be sent from the Georgia registry on May 22, 1997.

MSH 2.24.1.11 Processing ID (PT-3, Required) 00011

Definition: Used to indicate how to process the message as defined in HL7 processing rules.

PT data type components: <processing ID (ID)>^<processing mode (ID)>

(1) Processing ID (ID). A value that defines whether the message is part of a production, training, or debugging system. Refer to *HL7 Table 0103-Processing ID* for valid values.
(2) Processing mode (ID). A value that defines whether the message is part of an archival process or an initial load. Refer to *HL7 Table 0207-Processing mode* for valid values. The default (blank) means current processing.

In our VXU #1 example, the use is production. In the other examples, the use is training. The second component is not specified, indicating current processing as the default.

MSH 2.24.1.12 Version ID (VID-60, Required) 00012

Definition: Matched by the receiving system to its own HL7 version to be sure the message will be interpreted correctly.

VID data type components: <version ID (ID)>^<internationalization code (CE)>^<international version ID (CE)>

(1) Version ID (ID). Used to identify the HL7 version. Refer to *HL7 Table 0104 - Version ID* for valid values
(2) Internationalization code (CE). Used to identify the international affiliate country code. ISO 3166 provides a list of country codes that may be used (see *User-defined Table 0212 - Nationality*).
(3) International version ID (CE). Used when the international affiliate has more than a single local version associated with a single U.S. version.

In our examples, the version is 2.3.1.

MSH 2.24.1.13 Sequence number (NM-15, Optional) 00013

Definition: Non-null value in this field implies that the sequence number protocol is in use. This numeric field is incremented by one for each subsequent value.

In our examples, we have not valued this field.

MSH 2.24.1.14 Continuation pointer (ST-180, Optional) 00014

Definition: Used to define continuations in application-specific ways.

In our examples, we have not valued this field.

MSH 2.24.1.15 Accept acknowledgment type (ID-2, Optional) 00015

Definition: Identifies the conditions under which accept acknowledgments are required to be returned in response to this message. *HL7 Table 0155 - Accept/Application acknowledgment conditions* gives valid values. Required for enhanced acknowledgment mode. (Note: If MSH-15 and MSH-16 are omitted or null, the original acknowledgment mode rules are used.)

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.
This field is required if the enhanced acknowledgement mode is used, when the sending system wants a guarantee that the underlying communications system has delivered the message. The enhanced acknowledgement mode distinguishes both accept and application acknowledgments, as well the conditions under which each is required. With a positive accept acknowledgment, the receiving system commits the message to safe storage in a manner that releases the sending system from the need to resend the message. After the message has been processed by the receiving system, an application acknowledgment may be used to return the resultant status to the sending system. Immunization registries will usually use the original acknowledgement mode and will value this field as NE.

MSH 2.24.1.16 Application acknowledgment type (ID-2, Optional) 00016

Definition: Identifies the conditions under which application acknowledgments are required to be returned in response to this message. Required for enhanced acknowledgment mode. See *HL7 Table 0155 - Accept/Application acknowledgment conditions* for values.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have specified that the application acknowledgement is always required.

This mode specifies that the message be acknowledged at the application level. The reasoning is that it is not sufficient to know that the underlying communications system guaranteed delivery of the message. It is also necessary to know that the receiving application processed the data successfully at a logical application level. In our examples, we have specified that the accept acknowledgment (MSH-15) is never required, but the application acknowledgment (MSH-16) is always required.

MSH 2.24.1.17 Country code (ID-2, Optional) 00017

Definition: Defines the country of origin for the message. It is used primarily to specify default elements, such as currency denominations. ISO 3166 provides a list of country codes that may be used (see *User-defined Table 0212 - Nationality*).

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not specified a country. When left blank, we assume this field to be the USA.

MSH 2.24.1.18 Character set (ID-10, Optional, Repeating) 00692

Definition: Contains the character set for the entire message. Refer to *HL7 Table 0211 - Alternate character sets* for valid values of alternate character sets. The default set (if the field is left blank) is the printable 7-bit ASCII character set.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

MSH 2.24.1.19 Principal language of message (CE-60, Optional) 00693

Definition: Contains the principal language of the message. HL7 recommends ISO 639 codes. See *User-defined Table 0296 - Language*.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

MSH 2.24.1.20 Alternate character set handling (ID-20, Optional) 01317

Definition: When alternative character sets are used as specified in the second or later components of *MSH-18 - Character Sets*, any special handling scheme needed can be specified in this component according to *HL7 Table 0356 - Alternative character set handling scheme*.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

2.24.2 **Message Acknowledgment (MSA) Segment**

Used to send information while acknowledging another message.

MSA Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	**2**	**ID**	**R**		**0008**	**00018**	**Acknowledgment code**
2	**20**	**ST**	**R**			**00010**	**Message control ID**
3	80	ST	O			00020	Text message
4	15	NM	O			00021	Expected sequence number
5	1	ID	B		0102	00022	Delayed acknowledgment type
6	100	CE	O			00023	Error condition

Example:
MSA|AA|19970522GA40|<CR>

In this example MSA segment, the receiving system is replying to the sending system with an application accept acknowledgement indicating that the message was processed successfully and echoing the sender's message control ID--19970522GA40.

2.24.2.0 MSA field definitions

MSA 2.24.2.1 Acknowledgment code (ID-2, Required) 00018

Definition: Valid codes are given in *HL7 Table 0008 - Acknowledgment code* to indicate accept, reject, error, etc.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our VXX and VXR examples, the code is AA = Application Accept. Our Acknowledgment Message #1 example shows AE = Application Error.

MSA 2.24.2.2 Message control ID (ST-20, Required) 00010

Definition: Message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended.

In our VXX example, the message control ID of 19970522GA40 sent from the Georgia state registry in the query is echoed. This should be the same ID that was sent by the sending system in MSH-10.

MSA 2.24.2.3 Text message (ST-80, Optional) 00020

Definition: Optional text field that further describes an error condition. This text may be printed in error logs or presented to an end user.

In our Acknowledgment message with error example, we have valued this field to show that the sending system failed to value a required field. The text reads, "No patient identifier list."

MSA 2.24.2.4 Expected sequence number (NM-15, Optional) 00021

Definition: Optional numeric field used in the sequence number protocol.

In our examples, we have not valued this field.

MSA 2.24.2.5 Delayed acknowledgment type (ID-1, Backwards Compatibility) 00022

Definition: Valid codes given in *HL7 Table 0102 - Delayed acknowledgment type*. Used only as described in the HL7 Standard Section 2.5.2. Otherwise this field is not used.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

MSA 2.24.2.6 Error condition (CE-100, Optional) 00023

Definition: CE data type field allows the acknowledging system to use *HL7 Table 0357- Message error status codes* to further specify AR (application reject) or AE (application error) type acknowledgments. This field allows a coded replacement for MSA-3-text message.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

(2) Text (ST). Name or description of the item in question.

(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.

(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field. Immunization registries may wish to develop codes to represent various types of errors from their participants.

2.24.3 **Error (ERR) Segment**

Used to add error comments to acknowledgment messages. If the message was rejected for functional reasons, this segment will locate the error and describe it using locally established codes.

ERR Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	80	CM	R	Y	0357	00024	Error code and location

Example:
ERR|PID^^3^ID|<CR>

This error segment shows that an error was located in the third field of the PID segment, where the patient identifier list (PID-3) was missing.

2.24.3.0 ERR field definitions

ERR 2.24.3.1 Error code and location (CM-80, Required, Repeating) (00024)

Definition: Identifies an erroneous segment in the message received. The second component is an index if more than one segment of a specific type repeats. For systems that do not use the HL7 Encoding Rules, the data item number may be used for the third component. The fourth component (which references *HL7 Table 0357 - Message error status codes*) is restricted from having any subcomponents, since it is a CE data type and the subcomponent separator is now the CE's component separator.

The specific components of fields using the CM data type are defined within the field descriptions.
The components for this field are: <segment ID (ST)>^<sequence (NM)>^<field position (NM)>^<code identifying error (CE)>

In our Acknowledgment Message example with error, we show an error in the PID segment, field 3.

2.24.22 **Query Acknowledgment (QAK) Segment**

Used to send information with responses to a query.

QAK Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	32	ST	C			00696	Query tag
2	2	ID	O		0208	00708	Query response status

Example:
QAK|19970522GA05|NF|<CR>

This example query acknowledgement segment shows that the query with the query tag 19970522GA05 was processed, but no matches to the query parameters were found.

2.24.22.0 QAK field definitions

QAK 2.24.22.1 Query tag (ST-32, Conditional) 00696

Definition: This field may be valued by the initiating system to identify the query and may be used to match response messages to the originating query. If it is valued, the responding system is required to echo it back as the first field in the QAK. This field differs from *MSA-2-message control ID* in that its value remains constant for each message associated with the query (i.e., all continuation messages), whereas *MSA-2-message control ID* may vary with each continuation message, since it is associated with each individual message, not the query as a whole.

In our Acknowledgment Example #2 (with no records found), we show the Massachusetts registry reflecting the Query ID (QRD-4) sent in the query from the Georgia registry.

QAK 2.24.22.2 Query response status (ID-2, Optional) 00708

Definition: 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.*

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our Acknowledgment Example #2 (with no records found), we show the Massachusetts registry advising the Georgia registry that it processed the query, but found no matches to the query parameters. Note that some registries plan to use this acknowledgment when they do not have consent to exchange the record. (See discussion at PD1-12.)

2.24.4 **Query Definition (QRD) Segment**

Used to define a query.

QRD Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	26	TS	R			00025	Query date/time
2	1	ID	R		0106	00026	Query format code
3	1	ID	R		0091	00027	Query priority
4	10	ST	R			00028	Query ID
5	1	ID	O		0107	00029	Deferred response type
6	26	TS	O			00030	Deferred response date/time
7	10	CQ	R		0126	00031	Quantity limited request
8	60	XCN	R	Y		00032	Who subject filter
9	60	CE	R	Y	0048	00033	What subject filter
10	60	CE	R	Y		00034	What department data code
11	20	CM	O	Y		00035	What data code value qualifier
12	1	ID	O		0108	00036	Query results level

Example:
QRD|199705221605|R|I|19970522GA05|||25^RD|^KENNEDY^JOHN|VXI^VACCINE INFORMATION ^HL70048|^SIIS|<CR>

This example QRD segment shows that a query with ID 19970522GA05 for vaccine information for John Kennedy was generated on May 22, 1997, at 4:05 p.m. The example limits the response to 25 records. The sending system expects a record-oriented response to be sent immediately from the State Immunization Information System (SIIS).

2.24.4.0 QRD field definitions

QRD 2.24.4.1 Query date/time (TS-26, Required) 00025

Definition: Date the query was generated by the application program.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In both query examples, the query was generated on May 22, 1997, at 4:05 p.m.

QRD 2.24.4.2 Query format code (ID-1, Required) 00026

Definition: Valid format codes are given in *HL7 Table 0106 - Query/response format code*.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In both query examples, we use the record-oriented format (R).

QRD 2.24.4.3 Query priority (ID-1, Required) 00027

Definition: Time frame in which the response is expected. Table values and subsequent fields specify time frames for response. *HL7 Table 0091 - Query priority* gives valid codes.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In both query examples, we expect an immediate response (I).

QRD 2.24.4.4 Query ID (ST-10, Required) 00028

Definition: Unique identifier for the query. Assigned by the querying application. Returned intact by the responding application.

VXQ Example #1 follows the same formula as in MSH-10. While MSH-10 demonstrates the 40th message of the day, the QRD-4 field reveals that this is the 5th query of the day from the Georgia system.

QRD 2.24.4.5 Deferred response type (ID-1, Optional) 00029

Definition: Valid entries are from *HL7 Table 0107 - Deferred response type*, to indicate before or later than the date/time specified.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not specified a date/time of response, because we expect an immediate response (see 2.24.4.3 above).

QRD 2.24.4.6 Deferred response date/time (TS-26, Optional) 00030

Definition: Date/time before or after which to send a deferred response. If not present, the response can be sent when it is available.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our examples, we have not specified a response date/time.

QRD 2.24.4.7 Quantity limited request (CQ-10, Required) 00031

Definition: Maximum length of the response that can be accepted by the requesting system. Valid responses are numerical values given in units specified in the second component. *HL7 Table 0126 - Quantity limited request* gives valid entries, with codes for characters, lines, pages, records, or locally defined. The default value is lines.

CQ data type components: <quantity (NM)>^<units (CE)>

Our query examples specify a maximum length of 25 records.

QRD 2.24.4.8 Who subject filter (XCN-60, Required, Repeating) 00032

Definition: Identifies the subject of the query or who the inquiry is about. The field is allowed to repeat.

XCN data type components: <ID number (ST)>^<family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

In our VXQ example #1, we are sending a query for the record of John Fitzgerald Kennedy, Jr. Our VXQ example #2 demonstrates giving only the name of John Kennedy as the subject of the query.

QRD 2.24.4.9 What subject filter (CE-60, Required, Repeating) 00033

Definition: Describes the kind of information required to satisfy the request. Valid codes are given in *HL7 Table 0048 - What subject filter* and may be extended locally during implementation.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our query examples, we specify Vaccine Information (VXI).

QRD 2.24.4.10 What department data code (CE-60, Required, Repeating) 00034

Definition: Can include drug code, item number, etc., consistent with the subject in 2.24.4.9. Can contain multiple occurrences separated by repetition delimiters.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXQ #1, VXQ #2, VXX, and VXR examples, we have specified State Immunization Information Systems (SIIS) in this field.

QRD 2.24.4.11 What data code value qualifier (CM-20, Optional, Repeating) 00035

Definition: Further refines the inquiry by data code qualifiers by providing a window or range to further refine the inquiry. This field contains components giving start and stop code values.

The specific components of fields using the CM data type are defined within the field descriptions.
The components for this field are: <first data code value (ST)>^<last data code value (ST)>

In our examples, we have not valued this field.

QRD 2.24.4.12 Query results level (ID-1, Optional) 00036

Definition: Used to control level of detail in results. *HL7 Table 0108 - Query results level* gives valid values.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

2.24.5 **Query Filter (QRF) Segment**

Used with the QRD segment to further refine the content of a query.

QRF Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	20	ST	R	Y		00037	Where subject filter
2	26	TS	O			00038	When data start date/time
3	26	TS	O			00039	When data end date/time
4	60	ST	O	Y		00040	What user qualifier
5	60	ST	O	Y		00041	Other query subject filter
6	12	ID	O	Y	0156	00042	Which date/time qualifier
7	12	ID	O	Y	0157	00043	Which date/time status qualifier
8	12	ID	O	Y	0158	00044	Date/time selection qualifier
9	60	TQ	O			00694	When quantity/timing qualifier

Example:
QRF|MA0000||||256946789~19900607~MA~MA99999999~88888888~KENNEDY^JACQUELINE^LEE~BOUVIER~898666725~KENNEDY^JOHN^FITZGERALD~822546618|<CR>

This query filter segment from our VXQ #1 example shows a query for the record of John Fitzgerald Kennedy, Jr. The patient's Social Security number is 256-94-6789; his birth date is June 7, 1990; his birth state is MA; his birth registration number is MA99999999; his Medicaid number is 88888888; his mother is Jacqueline Lee Kennedy, whose maiden name is Bouvier; his mother's Social Security number is 898666725; his father is John Fitzgerald Kennedy; and his father's Social Security number is 822546618.

2.24.5.0 QRF field definitions

Usage notes: QRF-6 through 9, optional fields, have not been valued in our examples and are not defined here.

QRF 2.24.5.1 Where subject filter (ST-20, Required, Repeating) 00037

Definition: Identifies the department, system, or subsystem to which the query pertains. This field may repeat.

In our VXQ example #1, the query pertains to the Massachusetts immunization registry.

QRF 2.24.5.2 When data start date/time (TS-26, Optional) 00038

Definition: Data representing dates and times the same as or after this value should be included.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our VXQ example #1, we have not specified a date for record inclusion, because we want the entire vaccine record.

QRF 2.24.5.3 When data end date/time (TS-26, Optional) 00039

Definition: Data representing dates and times the same as or before this value should be included.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our VXQ example #1, we have not specified an end date for record inclusion, because we want the entire vaccine record.

QRF 2.24.5.4 What user qualifier (ST-60, Optional, Repeating) 00040

Definition: An identifier to further define characteristics of the data of interest. The field is allowed to repeat.

In our query examples, we have not valued this field.

QRF 2.24.5.5 Other query subject filter (ST-60, Optional, Repeating) 00041

Definition: A filter defined locally for use between two systems. This filter uses codes and field definitions which have specific meaning only to the applications and/or sites involved. The field is allowed to repeat. If one of the fields has no value, it is left empty in the repeating field. The requestor may send values for all the components that are known or may limit the items according to a search formula.

For vaccination data, QRF-5 should be structured as shown in the table below to transmit up to ten separate search "keys." These search keys are used to identify one patient's immunization record and include a wide variety of possible identifiers. The format of each possible search key is given below. These keys are transmitted as strings separated by repeat delimiters. The position of the components within QRF-5 is significant, as the position of an occurrence in this field defines the characteristic. Data items will be given in this order: <patient Social Security number>~<patient birth date>~<patient birth state>~<patient birth registration number>~<patient Medicaid number>~<mother's name>~<mother's maiden name>~<mother's Social Security number>~<father's name>~<father's Social Security number>. If one of the fields has no value, it is left empty in the repeating field, with a repeat delimiter holding its place.

Posi-tion	Component	Data Type	Description/Examples
1	Patient Social Security Number~	ST	In U.S., use SSN without hyphens between 3rd and 4th digits and 5th and 6th digits, e.g., 123456789. In other countries, universal patient ID such as National Health Service number may be used.
2	Patient Birth Date~	DT	July 4, 1976 = 19760704
3	Patient Birth State~	ID	In U.S., use 2-letter postal code, e.g., IN, NY, CA. In other countries, locally applicable postal table may be used.
4	Patient Birth Registration Number~	ST	State birth certificate number
5	Patient Medicaid Number~	ST	When relevant
6	Mother's Name Last^First^Middle~	PN	<family name>^<given name>^<middle name or initial>^<suffix>^<prefix>^<degree>. E.g., Smith^Mary^Elizabeth
7	Mother's Maiden Name~	ST	Family name of mother before marriage. E.g., Jones
8	Mother's Social Security Number~	ST	In U.S., use SSN without hyphens between 3rd and 4th digits and 5th and 6th digits, e.g.,

			123456789. In other countries, universal patient ID such as National Health Service number may be used.
9	Father's Name Last^First^Middle~	PN	<family name>^<given name>^<middle name or initial>^<suffix>^<prefix>^<degree>. E.g.,Smith^Thomas^A^Jr
10	Father's Social Security Number	ST	In U.S., use SSN without hyphens between 3rd and 4th digits and 5th and 6th digits, e.g., 123456789. In other countries, universal patient ID such as National Health Service number may be used.

2.23.3 **HL7 BATCH PROTOCOL**

Use of the File/Batch Header (BHS) and Trailer (BTS) Segments

A batch of HL7 messages may be sent online using a common file transfer protocol or offline via tape or diskette. If needed, a group of batches may be sent using the file header and trailer segments. The FHS and FTS are optional and need not be sent if the transaction is one batch of records. Both the batch header segment (BHS) and the file header segment (FHS) have fields that provide unique ID's for these segments. The file/batch syntax follows.

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

Batch Protocol Example

BHS|^~\&||IHS0032||MA0000|199505221605||VAXBAX950522G||11254|<CR>
MSH|...(1)VXU…
MSH|...(2)VXU…
MSH|...(3)VXU…
BTS|3<CR>

This example demonstrates three HL7 VXU messages being sent from the Indian Health Service Clinic 0032 to the Massachusetts Immunization Registry on May 22, 1995, at 4:05 p.m. If a group of batches were sent, an FHS would be added at the beginning of the message and an FTS at the end.

2.24.11 **File Header (FHS) Segment**

Used to head a file (group of batches).

FHS Attributes

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
1	1	ST	R			00067	File field separator
2	4	ST	R			00068	File encoding characters
3	15	ST	O			00069	File sending application
4	20	ST	O			00070	File sending facility
5	15	ST	O			00071	File receiving application
6	20	ST	O			00072	File receiving facility
7	26	TS	O			00073	File creation date/time
8	40	ST	O			00074	File security
9	20	ST	O			00075	File name/ID/type
10	80	ST	O			00076	File comment
11	20	ST	O			00077	File control ID
12	20	ST	O			00078	Reference file control ID

2.24.11.0 FHS field definitions

Usage notes: FHS fields 1-8 have the same definitions as the corresponding fields in the MSH segment and are not repeated here. We did not use the FHS segment in our examples, but provide the field definitions below for reference.

FHS 2.24.11.9 File name/ID/type (ST-20, Optional) 00075

Definition: This field can be used by the application processing the batch. It can have extra components if needed.

FHS 2.24.11.10 File header comment (ST-80, Optional) 00076

Definition: This is a free text comment field that is not further defined in the HL7 protocol.

FHS 2.24.11.11 File control ID (ST-20, Optional) 00077

Definition: This field is used to uniquely identify a particular file. It can be echoed back in FHS-12-reference file control ID.

FHS 2.24.11.12 Reference file control ID (ST-20, Optional) 00078

Definition: This field contains the value of FHS-11-file control ID when this file was originally transmitted. This field is not valued if this file is being sent for the first time.

2.24.12 **File Trailer (FTS) Segment**

Used to define the end of a file.

FTS Attributes

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
1	10	NM	O			00079	File batch count
2	80	ST	O			00080	File trailer comment

2.24.12.0 FTS field definitions

Usage notes: We did not use the FTS segment in our examples, but provide the field definitions below for reference.

FTS 2.24.12.1 File batch count (NM-10, Optional) 00079

Definition: This field contains the number of batches contained in the file.

FTS 2.24.12.2 File trailer comment (ST-80, Optional) 00080

Definition: The use of this free text field is not further defined in the HL7 protocol.

2.24.13 **Batch Header (BHS) Segment**

Used to define the start of a batch.

BHS Attributes

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
1	1	ST	R			00081	Batch field separator
2	3	ST	R			00082	Batch encoding characters
3	15	ST	O			00083	Batch sending application
4	20	ST	O			00084	Batch sending facility
5	15	ST	O			00085	Batch receiving application
6	20	ST	O			00086	Batch receiving facility
7	26	TS	O			00087	Batch creation date/time
8	40	ST	O			00088	Batch security
9	20	ST	O			00089	Batch name/ID/type
10	80	ST	O			00090	Batch comment
11	20	ST	O			00091	Batch control ID
12	20	ST	O			00092	Reference batch control ID

Example:
BHS|^~\&||IHS0032||MA0000|199505221605||VAXBAX950522G||11254|<CR>

This batch header example demonstrates how the header would appear when being sent from the Indian Health Service Clinic 0032 to the Massachusetts Immunization Registry on May 22, 1995, at 4:05 p.m. The batch has the name of Vaxbax950522G and a control ID of 11254.

2.24.13.0 BHS field definitions

Usage notes: BHS fields 1-8 have the same definitions as the corresponding fields in the MSH segment and are not repeated here. We did not use the BHS segment in our examples, but provide the field definitions below for reference.

BHS 2.24.13.9 Batch name/ID/type (ST-20, Optional) 00089

Definition: This field can be used by the application processing the batch. It can have extra components if needed.

BHS 2.24.13.10 Batch comment (ST-80, Optional) 00090

Definition: This field is a comment field that is not further defined in the HL7 protocol.

BHS 2.24.13.11 Batch control ID (ST-20, Optional) 00091

Definition: 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.

BHS 2.24.13.12 Batch reference batch control ID (ST-20, Optional) 00092

Definition: This field contains the value of BHS-11-batch control ID when this batch was originally transmitted. This field is not valued if this batch is being sent for the first time.

2.24.14 **Batch Trailer (BTS) Segment**

Used to define the end of a batch.

BTS Attributes

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
1	10	ST	O			00093	Batch message count
2	80	ST	O			00094	Batch comment
3	100	NM	O	Y		00095	Batch totals

Example:
BTS|3|<CR>

This example batch trailer gives the batch message count as 3.

2.24.14.0 BTS field definitions

Usage notes: We did not use the BTS segment in our examples, but provide the field definitions below for reference.

BHS 2.24.14.1 Batch message count (ST-10, Optional) 00093

Definition: This field contains the count of the individual messages contained within the batch.

BHS 2.24.14.2 Batch comment (ST-80, Optional) 00094

Definition: This field is a comment field that is not further defined in the HL7 protocol.

BHS 2.24.14.3 Batch totals (NM-100, Optional, Repeating) 00095

Definition: This field may carry, as separate repeating components, as many types of totals as needed for the batch. Each component is an NM data type. This field may be defined as a CM data type for backwards compatibility with HL7 2.2 and 2.1. Users of the field in later HL7 2.x versions should use the NM data type and define it as “repeating” as illustrated below.

Components: <total 1 (NM)>~<total 2 (NM)>~....

3.3 PATIENT ADMINISTRATION MESSAGE SEGMENTS

3.3.2 Patient Identification (PID) Segment

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.

PID Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00104	Set ID - PID
2	20	CX	B			00105	Patient ID
3	**20**	**CX**	**R**	**Y**		**00106**	**Patient identifier list**
4	20	CX	B	Y		00107	Alternate patient ID - PID
5	**48**	**XPN**	**R**	**Y**		**00108**	**Patient name**
6	**48**	**XPN**	**O**	**Y**		**00109**	**Mother's maiden name**
7	**26**	**TS**	**O**			**00110**	**Date/time of birth**
8	**1**	**IS**	**O**		**0001**	**00111**	**Sex**
9	48	XPN	O	Y		00112	Patient alias
10	80	CE	O	Y	0005	00113	Race
11	**106**	**XAD**	**O**	**Y**		**00114**	**Patient address**
12	4	IS	B		0289	00115	County code
13	40	XTN	O	Y		00116	Phone number - home
14	40	XTN	O	Y		00117	Phone number - business
15	60	CE	O		0296	00118	Primary language
16	80	CE	O		0002	00119	Marital status
17	80	CE	O		0006	00120	Religion
18	20	CX	O			00121	Patient account number
19	16	ST	B			00122	SSN number - patient
20	25	DLN	O			00123	Driver's license number - patient
21	20	CX	O	Y		00124	Mother's identifier
22	80	CE	O	Y	0189	00125	Ethnic group
23	60	ST	O			00126	Birth place
24	1	ID	O		0136	00127	Multiple birth indicator
25	2	NM	O			00128	Birth order
26	80	CE	O	Y	0171	00129	Citizenship
27	60	CE	O		0172	00130	Veterans military status
28	80	CE	O		0212	00739	Nationality
29	26	TS	O			00740	Patient death date and time
30	1	ID	O		0136	00741	Patient death indicator

Example:
PID|||1234^^^^SR~1234-12^^^^LR~00725^^^^MR^||Doe^John^Fitzgerald^JR^^^L||20001007|M||2106-3^White^HL70005|123 Peachtree ST^APT 3B^Atlanta^GA^30210^^M^^GA067||(678)555-1212^PRN|
<CR>

This example identifies the patient as John Fitzgerald Doe, Jr., white male, who resides at 123 Peachtree St., Atlanta, GA 30210. His date of birth was October 7, 2000. Additional identifying information given in the message is: telephone number, 678-555-1212; State registry number 1234; local registry number 1234-12; medical record number 00725.

3.3.2.0 PID field definitions

Usage notes: There are several PID fields that we do not anticipate that immunization registries will need to use, so we do not provide definitions for them here. These are PID-2,4,12,16-20,26-28. Several of these fields refer to types of patient identifiers.

With Version 2.3.1, **HL7 recommends using *PID-3-patient identifier list* for all patient identifiers.** NIP encourages immunization registries to conform to the HL7 Version 2.3.1 recommendation by repeating PID-3 to report these identifiers along with the appropriate identifier type code (*User-defined Table 0203 - Identifier type*). Previous versions of these guidelines based on HL7 Version 2.3 recommended that immunization registries use *PID-4 - Alternate patient ID* to record the patient's birth certificate or birth registration number assigned by the state at birth. In addition, it was formerly recommended that the patient's Social Security number be recorded in *PID-19 - SSN – patient.* The HL7 recommendation as stated above supercedes those recommendations.

PID 3.3.2.1 Set ID - PID (SI-4, Optional) 00104

Definition: The Set ID field numbers the repetitions of the segment. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

> SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

The VXX example shows the use of this field to number the four PID segments.

For vaccine adverse event reporting, it is strongly recommended that information for only one patient be sent per message, in other words one PID per MSH. Thus PID-1 may be left blank or appear as: |1|

PID 3.3.2.3 Patient identifier list (CX-20, Required, Repeating) 00106

Definition: This field contains the list of identifiers (one or more) used by immunization registries and their participants to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.)

> CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>
>
> Components are defined as follows:
> (1) ID number (ST).
> (2) Check digit (ST). Defined as in the CK data type except as a ST. The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.
> (3) Code identifying check digit scheme employed (ID). Refer to *HL7 Table 0061 - Check digit scheme* for valid values.
> (4) Assigning authority (HD).
> Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)>
> (5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.
> (6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
> Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

HL7 recommends that this field be used to record all patient identifiers. For that reason, the type code should always be used to identify what type of identifier is being listed. Values for the type code are found in *User-defined Table 0203 - Identifier type*. Immunization registries should retain all identifiers and type codes they receive for a patient to aid in matching records of patients seen by multiple providers.

In our VXR example, we have listed a state registry ID, a local registry ID, the provider's medical record number, the patient's Social Security number, and the patient's Medicaid number. Other identifiers, such as WIC client number, birth certificate number, etc. may also be listed in this field.

PID 3.3.2.5 Patient name (XPN-48, Required, Repeating) 00108

Definition: The current, assumed legal name of the patient should be sent in this field. The name type code in this field should always be "L" for "Legal." All other names for the patient should be sent in *PID-9-patient alias*. Repetition of this field is allowed only for representing the same name in different

character sets, a situation that will rarely arise. Therefore, for practical purposes this field should be considered not repeating.

XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>

For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

In our VXU #1, VXU #2, and VXR examples, the patient is John Fitzgerald Kennedy, Jr., and the name type code is "L" for "Legal." In all of our example fields that use the XPN data type, we do not value the last component because all of our messages use an alphabetic name representation.

PID 3.3.2.6 Mother's maiden name (XPN-48, Optional) 00109

Definition: This field contains the family name under which the mother was born (i.e., before marriage). It is used to distinguish between patients with the same last name. The name type code should be valued "M" for "Maiden Name." If a system needs additional information about the mother, the NK1 segment should be used.

XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>

For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

In our VXU #1, VXU #2, and VXR examples, the mother's maiden name is Bouvier, and the name type code is "M."

PID 3.3.2.7 Date of birth (TS-26, Optional) 00110

Definition: This field contains the patient's date and (if applicable) time of birth. If not present, the HHMM portion will default to 0000.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our examples that value this field, the patient's date of birth is June 7, 1990.

PID 3.3.2.8 Sex (IS-1, Optional) 00111

Definition: This field contains the patient's sex. Refer to *User-defined Table 0001 - Sex* for valid values.

The IS data type follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values.

In our examples that value this field, the patient's sex is male.

PID 3.3.2.9 Patient alias (XPN-48, Optional, Repeating) 00112

Definition: This field contains names by which the patient has been known at some time.

XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>

For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

In our VXU #2 and VXR examples, we have used this field to indicate a different birth name, Baby Boy Kennedy. The name type code is valued "B."

PID 3.3.2.10 Race (CE-80, Optional, Repeating) 00113

Definition: This field identifies the patient's race. Refer to *User-defined Table 0005 - Race* for suggested values. This field is allowed to repeat, so several races may be reported for one patient. HL7's Version 2.3.1 did not suggest values for this table, so Version 2.0 of our Implementation Guide provided a table based on commonly used categories for data on race at that time, stating that "values compliant with the OMB directive will be added when available."

The U.S. Office of Management and Budget (OMB) published a notice of revised standards for the classification of Federal data on race and ethnicity in the Federal Register on October 30, 1997 (hereinafter referenced as the OMB Notice). It directed the Bureau of the Census and other Federal programs to adopt the standards as soon as possible for data collections. The OMB Notice did not assign codes, but did establish categories of race and ethnicity with some differences from the previous standard. It established five minimum categories for data on race and two categories for data on ethnicity, but encouraged collection of greater detail. It also established two acceptable methods of reporting—one maintaining race and ethnicity as separate categories and one that combined both of these (called the combined format). It stated that more detailed collections should be organized in a way that allowed aggregation into these minimum categories for data on race and ethnicity.

In response to OMB's revised standard, representatives from several Federal agencies, including CDC, developed a code set that met the terms of the OMB Notice. HL7 also responded to this new need by recommending values for its User-defined Table 0005 – Race that were consistent with the OMB Notice and that adopted the codes for the minimum categories that were developed by the Federal agencies. The entire hierarchical list of numeric race and ethnicity categories is available at http://www.cdc.gov/od/hissb/docs/Race-EthnicityCodeSet.pdf.

CIRSET members voted to change the recommendation in this Guide for race coding to these newer codes to be consistent with Federal data collections, such as Census data, as well as Version 2.4 and later HL7 implementations. The first triplet of this data type should use codes found in User-defined Table 0005 – Race. The HL7 standard states that the second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally-assigned codes. If codes from the more detailed hierarchy described above are needed, for example to denote specific American Indian tribal affiliations, they may be drawn from the code set at the URL given above and represented in the second triplet of the CE data type in this field, with the code set name CDCRE1 in the 6th position of the second triplet. For example, if an immunization registry needed to represent the race of an American Indian patient who was a member of the Cherokee tribe, this field could be valued as: |1002-5^American Indian or Alaska Native^HL70005^1088-4^Cherokee^CDCRE1|

The differences between the NIP-assigned race codes in the original Guide and the numeric race codes from HL7 Version 2.4's *User-defined Table 0005 – Race* are in the categories of Asian and Pacific Islander. Immunization registries that collect race data will transition to the newer HL7 codes in the first triplet of the race field's CE data type as quickly as possible. Immunization registries that have implemented messaging based on the original User-defined Table 0005 – Race may continue to provide this information in its original form during the transition by repeating the field and valuing the first triplet of the CE data in the repeated field with the original codes. Because the two affected categories will not map directly to the old categories, registries may map historical data collected before the availability of the revised OMB categories in these two categories to a code value of "U," representing "Unknown."

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

(2) Text (ST). Name or description of the item in question.

(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.

(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, the patient's race is "white "

PID 3.3.2.11 Patient address (XAD-106, Optional, Repeating) 00114

Definition: This field lists the mailing address of the patient. Multiple addresses for the same person may be sent in the following sequence: the primary mailing address must be sent first in the sequence; if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence. If there is only one repetition of this field and an address type is not given, it is assumed to be the primary mailing address.

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

For valid values in these components, refer to *User-defined Table 0212 - Nationality* for country codes, HL7 *Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

We recommend the USPS format for recording street address, other designation, city, state, and zip or postal code (available at <www.usps.gov>). When sending multiple addresses, the appropriate type code must be indicated. The address order is by local convention, however, we recommend that immunization registries send in the following order: 1) primary (current) mailing address (required to be first); 2) **place of birth (indicate facility address and county ; name of birth facility is recorded in *PID-23-Birth place*)**; and 3) residence at birth (registries may choose to indicate county and state alone). Note that county is a specific component of this data type and should not be duplicated in the "other geographic designation" component. Items to include here might be metropolitan statistical area (MSA) codes (available at <www.census.gov>) or school district number, for example.

In our VXU #2 and VXR examples, we have listed the current mailing address, birth facility address, and residence county at birth. The birth facility address is recorded here, but the birth facility name is recorded in PID-23.

PID 3.3.2.13 Phone number - home (XTN-40, Optional, Repeating) 00116

Definition: The patient's personal phone numbers. All personal phone numbers for the patient are sent in this sequence. The first sequence is considered the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

XTN data type format and 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)>

Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

In our VXU #2 and VXR examples, we have listed the primary home phone number for the patient.

PID 3.3.2.14 Phone number - business (XTN-40, Optional, Repeating) 00117

Definition: Patient's business phone number. Repetitions are permitted, with the first one being the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

XTN data type format and 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)>

Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

In our examples, we have not valued this field.

PID 3.3.2.15 Primary language (CE-60, Optional) 00118

Definition: Patient's primary language. Refer to *User-defined Table 0296 - Language* (ISO 639) for suggested values.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, the patient's primary language is English.

PID 3.3.2.21 Mother's identifier (CX-20, Optional, Repeating) 00124

Definition: This field is used as a link field for newborns, for example. Typically a patient ID or account number may be used. This field can contain multiple identifiers for the same mother. Immunization registries will typically carry the majority of information about the mother in the NK1 segment.

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

(1) ID number (ST)
(2) Check digit (ST) (The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.)
(3) Code identifying check digit scheme employed (ID) Refer to *HL7 Table 0061 - Check digit scheme* for valid values.
(4) Assigning authority (HD)
Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)>
(5) Identifier type code (IS)
A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.
(6) Assigning facility (HD)
Definition: The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

In our examples, we have not valued this field. However, immunization registries may value this field with any number of identifiers for the patient's mother using type codes as described in PID-3 above and shown in *User-defined Table 0203 - Identifier type*.

PID 3.3.2.22 Ethnic group (CE-80, Optional, Repeating) 00125

Definition: This field further defines patient ancestry. Suggested values are listed in *User-defined Table 0189 - Ethnic group.* This field is allowed to repeat, so several ethnic groups may be reported for one patient. HL7's Version 2.3.1 did not suggest values for this table, so Version 2.0 of our Guide provided temporary codes, stating that these were to be used in the second triplet (of the CE data type) until OMB-compliant codes were available. According to HL7's Version 2.4, "the second triplet of the CE data type for Ethnic group (alternate identifier, alternate text, and name of alternate coding system) is

reserved for governmentally assigned codes." In the US, a current use is to report ethnicity following US federal standards for Hispanic origin.

In the *User-defined Table 0189 – Ethnic group*, this Guide provides the ethnicity codes that were added to HL7's Version 2.4, along with the relevant numeric ethnicity codes to be used in the second triplet from the hierarchical list of numeric race and ethnicity categories that is available at http://www.cdc.gov/od/hissb/docs/Race-EthnicityCodeSet.pdf. The code set from which these codes are drawn may be referenced as CDCRE1. (See discussion of these codes at PID-10.) Immunization registries that have already implemented the older codes for collections of ethnic data should transition to the HL7 codes provided in *User-defined Table 0189 – Ethnic group* in the first triplet of the CE data type and should include the numeric ethnic group codes in the second triplet. Because the affected categories will map directly to the old categories, registries should be able to map historical data collected before HL7's Version 2.4 to the newer method with a minimum of effort.

All new registry implementers of the HL7 messages that collect ethnic group data should use the HL7 codes provided in *User-defined Table 0189 – Ethnic group* in the first triplet of the CE data type and the numeric ethnic group codes in the second triplet.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
>
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, the patient's ethnic ancestry is "not Hispanic or Latino," and we have shown the use of both the HL7 ethnic code and the governmentally-assigned code to which it maps.

PID 3.3.2.23 Birth place (ST-60, Optional) 00126

Definition: This field gives the location of the patient's birth. Immunization registries may use this field for the name of the facility where the patient was born. This information may be used in conjunction with *PID-11-Patient address* with address type as "location of birthing facility."

In our VXU #2 and VXR examples, we have specified "Children's Hospital" as the birth facility. The birth facility address is given in one repetition of PID-11 with the code BDL.

PID 3.3.2.24 Multiple birth indicator (ID-1, Optional) 00127

Definition: This field indicates whether the patient was part of a multiple birth. Refer to *HL7 Table 0136 - Yes/No indicator* for valid values.

> The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

PID 3.3.2.25 Birth order (NM-2, Optional) 00128

Definition: If the patient was part of a multiple birth, a number indicating the patient's birth order is entered in this field. This field should only be used if *PID-24-Multiple birth indicator* is valued as "yes."

In our examples, we have not valued this field.

PID 3.3.2.29 Patient death date and time (TS-26, Optional) 00740

Definition: This field contains the date and time at which the patient death occurred. This field should only be valued if PID-30 is valued "yes."

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our examples, we have not valued this field.

PID 3.3.2.30 Patient death indicator (ID-1, Optional) 00741

Definition: This field indicates whether or not the patient is deceased. Refer to *HL7 Table 0136 - Yes/No indicator* for valid values.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

3.3.9 **Patient Additional Demographic (PD1) Segment**

The patient additional demographic segment contains demographic information that is likely to change about the patient.

PD1 Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	2	IS	O	Y	0223	00755	Living dependency
2	2	IS	O		0220	00742	Living arrangement
3	90	XON	O	Y		00756	Patient primary facility
4	90	XCN	O	Y		00757	Patient primary care provider name & ID number
5	2	IS	O		0231	00745	Student indicator
6	2	IS	O		0295	00753	Handicap
7	2	IS	O		0315	00759	Living will
8	2	IS	O		0316	00760	Organ donor
9	1	ID	O		0136	00761	Separate bill
10	20	CX	O	Y		00762	Duplicate patient
11	80	CE	O		0215	00763	Publicity code
12	1	ID	O		0136	00744	Protection indicator
13	8	DT	O			01566	Protection Indicator effective date
14	250	XON	O	Y		01567	Place of worship
15	250	CE	O	Y		01568	Advance directive code
16	1	IS	O		0441	01569	Immunization registry status
17	8	DT	O			01570	Immunization registry status effective date
18	8	DT	O			01571	Publicity code effective date

Example:
PD1|||CHILDREN'S CLINIC^L^1234^^^^FI^LEXINGTON HOSPITAL&5678&XX|12345^WELBY^ MARCUS^^^DR^MD^^^L^^^DN|||||||03^REMINDER/RECALL-NO CALLS^HL70215|Y|19900607 |||A|19900607|19900607|<CR>

In this PD1 example, the legal name of the patient's medical home, the primary facility, is Children's Clinic, which has a facility ID number of 1234. The authority that assigned this facility ID number is Lexington Hospital, which has 5678 as its organization identifier. Dr. Marcus Welby (his legal name), with doctor number 12345, is the patient's primary care physician. The patient may be sent both reminder and recall notices by mail, but no calls are acceptable. The patient has consented to share records and is active in the registry as of June 7, 1990.

3.3.9.0 PD1 field definitions

Usage notes: We do not anticipate that immunization registries will use several PD1 fields (PD1-1, 2, 5-10, 14-15; therefore, we do not provide definitions for them here. PD1-13, 16, 17 and 18 were requested for immunization registries and added to HL7's Version 2.4. Immunization registries may use the fields as described in this document in their Version 2.3.1 implementations, and the fields will be consistent with future versions of the standard.

PD1 3.3.9.3 Patient primary facility (XON-90, Optional, Repeating) 00756

Definition: This field contains the name and identifier that specifies the primary care facility for the patient. Multiple names and identifiers are allowed for the same facility. The legal name of the facility must be sent in the first sequence. If the legal name of the facility is not sent, then the repeat delimiter must be sent in the first sequence. Immunization registries may use this field to indicate a patient's medical home. Hierarchical organizational structures may be reflected here.

XON data type components: <organization name (ST)>^ <organization name type code (IS)>^<ID number (NM)>^<check digit (NM)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>
Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

Refer to *User-defined Table 0204 - Organizational Name Type* for the second component, to *HL7 Table 0061 - Check Digit Scheme* for the fifth component, to *User-defined Table 0203 - Identifier Type* for the seventh component, and to *HL7 Table 4000 - Name/address representation* for the last component.

In our VXU #2 and VXR #1 examples, we have listed a medical home facility and its assigning authority organization.

PD1 3.3.9.4 Patient primary care provider name & ID no. (XCN-90, Optional, Repeating) 00757

Definition: This field contains the provider name and ID of the identified primary care provider. This information is usually selected by the patient at the time of enrollment in an HMO. This field is allowed to repeat and can provide multiple names for the same person. The legal name must be sent in the first sequence. If the legal name is not sent, then the repeat delimiter must be sent in the first sequence. Immunization registries may use this field to indicate a patient's primary care provider or medical home provider.

Components of the XCN data type: <ID number (ST)>^<family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

In our VXU #2 and VXR examples, we have listed Dr. Marcus Welby as the primary care physician.

PD1 3.3.9.10 Duplicate patient (CX-20, Optional, Repeating) 00762

Definition: This field indicates that a patient is the same as, or a duplicate of, another patient found on the sending system. The intent is to be informational only-no action is required by the receiver. Include the patient identifier if the sender knows an identifier for the patient. The assigning authority and identifier type code are strongly recommended for all CX data types. Refer to *User-defined Table 0203 - Identifier type* for suggested values for the identifier type code.

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

(1) ID number (ST)

(2) Check digit (ST) (The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.)

(3) Code identifying check digit scheme employed (ID) Refer to *HL7 Table 0061 - Check digit scheme* for valid values.

(4) Assigning authority (HD)
Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)>

(5) Identifier type code (IS)
A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.

(6) Assigning facility (HD)
Definition: The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

In our examples, we have not valued this field.

PD1 3.3.9.11 Publicity code (CE-80, Optional) 00743

Definition: This field contains a user-defined code indicating what level of publicity is allowed (e.g., no publicity, family only) for the patient. This field will be used by immunization registries to indicate whether reminder/recall notices may be sent to a patient. Refer to *User-defined Table 0215 – Publicity code* for valid values.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

(2) Text (ST). Name or description of the item in question.

(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.

(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, the patient may be sent both reminder and recall notices by mail.

PD1 3.3.9.12 Protection indicator (ID-1, Optional) 00744

Definition: This field identifies whether access to information about this person should be kept from users who do not have adequate authority for the patient. Refer to *HL7 Table 0136 - Yes/No indicator* for valid values.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

This field will be used by immunization registries to indicate whether or not consent has been given (or assumed) for record sharing. It can have 3 values with the following meanings: 1) null, designated by “” (see section 2.6 of HL7 Version 2.3.1 for discussion of null value). Null will indicate that patient/guardian has not yet been asked to give consent to share or has not responded; 2) Y - sharing is allowed (patient has given consent or consent is implied); 3) N - sharing is not allowed (patient has refused consent).

For registries with required consent (e.g., California), the suggested default value for this field is null (““) to indicate that consent has not yet been requested or received. For registries with implied consent (e.g., Georgia), the suggested default value is "Y" to allow sharing unless the patient specifically refuses consent.

When a registry receives a request for a record for which record sharing is not permitted (value is N), that application should return a QAK query acknowledgment with the query response status field valued as "NF,” meaning "no data found, no errors.” No other information should be provided. When PD1-12 is valued as "N,” that record should never be shared outside the scope outlined by the consent agreement. In the mistaken case that a sending application sends or updates a record for which PD1-12 is "N,” the receiving application should not process the message. A QAK segment should be returned to the sending application indicating "AE” for "application error" in the query response status field. MSA-3, Text message, should be valued to indicate that PD1-12 was “N” so the record was not processed and should not be re-sent.

In our VXU #2 and VXR examples, the patient has consented to sharing, so the value indicated is “Y.”

PD1 3.3.9.13 Protection indicator effective date (DT-8, Optional) 01566
Note: This field was added to HL7's Version 2.4 at NIP’s request, but may be used by registries in Version 2.3.1 messages.

Definition: Effective date for protection indicator reported in PD1-12.

DT data type format: YYYY[MM[DD]]

PD1 3.3.9.16 Immunization registry status (IS-1, Optional) 01569
Note: This field was added to HL7's Version 2.4 at NIP’s request, but may be used by registries in Version 2.3.1 messages.

Definition: This field identifies the registry status of the patient. Examples include active, inactive, lost to follow-up, moved or gone elsewhere (MOGE). Refer to *User-defined Table 0441-Immunization registry status* for suggested values. Note that Table 0441, now a part of HL7's Version 2.4, is consistent with the former Table *NIP006 - Patient registry status* except that the code for Inactive has been changed by HL7 to "I" for consistency with other HL7 codes. A deceased patient should be recorded in PID-30, with date and time of death recorded in PID-29.

> The IS data type follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values.

In our VXR example, the registry status of the patient is active.

PD1 3.3.9.17 Immunization registry status effective date (DT-8, Optional) 01570
Note: This field was added to HL7's Version 2.4 at NIP's request, but may be used by registries in Version 2.3.1 messages.

Definition: Effective date for registry status reported in PD1-16. A deceased patient should be recorded in PID-30, with date and time of death recorded in PID-29.

DT data type format: YYYY[MM[DD]]

In our VXR example, the birth date of June 7, 1990, is the effective date of active status shown in PD1-16.

PD1 3.3.9.18 Publicity code effective date (DT-8, Optional) 01571
Note: This field was added to HL7's Version 2.4 at NIP's request, but may be used by registries in Version 2.3.1 messages.

Definition: Effective date for publicity code reported in PD1-11.

DT data type format: YYYY[MM[DD]]

3.3.3 Patient Visit (PV1) Segment

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

PV1 Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00131	Set ID - PV1
2	1	IS	R		0004	00132	Patient class
3	80	PL	O			00133	Assigned patient location
4	2	IS	O		0007	00134	Admission type
5	20	CX	O			00135	Preadmit number
6	80	PL	O			00136	Prior patient location
7	60	XCN	O	Y	0010	00137	Attending doctor
8	60	XCN	O	Y	0010	00138	Referring doctor
9	60	XCN	O	Y	0010	00139	Consulting doctor
10	3	IS	O		0069	00140	Hospital service
11	80	PL	O			00141	Temporary location
12	2	IS	O		0087	00142	Preadmit test indicator
13	2	IS	O		0092	00143	Re-admission indicator
14	3	IS	O		0023	00144	Admit source
15	2	IS	O	Y	0009	00145	Ambulatory status
16	2	IS	O		0099	00146	VIP indicator
17	60	XCN	O	Y	0010	00147	Admitting doctor
18	2	IS	O		0018	00148	Patient type
19	20	CX	O			00149	Visit number
20	50	FC	O	Y	0064	00150	Financial class
21	2	IS	O		0032	00151	Charge price indicator
22	2	IS	O		0045	00152	Courtesy code
23	2	IS	O		0046	00153	Credit rating
24	2	IS	O	Y	0044	00154	Contract code
25	8	DT	O	Y		00155	Contract effective date
26	12	NM	O	Y		00156	Contract amount
27	3	NM	O	Y		00157	Contract period
28	2	IS	O		0073	00158	Interest code
29	1	IS	O		0110	00159	Transfer to bad debt code
30	8	DT	O			00160	Transfer to bad debt date
31	10	IS	O		0021	00161	Bad debt agency code
32	12	NM	O			00162	Bad debt transfer amount
33	12	NM	O			00163	Bad debt recovery amount
34	1	IS	O		0111	00164	Delete account indicator
35	8	DT	O			00165	Delete account date
36	3	IS	O		0112	00166	Discharge disposition
37	25	CM	O		0113	00167	Discharged to location
38	80	CE	O		0114	00168	Diet type
39	2	IS	O		0115	00169	Servicing facility
40	1	IS	B		0116	00170	Bed status
41	2	IS	O		0117	00171	Account status
42	80	PL	O			00172	Pending location
43	80	PL	O			00173	Prior temporary location
44	26	TS	O			00174	Admit date/time
45	26	TS	O			00175	Discharge date/time
46	12	NM	O			00176	Current patient balance
47	12	NM	O			00177	Total charges
48	12	NM	O			00178	Total adjustments
49	12	NM	O			00179	Total payments
50	20	CX	O		0203	00180	Alternate visit ID
51	1	IS	O		0326	01226	Visit indicator
52	60	XCN	O	Y	0010	01274	Other healthcare provider

Example:
PV1||R|||||||||||||||||V02^19900607~H02^19900607|<CR>

This PV1 segment shows that the patient is a recurring patient who is VFC eligible and is a Medicaid patient. The effective date of his VFC and Medicaid status is June 7, 1990.

Since a single VFC effective date is being submitted, this status should only be applied to the immunizations given on June 7, 1990. The eligibility status for the other immunization dates is unknown.

Every effort should be made to associate an effective date with a corresponding immunization date. For instance, since the only status submitted in the sample PV1 segment has a date of June 7, 1990, no information about the eligibility status of the other incoming immunizations should be inferred from this message. It is also possible that a VFC status and date may be sent that was not related to an immunization event: the status may not be applicable to any immunizations in the message.

3.3.3.0 PV1 field definitions

Usage notes: We do not anticipate that immunization registries will need to use several PV1 fields (PV1 3-19,21-52); therefore, we do not provide definitions for them here.

PV1 3.3.3.1 Set ID - PV1 (SI-4, Optional) 00131

Definition: 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.

> SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

In our examples, we have not valued this field.

PV1 3.3.3.2 Patient class (IS-1, Required) 00132

Definition: This field is used by systems to categorize patients by site. It does not have a consistent industry-wide definition. We recommend that immunization registries record all patients as recurring. Refer to *User-defined Table 0004 - Patient class* for suggested values.

> The IS data type follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values.

In our VXU #2 and VXR examples, this is a recurring patient.

PV1 3.3.3.20 Financial class (FC-50, Optional, Repeating) 00150

Definition: This field contains the financial class(es) assigned to the patient for the purpose of identifying sources of reimbursement. Immunization registries may use this field to indicate several items: 1) eligibility for the Vaccines For Children (VFC) program; 2) eligibility for state or local reimbursement programs; and 3) type of insurance plan (e.g., Medicaid, HMO, selfpay, etc.). Refer to *User-defined Table 0064 - Financial class* for suggested values.

> FC data type components: <financial class (IS)>^<effective date (TS)>
>
> (1) Financial class (IS). The financial class assigned to a person. Refer to *User defined Table 0064 - Financial class* for suggested values.
> (2) Effective date (TS). The effective date/time of the person's assignment to the financial class specified in the first component.

In our VXU #2 and VXR examples, the patient is VFC-eligible because he is a Medicaid patient.

3.3.4 Patient Visit - Additional Information (PV2) Segment

The PV2 segment is a continuation of the PV1 segment visit-specific information.

PV2 Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	80	PL	C			00181	Prior pending location
2	60	CE	O		0129	00182	Accommodation code
3	60	CE	O			00183	Admit reason
4	60	CE	O			00184	Transfer reason
5	25	ST	O	Y		00185	Patient valuables
6	25	ST	O			00186	Patient valuables location
7	2	IS	O		0130	00187	Visit user code
8	26	TS	O			00188	Expected admit date/time
9	26	TS	O			00189	Expected discharge date/time
10	3	NM	O			00711	Estimated length of inpatient stay
11	3	NM	O			00712	Actual length of inpatient stay
12	50	ST	O			00713	Visit description
13	90	XCN	O	Y		00714	Referral source code
14	8	DT	O			00715	Previous service date
15	1	ID	O		0136	00716	Employment illness related indicator
16	1	IS	O		0213	00717	Purge status code
17	8	DT	O			00718	Purge status date
18	2	IS	O		0214	00719	Special program code
19	1	ID	O		0136	00720	Retention indicator
20	1	NM	O			00721	Expected number of insurance plans
21	1	IS	O	Y	0215	00722	Visit publicity code
22	1	ID	O		0136	00723	Visit protection indicator
23	90	XON	O	Y		00724	Clinic organization name
24	2	IS	O		0216	00725	Patient status code
25	1	IS	O		0217	00726	Visit priority code
26	8	DT	O			00727	Previous treatment date
27	2	IS	O		0112	00728	Expected discharge disposition
28	8	DT	O			00729	Signature on file date
29	8	DT	O			00730	First similar illness date
30	80	CE	O		0218	00731	Patient charge adjustment code
31	2	IS	O		0219	00732	Recurring service code
32	1	ID	O		0136	00733	Billing media code
33	26	TS	O			00734	Expected surgery date & time
34	1	ID	O		0136	00735	Military partnership code
35	1	ID	O		0136	00736	Military non-availability code
36	1	ID	O		0136	00737	Newborn baby indicator
37	1	ID	O		0136	00738	Baby detained indicator

3.3.4.0 PV2 field definitions

Usage notes: We do not anticipate that immunization registries will need to use any of the fields in the PV2 message segment; therefore, we do not define any of these fields further.

3.3.5 **Next of Kin (NK1)/Associated Parties Segment**

Contains information about the patient's next of kin and other associated or related parties. This segment is allowed to repeat, providing information about multiple related parties.

NK1 Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	**4**	**SI**	**R**			**00190**	**Set ID - NK1**
2	**48**	**XPN**	**O**	**Y**		**00191**	**Name**
3	**60**	**CE**	**O**		**0063**	**00192**	**Relationship**
4	106	XAD	O	Y		00193	Address
5	40	XTN	O	Y		00194	Phone number
6	40	XTN	O	Y		00195	Business phone number
7	60	CE	O		0131	00196	Contact role
8	8	DT	O			00197	Start date
9	8	DT	O			00198	End date
10	60	ST	O			00199	Next of kin/AP job title
11	20	JCC	O		0327/ 0328	00200	Next of kin/AP job code/class
12	20	CX	O			00201	Next of kin/AP employee number
13	90	XON	O	Y		00202	Organization name - NK1
14	80	CE	O		0002	00119	Marital status
15	1	IS	O		0001	00111	Sex
16	26	TS	O			00110	Date/time of birth
17	2	IS	O	Y	0223	00755	Living dependency
18	2	IS	O	Y	0009	00145	Ambulatory status
19	80	CE	O	Y	0171	00129	Citizenship
20	60	CE	O		0296	00118	Primary language
21	2	IS	O		0220	00742	Living arrangement
22	80	CE	O		0215	00743	Publicity code
23	1	ID	O		0136	00744	Protection indicator
24	2	IS	O		0231	00745	Student indicator
25	80	CE	O		0006	00120	Religion
26	48	XPN	O	Y		00746	Mother’s maiden name
27	80	CE	O		0212	00739	Nationality
28	80	CE	O	Y	0189	00125	Ethnic group
29	80	CE	O	Y	0222	00747	Contact reason
30	48	XPN	O	Y		00748	Contact person’s name
31	40	XTN	O	Y		00749	Contact person’s telephone number
32	106	XAD	O	Y		00750	Contact person’s address
33	32	CX	O	Y		00751	Next of kin/AP’s identifiers
34	2	IS	O		0311	00752	Job status
35	80	CE	O	Y	0005	00113	Race
36	2	IS	O		0295	00753	Handicap
37	16	ST	O			00754	Contact person social security #

Example: These example segments provide the Social Security numbers of the patient’s parents:
NK1|1|KENNEDY^JACQUELINE^LEE|MTH^MOTHER^HL70063|||||||||||||||||||||||||||||||898666725^^^^SS|<CR>
NK1|2|KENNEDY^JOHN^FITZGERALD|FTH^FATHER^HL70063|||||||||||||||||||||||||||||||822546618^^^^SS|<CR>

These example segments provide contact information for Nurse Jane Lee Jones, who administered the vaccine to the patient and completed the VAERS-1 form:
NK1|1|Jones^Jane^Lee^^RN|VAB^Vaccine administered by (Name)^HL70063|<CR>
NK1|2|Jones^Jane^Lee^^RN|FVP^Form completed by (Name)-Vaccine provider^HL70063|101 Main Street^^Atlanta^GA^38765^^O^^GA121||(404)554-9097^^WPN|<CR>

3.3.5.0 NK1 field definitions

Usage notes: We do not anticipate immunization registries using several NK1 fields (NK1 7-15,17-20, 22-28, 30-31, 34-37); therefore, we do not provide definitions for them here. The NK1 segment should be used to send the mother's full name (a core data element). *NK1-2 - Name* may be repeated to also send the mother's maiden name. If the mother's maiden name is sent in the NK1, it should also be mapped to *PID-6 – Mother's maiden name*.

NK1 3.3.5.1 Set ID - NK1 (SI-4, Required) 00190

Definition: The Set ID field numbers the repetitions of the segment within its association with the PID. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

> SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

In our VXX, VXU #2 and VXR examples, 1 indicates that this segment is the first set of next of kin data, in this case the mother's information, and 2 indicates that this is the second next of kin data, the father's.

NK1 3.3.5.2 Name (XPN-48, Optional, Repeating) 00191

Definition: This field gives the name of the next of kin or associated party. Multiple names for the same person are allowed, but the legal name must be sent in the first sequence. If the legal name is not sent, then the repeat delimiter must be sent in the first sequence.

> XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>
>
> For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

In our VXU #1, VXU #2, and VXR examples, we have shown the **mother** as Jacqueline Lee Kennedy. In our VXU #2 and VXR examples, we have also shown the father as John Fitzgerald Kennedy.

In our VAERS ORU example, the vaccine administrator is Jane Lee Jones, who also completed the VAERS-1 form.

NK1 3.3.5.3 Relationship (CE-60, Optional) 00192

Definition: This field defines the personal relationship of the next of kin. *User-defined Table 0063 -Relationship* gives suggested values as defined in HL7 Standard Version 2.4. It is recommended that the original table in Version 2.0 of the Guide, which was based on X12N standard relationship codes, be replaced with the new HL7 table from Version 2.4 in order to keep the codes consistent with the newer HL7 implementations.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
>
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our vaccine record examples, we have used this field to code the relationships of the mother and father to the patient. This segment can be used to record information about any person with a relation to the patient. It is not limited to relatives, but the relationship to the patient should be coded.

NK1 3.3.5.4 Address (XAD-106, Optional, Repeating) 00193

Definition: This field lists the mailing address of the next of kin/associated party. Multiple addresses for the same person may be sent in the following sequence: the primary mailing address must be sent first in the sequence; if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence. If there is only one repetition of this field and an address type is not given, it is assumed to be the primary mailing address.

> XAD data type components: <street address (ST)>^ <other designation (ST)>^<city (ST)>^<state or province (ST)>^<zip or postal code (ST)>^<country (ID)>^<address type (ID)>^<other geographic designation (ST)>^<county/parish code (IS)>^<census tract (IS)>^<address representation code (ID)>
>
> For valid values in these components, refer to *User-defined Table 0212 - Nationality* for country codes, HL7 *Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

We recommend using the USPS format for recording street address, other designation, city, state, and zip or postal code (available at <www.usps.gov>). When sending multiple addresses, the appropriate type code must be indicated.

In our examples, we have not valued this field.

NK1 3.3.5.5 Phone number (XTN-40, Optional, Repeating) 00194

Definition: The next of kin/associated party's personal phone numbers. All personal phone numbers for the next of kin/associated party are sent in this sequence. The first sequence is considered the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

> XTN data type format and 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)>
>
> Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

In our examples, we have not valued this field.

NK1 3.3.5.6 Business phone number (XTN-40, Optional, Repeating) 00195

Definition: Next of kin/associated party's business phone numbers. The first sequence is the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

> XTN data type format and 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)>
>
> Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

In our NK1 example on the preceding page, we have listed (404)554-9097 as the value for this field.

NK1 3.3.5.16 Date/time of birth (TS-26, Optional) 00110

Definition: This field contains the next of kin/associated party's date of birth.

> Time stamp (TS) data type must be in the format:
> YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>
>
> Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our examples, we have not valued this field.

NK1 3.3.5.21 Living arrangement (IS-2, Optional) 00742

Definition: This field identifies the situation that the associated party lives in at his or her residential address. Refer to *User-defined Table 0220 - Living arrangement* for suggested values.

Immunization registries may use this field to record whether this associated party lives with the patient.

> The IS data type follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values.

In our examples, we have not valued this field.

NK1 3.3.5.29 Contact reason (CE-80, Optional, Repeating) 00747

Definition: This field identifies the role the next of kin/associated party plays with respect to the patient. Immunization registries may use this field to indicate the next of kin/associated party who is designated to receive reminder/recall notices, if applicable. This field may also be used to indicate the next of kin/associated party who is responsible for the patient's care. Refer to *User-defined Table 0222 - Contact reason* for suggested values.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
>
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

NK1 3.3.5.33 Next of kin/associated party's identifiers (CX-32, Optional, Repeating) 00751

Definition: This field contains identifiers for the next of kin/associated party. Examples include Social Security number, driver's license number, Medicaid number, WIC client number, etc. This field, not *NK1-37 - Contact Person Social Security #*, should be used to record all identifiers, including SSN.

> CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>
>
> Components are defined as follows:
> (1) ID number (ST)
> (2) Check digit (ST) (The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.)
> (3) Code identifying check digit scheme employed (ID) Refer to *HL7 Table 0061 - Check digit scheme* for valid values.
> (4) Assigning authority (HD)
> Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)>
> (5) Identifier type code (IS)
> A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.
> (6) Assigning facility (HD)
> Definition: The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
> Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

In our VXU #2 and VXR examples, we show 898-66-6725 (expressed without hyphens) as the mother's SSN and 822-54-6618 as the father's.

6.4 FINANCIAL MANAGEMENT MESSAGE SEGMENTS

Note: The Financial Management Message Segments listed below are optional segments in the message syntax for VXR and VXU. We do not anticipate immunization registries using these segments and do not provide field definitions or examples here.

6.4.6 Insurance (IN1) Segment

The IN1 segment contains insurance policy coverage information necessary to produce properly pro-rated patient and insurance bills.

6.4.7 Insurance Additional Information (IN2) Segment

The IN2 segment contains additional insurance policy coverage and benefit information necessary for proper billing and reimbursement. Fields used by this segment are defined by CMS (formerly HCFA) or other regulatory agencies.

6.4.8 Insurance Additional Information, Certification (IN3) Segment

The IN3 segment contains additional insurance information for certifying the need for patient care. Fields used by this segment are defined by CMS (formerly HCFA) or other regulatory agencies.

4.8 PHARMACY/TREATMENT ORDERS

4.3.1 Common Order (ORC) Segment

Used to transmit fields that are common to all orders (all types of services that are requested).

ORC Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	2	ID	R		0119	00215	Order control
2	22	EI	C			00216	Placer order number
3	22	EI	C			00217	Filler order number
4	22	EI	O			00218	Placer group number
5	2	ID	O		0038	00219	Order status
6	1	ID	O		0121	00220	Response flag
7	200	TQ	O			00221	Quantity/timing
8	200	CM	O			00222	Parent
9	26	TS	O			00223	Date/time of transaction
10	120	XCN	O			00224	Entered by
11	120	XCN	O			00225	Verified by
12	120	XCN	O			00226	Ordering provider
13	80	PL	O			00227	Enterer's location
14	40	XTN	O	Y/2		00228	Call back phone number
15	26	TS	O			00229	Order effective date/time
16	200	CE	O			00230	Order control code reason
17	60	CE	O			00231	Entering organization
18	60	CE	O			00232	Entering device
19	120	XCN	O			00233	Action by
20	40	CE	O		0339	01310	Advanced beneficiary notice code
21	60	XON	O	Y		01311	Ordering facility name
22	106	XAD	O	Y		01312	Ordering facility address
23	48	XTN	O	Y		01313	Ordering facility phone number
24	106	XAD	O	Y		01314	Ordering provider address

Example:
ORC|RE||||||||||1234567^Welby^Marcus^J^Jr^Dr.^MD^L|||||||||Peachtree Clinic|101 Main Street^^Atlanta^GA^38765^^O^^GA121|(404)554-9097^WPN|101 Main Street^^Atlanta^GA^38765^^O^^GA121|<CR>

4.3.1.0 ORC field definitions

Usage notes: This is an optional segment in the message syntax for VXR and VXU. We do not anticipate immunization registries using this segment for vaccine record reporting, but it is needed in the ORU VAERS message to state the name and address of the provider filing the report in fields ORC 21-24. If the segment is used, the following string indicates a minimum response:

ORC|OK|<placer order number>|<filler order number>|<CR>

ORC 4.3.1.1 Order Control (ID-2, Required) 00215

Definition: Determines the function of the order segment. Refer to *HL7 Table 0119 – Order control codes and their meaning* for valid entries.

> ID coded value for HL7 –defined tables: The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. Examples of ID fields include *MSH-12-Version ID* and *PD1-12-Protection indicator*.

For VAERS reporting, the code for this field is RE, indicating that observations will follow.

ORC 4.3.1.12 Ordering provider (XCN-120, Optional, Repeating) 00226

Definition: This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician). *ORC-12-ordering provider* should have the same value as *OBR-16-ordering provider*.

XCN data type components: <ID number (ST)> ^ <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)> ^ <source table (IS)> ^ <assigning authority (HD)> ^ <name type code(ID)> ^ <identifier check digit (ST)> ^ <code identifying the check digit scheme employed (ID)> ^ <identifier type code (IS)> ^ <assigning facility (HD)> ^ <name representation code (ID)>
Subcomponents of assigning authority: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)
Subcomponents of assigning facility: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)
Note: Refer to XCN definition in Appendix 2 for valid code values.

In the VAERS ORU example, the physician responsible for ordering the vaccinations is identified as Dr. Marcus J. Welby, Jr., whose identification number is 1234567.

ORC 4.3.1.21 Ordering facility name (XON-60, Optional, Repeating) 01311

Definition: This field contains the name of the facility placing the order.

XON data type components: <organization name (ST)>^ <organization name type code (IS)>^<ID number (NM)>^<check digit (NM)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>
Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

Refer to *User-defined Table 0204 - Organizational Name Type* for the second component, to *HL7 Table 0061 - Check Digit Scheme* for the fifth component, to *User-defined Table 0203 - Identifier Type* for the seventh component, and to *HL7 Table 4000 - Name/address representation* for the last component.

In our VAERS ORU example, we have listed Peachtree Clinic as the facility where the vaccination was ordered and administered.

ORC 4.3.1.22 Ordering facility address (XAD-106, Optional, Repeating) 01312

Definition: This field contains the address of the facility placing the order. The state (Item #1) and County (Item # 2) on the VAERS-1 (FDA) form where the vaccine was administered should be drawn from this field.

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

For valid values in these components, refer to *User-defined Table 0212 - Nationality* for country codes, HL7 *Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

In our VAERS ORU example, we have listed the address for the facility where the vaccines were administered as 101 Main Street, Atlanta, GA 38765.

ORC 4.3.2.23 Ordering facility phone number (XTN-48, Optional, Repeating) 01313

Definition: This field contains the telephone number of the facility placing the order.

XTN data type format and 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)>

Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 – Telecommunication equipment type* for valid values.

In our VAERS ORU example, we have listed the work phone number for Peachtree Clinic.

ORC 4.3.1.24 Ordering provider address (XAD-106, Optional, Repeating) 01314

Definition: This field contains the address of the care provider requesting the order.

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

For valid values in these components, refer to *User-defined Table 0212 - Nationality* for country codes, HL7 *Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

In our VAERS ORU example, we have shown the address for the provider to be the same as that of the facility.

4.8.3 **Pharmacy/Treatment Route (RXR) Segment**

The Pharmacy/Treatment Route Segment contains the alternative combination of route, site, administration device, and administration method that are prescribed. For immunization registries, the actual route and site used should be recorded.

RXR Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	60	CE	R		0162	00309	Route
2	60	CE	O		0163	00310	Site
3	60	CE	O		0164	00311	Administration Device
4	60	CE	O		0165	00312	Administration Method
5	60	CE	O			01315	Routing Instruction

Example:
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163|<CR>

This RXR segment shows that a vaccine was administered intramuscularly in the left arm.

4.8.3.0 RXR field definitions

Usage notes: We do not anticipate immunization registries using several RXR fields (RXR-3-5); therefore, we do not provide definitions for them here.

RXR 4.8.3.1 Route (CE-60, Required) 00309

Definition: This field is the route of administration (e.g., intramuscular, oral, etc.). Refer to *HL7 Table 0162 - Route of administration* for valid values.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:
(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR examples, DTaP-Hib and DTaP vaccines were administered intramuscularly, and MMR was administered subcutaneously.

RXR 4.8.3.2 Site (CE-60, Optional) 00310

Definition: This field contains the site of the administration route (e.g., left arm, right leg). Refer to *HL7 Table 0163 - Administrative site* for valid values.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:
(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, all of the vaccines for which route is indicated were given in the left arm.

4.8.14 **Pharmacy/Treatment Administration (RXA) Segment**

The RXA segment carries pharmacy administration data. It is a repeating segment in the VXR and VXU messages and can record unlimited numbers of vaccinations.

RXA Attributes

SEQ	LEN	DT	R/O	RP/#	TBL#	ITEM#	ELEMENT NAME
1	**4**	**NM**	**R**			**00342**	**Give sub-ID counter**
2	**4**	**NM**	**R**			**00344**	**Administration sub-ID counter**
3	**26**	**TS**	**R**			**00345**	**Date/time start of administration**
4	**26**	**TS**	**R**			**00346**	**Date/time end of administration**
5	**100**	**CE**	**R**		**0292**	**00347**	**Administered code**
6	**20**	**NM**	**R**			**00348**	**Administered amount**
7	60	CE	C			00349	Administered units
8	60	CE	O			00350	Administered dosage form
9	200	CE	O	Y		00351	Administration notes
10	200	XCN	O	Y		00352	Administering provider
11	200	CM	C			00353	Administered-at location
12	20	ST	C			00354	Administered per (time unit)
13	20	NM	O			01134	Administered strength
14	60	CE	O			01135	Administered strength units
15	**20**	**ST**	**O**	**Y**		**01129**	**Substance lot number**
16	26	TS	O	Y		01130	Substance expiration date
17	**60**	**CE**	**O**	**Y**	**0227**	**01131**	**Substance manufacturer name**
18	200	CE	O	Y		01136	Substance refusal reason
19	200	CE	O	Y		01123	Indication
20	2	ID	O		0322	01223	Completion status
21	2	ID	O		0323	01224	Action code-RXA
22	26	TS	O			01225	System entry date/time

Example:
RXA|0|1|19900607|19900607|08^HEPB-PEDIATRIC/ADOLESCENT^CVX|.5|ML^^ISO+|||||||
MRK12345||MSD^MERCK^MVX|<CR>

This RXA segment shows that the first dose of a Hepatitis B vaccine, manufactured by Merck & Co., Inc., was administered on June 7, 1990. The dosage of the vaccine was .5mL, and the lot number was MRK12345.

4.8.14.0 RXA field definitions

RXA 4.8.14.1 Give sub-ID counter (NM-4, Required) 00342

Definition: Use this field if matching this RXA segment to a corresponding RXG segment. If not matching, this field's value is zero. For immunization registries, this field's value should always be zero.

In our examples, the value is 0.

RXA 4.8.14.2 Administration sub-ID counter (NM-4, Required) 00344

Definition: Starts with one the first time this medication is administered for this order and increases by increments of one with each additional administration of medication. This field can be used to record dose number for a particular vaccine series and product, if applicable. When the vaccine product administered is part of only one vaccine series (e.g., DTaP, MMR, etc.), a single digit number representing the series dose number should be entered. When a combination vaccine covering more than one series is administered, use the OBX segment to record dose numbers of various components as demonstrated at Section 7.3 of this document. If a vaccine is offered to the patient and refused, the number 0 should be recorded for the dose number in RXA-2 (see RXA-18 for recording refusal reason).

Since RXA-2 is a required field in HL7, registries who choose not to record dose number should enter “999" in this field.

In our VXU #1, VXU #2, and VXR #1 examples, we show the first dose of Hepatitis B vaccine. In our VXU #2 and VXR #1 examples, we also show the fourth dose of DTaP and Hib vaccines (given in the first dose of a combination DTaP-Hib vaccine), the fifth dose of DTaP, and the first and second doses of MMR. Our VXR example also illustrates the administration of a tuberculosis test and the report of its result.

RXA 4.8.14.3 Date/time start of administration (TS-26, Required) 00345

Definition: This field records when the administration is started. We use this field to show the vaccination date.

> Time stamp (TS) data type must be in the format:
> YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>
>
> Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our VXR #1 example, we show Hepatitis B given on June 7, 1990; DTaP’s on December 7, 1990, and May 20, 1995; DTaP-Hib on September 7, 1991; and MMR’s given on September 7, 1991, and May 20, 1995.

RXA 4.8.14.4 Date/time end of administration (if applies) (TS-26, Required) 00346

Definition: Where administration continues over some time, the end date/time may be recorded. For typical vaccines, the end of administration is the same as the start of administration given in *RXA-3 date/time start of administration,* so the RXA-3 date is repeated in RXA-4.

> Time stamp (TS) data type must be in the format:
> YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>
>
> Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our examples, the values for end of administration are the same as for start of administration.

RXA 4.8.14.5 Administered code (CE-100, Required) 00347

Definition: This field identifies the medical substance administered. If the substance administered is a vaccine, CVX codes should be used in the first triplet to code this field (see *HL7 Table 0292 - Codes for vaccines administered*). The second set of three components could be used to represent the same vaccine using a different coding system, such as Current Procedural Terminology (CPT). The most up-to-date version of the CVX code set and a mapping between the CVX and CPT codes are available on the CDC/NIP website at <http://www.cdc.gov/nip/registry/cpt.htm>.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
>
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
>
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #1, VXU #2, and VXR #1 examples, we show administration of Hepatitis B vaccine. In our VXU #2 and VXR examples, we also show administration of MMR, DTaP-Hib, and DTaP vaccines. The first triplet of the CE data type gives the CVX vaccine codes as defined in *HL7 Table 0292 - Codes for*

vaccines administered. The second triplet gives the CPT codes for the same vaccine. The VXR #1 example also shows administration of a tuberculosis test.

RXA 4.8.14.6 Administered amount (NM-20, Required) 00348

Definition: This field records the amount of pharmaceutical administered. The units are expressed in the next field, RXA-7. Registries that do not collect the administered amount should record the value "999" in this field.

In our examples, the amount of each vaccine administered was .5 mL.

RXA 4.8.14.7 Administered units (CE-60, Conditional) 00349

Definition: This field is conditional because it is required if the administered amount code does not imply units. Must be in simple units that reflect the actual quantity of the substance administered. It does not include compound units.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we show ML to designate milliliter and ISO+ as the coding system. If no coding system is listed, ISO+ is the default system.

RXA 4.8.14.8 Administered dosage form (CE-60, Optional) 00350

Definition: The dosage form indicates the manner in which the medication is aggregated for dispensing, e.g., tablets, capsules, suppositories. In some cases, this information is implied by the dispense/give code in RXA-5. Use this field when the administered code does not specify the dosage form. Generally, immunization registries will not need to use this field.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined in Appendix 2, 2.8.3.

In our examples, we have not valued this field.

RXA 4.8.14.9 Administration notes (CE-200, Optional, Repeating) 00351

Definition: Free text notes from the provider administering the medication. If coded, requires a user-defined table. If free text, place a null in the first component and the text in the second, e.g., |^this is a free text administration note|. Immunization registries may use this field to record information that is not found elsewhere in the message; e.g., indicate the source of information for this immunization record or, more generically, whether the immunization being reported has just been administered (new) or came from other records (historical). Refer to *NIP-defined Table 0001 - Immunization Information Source* for these codes.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:
(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXU #2 and VXR #1 examples, the Hepatitis B vaccine came from a parent's immunization history; the DTaP-Hib was new; and the information sources for the remaining immunizations (MMR and DTaP) are not stated.

RXA 4.8.14.10 Administering provider (XCN-200, Optional, Repeating) 00352

Definition: This field is intended to contain the name and provider ID of the person physically administering the pharmaceutical. This person (the "vaccinator") should be listed first. In addition, immunization registries may desire to record the provider who ordered the immunization (the "orderer") and/or the person who recorded the immunization into the registry (the "recorder"). These persons may also be listed. In order to distinguish between these persons, the following identifier type codes should be used: VEI - for vaccinator employee number; OEI - for orderer employee number (Note: The person identified by this code should be the same person listed in ORC-12, Orderer, for those systems that use the ORC segment); and REI - for recorder employee number.

Components of the XCN data type: <ID number (ST)>^<family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

In our VXU #2 and VXR examples, the new vaccines were administered by Nurse Sally S. Smith, with ID number 1234567890 and ID type VEI. Dr. Robert A. O'Brian, ID number 1234567891, ordered the vaccinations and was listed with an OEI ID type. The historical vaccination was administered by Lisa Jones, with no ID number listed.

RXA 4.8.14.11 Administered at location (CM-200, Conditional) 00353

Definition: Name and address of facility where medical substance was administered.

The specific components of fields using the CM data type are defined within the field descriptions.
The components for this field are: <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)>

Subcomponents of facility (HD): <namespace ID (IS)>&<universal ID (ST)>&< universal ID type (ID)>

In our VXU #2 and VXR examples, we used Child Healthcare Clinic at 101 Main Street, Boston, MA as the facility location for the new vaccinations. The historical vaccination was administered at Children's Hospital, with no further address.

RXA 4.8.14.12 Administer per (time unit) (ST-20, Conditional) 00354

Definition: This field records the rate at which this medication was administered. Except for intravenous administrations, this field is not likely to be used by immunization registries.

In our examples, we have not valued this field.

RXA 4.8.14.13 Administered strength (NM-20, Optional) 01134

Definition: Use when RXA-5-administered code does not imply the strength. This is the numeric part of the strength, used in combination with RXA-14 Administered Strength Unit.

In our VXU #2 and VXR #1 examples, we used this field only for Hepatitis B vaccine, where we indicated .5 mcg for the pediatric/adolescent formulation.

RXA 4.8.14.14 Administered strength unit (CE-60, Optional) 01135

Definition: Use when RXA-5-administered code does not specify the strength. This is the unit of the strength, used in combination with RXA-13-administered strength.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

Note: These units can be a compound quantity; i.e., the units may express a quantity per unit of time. For example, micrograms per hour (ug/hr) is an acceptable value.

In our VXU #2 and VXR #1 examples, we used MCG for micrograms and ISO+ for the coding system for the Hepatitis B vaccine only.

RXA 4.8.14.15 Substance lot number (ST-20, Optional, Repeating) 01129

Definition: This field records the lot number of the medical substance administered.

Note: The lot number is defined as the number printed on the label attached to the container holding the substance and on the packaging that houses the container. If the substance is a vaccine and a diluent is required, a lot number may appear on the vial containing the diluent; however, any such identifier associated with a diluent is not the identifier of interest. The substance lot number should be reported, not that of the diluent.

In our examples, the lot numbers (e.g., W2341234567 for second dose MMR) are listed for each of the newly administered vaccines.

RXA 4.8.14.16 Substance expiration date (TS-26, Optional, Repeating) 01130

Definition: This field identifies the expiration date of the medical substance administered.

Time stamp (TS) data type must be in the format:

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

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

Note: Vaccine expiration date does not always have a "day" component. Such a date may be transmitted as YYYYMM.

In our VXU #2 and VXR #1 examples, the expiration date (e.g., June 30, 1995 for the second dose MMR) is listed for each of the newly administered vaccines.

RXA 4.8.14.17 Substance manufacturer (CE-60, Optional, Repeating) 01131

Definition: This field records the manufacturer of the medical substance administered. For purposes of transmission of immunization data in immunization registries, the MVX codes from the *HL7 Table 0227 - Manufacturers of vaccines* should be used.

The manufacturer names and codes have changed over the years, and users are referred to the current codes that are located at www.cdc.gov/nip/registry/mvx.pdf. However, please note that the manufacturer names given in the second component of the CE data type in our examples continue to reflect the correct name and code at the time the vaccines in the example messages were administered.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

RXA 4.8.14.18 Substance refusal reason (CE-200, Optional, Repeating) 01136

Definition: When applicable, this field records the reason the patient refused the medical substance. Any entry in the 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. See discussion at RXA 4.8.14.20 below. Do not record contraindications and immunities in this field. They should be recorded in OBX segments. See discussion at 7.3 -- Observation Reporting Segments.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

If the vaccination is refused by the patient or guardian, this field will record the vaccine refusal reason. See *NIP-defined Table 002 - Substance refusal reason* for valid values.

In our VXR #1 example, we show the DTaP vaccine being refused by parental decision.

RXA 4.8.14.19 Indication (CE-200, Optional) 01123

Definition: This field contains the identifier of the condition or problem for which the drug/treatment was prescribed.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.

(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

RXA 4.8.14.20 Completion status (ID-2, Optional) 01223

Definition: This field indicates the status of the treatment administration event. Refer to *HL7 Table 0322 - Completion status* for valid values. If the substance is refused, *RXA-18 - Substance refusal reason* should be valued as well. The vaccine that was offered should be recorded in RXA-5, with the number 0 recorded for the dose number in RXA-2. If the substance is not administered because it was contraindicated, an OBX segment may be provided to record the specific contraindication.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our VXR #1 example, we show "RE" to indicate that the DTaP was offered and was refused. The DTaP-Hib vaccine administration is shown as "CP" for complete.

RXA 4.8.14.21 Action code (ID-2, Optional) 01224

Definition: Status of record. This field provides a method of correcting vaccination information previously transmitted with incorrect patient identifying information. Refer to *HL7 Table 0323 - Action code* for valid values.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our VXU #2 and VXR #1 examples, we showed the use of this field in the DTaP-Hib vaccine administration as "A" for add.

RXA 4.8.14.22 System entry date/time (TS-26, Optional) 01225

Definition: This field records the date/time the administration information was entered into the source system. This field is used to detect instances where treatment administration information is inadvertently entered multiple times by providing a unique identification field. Under usual circumstances, this field would be provided automatically by the computer system rather than being entered by a person.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our VXR #1 and VXU #2 examples, we showed the use of this field in the DTaP-Hib vaccine administration as the computer-generated time of September 7, 1991 at 12:00:30.

7.3 OBSERVATION REPORTING SEGMENTS

Use of OBX Segments

OBX segments have great flexibility to report information. When properly coded, OBX segments report a large amount of information in a small amount of space. OBX segments within the ORU message are widely used to report laboratory and other clinical information. For immunization registries, these segments can be configured within the VXR and VXU messages to code adverse events, allergies related to vaccines, and many other kinds of data. For information that is commonly reported among registries, nationally standardized code sets such as Logical Observation Identifier, Names and Codes (LOINC®) are preferred over local user-defined code sets to facilitate a common vocabulary among registries. Code sets in this document that HL7 allows to be user-defined will be agreed upon by participants in the development of this document so that registries can efficiently exchange information. Registries are discouraged from establishing their own code sets, and instead are asked to coordinate their data needs through NIP so that all users will have a common vocabulary. NIP will maintain the latest version of these tables on its web site at <www.cdc.gov/nip/registry>.

The optional, repeating OBX segment in the VXR and VXU messages provides information about a single vaccine event. It includes a field that identifies what kind of observation will be recorded in this segment (e.g., contraindication-can be used to indicate what condition the patient had that contraindicated receipt of the vaccine when RXA-18 indicates that the vaccine was not given and the RXA dose number is valued as zero). The optional Notes and Comments (NTE) segment is allowed to repeat and may be inserted after any of the OBX segments. The note segment applies to the information in the segment that immediately precedes it, i.e., the observation reported in the preceding OBX segment. The NTE segment can carry any text relevant to the vaccine event or the observation and can give its source. The NTE segment is not further defined by HL7.

HL7 does not require the use of a particular coding system to identify either the observation or the result. In the past, users tended to invent their own unique code systems for identifying tests and other clinical observations because standard codes were not available. Such local code systems suffice for transmitting information within single institutions, but present high barriers to aggregating data from many sources for research or for public health record systems. Standard code systems such as LOINC® and others included in User-defined Table 0396 now exist for many of these purposes, and we strongly encourage their use in immunization registry reporting. Standard codes can be sent as the only code, or they can be sent along with the local historic code as the second code system represented in the field (a CE data type allows for two coded representations of the same concept within a single field). When two different codes for the same information are sent this way in OBX segments, immunization registries should send the nationally standardized code in the first triplet of the CE data type.

For immunization registries, several categories of information have been identified that may be reported using the OBX segment in immunization messages. LOINC® codes for values in OBX-3 are provided in *NIP-defined Table NIP003 - Observation identifiers*. NIP has defined other tables in this document (see *NIP-defined Tables NIP001*, *NIP002*, *NIP004*, and *NIP005*) that reflect concepts particularly relevant to immunization registry reporting where no standardized code set has been identified. The data type for the results shown in OBX-5 will be designated in OBX-2. Suggested data types for these results are provided in *NIP-defined Table NIP003 - Observation Identifiers*. Code tables for use in OBX-5 are also provided in *NIP-defined Table NIP003 - Observation Identifiers*.

Examples of the following uses of OBX are given in the VXR examples:

1. Dose number for component antigens in combination vaccines when individual component dose numbers are different from the dose number of the combination vaccine
2. Contraindications, Precautions, and Immunities
3. Vaccine Adverse Event Reporting (VAERS)
4. Date Vaccine Information Statement (VIS) Published
5. Date Vaccine Information Statement (VIS) Presented
6. Vaccines Due Next

7.3.1 Observation Request (OBR) Segment

The Observation Request (OBR) segment is used within an Unsolicited Transmission of an Observation (ORU) message to define the attributes of a particular request for diagnostic services or clinical observations, and the attributes themselves follow the OBR in repeating OBX segments. The OBX segment is described in Section 7.3.2 below.

In the VAERS ORU message, the first OBR identifies the message as a report using the VAERS-1 form. The subsequent OBR's describe particular parts of the report for which detailed information is provided in the associated OBX segments. As defined by the ORU syntax, there can be many OBX's per OBR, and there can be many OBR's per PID.

OBR Attributes

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM #	ELEMENT NAME
1	4	SI	O			00237	Set ID – OBR
2	22	EI	C			00216	Placer Order Number
3	22	EI	C			00217	Filler Order Number +
4	**200**	**CE**	**R**			**00238**	**Universal Service ID**
5	2	ID	X			00239	Priority
6	26	TS	X			00240	Requested Date/Time
7	26	TS	C			00241	Observation Date/Time #
8	26	TS	O			00242	Observation End Date/Time #
9	20	CQ	O			00243	Collection Volume *
10	60	XCN	O	Y		00244	Collector Identifier *
11	1	ID	O		0065	00245	Specimen Action Code *
12	60	CE	O			00246	Danger Code
13	300	ST	O			00247	Relevant Clinical Info.
14	26	TS	C			00248	Specimen Received Date/Time *
15	300	CM	O		0070	00249	Specimen Source *
16	80	XCN	O	Y		00226	Ordering Provider
17	40	XTN	O	Y/2		00250	Order Callback Phone Number
18	60	ST	O			00251	Placer Field 1
19	60	ST	O			00252	Placer Field 2
20	60	ST	O			00253	Filler Field 1 +
21	60	ST	O			00254	Filler Field 2 +
22	26	TS	C			00255	Results Rpt/Status Chng-Date/Time +
23	40	CM	O			00256	Charge to Practice +
24	10	ID	O		0074	00257	Diagnostic Serv Sect ID
25	1	ID	C		0123	00258	Result Status +
26	400	CM	O			00259	Parent Result +
27	200	TQ	O	Y		00221	Quantity/Timing
28	150	XCN	O	Y/5		00260	Result Copies To
29	200	CM	O			00261	Parent *
30	20	ID	O		0124	00262	Transportation Mode
31	300	CE	O	Y		00263	Reason for Study
32	200	CM	O			00264	Principal Result Interpreter +
33	200	CM	O	Y		00265	Assistant Result Interpreter +
34	200	CM	O	Y		00266	Technician +
35	200	CM	O	Y		00267	Transcriptionist +
36	26	TS	O			00268	Scheduled Date/Time +
37	4	NM	O			01028	Number of Sample Containers *
38	60	CE	O	Y		01029	Transport Logistics of Collected Sample *
39	200	CE	O	Y		01030	Collector's Comment *
40	60	CE	O			01031	Transport Arrangement Responsibility
41	30	ID	O		0224	01032	Transport Arranged
42	1	ID	O		0225	01033	Escort Required

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM #	ELEMENT NAME
43	200	CE	O	Y		01034	Planned Patient Transport Comment
44	80	CE	O		0088	00393	Procedure Code
45	80	CE	O	Y	0340	01316	Procedure Code Modifier

Example:
OBR|6|||30970-8^Adverse event following prior vaccination in sister^LN|<CR>

This example OBR segment identifies this section of the VAERS report as containing information about an adverse event following prior vaccination of the patient's sister.

7.3.1.0 OBR field definitions

Usage Notes: We do not anticipate that several OBR fields (OBR-2-3, 5-6, 8-45) will be used for adverse event reporting purposes; therefore, we do not provide definitions for them here.

OBR 7.3.1.1 Set ID (SI-4, Optional) 00237

Definition: This field identifies the sequence number of one of multiple OBR's under one PID. For the first order transmitted, the sequence number shall be 1; for the second order, it shall be 2; and so on. For example, the second OBR under a single PID would appear as |2|.

For VAERS reporting, OBR segments serve to name sections of the report. The set ID number for each OBR increases by one from the previous OBR-1. The example above indicates that this is the sixth OBR of the message.

OBR 7.3.1.4 Universal service ID (CE-200, Required) 00238

Definition: This field is the identifier code for the requested observation/test/battery.

For vaccine adverse event reporting purposes, this field is used to identify the item on the VAERS-1 (FDA) form for which information will follow in the OBX segments. Most OBR-4's have an assigned LOINC® code to specify the question on the VAERS form being addressed. Refer to *NIP Table 003 – Observation identifiers for VAERS reporting* for valid entries.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our ORU example, we use the first OBR to identify this message as a VAERS-1 (FDA) report. Subsequent OBR's name specific items to be reported in the associated OBX's.

OBR 7.3.1.7 Observation date/time (TS-26, Conditional) 00241

Definition: This field is the clinically relevant date/time of the observation. When the OBR is transmitted as part of a report message, the field must be valued.

For VAERS ORU reporting, this field should be valued in the first OBR of the message with the date the VAERS form was completed.

7.3.2 Observation/Result (OBX) Segment

Used to transmit an observation or observation fragment. It represents the smallest indivisible unit of a report. Its principal mission is to carry information about observations in report messages. The OBR, ORC, and OBX segments work together to provide a flexible structure for including detailed coded information. OBR gives general information about the details that will follow, ORC gives information on all services that are requested, while the OBX segment gives the specific, individual tests performed or report items (OBX-3) and the specific results for each test or answer for each report item (OBX-5). Vaccine adverse event reporting uses OBX-3 to state the subject of the information and OBX-5 to provide the specific related data.

OBX Attributes

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00569	Set ID-OBX
2	3	ID	C		0125	00570	Value type
3	80	CE	R			00571	Observation identifier*
4	20	ST	C			00572	Observation sub-ID
5	65536[1]	**	C	Y[2]		00573	Observation value
6	60	CE	O			00574	Units
7	60	ST	O			00575	Reference ranges
8	5	ID	O	Y/5	0078	00576	Abnormal flags
9	5	NM	O			00577	Probability
10	2	ID	O	Y	0080	00578	Nature of abnormal test
11	1	ID	R		0085	00579	Observ result status
12	26	TS	O			00580	Date last obs normal values
13	20	ST	O			00581	User defined access checks
14	26	TS	O			00582	Date/time of the observation
15	60	CE	O			00583	Producer's ID
16	80	XCN	O	Y		00584	Responsible observer
17	60	CE	O	Y		00936	Observation method

* For vaccine adverse event reporting, LOINC® codes are strongly recommended for OBX-3.

** The data type for OBX-5 can vary and is determined by OBX-2.

1 The length of the observation value field is variable, depending upon value type. See *OBX-2-value type*.

2 May repeat for multipart, single answer results with appropriate data types, e.g., CE, TX, and FT data types.

Example:

OBX|1|NM|30936-9^DTAP/DTP DOSE COUNT IN COMBINATION VACCINE^LN||4||||||F|<CR>
OBX|2|NM|30938-5^HAEMOPHILUS INFLUENZAE TYPE B (HIB) DOSE COUNT IN COMBINATION VACCINE^LN||4||||||F|<CR>

In these OBX segments, we report that this was the fourth dose of the DTAP/DTP component in the combination DTaP-Hib administered and the fourth dose of Hib as well.

7.3.2.0 OBX field definitions

Usage notes: There are two OBX fields that we do not anticipate that immunization registries will need to use, so we do not provide definitions for them here. These are OBX-12-13.

OBX 7.3.2.1 Set ID - observation simple (SI-4, Optional) 00569

Definition: This field contains the sequence number. Since OBX is a repeating segment in immunization messages, the number in this field will increase by one for each OBX used for a single RXA.

> SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

In our VXR #1 example, for the DTaP-Hib vaccine, we show the first and second sequence number for the two OBX segments.

In the VAERS example, the first OBX-1 after an OBR has the value of |1|. Each subsequent OBX-1 increases its number by one.

OBX 7.3.2.2 Value type (ID-3, Conditional) 00570

Definition: This field contains the data type which defines the format of the observation value in OBX-5. A full explanation of possible data types is given below so that users will have complete information. However, for immunization registries, this field will usually be CE, NM, ST, DT, or TS.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

Data types in OBX-2. This field must be a standard HL7-defined data type. It must be valued if *OBX-11-Observ result status* is not valued with an X, meaning no results can be obtained for this observation. If the value is CE then the result must be a coded entry. When the value type is TX or FT then the results are bulk text.

Although NM is a valid type, observations which are usually reported as numbers will sometimes have the string (ST) data type because non-numeric characters are often reported as part of the result, e.g., >300 to indicate the result was off-scale for the instrument. In the example, ">300", ">" is a symbol and the digits are considered a numeric value. However, this usage of the ST type should be discouraged since the SN (structured numeric) data type now accommodates such reporting and, in addition, permits the receiving system to interpret the magnitude. All HL7 data types are valid, except CM, CQ, SI, and ID. This is because, for a CM definition to have meaning, the specifics about the CM must be included in the field definition. *OBX-5-observation value* is a general field definition that is influenced by the data type *OBX-3*, so CMs are undefined in this context. CQ is invalid because units for *OBX-5-observation value* are always specified explicitly in an OBX segment with *OBX-6 units*. SI is invalid because it only applies to HL7 message segments, and ID because it requires a constant field definition. We allow the FT data type in the OBX segment but its use is discouraged. Formatted text usually implies a meaningful structure e.g., a list of three independent diagnoses reported on different lines. But ideally, the structure in three independent diagnostic statements would be reported as three separate OBX segments. TX should **not** be used except to send large amounts of text. In the TX data type, the repeat delimiter can only be used to identify paragraph breaks. Use ST to send short, and possibly encodable, text strings.

In our VXR and VAERS examples, each OBX occurrence of this field is valued appropriately to represent the data type of the expected value in OBX-5.

OBX 7.3.2.3 Observation identifier (CE-80, Required) 00571

Definition: This field contains a unique identifier for the observation, or the thing being reported. The format is that of the Coded Element (CE). Example:

OBX|9|CE|30963-3^Vaccine purchased with^LN||PBF^Public funds^NIP008||||||F|<CR>...

…in which 30963-3 is a LOINC® code (with the name of this system coded in the third component as LN) for the subject of the observation, in this case “vaccine purchased with.”

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXR #1 example, we have valued this field to show what observation will be reported in OBX-5. For example, following the RXA segment showing the administration of a DTaP vaccine, OBX-3 and 5 show the VIS publication date and the date the VIS was presented to the patient. Following the RXA segment showing the administration of a DTaP-Hib combination vaccine, OBX-3 and 5 indicate the individual dose numbers of each vaccine component. Following the RXA segment showing the

administration of the second MMR, the OBX-3 and 5 show the report of an adverse event. For the results of the tuberculosis test, we use an OBX segment to show a measurement of the reaction.

For reporting of adverse events, OBX-3 is valued with the LOINC® code that represents the subject of the information being given in OBX-5. Refer to *NIP Table 003 – Observation identifiers for VAERS reporting* for valid coded entries for VAERS reports. In both VAERS reports and vaccine due next reporting, we use the combining rule described in Section 7.1.2 of HL7's Version 2.3.1 to combine a general code with a more specific one to arrange information in a hierarchy. An example is shown below at OBX 7.3.2.4.

OBX 7.3.2.4 Observation sub-ID (ST-20, Conditional) 00572

Definition: This field is used to distinguish between multiple OBX segments with the same observation ID. For example, a chest X-ray report might include three separate diagnostic impressions. The standard requires three OBX segments, one for each impression. By putting a 1 in the Sub-ID of the first of these OBX segments, 2 in the second, and 3 in the third, we can uniquely identify each OBX segment for editing or replacement. The sub-identifier can be further extended by adding decimals (e.g., 2.1, 2.2).

The use of the sub ID to distinguish repeating OBXs for the same observation ID uses the sub ID to group related subdivisions of information within the overall observation category. Its use must be carefully structured to avoid introducing ambiguities.

In our VXR #2 example, we have valued this field as "1" in the first set of 5 OBX segments and as "2" in the second set.

OBX|1|CE|30979-9^Vaccine due next^LN|1|20^DTAP^CVXI|||||F|<CR>
OBX|2|TS|30979-9&30980-7^Date vaccine due^LN|1|19900807I|||||F|<CR>
OBX|3|NM|30979-9&30973-2^Vaccine due next dose number^LN|1|01|||||FI<CR>
OBX|4|TS|30979-9&30981-5^Earliest date to give^LN|1|19900803I|||||F|<CR>
OBX|5|CE|30979-9&30982-3^Reason applied by forecast logic to project this vaccine^LN|1|^ACIP schedule||||||F|<CR>
OBX|6|CE|30979-9^Vaccines due next, Vaccine type^LN|2|08^Hep B, pediatric^CVX|||||||F|<CR>
OBX|7|TS|30979-9&30980-7^Date vaccine due^LN|2|19900722||||||F|<CR>
OBX|8|NM|30979-9&30973-2^Vaccine due next dose number^LN|2|1||||||F|<CR>
OBX|9|TS|30979-9&30981-5^Earliest date to give^LN|2|19900722||||||F|<CR>
OBX|10|CE|30979-9&30982-3^Reason applied by forecast logic to project this vaccine^LN|2|^ACIP schedule||||||F|<CR>

(continues on next page)

Some information about combination vaccines (vaccines that contain multiple component antigens) can be specific to an individual vaccine component. For example, there can be separate VIS statements for each vaccine component. In the example below the combination vaccine has two component vaccines. The RXA segment describes the entire combination vaccine and does not have a value in the Observation sub-ID. Following the RXA, the first set of 5 OBX segments describes one vaccine component so all have the value "1" in the Observation sub-ID. The next set of 5 OBX segments describes another vaccine component so all have the value "2" in the Observation sub-ID.

RXA|0|1|19901207|19901207|51^HepB-HIB^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN ^ROBERT^A^^DR^MD|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W22532806|19901230|MSD^MERCK^MVX||||<CR>
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|45^HEP B, NOS^CVX||||||F|<CR>
OBX|2|TS|38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|1|20010711||||||F|<CR>
OBX|3|TS|38890-0&29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|1|19901207||||||F|<CR>
OBX|4|ST|38890-0&30973-2^Dose number in series^LN|1|3||||||F|<CR>
OBX|5|ST|38890-0&30959-1^LOT^LN|1|MY85542||||||F|<CR>
OBX|6|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|17^HIB,NOS^CVX||||||F|<CR>
OBX|7|TS|38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|2|19981216||||||F|<CR>
OBX|8|TS|38890-0&29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|2|19901207||||||F|<CR>
OBX|9|ST|38890-0&30973-2^Dose number in series^LN|2|1||||||F|<CR>
OBX|10|ST|38890-0&30959-1^LOT^LN|2|WP95441||||||F|<CR>

The following is a simplified example that illustrates specifically how "Dose number in series" should be portrayed for a combination vaccine using the Observation sub-ID to group the OBX segments for each component vaccine type. Note the use of LOINC® codes 38890-0&30973-2 for every component vaccine dose number in series. This is preferred over the previous method for portraying "dose count in combination vaccine" which used a different LOINC® code for each component vaccine and which lacked a code for the dose count for the Polio vaccine component of a combination vaccine.

RXA|0|1|19901207|19901207|110^DTAP/Polio/Hep B^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN ^ROBERT^A^^DR^MD|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||AC21A016AA|19901230|SKB^SKB^MVX||||<CR>
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|107^DTAP, NOS^CVX||||||F|<CR>
OBX|2|ST|38890-0&30973-2^Dose number in series^LN|1|2||||||F|<CR>
OBX|3|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|89^Polio, NOS^CVX||||||F|<CR>
OBX|4|ST|38890-0&30973-2^Dose number in series^LN|2|2||||||F|<CR>
OBX|5|CE|38890-0^COMPONENT VACCINE TYPE^LN|3|45^HEP B, NOS^CVX||||||F|<CR>
OBX|6|ST|38890-0&30973-2^Dose number in series^LN|3|3||||||F|<CR>

(continues on next page)

OBX 7.3.2.5 Observation value (User-assigned, Conditional, Repeating) 00573

Definition: This field contains the value observed. *OBX-2-value type* contains the data type for this field according to how the observation value is formatted. It is not a required field because some systems will report only normalcy/abnormalcy (*OBX-8*), especially in product experience reporting. This field contains the value of, or amount reported, or response to *OBX-3-observation identifier* of the same segment. Depending upon the observation, the data type may be a number (e.g., a respiratory rate), a coded answer (e.g., a pathology impression recorded as a SNOMED™ code), or a date/time (the date/time that a unit of blood is sent to the ward). An observation value is always represented as the data type specified in *OBX-2-value type* of the same segment.

This example is from the list of OBX's in section 7.3.2.4 above, where OBX-2 indicates that a numeric data type (NM) will be used in OBX-5 to provide the value of the subject named in OBX-3. In this example, the vaccine due next dose number is "1."

OBX|8|NM|30979-9&30973-2^Vaccine due next dose number^LN|2|1||||||F|<CR>

In our VXR #1 example, we give several demonstrations of use of this field: 1) to show that the VIS publication date for DTaP was June 5, 1990; 2) that the VIS was presented to the patient on December 7, 1990; and 3) that this is the fourth dose of DTaP and the fourth dose of Hib in the combination vaccine. For the second MMR, this field shows anaphylaxis as the adverse event. For the results of the tuberculosis test, we show a measurement of 1 mm.

(continues on next page)

For VAERS reporting, the same rules apply--the OBX-5 provides the specific data in response to the topic specified in the OBX-3. The data must be formatted according to the data type named in OBX-2.

OBX 7.3.2.6 Units (CE-60, Optional) 00574

Definition: This field contains the units for the observation value in OBX-5. The default value is ISO+abbreviation, as defined.

> The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
>
> <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
> <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>
>
> CE data type components are defined as follows:
> (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
> (2) Text (ST). Name or description of the item in question.
> (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
> (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our VXR #1 example, we show the units to be millimeters.

OBX 7.3.2.7 References range (ST-60, Optional) 00575

Definition: When the observation quantifies the amount of a toxic substance, then the upper limit of the range identifies the toxic limit. If the observation quantifies a drug, the lower limits identify the lower therapeutic bounds and the upper limits represent the upper therapeutic bounds above which toxic side effects are common.

If numeric, the values of this field may report several values in one of the following three formats:

a) lower limit-upper limit (when both lower and upper limits are defined, e.g., for potassium 3.5 - 4.5)
b) > lower limit (if no upper limit, e.g., >10)
c) < upper limit (if no lower limit, e.g., <15)

If alphabetical, the normal value may be reported in this location.

In our examples, we have not valued this field.

OBX 7.3.2.8 Abnormal flags (ID-5, Optional, Repeating) 00576

Definition: This field contains a table lookup indicating the normalcy status of the result. Refer to *HL7 Table 0078 - Abnormal flags* for valid entries.

> The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our VXR #1 example, we show the reaction to the tuberculosis test to be normal.

OBX 7.3.2.9 Probability (NM-5, Optional) 00577

Definition: This field contains the probability of a result being true for results with categorical values. It mainly applies to discrete coded results. It is a decimal number represented as an ASCII string that must be between 0 and 1, inclusive.

In our examples, we have not valued this field.

OBX 7.3.2.10 Nature of abnormal test (ID-2, Optional, Repeating) 00578

Definition: This field contains the nature of the abnormal test.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

OBX 7.3.2.11 Observation result status (ID-1, Required) 00579

Definition: This field contains the observation result status. Refer to *HL7 Table 0085 - Observation result status codes interpretation* for valid values. This field reflects the current completion status of the results for data contained in the *OBX-5-observation value* field. It is a required field. Previous versions of HL7 stated this implicitly by defining a default value of "F."

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our VXR #1 example, we have valued all OBX-11 fields as F for final.

OBX 7.3.2.14 Date-time of the observation (TS-26, Optional) 00582

Definition: Records the time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

In our VXR #1 example of results of the tuberculosis test, we show the date of observation as April 18, 1990.

OBX 7.3.2.15 Producer's ID (CE-60, Optional) 00583

Definition: Contains a unique identifier of the responsible producing service.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:
<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:
(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

OBX 7.3.2.16 Responsible observer (XCN-80, Optional, Repeating) 00584

Definition: This field contains the identifier of the individual directly responsible for the observation (the person who either performed or verified it).

Components of the XCN data type: <ID number (ST)>^<family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

In our examples, we have not valued this field.

OBX 7.3.2.17 Observation method (CE-60, Optional, Repeating) 00936

Definition: Used to transmit the method or procedure by which an observation was obtained.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined as follows:

(1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
(2) Text (ST). Name or description of the item in question.
(3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

2.24.15 **Notes and Comments (NTE) Segment**

The NTE segment is defined as a common format for sending notes and comments.

NTE Attributes

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00096	Set ID-NTE
2	8	ID	O		0105	00097	Source of comment
3	64k	FT	O	Y		00098	Comment
4	60	CE	O			01318	Comment type

Example:
NTE|||PATIENT DEVELOPED HIGH FEVER APPROX 3 HRS AFTER VACCINE INJECTION|<CR>

In this NTE segment, we show a comment about the patient's reaction to the vaccination.

2.24.15.0 NTE field definitions

NTE 2.24.15.1 Set ID - NTE (SI-4, Optional) 00096

Definition: This field may be used when multiple NTE segments are included in a message.

SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

In our examples, we have not valued this field.

NTE 2.24.15.2 Source of comment (ID-8, Optional) 00097

Definition: This field is used to identify source of comment. *HL7 Table 0105 - Source of Comment* is used, but may be extended locally during implementation.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

NTE 2.24.15.3 Comment (FT-64k, Optional, Repeating) 00098

Definition: This field contains the comment contained in the segment.

Note: The FT data type without embedded formatting commands is compatible with the previous TX data type.

In our VXR example, this comment field shows that the VAERS form was submitted by the provider.

NTE 2.24.15.4 Comment type (CE-60, Optional) 01318

Definition: This field identifies the type of comment text. Allowable values are user-defined, but may include the following: PI - Patient Instruction, HS - Historical Record Comment. A separate NTE segment can be used for each type of comment (e.g., instructions on one NTE and remarks on another NTE).

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

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

CE data type components are defined in Appendix 2, 2.8.3.

In our examples, we have not valued this field.

3.2 PATIENT ADMINISTRATION MESSAGE DEFINITIONS

Use of the Optional Admission/Discharge, Transfer (ADT) Segments

The HL7 standard defines many specialized ADT messages for administrative events dealing with patients; e.g., admit, discharge, transfer, merge record. The VXU message can be used for adding a person or additional information about the person, so ADT messages are not necessary for registries to communicate with each other. However, intercommunicating private providers and immunization registries may decide to use the ADT message when there is no immunization information, especially when the communicating partner already has implemented the ADT but not the VXU. The challenge for registries becomes to identify which ADT messages to use. There are 51 different ADT messages distinguished from each other by 51 different trigger event codes.

At this writing, the set of ADT messages most likely to be needed by registries is not yet fully bounded. Registries are accepting the messages sent by their communicating partners. Registries may receive extra messages that they are not interested in, in which case it will need to handle them appropriately.

2.3.1 ADT messages currently identified and accepted by registries include (by event code):

A01 (admit/visit notification)
A04 (register a patient)
A05 (pre-admit a patient)
A08 (update patient information)
A18 (merge patient information)
A28 (add person information)
A31 (update person information)
A47 (change patient identifier list)

As registry experience with ADT grows, this section of this document will be further refined.

3.2.28 **Admission/Discharge/Transfer and Acknowledgment (ADT/ACK) - add person information (event A28)**

Definition: The A28 event can be used to send everything that is known about a person. An A28 (add person information) or A31 (update person information) can also be used for back loading MPI information for the person, or for back loading all person and historical information from one system to another.

ADT^A28	ADT Message	HL7 Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[{ NK1 }]	Next of Kin /Associated Parties	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info.	3
[{ DB1 }]	Disability Information	3
[{ OBX }]	Observation/Result	7
[{ AL1 }]	Allergy Information	3
[{ DG1 }]	Diagnosis Information	6
[DRG]	Diagnosis Related Group	6
[{ PR1	Procedures	6
[{ROL}]	Role	12
}]		
[{ GT1 }]	Guarantor	6
[		
{ IN1	Insurance	6
[IN2]	Insurance Additional Info.	6
[{IN3}]	Insurance Add'l Info - Cert.	6
}		
]		
[ACC]	Accident Information	6
[UB1]	Universal Bill Information	6
[UB2]	Universal Bill 92 Information	6

ACK	General Acknowledgment	HL7 Chapter
MSH	Message Header	2
MSA	Message Acknowledgment	2
[ERR]	Error	2

3.2.29 **Admission/Discharge/Transfer and Acknowledgment (ADT/ACK) -delete person information (event A29)**

Definition: An A29 event can be used to delete all demographic information related to a given person. This event "undoes" an A28 (add person information) event. The information from the A28 event is deleted. This event is used, for example, when information was added in error, or when another record already exists for the person, or when one wants to purge the person from the database. When this event occurs, all visit and account level data for this person is also purged.

ADT^A29	ADT Message	HL7 Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Demographics	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info.	3
[{ DB1 }]	Disability Information	3
[{ OBX }]	Observation/Result	7

3.2.30 **Admission/Discharge/Transfer and Acknowledgment (ADT/ACK) -merge person information (event A30)**

Definition: An A30 event can be used to merge person information in an MPI. An A30 (merge person information) is intended for merging person records without merging patient identifiers.

ADT^A30	ADT Message	HL7 Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Demographics	3
MRG	Merge Information	3

3.2.31 **Admission/Discharge/Transfer and Acknowledgment (ADT/ACK) -update person information (event A31)**

Definition: An A31 event can be used to update person information in an MPI. An A31 (update person information) or A28 (add person information) can also be used for back loading MPI information for the person, or for back loading all person and historical information from one system to another.

The syntax for this message is identical to the ADT^A28 and is not repeated here.

3.3.1 **Event Type (EVN) Segment**

Used to communicate necessary trigger event information to receiving applications.

EVN Attributes

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	3	ID	B		0003	00099	Event type code
2	26	TS	R			00100	Recorded date/time
3	26	TS	O			00101	Date/time planned event
4	3	IS	O		0062	00102	Event reason code
5	60	XCN	O	Y	0188	00103	Operator ID
6	26	TS	O			01278	Event occurred

3.3.1.0 EVN field definitions

Usage notes: We did not use the EVN segment in our examples, but do provide field definitions here for reference.

EVN 3.3.1.1 Event type code (ID-3, Backwards Compatibility) 0 0099

Definition: This field has been retained for backward compatibility only. Immunization registries will use the second component (trigger event) of MSH-9 to transmit event type code.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

EVN 3.3.1.2 Recorded date/time (TS-26, Required) 00100

Definition: Most systems will default to the system date/time when the transaction is entered, but they may permit an override.

Time stamp (TS) data type must be in the format:

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

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

EVN 3.3.1.3 Date/time planned event (TS-26, Optional) 00101

Definition: The date/time the event is planned.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

EVN 3.3.1.4 Event reason code (IS-3, Optional) 00102

Definition: The reason for this event . Refer to *User-defined Table 0062 - Event reason* for suggested values.

The IS data type follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values.

EVN 3.3.1.5 Operator ID (XCN-60, Optional, Repeating) 00103

Definition: The individual responsible for triggering the event. Refer to *User-defined Table 0188 – Operator ID* for suggested values. Each immunization registry will maintain its own reference table for these values.

Components of the XCN data type: <ID number (ST)>^<family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility: <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)>

EVN 3.3.1.6 Event occurred (TS-26, Optional) 01278

Definition: The date/time that the event actually occurred.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Note: The optional degree of precision component is retained for backward compatibility only. Immunization registries will not value this component.

3.3.8 **Merge Patient Information (MRG) Segment**

The MRG segment provides receiving applications with information necessary to initiate the merging of patient data as well as groups of records.

MRG Attributes

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	20	CX	R	Y		00211	Prior patient identifier list
2	20	CX	O	Y		00212	Prior alternate patient ID
3	20	CX	O			00213	Prior patient account number
4	20	CX	O			00214	Prior patient ID
5	20	CX	O			01279	Prior visit number
6	20	CX	O			01280	Prior alternate visit ID
7	48	XPN	O	Y		01281	Prior patient name

3.3.8.0 MRG field definitions

Usage notes: The assigning authority, the fourth component of the patient identifiers, is an HD data type that is uniquely associated with the assigning authority that originally assigned the number. A group of intercommunicating institutions, such as immunization registries, may establish a list of assigning authorities to serve as a master dictionary list. The assigning authority must be unique across applications at a given site. This field is required in HL7 implementations that have more than a single Patient Administration application assigning such numbers.

We did not use the MRG segment in our examples, but do provide field definitions here for reference.

MRG 3.3.8.1 Prior patient identifier list (CX-20, Required, Repeating) 00211

Definition: This field contains the internal prior patient identifier. This field contains a list of potential "old" numbers to match. Only one old number can be merged with one new number in a transaction.

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

(1) ID number (ST)

(2) Check digit (ST) (The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.)

(3) Code identifying check digit scheme employed (ID) Refer to *HL7 Table 0061 - Check digit scheme* for valid values.

(4) Assigning authority (HD)
Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)>

(5) Identifier type code (IS)
A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.

(6) Assigning facility (HD)
Definition: The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

MRG 3.3.8.2 Prior alternate patient ID (CX-20, Optional, Repeating) 00212

Definition: This field contains the prior alternate patient identifier.

MRG 3.3.8.3 Prior patient account number (CX-20, Optional) 00213

Definition: This field contains the prior patient account number.

MRG 3.3.8.4 Prior patient ID (CX-20, Optional) 00214

Definition: This field contains the prior patient identifier.

MRG 3.3.8.5 Prior visit number (CX-20, Optional) 01279

Definition: This field contains the internal prior visit number.

MRG 3.3.8.6 Prior alternate visit number (CX-20, Optional) 01280

Definition: This field contains the prior alternate visit number.

MRG 3.3.8.7 Prior patient name (XPN-48, Optional, Repeating) 01281

Definition: This field contains the prior name of the patient. This field is not used to change a patient name.

XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>

For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

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APPENDIX 1: Code Tables

NOTE: Where only selected values are listed for HL7 tables, please refer to the HL7 Standard for complete listings. In this appendix, values are selected from standard code sets where available. Values that are assigned by NIP are italicized.

User-defined Table 0001 - Sex [values suggested by HL7] (use in PID-8, NK1-15)

Value	Description
F	Female
M	Male
O	Other
U	Unknown

HL7-defined Table 0003 - Event type [only selected values listed] (use in MSH-9, second component)

Value	Description
A28	ADT/ACK - Add person information
A29	ADT/ACK - Delete person information
A30	ADT/ACK - Merge person information
A31	ADT/ACK - Update person information
V01	VXQ - Query for vaccination record
V02	VXX - Response to vaccination query returning multiple PID matches
V03	VXR - Vaccination record response
V04	VXU - Unsolicited vaccination record update
R01	ORU – Observation results (Unsolicited)

User-defined Table 0004 - Patient class [values suggested by HL7] (use in PV1-2)

Value	Description
E	Emergency
I	Inpatient
O	Outpatient
P	Preadmit
R	Recurring Patient
B	Obstetrics

User-defined Table 0005 - Race [These values are consistent with the OMB Notice of revised categories for collection of race and ethnicity data—the combined format.] (use in PID-10, NK1-35)

US race codes (included in HL7 Version 2.4) (entire hierarchical set of codes at http://www.cdc.gov/od/hissb/docs/Race-EthnicityCodeSet.pdf)	Description	NIP original race codes	Description
1002-5	American Indian or Alaska Native	I	American Indian or Alaska Native
2028-9	Asian	A	Asian or Pacific Islander
2076-8	Native Hawaiian or Other Pacific Islander	A	Asian or Pacific Islander
2054-5	Black or African-American	B	Black or African-American
2106-3	White	W	White
2135-2	Hispanic or Latino	H	Hispanic
2186-5	not Hispanic or Latino	N	
2131-1	Other Race	O	Other
	Unknown	U	Unknown

HL7-defined Table 0008 - Acknowledgment code (use in MSA-1)

Value	Description
AA	Original mode: Application Accept Enhanced mode: Application acknowledgment: Accept
AE	Original mode: Application Error Enhanced mode: Application acknowledgment: Error
AR	Original mode: Application Reject Enhanced mode: Application acknowledgment: Reject
CA	Enhanced mode: Accept acknowledgment: Commit Accept
CE	Enhanced mode: Accept acknowledgment: Commit Error
CR	Enhanced mode: Accept acknowledgment: Commit Reject

User-defined Table 0010 - Physician ID (use in all XCN data types; including PV1-7,8,9,17, RXA-10) [locally-defined] Each registry should establish a system of coding its reporting physicians. The National Provider Identifier (NPI) adopted for the HIPAA legislation may be used for this purpose.

HL7-defined Table 0048 - What subject filter [only selected values listed] (use in QRD-9)

Value	Description
VXI	Vaccine Information

HL7-defined Table 0061 - Check digit scheme (use in all CX data types; including PID-2,3,4,18,21)

Value	Description
M10	Mod 10 algorithm
M11	Mod 11 algorithm
ISO	ISO 7064: 1983
NPI	Check digit algorithm in the US National Provider Identifier

User-defined Table 0062 - Event reason [values suggested by HL7; *with NIP-suggested additions*] (use in EVN-4)

Value	Description
01	Patient request
02	Physician order
03	Census management
04	*Add person data to immunization registry*
05	*Delete person data from immunization registry*
06	*Update person data in immunization registry*
07	*Merge person data in immunization registry*

User-defined Table 0063 - Relationship [as defined in HL7's Version 2.4] (use in NK1-3, IN1-17, IN2-62)

Value	Description
ASC	Associate
BRO	Brother
CGV	Care giver
CHD	Child
DEP	Handicapped dependent
DOM	Life partner
EMC	Emergency contact
EME	Employee
EMR	Employer
EXF	Extended family
FCH	Foster child
FND	Friend
FTH	Father

Value	Description
GCH	Grandchild
GRD	Guardian
GRP	Grandparent
MGR	Manager
MTH	Mother
NCH	Natural child
NON	None
OAD	Other adult
OTH	Other
OWN	Owner
PAR	Parent
SCH	Stepchild
SEL	Self
SIB	Sibling
SIS	Sister
SPO	Spouse
TRA	Trainer
UNK	Unknown
WRD	Ward of court
Codes for VAERS reporting only	
VAB	*Vaccine administered by (Name)*
FVP	*Form completed by (Name)--Vaccine provider*
FPP	*Form completed by (Name)--Patient/Parent*
FMN	*Form completed by (Name)—Manufacturer*
FOT	*Form completed by (Name)—Other*

User-defined Table 0064 - Financial class [*NIP suggested values*] (use in PV1-20)

Value	Description
VFC eligibility codes	
V00	*VFC eligibility not determined/unknown*
V01	*Not VFC eligible*
V02	*VFC eligible - Medicaid/Medicaid Managed Care*
V03	*VFC eligible – Uninsured*
V04	*VFC eligible – American Indian/Alaskan Native*
V05	*VFC eligible – Federally Qualified Health Center Patient (under-insured)*
V06	*VFC eligible - State-specific eligibility (e.g., S-CHIP plan)*
V07	*VFC eligible - Local-specific eligibility*
S-CHIP eligibility codes	
CH00	*S-CHIP coverage-not VFC eligible*
CH01	*S-CHIP coverage-separate from Medicaid-not VFC eligible*
CH02	*S-CHIP coverage-combination of Medicaid and separate-not VFC eligible*

Health plan type codes	
H01	*Self pay*
H02	*Medicaid (may be called by state-specific name, e.g., Medi-Cal)*
H03	*Third party or private insurance*
Insured status	
IS00	*Some or all vaccine costs covered*
IS01	*Underinsured (no vaccine costs covered and not FQC/RHC)*
State program codes *- state specific; use state 2-letter abbreviation plus a number for the value; see example below*	
e.g., NY01	*e.g., IHAP eligible*

HL7-defined Table 0076 - Message type [only selected values listed] (use in MSH-9, first component)

Value	Description
ACK	General acknowledgment
ADR	ADT response
ADT	ADT message
QCK	Query general acknowledgment
VXQ	Query for vaccination record
VXX	Vaccination query response with multiple PID matches
VXR	Vaccination query record response
VXU	Unsolicited vaccination record update
ORU	Unsolicited observation results

HL7-defined Table 0078 - Abnormal flags [only selected values listed] (use in OBX-8)

Value	Description
L	Below low normal
H	Above high normal
LL	Below lower panic limits
HH	Above upper panic limits
N	Normal (applies to non-numeric results)
A	Abnormal (applies to non-numeric results)
AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)

HL7-defined Table 0085 - Observation result status codes interpretation (use in OBX-11)

Value	Description
C	Record coming over is a correction and thus replaces a final result
D	Deletes the OBX record
F	Final results; Can only be changed with a corrected result
I	Specimen in lab; results pending
N	Not asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought
O	Order detail description only (no result)
P	Preliminary results
R	Results entered - not verified
S	Partial results
X	Results cannot be obtained for this observation
U	Results status change to Final without retransmitting results already sent as 'preliminary.' e.g., radiology changes status from preliminary to final
W	Post original as wrong; e.g., transmitted for wrong patient

HL7-defined Table 0091 - Query priority (use in QRD-3)

Value	Description
D	Deferred
I	Immediate

HL7-defined Table 0102 - Delayed acknowledgment type (use in MSA-5)

Value	Description
D	Message received, stored for later processing
F	Acknowledgment after processing

HL7-defined Table 0103 - Processing ID (use in MSH-11)

Value	Description
D	Debugging
P	Production
T	Training

HL7-defined Table 0104 - Version ID (use in MSH-12)

Value	Description
2.0	Release 2.0 September 1988
2.0D	Demo 2.0 October 1988
2.1	Release 2.1 March 1990
2.2	Release 2.2 December 1994
2.3	Release 2.3 March 1997
2.3.1	Release 2.3.1 May 1999
2.4	Release 2.4 October 2000

HL7-defined Table 0105 - Source of comment (use in NTE-2)

Value	Description
L	Ancillary (filler) department is source of comment
P	Orderer (placer) is source of comment
O	Other system is source of comment

HL7-defined Table 0106 - Query/Response format code (use in QRD-2)

Value	Description
D	Response is in display format
R	Response is in record-oriented format
T	Response is in tabular format

HL7-defined Table 0107 - Deferred response type (use in QRD-5)

Value	Description
B	Before the date/time specified
L	Later than the date/time specified

HL7-defined Table 0108 - Query results level (use in QRD-12)

Value	Description
O	Order plus order status
R	Results without bulk text
S	Status only
T	Full results

HL7-defined Table 0119 – Order Control Codes (use in ORC-1)

Value	Description
OK	Order accepted & OK
RE	Observations to follow

HL7-defined Table 0126 - Quantity limited request (use in QRD-7)

Value	Description
CH	Characters
LI	Lines
PG	Pages
RD	Records
ZO	Locally defined

HL7-defined Table 0136 - Yes/No indicator (use in PID-24,30; PD1-12)

Value	Description
Y	Yes
N	No
“”<null>	Not obtained (when used by immunization registries as defined in PD1-12)
U	*Unknown*

HL7-defined Table 0155 - Accept/Application acknowledgment conditions (use in MSH-15 and 16)

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

HL7-defined Table 0162 - Route of administration [only selected values listed] (use in RXR-1)

Value	Description
ID	Intradermal
IM	Intramuscular
IN	Intranasal
IV	Intravenous
PO	Oral
OTH	Other/Miscellaneous
SC	Subcutaneous
TD	Transdermal

HL7-defined Table 0163 - Administrative site [only selected values listed] (use in RXR-2)

Value	Description
LT	Left Thigh
LA	Left Arm
LD	Left Deltoid
LG	Left Gluteous Medius
LVL	Left Vastus Lateralis
LLFA	Left Lower Forearm
RA	Right Arm
RT	Right Thigh
RVL	Right Vastus Lateralis
RG	Right Gluteous Medius
RD	Right Deltoid
RLFA	Right Lower Forearm

User-defined Table 0188 - Operator ID (use in EVN-5) [locally-defined]

User-defined Table 0189 - Ethnic Group [These values are consistent with the OMB Notice of revised categories for collection of race and ethnicity data and with HL7's Version 2.4] (use in PID-22, NK1-28)

US ethnicity codes	HL7 Version 2.4 ethnicity codes	NIP's original temporary values (obsolete)	Description
2135-2	H	H	Hispanic or Latino
2186-5	N	NH	not Hispanic or Latino
	U		Unknown

HL7-defined Table 0190 - Address type (use in all XAD data types; including PID-11)

Value	Description
C	Current or temporary
P	Permanent
M	Mailing
B	Firm/Business
O	Office
H	Home
N	Birth (nee)
F	Country of origin
L	Legal address
BDL	Birth delivery location [*use for birth facility*]
BR	Residence at birth [*use for residence at birth*]
RH	Registry home
BA	Bad address

HL7-defined Table 0200 - Name type (use in all XCN, XPN data types; including PID-5, 6, 9)

Value	Description
A	Alias name
L	Legal name
D	Display name
M	Maiden name
C	Adopted name
B	Name at birth
P	Name of partner/spouse
U	Unspecified

HL7-defined Table 0201 - Telecommunication use code (use in all XTN data types; including PID-13,14)

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

HL7-defined Table 0202 - Telecommunication equipment type (use in all XTN data types; including PID-13,14)

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

User-defined Table 0203 - Identifier type [values suggested by HL7; *with NIP-suggested additions*] (use in all CX, XCN type codes; including PID-2,3,4,18,21 and RXA-10)

Value	Description
AM	American Express
AN	Account Number
ANON	Anonymous Identifier
BR	Birth Registry Number
DI	Diner's Club Card
DL	Driver's License Number
DN	Doctor Number
DS	Discover Card
EI	Employee Number
EN	Employer Number
FI	Facility Identifier
GI	Guarantor Internal Identifier
GN	Guarantor External Identifier
LN	License Number
LR	Local Registry ID
MS	MasterCard
MA	Medicaid Number
MC	Medicare Number
MR	Medical Record Number
NE	National Employer Identifier
NH	National Health Plan Identifier
NI	National Unique Individual Identifier
NPI	National Provider Identifier
PI	Patient Internal Identifier
PN	Person Number
PRN	Provider Number
PT	Patient External Identifier
RRI	Regional Registry ID
RR	Railroad Retirement Number
SL	State License
SR	State Registry ID
SS	Social Security Number
U	Unspecified
UPIN	Medicare/CMS's Universal Physician ID Numbers
VS	VISA
VN	Visit Number
WC	WIC Identifier
XX	Organization Identifier
VEI	*Vaccinator Employee Number*
OEI	*Orderer Employee Number*
REI	*Recorder Employee Number*

User-defined Table 0204 - Organizational name type [values suggested by HL7] (use in all XON data types)

Value	Description
A	Alias name
L	Legal name
D	Display name
SL	Stock exchange listing name

HL7-defined Table 0207 - Processing mode (use in MSH-11)

Value	Description
A	Archive
R	Restore from archive
I	Initial load
T	Current processing, transmitted at intervals (scheduled or on demand)
<blank>	Not present (the default, meaning *current* processing)

User-defined Table 0208 - Query response status [values suggested by HL7] (use in QAK-2)

Value	Description
OK	Data found, no errors (this is the default)
NF	No data found, no errors
AE	Application error
AR	Application reject

HL7-defined Table 0211 - Alternate character sets [only selected values listed] (use in MSH-18)

Value	Description
ASCII	The printable 7-bit ASCII character set (This is the default if this field is omitted)

User-defined Table 0212 - Nationality [ISO 3166 is suggested by HL7; this table shows selected values only. Note that the table reflects only 3-letter codes. Two-letter and numeric codes are also available.] Full ISO 3166 country codes set is available at: ftp://ftp.ripe.net/iso3166-countrycodes.txt. Note: CDC has permission to disseminate certain ISO 3166 codes as a Federal agency that does not require applications to interchange data internationally and that are not involved in national defense programs or with the mission of the U.S. Department of State. (use in PID-28; also use for country code in all XAD data types)

Value	Description
CAN	Canada
MEX	Mexico
USA	United States
UMI	United States Minor Outlying Islands

User-defined Table 0215 - Publicity code [*values suggested by NIP*] (use in PD1-11)

Value	Description
01	*No reminder/recall*
02	*Reminder/recall - any method*
03	*Reminder/recall - no calls*
04	*Reminder only - any method*
05	*Reminder only - no calls*
06	*Recall only - any method*
07	*Recall only - no calls*
08	*Reminder/recall - to provider*
09	*Reminder to provider*
10	*Only reminder to provider, no recall*
11	*Recall to provider*
12	*Only recall to provider, no reminder*

User-defined Table 0220 - Living arrangement [values suggested by HL7; *with NIP-suggested additions*] (use in NK1-21)

Value	Description
A	Alone
F	Family
I	Institution
R	Relative
U	Unknown
S	Spouse only
W	*With patient*
N	*Not with patient*

User-defined Table 0222 - Contact reason [*values suggested by NIP*] (use in NK1-29)

Value	Description
RR	*NK1 is reminder/recall contact for immunization registry*
PC	*NK1 is responsible for patient care*

HL7-defined Table 0227 - Manufacturers of vaccines (code = MVX) (use in RXA-17) The table below represents the July 2006 version of the MVX code set. The CDC's National Center for Immunization and Respiratory Diseases (NCIRD) maintains the HL7 external code set MVX. The implementation of the HL7 standard for immunization data exchange is described in Chapter 4 of the HL7 standard. The codes in HL7 Version 2.3 table 0227 represent the initial content of the external MVX code set. This document represents the most up-to-date version of the MVX code set. See Website for further updates. http://www.cdc.gov/nip/registry/st_terr/tech/stds/hl7-cvx.htm

(alphabetized by manufacturer name)

Code	Vaccine Manufacturer/Distributor
AB	Abbott Laboratories *(includes Ross Products Division)*
AD	Adams Laboratories, Inc.
ALP	Alpha Therapeutic Corporation
AR	Armour [**Inactive – use AVB**]
AVB	Aventis Behring L.L.C. *(formerly Centeon L.L.C.; includes Armour Pharmaceutical Company)* [**Inactive – use ZLB**]
AVI	Aviron
BA	Baxter Healthcare Corporation [**Inactive – use BAH**]
BAH	Baxter Healthcare Corporation *(includes Hyland Immuno, Immuno International AG, and North American Vaccine, Inc.)*
BAY	Bayer Corporation *(includes Miles, Inc., and Cutter Laboratories)*
BP	Berna Products [**Inactive – use BPC**]
BPC	Berna Products Corporation *(includes Swiss Serum and Vaccine Institute Berne)*
MIP	Bioport Corporation *(formerly Michigan Biologic Products Institute)*
CNJ	Cangene Corporation
CMP	Celltech Medeva Pharmaceuticals [**Inactive – use NOV**]
CEN	Centeon L.L.C. [**Inactive – use AVB**]
CHI	Chiron Corporation **[Inactive – use NOV]** Includes PowderJect Pharmaceuticals, Celltech Medeva Vaccines and Evans Medical Limited
CON	Connaught [**Inactive – use PMC**]
DVC	DynPort Vaccine Company, LLC
EVN	Evans Medical Limited [**Inactive – use NOV**]
GEO	GeoVax Labs, Inc.
SKB	GlaxoSmithKline *(formerly SmithKline Beecham; includes SmithKline Beecham and Glaxo Wellcome)*
GRE	Greer Laboratories, Inc.
IAG	Immuno International AG [**Inactive – use BAH**]
IUS	Immuno-U.S., Inc.
KGC	Korea Green Cross Corporation
LED	Lederle [**Inactive – use WAL**]
MBL	Massachusetts Biologic Laboratories *(formerly Massachusetts Public Health Biologic Laboratories)*
MA	Massachusetts Public Health Biologic Laboratories [**Inactive – use MBL**]
MED	MedImmune, Inc.
MSD	Merck & Co., Inc.
IM	Merieux [**Inactive – use PMC**]
MIL	Miles [**Inactive – use BAY**]
NAB	NABI *(formerly North American Biologicals, Inc.)*
NYB	New York Blood Center
NAV	North American Vaccine, Inc. [**Inactive – use BAH**]
NOV	Novartis Pharmaceutical Corporation *(includes Chiron, PowderJect Pharmaceuticals, Celltech Medeva Vaccines and Evans Limited, Ciba-Geigy Limited and Sandoz Limited)*
NVX	Novavax, Inc.
OTC	Organon Teknika Coporation
ORT	Ortho-clinical Diagnostics *(formerly Ortho Diagnostic Systems, Inc.)*
PD	Parkedale Pharmaceuticals *(formerly Parke-Davis)*
PWJ	PowderJect Pharmaceuticals *(includes Celltech Medeva Vaccines and Evans Medical Limited)*

	[**Inactive – use NOV**]
PRX	Praxis Biologics [**Inactive – use WAL**]
JPN	The Research Foundation for Microbial Diseases of Osaka University (BIKEN)
PMC	sanofi pasteur *(formerly Aventis Pasteur, Pasteur Merieux Connaught; includes Connaught Laboratories and Pasteur Merieux)*
SCL	Sclavo, Inc.
SOL	Solvay Pharmaceuticals
SI	Swiss Serum and Vaccine Inst. [**Inactive – use BPC**]
TAL	Talecris Biotherapeutics (includes Bayer Biologicals)
USA	United States Army Medical Research and Material Command
VXG	VaxGen
WA	Wyeth-Ayerst [**Inactive – use WAL**]
WAL	Wyeth-Ayerst *(includes Wyeth-Lederle Vaccines and Pediatrics, Wyeth Laboratories, Lederle Laboratories, and Praxis Biologics)*
ZLB	ZLB Behring (includes Aventis Behring and Armour Pharmaceutical Company)
OTH	Other manufacturer
UNK	Unknown manufacturer

NOTE: The MVX table reflects name changes and changes in corporate status. Where there have been company mergers/acquisitions, the affected old codes have been labeled "inactive. Where mergers/acquisitions have left the original company(ies) substantially intact, the original code remains so that Immunization Information Systems (IIS) and other users may not need to modify historical immunization records or internal tables for manufacturer names.

User-defined Table 0288 - Census tract (use in all XAD; including PID-11)
For information about identifying census tracts, see <www.census.gov/geo/www/tractez.html>.

User-defined Table 0289 - County/parish (use in all XAD; including PID-11)
A complete list of FIPS 6-4 county codes is available at <www.itl.nist.gov/div897/pubs/fip6-4.htm>. According to the FIPS guidance, the 2-letter state code (available at <www.itl.nist.gov/div897/pubs/fip5-2.htm>) plus the numeric county code should be used (e.g., AZ001 represents Apache County, Arizona and AL001 represents Autauga County, Alabama).

HL7-defined Table 0292 - Codes for Vaccines administered (code=CVX) (use in RXA-5)
NOTE: parenteral unless otherwise specified. The table below represents the June 2006 version of the CVX code set. New codes are added as needed; therefore, see the most current version of this code set at the website Web site: http://www.cdc.gov/nip/registry/st_terr/tech/stds/hl7-cvx.htm
The CDC's National Center for Immunization and Respiratory Diseases (NCIRD) maintains the HL7 external code set CVX. The implementation of the HL7 standard for immunization data exchange is described in Chapter 4of the HL7 standard. The codes in HL7 Version 2.3 table 0292, represented the initial content of the external CVX code set. Since vaccines have to be added to this table more quickly than new versions of HL7 are released, this document represents the most up-to-date version of the CVX code set. Items have been added. Others have been added for planning purposes, pending FDA approval.

CVX – Vaccines Administered

Code	Short Description	Full Vaccine Name
54	adenovirus, type 4	adenovirus vaccine, type 4, live, oral
55	adenovirus, type 7	adenovirus vaccine, type 7, live, oral
82	adenovirus, NOS[1]	adenovirus vaccine, NOS
24	anthrax	anthrax vaccine
19	BCG	Bacillus Calmette-Guerin vaccine
27	botulinum antitoxin	botulinum antitoxin
26	cholera	cholera vaccine
29	CMVIG	cytomegalovirus immune globulin, intravenous
56	dengue fever	dengue fever vaccine
12	diphtheria antitoxin	diphtheria antitoxin
28	DT (pediatric)	diphtheria and tetanus toxoids, adsorbed for pediatric use
20	DTaP	diphtheria, tetanus toxoids and acellular pertussis vaccine
106	DTaP, 5 pertussis antigens[6]	diphtheria, tetanus toxoids and acellular pertussis vaccine, 5 pertussis antigens
107	DTaP, NOS	diphtheria, tetanus toxoids and acellular pertussis vaccine, NOS
110	DTaP-Hep B-IPV	DTaP-hepatitis B and poliovirus vaccine
50	DTaP-Hib	DTaP-*Haemophilus influenzae* type b conjugate vaccine
120	DTaP-Hib-IPV	diphtheria, tetanus toxoids and acellular pertussis vaccine, *Haemophilus influenzae* type b conjugate, and poliovirus vaccine (DTaP-Hib-IPV)
01	DTP	diphtheria, tetanus toxoids and pertussis vaccine
22	DTP-Hib	DTP-*Haemophilus influenzae* type b conjugate vaccine
102	DTP-Hib-Hep B	DTP-*Haemophilus influenzae* type b conjugate and hepatitis b vaccine
57	hantavirus	hantavirus vaccine
52	Hep A, adult	hepatitis A vaccine, adult dosage
83	Hep A, ped/adol, 2 dose	hepatitis A vaccine, pediatric/adolescent dosage, 2 dose schedule
84	Hep A, ped/adol, 3 dose	hepatitis A vaccine, pediatric/adolescent dosage, 3 dose schedule
31	Hep A, pediatric, NOS	hepatitis A vaccine, pediatric dosage, NOS
85	Hep A, NOS	hepatitis A vaccine, NOS
104	Hep A-Hep B	hepatitis A and hepatitis B vaccine
30	HBIG	hepatitis B immune globulin
08	Hep B, adolescent or pediatric	hepatitis B vaccine, pediatric or pediatric/adolescent dosage
42	Hep B, adolescent/high risk	hepatitis B, adolescent/high risk infant dosage

	infant[2]	
43	Hep B, adult[4]	hepatitis B vaccine, adult dosage
44	Hep B, dialysis	hepatitis B vaccine, dialysis patient dosage
45	Hep B, NOS	hepatitis B vaccine, NOS
58	Hep C	hepatitis C vaccine
59	Hep E	hepatitis E vaccine
60	herpes simplex 2	herpes simplex virus, type 2 vaccine
46	Hib (PRP-D)	*Haemophilus influenzae* type b vaccine, PRP-D conjugate
47	Hib (HbOC)	*Haemophilus influenzae* type b vaccine, HbOC conjugate
48	Hib (PRP-T)	*Haemophilus influenzae* type b vaccine, PRP-T conjugate
49	Hib (PRP-OMP)	*Haemophilus influenzae* type b vaccine, PRP-OMP conjugate
17	Hib, NOS	*Haemophilus influenzae* type b vaccine, conjugate NOS
51	Hib-Hep B	*Haemophilus influenzae* type b conjugate and Hepatitis B vaccine
61	HIV	human immunodeficiency virus vaccine
118	HPV, bivalent	human papilloma virus vaccine, bivalent
62	HPV, quadrivalent	human papilloma virus vaccine, quadrivalent
86	IG	immune globulin, intramuscular
87	IGIV	immune globulin, intravenous
14	IG, NOS	immune globulin, NOS
111	influenza, live, intranasal	influenza virus vaccine, live, attenuated, for intranasal use
15	influenza, split (incl. purified surface antigen)	influenza virus vaccine, split virus (incl. purified surface antigen)
16	influenza, whole	influenza virus vaccine, whole virus
88	influenza, NOS	influenza virus vaccine, NOS
10	IPV	poliovirus vaccine, inactivated
02	OPV	poliovirus vaccine, live, oral
89	polio, NOS	poliovirus vaccine, NOS
39	Japanese encephalitis	Japanese encephalitis vaccine
63	Junin virus	Junin virus vaccine
64	leishmaniasis	leishmaniasis vaccine
65	Leprosy	leprosy vaccine
66	Lyme disease	Lyme disease vaccine
03	MMR	measles, mumps and rubella virus vaccine
04	M/R	measles and rubella virus vaccine
94	MMRV	measles, mumps, rubella, and varicella virus vaccine
67	malaria	malaria vaccine
05	measles	measles virus vaccine
68	melanoma	melanoma vaccine
32	meningococcal	meningococcal polysaccharide vaccine (MPSV4)
103	meningococcal C conjugate	meningococcal C conjugate vaccine
114	meningococcal A,C,Y,W-135 diphtheria conjugate	meningococcal polysaccharide (groups A, C, Y and W-135) diphtheria toxoid conjugate vaccine (MCV4)
108	meningococcal, NOS	meningococcal vaccine, NOS
07	mumps	mumps virus vaccine
69	parainfluenza-3	parainfluenza-3 virus vaccine
11	pertussis	pertussis vaccine
23	plague	plague vaccine
33	pneumococcal	pneumococcal polysaccharide vaccine
100	pneumococcal conjugate	pneumococcal conjugate vaccine, polyvalent

109	pneumococcal, NOS	pneumococcal vaccine, NOS
70	Q fever	Q fever vaccine
18	rabies, intramuscular injection	rabies vaccine, for intramuscular injection
40	rabies, intradermal injection	rabies vaccine, for intradermal injection
90	rabies, NOS	rabies vaccine, NOS
72	rheumatic fever	rheumatic fever vaccine
73	Rift Valley fever	Rift Valley fever vaccine
34	RIG	rabies immune globulin
119	rotavirus, monovalent	rotavirus, live, monovalent vaccine
122	rotavirus, NOS[1]	rotavirus vaccine, NOS
116	rotavirus, pentavalent	rotavirus, live, pentavalent vaccine
74	rotavirus, tetravalent	rotavirus, live, tetravalent vaccine
71	RSV-IGIV	respiratory syncytial virus immune globulin, intravenous
93	RSV-MAb	respiratory syncytial virus monoclonal antibody (palivizumab), intramuscular
06	rubella	rubella virus vaccine
38	rubella/mumps	rubella and mumps virus vaccine
76	Staphylococcus bacterio lysate	Staphylococcus bacteriophage lysate
113	Td (adult)	tetanus and diphtheria toxoids, adsorbed, preservative free, for adult use
09	Td (adult)	tetanus and diphtheria toxoids, adsorbed for adult use
115	Tdap	tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine, adsorbed
35	tetanus toxoid	tetanus toxoid, adsorbed
112	tetanus toxoid, NOS	tetanus toxoid, NOS
77	tick-borne encephalitis	tick-borne encephalitis vaccine
13	TIG	tetanus immune globulin
95	TST-OT tine test	tuberculin skin test, old tuberculin, multipuncture device
96	TST-PPD intradermal	tuberculin skin test, purified protein derivative, intradermal
97	TST-PPD tine test	tuberculin skin test, purified protein derivative, multipuncture device
98	TST, NOS	tuberculin skin test, NOS
78	tularemia vaccine	tularemia vaccine
91	typhoid, NOS	typhoid vaccine, NOS
25	typhoid, oral	typhoid vaccine, live, oral
41	typhoid, parenteral	typhoid vaccine, parenteral, other than acetone-killed, dried
53	typhoid, parenteral, AKD (U.S. military)	typhoid vaccine, parenteral, acetone-killed, dried (U.S. military)
101	typhoid, ViCPs	typhoid Vi capsular polysaccharide vaccine
75	vaccinia (smallpox)	vaccinia (smallpox) vaccine
105	vaccinia (smallpox) diluted	vaccinia (smallpox) vaccine, diluted
79	vaccinia immune globulin	vaccinia immune globulin
21	varicella	varicella virus vaccine
81	VEE, inactivated	Venezuelan equine encephalitis, inactivated
80	VEE, live	Venezuelan equine encephalitis, live, attenuated
92	VEE, NOS	Venezuelan equine encephalitis vaccine, NOS
36	VZIG	varicella zoster immune globulin
117	VZIG (IND)	varicella zoster immune globulin (Investigational New Drug)
37	yellow fever	yellow fever vaccine
121	zoster	zoster vaccine, live
998	no vaccine administered[5]	no vaccine administered
999	unknown	unknown vaccine or immune globulin

99	RESERVED – do not use[3]	RESERVED – do not use

Usage Notes:

1. NOS=not otherwise specified; avoid using NOS codes except to record historical records that lack the indicated specificity.
2. As of August 27, 1998, Merck ceased distribution of their adolescent/high risk infant hepatitis B vaccine dosage. Code 42 should only be used to record historical records. For current administration of hepatitis B vaccine, pediatric/adolescent dosage, use code 08.
3. Code 99 will not be used in this table to avoid confusion with code 999.
4. As of September 1999, a 2-dose hepatitis B schedule for adolescents (11-15 year olds) was FDA approved for Merck's Recombivax HB® adult formulation. Use code 43 for both the 2-dose and the 3-dose schedules.
5. Code 998 was added for use in VXR and VXU HL7 messages where the OBX segment is nested with the RXA segment, but the message does not contain information about a vaccine administration. An example of this use is to report the vaccines due next for a patient when no vaccine administration is being reported.
6. As of May 2002, the FDA approved Aventis Pasteur's DTaP Daptacel for use in the U.S. Aventis Pasteur also manufactures the DTaP vaccine Tripedia. Daptacel contains 5 pertussis antigens, while Tripedia contains 2 pertussis antigens. To distinguish between the two Aventis Pasteur DTaP vaccines, dose 106 was added to represent Daptacel. Use code 106 for Daptacel and code 20 for Tripedia and other DTaP vaccines

User-defined Table 0296 - Language [ISO 639 suggested by HL7; selected 2-letter values listed from ISO 639:1988; The full set of ISO 639 Language Codes is available for purchase from <www.ansi.org>. Where ISO 2-letter codes are not available, 3-letter codes are given from the *Ethnologue*, available at <www.sil.org/ethnologue/>.] (use in PID-15)

Value	Description
ASE	American Sign Language
Ar	Arabic
Hy	Armenian
Bn	Bengali
Km	Cambodian (Khmer)
CJD	Chamorro
YUH	Chinese, Cantonese
Zh	Chinese, Mandarin
Hr	Croatian
Cs	Czech
Nl	Dutch
En	English
Fa	Farsi (Persian)
Fr	French
De	German
el	Greek
hi	Hindi
BLU	Hmong
hu	Hungarian
ILO	Ilocano
id	Indonesian
it	Italian
ja	Japanese
ko	Korean
lo	Laotian
pl	Polish
pt	Portuguese
ro	Romanian
ru	Russian
sm	Samoan
sr	Serbian

Value	Description
sk	Slovak
so	Somali
es	Spanish
tl	Tagalog
th	Thai
to	Tongan
uk	Ukranian
ur	Urdu
vi	Vietnamese
yi	Yiddish
OTH	*Other (must add text component of the CE field with description)*

User-defined Table 0297 - CN ID source (use in all XCN data types) [locally-defined]

User-defined Table 0300 - Namespace ID (use in all EI, HD data types)
[locally-defined]

HL7-defined Table 0301 - Universal ID type (use in all HD data types)

Value	Description
DNS	An Internet dotted name -- either in ASCII or as integers.
GUID	Same as UUID.
HCD	The CEN Healthcare Coding Scheme Designator. (Identifiers used in DICOM follow this assignment scheme.)
HL7	Reserved for future HL7 registration schemes.
ISO	An International Standards Organization Object Identifier.
L,M,N	These are reserved for locally defined coding schemes.
Random	Usually a base64 encoded string of random bits. The uniqueness depends on the length of the bits. Mail systems often generate ASCII string “unique names,” from a combination of random bits and system names. Obviously, such identifiers will not be constrained to the base64 character set.
UUID	The DCE Universal Unique Identifier.
x400	An X.400 MHS format identifier.
x500	An X.500 directory name.

HL7-defined Table 0322 - Completion status (use in RXA-20)

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

HL7-defined Table 0323 - Action code (use in RXA-21)

Value	Description
A	Add
D	Delete
U	Update

HL7-defined Table 0354 - Message structure [only selected values listed] (use in MSH-9, third component)

Value	Events
ADT A01	A01, A04, A05, A08, A13, A14, A28, A31
ADT A02	A02, A21, A22, A23, A25, A26, A27, A29, A32, A33
ADT A30	A30, A34, A35, A36, A46, A47, A48, A49
VXQ V01	V01
VXR V03	V03
VXU V04	V04
VXX V02	V02
ORU R01	R01

HL7-defined Table 0356 - Alternate character set handling scheme (use in MSH-20)

Value	Description
ISO 2022-1994	This standard is titled “Information Technology - Character Code Structure and Extension Technique.” This standard specifies an escape sequence from basic one byte character set to specified other character set, and vice versa. The escape sequence explicitly specifies what alternate character set is to be evoked...This value is allowed only for HL7 v. 2.3.1.
2.3	The character set switching mode specified in HL7 2.3, sections 2.8.28.6.1 and 2.9.2. Note that the escape sequences used in this mode are “HL7 escape sequences” as defined in HL7 2.3, sec. 2.9, and do not use the ASCII “esc” character, as defined in ISO 2022-1994.
<null>	This is the default, indicating that there is no character set switching occurring in this message.

HL7-defined Table 0357 - Message error status codes (use in ERR-1)

Status code	Status text	Description/Comment
Success		
0	Message accepted	Success. Optional, as the AA conveys this. Used for systems that must always return a status code.
Error status codes		
100	Segment sequence error	The message segments were not in the proper order or required segments are missing.
101	Required field missing	A required field is missing from the segment.
102	Data type error	The field contained data of the wrong data type, e.g., an NM field contained letters of the alphabet.
103	Table value not found	A field of data type ID or IS was compared against the corresponding table, and no match was found.
Rejection status codes		
200	Unsupported message type	The Message type is not supported.
201	Unsupported event code	The Event Code is not supported.
202	Unsupported processing ID	The Processing ID is not supported.
203	Unsupported version ID	The Version ID is not supported.
204	Unknown key identifier	The ID of the patient, order, etc. was not found. Used for transactions *other* than additions, e.g., transfer of a non-existent patient.
205	Duplicate key identifier	The ID of the patient, order, etc. already exists. Used in response to addition transactions (Admit, New Order, etc.).
206	Application record locked	The transaction could not be performed at the application storage level, e.g., database locked.
207	Application internal error	A catchall for internal errors not explicitly covered by other codes.

User-defined Table 0360 - Degree [selected values suggested by HL7; *with NIP-suggested additions—these will be included in HL7 Version 2.5*] (use in all XPN data types, including PID-5, 6, 9)

Value	Description
PN	*Advanced Practice Nurse*
AA	Associate of Arts
AS	Associate of Science
BA	Bachelor of Arts
BN	Bachelor of Nursing
BS	Bachelor of Science
BSN	*Bachelor of Science in Nursing*
CER	Certificate
CANP	*Certified Adult Nurse Practitioner*
CMA	*Certified Medical Assistant*
CNP	*Certified Nurse Practitioner*
CNM	*Certified Nurse Midwife*
CNA	*Certified Nurse's Assistant*
CRN	*Certified Registered Nurse*
CNS	*Certified Nurse Specialist*
CPNP	*Certified Pediatric Nurse Practitioner*
DIP	Diploma
PHD	Doctor of Philosophy
MD	Doctor of Medicine
DO	Doctor of Osteopathy
EMT	*Emergency Medical Technician*
EMT-P	*Emergency Medical Technician – Paramedic*
FPNP	*Family Practice Nurse Practitioner*
HS	High School Graduate
JD	Juris Doctor
LPN	*Licensed Practical Nurse*
MA	Master of Arts
MBA	Master of Business Administration
MPH	*Master of Public Health*
MS	Master of Science
MSN	*Master of Science – Nursing*
MDA	*Medical Assistant*
MT	*Medical Technician*
NG	Non-Graduate
NP	*Nurse Practitioner*
PharmD	*Doctor of Pharmacy*
PA	*Physician Assistant*
PHN	*Public Health Nurse*
RMA	*Registered Medical Assistant*
RN	*Registered Nurse*
RPH	*Registered Pharmacist*
SEC	Secretarial Certificate
TS	Trade School Graduate

User-defined Table 0396 – Coding system [only selected values listed] [From HL7 Standard, Version 2.4] (Use in CE data types to denote the coding system used for coded values)

Value	Description
99zzz or L	Local general code (where z is an alphanumeric character)
ART	WHO Adverse Reaction Terms
C4	CPT-4
C5	CPT-5
CDCA	CDC Analyte Codes
CDCM	CDC Methods/Instruments Codes
CDS	CDC Surveillance
CPTM	CPT Modifier Code
CST	COSTART
CVX	CDC Vaccine Codes
E	EUCLIDES
E5	Euclides quantity codes
E6	Euclides Lab method codes
E7	Euclides Lab equipment codes
ENZC	Enzyme Codes
HB	HIBCC
HCPCS	HCFA Common Procedure Coding System
HHC	Home Health Care
HL7nnnn	HL7 Defined Codes where nnnn is the HL7 table number
HPC	HCFA Procedure Codes (HCPCS)
I10	ICD-10
I10P	ICD-10 Procedure Codes
I9	ICD9
I9C	ICD-9CM
ISOnnnn	ISO Defined Codes where nnnn is the ISO table number
LB	Local billing code
LN	Logical Observation Identifier Names and Codes (LOINC®)
MCD	Medicaid
MCR	Medicare
MEDR	Medical Dictionary for Drug Regulatory Affairs (MEDDRA)
MVX	CDC Vaccine Manufacturer Codes
NDC	National drug codes
NPI	National Provider Identifier
SNM	Systemized Nomenclature of Medicine (SNOMED®)
SNM3	SNOMED International
SNT	SNOMED topology codes (anatomic sites)
UML	Unified Medical Language
UPC	Universal Product Code
UPIN	UPIN
W1	WHO record # drug codes (6 digit)
W2	WHO record # drug codes (8 digit)
W4	WHO record # code with ASTM extension
WC	WHO ATC

User-defined Table 0441 - Immunization registry status (Similar to previous Table NIP006 – Patient registry status) (use in PD1-16) [HL7 assigned table number 0441 in Version 2.4]

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

HL7-defined Table 4000 - Name/address representation (use in all XPN, XAD data types) (PID-5, 6, 9, 11)

Value	Description
I	Ideographic (e.g., Kanji)
A	Alphabetic (e.g., Default or some single-byte)
P	Phonetic (e.g., ASCII, Katakana, Hirigana, etc.)

NIP-defined NIP001 - Immunization information source (use in RXA-9)

Value	Description
00	*New immunization record*
01	*Historical information - source unspecified*
02	*Historical information - from other provider*
03	*Historical information - from parent's written record*
04	*Historical information - from parent's recall*
05	*Historical information - from other registry*
06	*Historical information - from birth certificate*
07	*Historical information - from school record*
08	*Historical information - from public agency*

NIP-defined NIP002 - Substance refusal reason (use in RXA-18)

Value	Description
00	*Parental decision*
01	*Religious exemption*
02	*Other (must add text component of the CE field with description)*
03	*Patient decision*

NIP-defined NIP003 - Observation identifiers (use in OBX-3)

LOINC® Code	Description	Corresponding data type (indicate in OBX-2)	Corresponding observation value ***EXAMPLE*** OR code table to use (value in OBX-5)
Dose Number for Combination Vaccines - Use in OBX-3 to indicate that OBX-5 value will be the dose number for a component of a combination vaccine. Used when dose numbers are different for the component antigens. **The use of these codes is discouraged.** Note that there is no code for "Polio dose count in combination vaccine". It is preferred that LOINC® codes 38890-0&30973-2, which do not have that limitation, be used instead; see the section of this table for "Vaccine Component (of a combination vaccine)".			
30936-9	DTaP/DTP dose count in combination vaccine	*(NM)*	***4***
30937-7	Hepatitis B dose count in combination vaccine	*(NM)*	***3***
30938-5	Haemophilus influenzae B dose count in combination vaccine	*(NM)*	***2***
30939-3	Measles dose count in combination vaccine	(NM)	***2***
30940-1	MMR dose count in combination vaccine	(NM)	***2***
30941-9	Mumps dose count in combination vaccine	(NM)	***2***
30942-7	Rubella dose count in combination vaccine	(NM)	***2***
30943-5	Varicella dose count in combination vaccine	(NM)	***2***
Contraindications, Precautions, and Immunities			
30946-8	Vaccination contraindication/precaution effective date	(DT)	***19970522***
30944-3	Vaccination temporary contraindication/precaution expiration date	(DT)	***19990523***
30945-0	Vaccination contraindication/precaution	(CE)	NIP-defined Table NIP004
31044-1	Reaction	(CE)	Locally defined
Vaccine Information Statement (VIS) Dates			
29768-9	Date Vaccine Information Statement Published	(TS)	***19900605***
29769-7	Date Vaccine Information Statement Presented	(TS)	***199307311615***
Vaccine Component (of a combination vaccine)			
38890-0	Component Vaccine Type [38890-0 is the top level of this item description. Sub-components of this field are represented by a combination of this LOINC® code and a subcomponent LOINC® code, joined by an "&."]	(CE)	HL70292 (CVX codes – use the codes described as "NOS" as needed.)
29768-9	38890-0&29768-9 – Date Vaccine Information Statement Published	(TS)	***19900605***
30973-2	38890-0&30973-2 -- Dose number in series	(NM)	***2***
30959-1	38890-0&30959-1 – Lot [This can be used for a combination vaccine that comes in a package containing separate vials that must be mixed prior to administration. The package has a lot # which should appear in the RXA segment. The component vial within the package may have its own lot # which is different.]	(ST)	***Y706QB110***

LOINC® Code	Description	Corresponding data type (indicate in OBX-2)	Corresponding observation value ***EXAMPLE*** OR code table to use (value in OBX-5)
Vaccines Due Next			
30979-9	Vaccines due next [30979-9 is the top level of this item description. Sub-components of this field are represented by a combination of this LOINC® code and a subcomponent LOINC® code, joined by an "&."]	(CE)	HL70292 (CVX)
30980-7	30979-9&30980-7 – Date vaccine due	(TS)	***19980526***
30973-2	30979-9&30973-2 -- Vaccine due next dose number	(NM)	***1***
30981-5	30979-9&30981-5 – Earliest date to give	(TS)	***19980522***
30982-3	30979-9&30982-3 – Reason applied by forecast logic to project this vaccine	(CE) or (ST)	Codes for forecast logic reason locally defined.
Vaccine Adverse Event Reporting System (VAERS) - For additional information about VAERS, including a copy of the VAERS Form, see <www.cdc.gov/nip/vaers.htm> or <www.fda.gov/cber/vaers/vaers.htm>. *(In this document, also see 7.2.1 (pages 13-17) Unsolicited Transmission of an Observation (ORU), Example VAERS ORU Message)*			
30947-6	Date form completed (VAERS Form Item #6)	(TS)	***20010316***
30948-4	Vaccination adverse event(s)(symptoms, signs, time course) and treatment, if any (VAERS Form Item #7)	(FT)	***Fever of 106F, with vomiting, seizures, etc.***
30949-2	Vaccination adverse event outcome (VAERS Form Item #8)	(CE)	NIP-defined Table NIP005
30950-0	Number of days hospitalized due to vaccination adverse event (VAERS Form Item #8)	(NM)	***02***
30951-8	Patient recovered (VAERS Form Item #9)	(CE)	HL7 table HL70136
30952-6	Date and time of vaccination (VAERS Form Item #10)	(TS)	***20010216***
30953-4	Vaccination adverse event onset date and time (VAERS Form Item #11)	(TS)	***20011021080900***
30954-2	Relevant diagnostic tests/laboratory data (VAERS Form Item #12)	(FT)	***Electrolytes, CBC, Blood Culture***
30955-9	All vaccines given on date listed in no. 10 (VAERS Form Item #13) [30955-9 represents the VAERS form item description. Sub-components of this field are represented by a combination of this LOINC® code and a subcomponent LOINC® code, joined by an "&."]		*see 7.2.1 (pages 13-17) Unsolicited Transmission of an Observation (ORU), See Example VAERS ORU Message, and items below*
30956-7	a) 30955-9&30956-7 Vaccine type	(CE)	HL7 table HL70292 (CVX)
30957-5	b) 30955-9&30957-5 Vaccine manufacturer	(CE)	HL7 table HL70227 (MVX)
30959-1	c) 30955-9&30959-1 Lot	(ST)	***A119PZY06022000***
30958-3	d) 30955-9&30958-3 Vaccine route	(CE)	HL7 table HL70162
31034-2	e) 30955-9&31034-2 Vaccine site	(CE)	HL7 table HL70163
30960-9	f) 30955-9&30960-9 Number of previous doses	(NM)	***01***
30961-7	Any other vaccinations within 4 weeks prior to the date listed in no.10		See below

LOINC® Code	Description	Corresponding data type (indicate in OBX-2)	Corresponding observation value ***EXAMPLE*** OR code table to use (value in OBX-5)
	[30961-7 represents the VAERS form item description. Sub-components of this field are represented by a combination of this LOINC® code and a subcomponent LOINC® code, joined by an "&."]		
30956-7	a) 30961-7&30956-7 Vaccine type	(CE)	HL7 table HL70292 (CVX)
30957-5	b) 30961-7&30957-5 Vaccine manufacturer	(CE)	HL7 table HL70227(MVX)
30959-1	c) 30961-7&30959-1 Lot number	(ST)	***KJM903XS8902Z***
30958-3	d) 30961-7&30958-3 Vaccine route	(CE)	HL7 table HL70162
31034-2	e) 30961-7&31034-2 Vaccine site	(CE)	HL7 table HL70163
30960-9	f) 30961-7&30960-9 Number of previous doses	(NM)	***01***
31035-9	g) 30961-7&31035-9 Date given	(TS)	***20010216***
30962-5	Vaccinated at (VAERS Form Item #15)	(CE)	NIP table NIP007
30963-3	Vaccine purchased with (VAERS Form Item #16)	(CE)	NIP table NIP008
30964-1	Other medications (patient was receiving at time of vaccination) (VAERS Form Item #17)	(FT)	***None***
30965-8	Illness present at time of vaccination (VAERS Form Item #18)	(FT)	***None***
30966-6	Pre-existing physician-diagnosed allergies, birth defects, medical conditions (VAERS Form Item #19)	(FT)	***Past conditions convulsions***
30967-4	Adverse event reported previously (VAERS Form Item #20)	(CE)	NIP table NIP009
30968-2	Adverse event following prior vaccination in patient (VAERS Form Item #21) [30968-2 represents the VAERS form item description. Sub-components of this field are represented by a combination of this LOINC® code and a subcomponent LOINC® code, joined by an "&."]		see below
30971-6	a) 30968-2&30971-6 -- Adverse event	(FT)	***None***
30972-4	b) 30968-2&30972-4 -- Onset age	(NM)	***05***
30956-7	c) 30968-2&30956-7 -- Vaccine type	(CE)	HL7 table HL70292 (CVX)
30973-2	d) 30968-2&30973-2 -- Dose number in series	(NM)	***02***
35286-4	Adverse event following prior vaccination in sibling #1 (VAERS Form Item #21) [35286-4 represents the VAERS form item description. Sub-components of this field are represented by a combination of this LOINC® code and a subcomponent LOINC® code, joined by an "&."]		See below
30971-6	a) 35286-4&30971-6 -- Adverse event	(FT)	***Vomiting, fever, otitis media***
30972-4	b) 35286-4&30972-4 -- Onset age	(NM)	***04 (mo)***
30956-7	c) 35286-4&30956-7 -- Vaccine type	(CE)	HL7 table HL70292 (CVX))

LOINC® Code	Description	Corresponding data type (indicate in OBX-2)	Corresponding observation value ***EXAMPLE*** OR code table to use (value in OBX-5)
30973-2	d) 35286-4&30973-2 -- Dose number in series	(NM)	***02***
35286-4	Adverse event following prior vaccination in sibling #2 (VAERS Form Item #21) [35286-4 represents the VAERS form item description. Sub-components of this field are represented by a combination of this LOINC® code and a subcomponent LOINC® code, joined by an "&."]		See below ***(Note: No Adverse Event took place in this instance for sibling #2: therefore the None, and N/A/ notes below apply.)***
30971-6	a) 35286-4&30971-6 -- Adverse event	(FT)	***None***
30972-4	b) 35286-4&30972-4 -- Onset age	(NM)	***N/A (no Adverse Event)***
30956-7	c) 35286-4&30956-7 -- Vaccine type	(CE)	***N/A (no Adverse Event)*** (HL7 table HL70292 (CVX))
30973-2	d) 35286-4&30973-2 -- Dose number in series	(NM)	***N/A (no Adverse Event)***
8339-4	Birth weight at birth(VAERS Form Item #22)	(NM)	***82 (oz)*** (HL7 Figure 7-11, ANSI+unit codes)
30974-0	Number of brothers and sisters (VAERS Form Item #23)	(NM)	***2***
30975-7	Manufacturer/immunization project report No. (VAERS Form Item #24)	(ST)	***12345678*** *(only for reports submitted by mfr or immunization project- applies to this item and also three items belowt)*
30976-5	Date received by manufacturer/immunization project (VAERS Form Item #25)	(TS)	***20010320***
30977-3	15 day report (VAERS Form Item #26)		***N (No)*** (HL7 table HL70136)
30978-1	Report type (VAERS Form Item #27)		***I (Initial)*** (NIP table NIP010)

NIP-defined NIP004 - Contraindications, Precautions, and Immunities [Descriptions and explanations are summarized from Appendix A of the January 2002 *Epidemiology and Prevention of Vaccine-Preventable Diseases.* For more detail, see the appropriate ACIP recommendations at www.cdc.gov/nip/publications/ACIP-list.htm. This list also includes suggested codes by immunization registry representatives.] (use in OBX-5 when OBX-3 is valued as LOINC® code 30945-0, Vaccination contraindication/precaution)

Value	Description	Explanation
01	*recipient condition - unspecified*	
02	*household condition - unspecified*	
03	*allergy to baker's yeast (anaphylactic)*	*contraindicates Hep B*
04	*allergy to egg ingestion (anaphylactic)*	
05	*allergy to gelatin (anaphylactic)*	*extreme caution for MMR & varicella*
06	*allergy to neomycin (anaphylactic)*	*contraindicates IPV, MMR & varicella*
07	*allergy to streptomycin (anaphylactic)*	*contraindicates IPV*
08	*allergy to thimerosal (anaphylactic)*	
09	*allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)*	*contraindicates that vaccine*
10	*anaphylactic (life-threatening) reaction to previous dose of this vaccine or any of its components*	*contraindicates that vaccine*
11	*collapse or shock like state within 48 hours of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
12	*convulsions (fits, seizures) within 72 hours of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
13	*persistent, inconsolable crying lasting ≥3 hours within 48 hours of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
14	*current diarrhea, moderate to severe*	*contraindicates vaccination temporarily (until illness resolves)*
15	*encephalopathy within 7 days of previous dose of DTP or DTaP*	*contraindicates DTP/DTaP permanently*
16	*current fever with moderate-to-severe illness*	*contraindicates vaccination temporarily (until illness resolves)*
17	*fever of ≥40.5°C (105°F) within 48 hours of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
18	*Guillain-Barré syndrome (GBS) within 6 weeks of previous dose of DTP/DTaP*	*precaution for DTP/DTaP*
~~*19 [inactive-use 36*~~	~~*HIV infection (in household contact)*~~	~~*contraindicates OPV*~~
~~*20 [inactive-use 36*~~	~~*HIV infection (in recipient)*~~	~~*contraindicates OPV & VZV*~~
21	*current acute illness, moderate to severe (with or without fever) (e.g., diarrhea, otitis media, vomiting)*	*contraindicates vaccination temporarily (until illness resolves)*
22	*chronic illness (e.g., chronic gastrointestinal disease)*	*decide to vaccinate on an individual basis*
23	*recent or simultaneous administration of an antibody-containing blood product (immune globulin)*	*precaution for MMR & varicella*
24	*immunity: diphtheria*	
25	*immunity: Haemophilus influenzae type B (Hib)*	
26	*immunity: hepatitis B*	
27	*immunity: measles*	
28	*immunity: mumps*	
29	*immunity: pertussis*	
30	*immunity: poliovirus*	
31	*immunity: rubella*	
32	*immunity: tetanus*	

Value	Description	Explanation
33	*immunity: varicella (chicken pox)*	
~~*34*~~ [inactive-use 36	~~*immunodeficiency (family history)*~~	~~*contraindicates OPV & VZV unless immune status of recipient and other children in the family is documented*~~
~~*35*~~ [inactive-use 36	~~*immunodeficiency (household contact)*~~	~~*contraindicates OPV*~~
36	*immunodeficiency due to any cause, including HIV (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppressive therapy, including steroids)*	*contraindicates ~~OPV~~, MMR & varicella*
37	*underlying unstable, evolving neurologic disorders, (including seizure disorders, cerebral palsy, and developmental delay)*	*precaution for DTP/DTaP*
38	*otitis media (ear infection) moderate to severe (with or without fever)*	*contraindicates vaccination temporarily (until illness resolves)*
39	*pregnancy (in recipient)*	*contraindicates MMR & varicella*
40	*thrombocytopenia*	*precaution for MMR*
41	*thrombocytopenic purpura (history)*	*precaution for MMR*
42	*other contraindication/precaution/immunity not listed (must add text component of the CE field with description)*	
43	*unknown (valid only for historical immunizations)*	

NIP-defined NIP005 - Event consequence [adapted from HL7-defined Table 0240] (use in OBX-5 when OBX-3 is valued as 30949-2 - Vaccination adverse event outcome)

Value	Description
D	*Patient died*
L	*Life threatening illness*
E	*Required emergency room/doctor visit*
H	*Required hospitalization (indicate # of days in another OBX segment)*
P	*Resulted in prolongation of hospitalization*
J	*Resulted in permanent disability*
O	*None of the above*

NIP-defined NIP006 – Patient registry status
This table is now inactive. Use User-defined Table 0441 – Immunization registry status.

***NIP-defined NIP007* - Vaccinated at location**. (use in OBX-5 when OBX-3 is valued as 30962-5 - Vaccinated at) (VAERS item #15)

Value	Description
PVT	***Private doctor's office/hospital***
PUB	*Public Health Clinic/Hospital*
MIL	*Military clinic/Hospital*
WRK	*Workplace*
OTH	*Other*
UNK	*Unknown*

***NIP-defined NIP008* - Vaccine purchased with** (use in OBX-5 when OBX-3 is valued as 30963-3- Vaccine purchased with) (VAERS item #16)

Value	Description
PVF	*Private funds*
PBF	*Public funds*
MLF	*Military funds*
OTH	*Other*

***NIP-defined NIP009* – Reported adverse event previously** (use in OBX-5 when OBX-3 is valued as 30967-4 - Reported adverse event previously) (VAERS item #20)

Value	Description
N	*No*
D	*To doctor*
H	*To health department*
M	*To manufacturer*

***NIP-defined NIP010* - Report type** recommended values. (use in OBX-5 when OBX-3 is valued as 30978-1 - Report type) (VAERS Item #27)

Value	Description
I	*Initial*
F	*Follow-up*

APPENDIX 2: Data Types used in this *Implementation Guide*

HL7 Ref#	Data Type	Description	Notes
2.8.3	CE - coded element with formatted values	This data type transmits codes and the text associated with the code. To allow all six components of a CE data type to be valued, the suggested length of a field of this data type is at least 60. Components: <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^ <alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)> Components are defined as follows: (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here. (2) Text (ST). Name or description of the item in question. (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item. (4-6) Three components analogous to 1-3 for the alternate or local coding system.	For HL7-defined tables, the third component, name of coding system, is constructed by appending the table number to the string "HL7." For example, the HL7 table number 0163 would be designated in the "name of coding system" component as "HL70163." The second set of codes must carry the same meaning as the first set. For example, for immunization data, a first set using CVX codes followed by a second set using CPT codes may be used to record the administration of a single vaccine. 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.
2.8.5	CK - composite ID with check digit	Components: <ID number (NM)>^<check digit (NM)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)> Components are defined as follows: (1) ID number (NM). (2) Check digit (NM). This is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null. (3) Code identifying the check digit scheme employed (ID). Check digit scheme codes are defined in *HL7 Table 0061 - Check digit scheme*. Note: Mod 10 and Mod 11 check digit algorithms are defined in the HL7 Standard Section 2.8.5.3.	This data type is used for certain fields that commonly contain check digits, e.g., *PID-3-Patient identifier list*. If a user is not using check digits for a CK field, the second and third components are not valued.
2.8.6	CM - composite	A field that is a combination of other meaningful data fields. Each portion is called a component. The specific components of CM fields are defined within the field descriptions.	The CM data type is maintained strictly for backward compatibility and may not be used for the definition of new fields.
2.8.9	CP - composite price	Components: <price (MO)>^<price type (ID)>^<from value (NM)>^<to value (NM)>^<range units (CE)>^<range type (ID)>	See HL7 Standard for component definitions.
2.8.10	CQ - composite quantity with units	Components: <quantity (NM)>^<units (CE)>	Future use of this data type will be avoided because the same information can be sent as a CE data type.
2.8.12	CX - extended composite ID with check digit	Components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)> Components are defined as follows: (1) ID (ST). (2) Check digit (ST). Defined as in the CK data type except as a ST. The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this	Refer to *User-defined Table 0203 - Identifier type* for suggested values for component 5.

HL7 Ref#	Data Type	Description	Notes
		component should be valued null. (3) Code identifying the check digit scheme employed (ID). (4) Assigning authority (HD). Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)> (5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to *User-defined Table 0203 - Identifier type* for suggested values. (6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier. Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>	
2.8.13	DLN – driver's license number	Components: <license number (ST)>^<issuing state, province, country (IS)>^<expiration date (DT)>	This data type gives the driver's license information. See HL7 Standard for component definitions and tables to use.
2.8.15	DT - date	Format: YYYY[MM[DD]]	The precision of a date may be expressed by limiting the number of digits used with the format specification YYYY[MM[DD]].
2.8.17	EI - entity identifier	Components: <entity identifier (ST)>^<namespace ID (IS)>^<universal ID (ST)>^<universal ID type (ID)> Components are defined as follows: (1) Entity identifier (ST). This component is usually defined to be unique within the series of identifiers created by the assigning authority, defined by a hierarchic designator, represented by components (2) through (4). (These are as defined here at 2.8.20, "HD - hierarchic designator.")	The entity identifier defines a given entity within a specified series of identifiers.
2.8.18	FC - financial class	Components: <financial class (IS)>^<effective date (TS)> Components are defined as follows: (1) Financial class (IS). The financial class assigned to a person. Refer to *User-defined Table 0064 - Financial class* for suggested values. (2) Effective date (TS). The effective date/time of the person's assignment to the financial class specified in the first component.	Used in immunization registries to classify VFC eligibility.
2.8.19	FT - formatted text data	This data type is derived from the string data type by allowing the addition of embedded formatting instructions. These instructions are limited to those that are intrinsic and independent of the circumstances under which the field is being used. The FT field is of arbitrary length (up to 64K) and may contain formatting commands enclosed in escape characters.	
2.8.20	HD - hierarchic designator	A unique name that identifies the system which was the source of the data. The HD is designed to be used either as a local version of a site-defined application identifier or a publicly-assigned UID. Syntactically, the HD is a group of two application identifiers: one defined by the first component, and one defined by the second and third components. Components: <namespace ID (IS)>^ <universal ID (ST)>^<universal ID type (ID)> Components are defined as follows: (1) Namespace ID (IS). Refer to *User-defined Table 0300 - Namespace ID* for suggested values. (2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component. (3) Universal ID type (ID). Governs the interpretation of the second	Used in fields that formerly used the IS data type. When only the first HD component is valued, it looks like a simple IS data type. Designed to be an application identifier, either as a local version of a site-defined application identifier or a publicly-assigned universal ID (UID). The HD is a group of two application identifiers: one defined by the first component, and one defined by the second and third components. If the first component is present,

HL7 Ref#	Data Type	Description	Notes
		component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.	the second and third components are optional. The second and third components must either both be valued (both non-null), or both be not valued (both null).
2.8.21	ID - coded value for HL7-defined tables	The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. Examples of ID fields include *MSH-12-Version ID* and *PD1-12-Protection indicator*.	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.
2.8.22	IS - coded value for user-defined tables	The value of such a field follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values. An example of an IS field is *PID-8-Sex*.	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.
2.8.23	JCC - job code/class	Format: <job code (IS)>^<job class (IS)>	See HL7 Standard for component definitions and tables to use.
2.8.25	MO - money	Components: <quantity (NM)>^<denomination (ID)>	See HL7 Standard for component definitions and tables to use.
2.8.26	NM - numeric	A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point, the number is assumed to be an integer. Leading zeros, or trailing zeros after a decimal point, are not significant.	
2.8.28	PL - person location	Components: <point of care (IS)>^<room (IS)>^<bed (IS)>^<facility (HD)>^<location status (IS)>^<person location type (IS)>^<building (IS)>^<floor (IS)>^<location description (ST)>	Used to specify a patient location within a healthcare institution. See HL7 Standard for component definitions and tables to use.
2.8.30	PN - person name	Components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)> Components are defined as follows: (1) Family name (ST) & Last name prefix (ST). Surname/last name. Last name prefix is for use with Germanic languages (e.g., van in Ludwig van Beethoven). (2) Given name (ST). (3) Middle initial or name (ST). (4) Suffix (ST). Used to specify a name suffix (e.g., Jr. or III). (5) Prefix (ST). Used to specify a name prefix (e.g., Dr.). (6) Degree (IS). Used to specify an educational degree (e.g., MD). See *User-defined Table 0360 - Degree* for values.	Note: To "translate" the last name prefix and the family name, prepend the last name prefix to the family name component. If the last name prefix is not null, the last name prefix should not also be present as part of the family name component.
2.8.31	PT - processing type	Components: <processing ID (ID)>^<processing mode (ID)> Components are defined as follows: Processing ID (ID). A value that defines whether the message is part of a production, training, or debugging system. Refer to *HL7 Table 0103 - Processing ID* for valid values. Processing mode (ID). A value that defines whether the message is part of an archival process or an initial load. Refer to *HL7 Table 0207 - Processing mode* for valid values. The default (blank) means current processing.	
2.8.38	SI - sequence ID	A non-negative integer in the form of an NM field.	The uses of this data type are defined in the chapters defining the segments and messages in which it is used.
2.8.40	ST - string data	Any printable ASCII characters except the defined delimiter characters. To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence. String data is left justified with trailing blanks optional.	The ST data type is intended for short strings (less than 200 characters). For longer strings, the TX or FT data types should

HL7 Ref#	Data Type	Description	Notes
			be used.
2.8.43	TQ - timing quantity	Components: <quantity (CQ)>^<interval (CM)>^<duration (ST)>^<start date/time (TS)>^<end date/time (TS)>^<priority (ST)>^<condition (ST)>^<text (TX)>^<conjunction (ST)>^<order sequencing (CM)>^<performance duration (CE)>^<total occurrences (NM)>	Describes when a service should be performed and how frequently. Complete description is in HL7 Standard Section 4.4.
2.8.44	TS - time stamp	Contains the exact time of an event, including the date and time. Format: YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision> The date portion of a time stamp follows the rules of a date field (DT) and the time portion follows the rules of a time field (TM). HL7 recommends, but does not require, that all systems routinely send the time zone offset.	The optional degree of precision component is retained only for backwards compatibility. Immunization registries will not value this component. Instead, the precision of the data may be indicated by limiting the number of digits valued.
2.8.45	TX - text data	String data meant for user display (on a terminal or printer). Not necessarily left justified. Leading spaces may contribute to clarity of the presentation to the user.	
2.8.47	VID - version identifier	Components: <version ID (ID)>^<internationalization code (CE)>^<international version ID (CE)> Components are defined as follows: Version ID (ID). Used to identify the HL7 version. Refer to *HL7 Table 0104 - Version ID* for valid values. Internationalization code (CE). Used to identify the international affiliate country code. ISO 3166 provides a list of country codes that may be used (see *User-defined Table 0212 - Nationality*). International version ID (CE). Used when the international affiliate has more than a single local version associated with a single U.S. version.	
2.8.48	XAD - extended address	Components: <street address (ST)>^ <other designation (ST)>^<city (ST)>^<state or province (ST)>^<zip or postal code (ST)>^<country (ID)>^<address type (ID)>^<other geographic designation (ST)>^<county/parish code (IS)>^<census tract (IS)>^<address representation code (ID)> Components are defined as follows: (1) Street address (ST). The street or mailing address of a person or institution. (2) Other designation (ST). Second line of address (e.g., Suite 555, or Fourth Floor). (3) City (ST). (4) State or province (ST). State or province should be represented by the official postal service codes for that country. (5) Zip or postal code (ST). Zip or postal codes should be represented by the official codes for that country. In the U.S., the zip code takes the form 99999[-9999], while the Canadian postal codes take the form A9A-9A9. (6) Country (ID). Defines the country of the address. ISO 3166 provides a list of country codes that may be used (see *User-defined Table 0212 - Nationality*). (7) Address type (ID). Type is optional and defined by *HL7 Table 0190 - Address type*. (7) Other geographic designation (ST). Other geographic designation includes county, bioregion, SMSA, etc. (9) County/Parish Code (IS). This component should not duplicate component 8. Refer to *User-defined Table 0289 - County/Parish* for values. (10) Census Tract (IS). Refer to *User-defined Table 0288 - Census tract* for values. (11) Address representation code (ID). See *HL7 Table 4000 - Name/address representation.*	*HL7 Table 0190 - Address type* allows user to designate the type of address (e.g., mailing, residence at birth, birth delivery location). When this field is allowed to repeat, several addresses can be recorded in the field, with each type noted.
2.8.49	XCN - extended	Components: <ID number (ST)>^<family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix	See PN (1-6) for component definitions (2-7).

HL7 Ref#	Data Type	Description	Notes
	composite ID number and name for persons	(e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)> Components are defined as follows: (1) ID number. This string refers to the coded ID according to a user-defined table. If the first component is present, either the source table or the assigning authority must be valued. (2-7) These components are defined as in the PN data type(1-6). (8) Source table (IS). Refer to *user-defined table 0297 - CN ID source* for suggested values. Used to delineate the first component. (9) Assigning authority (HD). Subcomponents of (9): <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)> (10) Name type code (ID). Refer to *User-defined Table 0200 - Name type* for valid values. (11) Identifier check digit (ST). (12) Code identifying the check digit scheme employed (ID). (13) Identifier type code (IS). Refer to *user-defined table 0203 - Identifier type* for valid values. (14) Assigning facility (HD). Subcomponents of (14): <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)> (15) Name representation code (ID). See *HL7 Table 4000 - Name/address representation* for valid values.	
2.8.50	XON - extended composite name and identification number for organizations	Components: <organization name (ST)>^<organization name type code (IS)>^<ID number (NM)>^<check digit (NM)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)> Components are defined as follows: (1) Organization name (ST). The name of the specified organization. (2) Organization name type code (IS). Refer to *User-defined Table 0204 - Organizational name type*. (3-5) Defined as in CK (1-3). (6) Assigning authority (HD). Subcomponents of (9): <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)> (7) Identifier type code (IS). Refer to *user-defined table 0203 - Identifier type* for valid values. (8) Assigning facility (HD). Subcomponents of (8): <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)> (9) Name representation code (ID). See *HL7 Table 4000 - Name/address representation* for valid values.	See CK (1-3) for XON components (3-5).
2.8.51	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) (IS)>^<name type code (ID)>^<name representation code (ID)> Components are defined as follows: (1-6) These components are defined as in the PN data type. (7) Name type code (ID). Refer to *HL7-defined Table 0200 - Name type* for valid values. (8) Name representation code (ID). Refer to *HL7-defined Table 4000 - Name/address representation* for valid values.	
2.8.52	XTN - extended telecommunication number	Format and 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)>	Note: To interoperate with CEN's Telecommunication data attribute group, HL7 allows use of the second component for email addresses. When used for an

HL7 Ref#	Data Type	Description	Notes
		For codes, refer to *HL7-defined Table 0201 - Telecommunication use code* and *HL7-defined Table 0202 - Telecommunication equipment type*.	Internet address, the first component will be null; the second component will have the code NET, and the type of Internet address is specified with Internet or X.400 in the third component. When used for an Internet address, the first component of the XTN data type will be null. If the @-sign is being used as a subcomponent delimiter, the HL7 subcomponent escape sequence may be used (See Section 2.9 of the HL7 Standard).

APPENDIX 3: Recommended Core Data Set for Immunization Registries

This core data set was prepared in 1995 by the National Immunization Program (NIP) in consultation with the Immunization Grantee Working Group. It was reviewed by the National Vaccine Advisory Committee (NVAC), and recommendations of NVAC were incorporated. Contributions were also made by public health representatives and private providers.

The core data elements fall into two categories: required and optional. In addition, two functions for future consideration are presented here. Required core data elements are listed in bold print. These elements represent fundamental attributes necessary for identifying individuals and for describing immunization events. Required elements are critical to the record exchange process. Optional core data elements are less important for record exchange. Some optional items (e.g., address) may be useful only at the local level.

The purpose of the core data set is to facilitate record exchange between immunization registries. It is imperative that, at a minimum, each registry include in its database schema a method to receive and store all of the required core data elements, even if the registry does not routinely collect the information. Thus, if a registry receives a record from one system and subsequently transfers it to another, no required core data elements will be lost in the process. It is strongly recommended that immunization registries also collect data on all of the required core data elements for their own patients.

Listing of Core Data Set

(Required data elements are listed in **bold** print.)

Patient/System/State Identifiers

(Until a unique personal identifier can be established on a national basis, multiple means of identification must be used.)

Patient name: first, middle, last

Patient alias name: first, middle, last
(former names for management of adoptions and name changes)

Patient address, phone number, birthing facility
(these variables should be locally defined)

Patient Social Security number (SSN)

Patient birth date

Patient sex

Patient race

Patient primary language

Patient birth order

Patient birth registration number

Patient birth State/country

Patient Medicaid number

Mother's name: first, middle, last, maiden

Mother's SSN

Father's name: first, middle, last

Father's SSN

Immunization Event Identifiers

Vaccine type

(Use *HL7-defined Table 0292 - Vaccines Administered (code=CVX)* found in Appendix 1. Note that up-to-date versions of this table will be maintained on the NIP website at <www.cdc.gov/nip/registry>.)

Vaccine Manufacturer

(Use *HL7-defined Table 0227 - Manufacturers of vaccines (code=MVX)* found in Appendix 1. Note that up-to-date versions of this table will be maintained on the NIP website at <www.cdc.gov/nip/registry>.)

Vaccine dose number

NOTE: With a fully operating system, this variable is not needed. However, in the real world, and particularly during the initial startup phase, many systems will be gathering partial histories; therefore, to evaluate histories properly, dose number becomes very important. The ultimate goal would be to remove this variable from the core data set, within the first 2 to 3 years of system operation.

Vaccine expiration date

Vaccine injection site

Vaccination date

Vaccine lot number

Vaccine provider

These Items Were Designated by NVAC as Functions for Future Consideration

Vaccine adverse events monitoring

[Such events must be linkable to the existing national adverse events surveillance system, with immunization information systems having ability to electronically report, without redundant keying of information to the Vaccine Adverse Events Reporting System (VAERS).]

Vaccine preventable disease reporting

[Such disease events must be linkable to existing local, state and national disease reporting systems, with the immunization information systems having ability to electronically report, without redundant keying of information to the appropriate disease reporting systems.]

APPENDIX 4: VACCINE ADVERSE EVENT REPORTING SYSTEM (VAERS)

VACCINE ADVERSE EVENT REPORTING SYSTEM
VAERS
24 Hour Toll Free Information 1-800-822-7967
P.O. Box 1100, Rockville, MD 20849-1100
PATIENT IDENTITY KEPT CONFIDENTIAL

For CDC/FDA Use Only
VAERS Number _____
Date Received _____

Patient Name:
Last First M.I.
Address
City State Zip
Telephone no. (____) _____

Vaccine administered by (Name):
Responsible Physician _____
Facility Name/Address
City State Zip
Telephone no. (____) _____

Form completed by (Name):
Relation to Patient ☐ Vaccine Provider ☐ Patient/Parent ☐ Manufacturer ☐ Other
Address *(if different from patient or provider)*
City State Zip
Telephone no. (____) _____

1. State | 2. County where administered | 3. Date of birth mm / dd / yy | 4. Patient age | 5. Sex ☐ M ☐ F | 6. Date form completed mm / dd / yy

7. Describe adverse events(s) (symptoms, signs, time course) and treatment, if any

8. Check all appropriate:
☐ Patient died (date mm / dd / yy)
☐ Life threatening illness
☐ Required emergency room/doctor visit
☐ Required hospitalization (_____days)
☐ Resulted in prolongation of hospitalization
☐ Resulted in permanent disability
☐ None of the above

9. Patient recovered ☐ YES ☐ NO ☐ UNKNOWN

10. Date of vaccination mm / dd / yy Time _____ AM PM

11. Adverse event onset mm / dd / yy Time _____ AM PM

12. Relevant diagnostic tests/laboratory data

13. Enter all vaccines given on date listed in no. 10

	Vaccine (type)	Manufacturer	Lot number	Route/Site	No. Previous Doses
a.					
b.					
c.					
d.					

14. Any other vaccinations within 4 weeks prior to the date listed in no. 10

	Vaccine (type)	Manufacturer	Lot number	Route/Site	No. Previous doses	Date given
a.						
b.						

15. Vaccinated at:
☐ Private doctor's office/hospital ☐ Military clinic/hospital
☐ Public health clinic/hospital ☐ Other/unknown

16. Vaccine purchased with:
☐ Private funds ☐ Military funds
☐ Public funds ☐ Other/unknown

17. Other medications

18. Illness at time of vaccination (specify)

19. Pre-existing physician-diagnosed allergies, birth defects, medial conditions(specify)

20. Have you reported this adverse event previously? ☐ No ☐ To health department ☐ To doctor ☐ To manufacturer

Only for children 5 and under
22. Birth weight _____ lb. _____ oz.
23. No. of brother and sisters

21. Adverse event following prior vaccination (check all applicable, specify)

	Adverse Event	Onset Age	Type Vaccine	Dose no. in series
☐ In patient				
☐ In brother or sister				

Only for reports submitted by manufacturer/Immunization project
24. Mfr./imm. proj. report no.
25. Date received by mfr./imm.proj.
26. 15 day report? ☐ Yes ☐ No
27. Report type ☐ Initial ☐ Follow-Up

Health care providers and manufacturers are required by law (42 USC 300aa-25) to report reactions to vaccines listed in the Table of Reportable Events Following Immunization Reports for reactions to other vaccines are voluntary except when required as a condition of immunization grant awards.

Form VAERS-1(FDA)

"Fold in thirds, tape & mail - DO NOT STAPLE FORM"

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES OR APO/FPO

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 1895 ROCKVILLE, MD

POSTAGE WILL BE PAID BY ADDRESSEE

VAERS
P.O. Box 1100
Rockville MD 20849-1100

DIRECTIONS FOR COMPLETING FORM

(Additional pages may be attached if more space is needed)

GENERAL

Use a separate form for each patient. Complete the form to the best of your abilities. Items 3, 4, 7, 8, 10, 11, and 13 are considered essential and should be completed whenever possible. Parents/Guardians may need to consult the facility where the vaccine was administered for some of the information (such as manufacturer, lot number or laboratory data.)

Refer to the Reportable Events Table (RET) for events mandated for reporting by law. Reporting for other serious events felt to be related but not on the RET is encouraged.

Health care providers other than the vaccine administrator (VA) treating a patient for a suspected adverse event should notify the VA and provide the information about the adverse event to allow the VA to complete the form to meet the VA's legal responsibility. These data will be used to increase understanding of adverse events following vaccination and will become part of CDC Privacy Act System 09-20-0136, "Epidemiologic Studies and Surveillance of Disease Problems". Information identifying the person who received the vaccine orthat person's legal representativewill not be made available tothe public, but may be available to the vaccinee or legal representative.

Postage will be paid by addressee. Forms may be photocopied (must be front & back on same sheet).

SPECIFIC INSTRUCTIONS

Form Completed By: To be used by parents/guardians, vaccine manufacturers/distributors, vaccine administrators, and/or the person completing the form on behalf of the patient or the health professional who administered the vaccine.

Item 7: Describe the suspected adverse event. Such things as temperature, local and general signs and symptoms, time course, duration of symptoms diagnosis, treatment and recovery should be noted.

Item 9: Check "YES" if the patient's health condition is the same as it was prior to the vaccine, "NO" if the patient has not returned to the pre-vaccination state of health, or "UNKNOWN" if the patient's condition is not known.

Item 10: Give dates and times as specifically as you can remember. If you do not know the exact time, please

Item 11: indicate "AM" or "PM" when possible if this information is known. If more than one adverse event, give the onset date and time for the most serious event.

Item 12: Include "negative" or "normal" results of any relevant tests performed as well as abnormal findings.

Item 13: List ONLY those vaccines given on the day listed in Item 10.

Item 14: List any other vaccines that the patient received within 4 weeks prior to the date listed in Item 10.

Item 16: This section refers to how the person who gave the vaccine purchased it, not to the patient's insurance.

Item 17: List any prescription or non-prescription medications the patient was taking when the vaccine(s) was given.

Item 18: List any short term illnesses the patient had on the date the vaccine(s) was given (i.e., cold, flu, ear infection).

Item 19: List any pre-existing physician-diagnosed allergies, birth defects, medical conditions (including developmental and/or neurologic disorders) for the patient.

Item 21: List any suspected adverse events the patient, or the patient's brothers or sisters, may have had to previous vaccinations. If more than one brother or sister, or if the patient has reacted to more than one priorvaccine, use additional pages to explain completely. For the onset age of a patient, provide the age in months if less than two years old.

Item 26: This space is for manufacturers' use only.

APPENDIX 5: NARRATIVE REVIEW OF REVISED, ADDED, OR DELETED MATERIAL SHOWING NEW AND PREVIOUS VERSIONS WITH SPECIFIC CHANGES MADE (unless otherwise noted)

Revised, Added or Deleted Text (version 2.2, June 2006) Page 3
(Bold Italics indicate added material.)
Summary - Message type abbreviations are added. The reference to ADT messages is deleted (see **Previous Text** below**.)**

IMMUNIZATION DATA TRANSACTION MESSAGES

Information systems that maintain immunization records need to be able to transmit patient-specific immunization histories electronically to other systems to allow healthcare providers to have access to these records at the time health care is given. Electronic tracking of immunization records also allows providers to track their own progress in reaching age-appropriate immunization coverage levels easily and efficiently.

The data transmissions between registries will occur as the result of four activities: (1) a query from one system for a patient's vaccination record that is held in another system ***(VXQ)***; (2) a response to a query containing multiple patient "matches" to the query, but not returning vaccination records ***(VXX)***; (3) a response to a query containing the vaccination record ***(VXR)***; and (4) an unsolicited update to a vaccination record ***(VXU).***

Trigger event V01 will initiate the Query for Vaccination Record (VXQ) message. Two responses are possible: (1) event type V02--Response to Vaccination Query Returning Multiple PID Matches (VXX), or (2) event type V03--Response to Query Returning Vaccination Record (VXR). Trigger event type V04 will initiate the Unsolicited Update to Vaccination Record (VXU) message. Addition of new patients can be accomplished by using either VXU (V04) or ADT. The interaction model at the end of this section graphically depicts this process.

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Previous Text (version 2.1, September 2002) Page 3
(Strike-through indicates material deleted from newer version above)

IMMUNIZATION DATA TRANSACTION MESSAGES

Information systems that maintain immunization records need to be able to transmit patient-specific immunization histories electronically to other systems to allow healthcare providers to have access to these records at the time health care is given. Electronic tracking of immunization records also allows providers to track their own progress in reaching age-appropriate immunization coverage levels easily and efficiently. The data transmissions will occur as the result of four activities: (1) a query from one system for a patient's vaccination record that is held in another system; (2) a response to a query containing multiple patient "matches" to the query, but not returning vaccination records; (3) a response to a query containing the vaccination record; and (4) an unsolicited update to a vaccination record. ~~Some registries will use Admission/Discharge/Transfer (ADT) transactions to add or update patient information. Registries will need to determine how they will add new patients or update patient information when no immunization activity is involved. ADT messages can provide these functions and are described in this document.~~

Trigger event V01 will initiate the Query for Vaccination Record (VXQ) message. Two responses are possible: (1) event type V02--Response to Vaccination Query Returning Multiple PID Matches (VXX), or (2) event type V03--Response to Query Returning Vaccination Record (VXR). Trigger event type V04 will initiate the Unsolicited Update to Vaccination Record (VXU) message. Addition of new patients can be accomplished by using either VXU (V04) or ADT (A28). The interaction model at the end of this section graphically depicts this process.

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Summary

Emphasizes effective date matching an immunization date.

Example:
PV1||R|||||||||||||||||V02^19900607~H02^19900607|<CR>

This PV1 segment shows that the patient is a recurring patient who is VFC eligible and is a Medicaid patient. The effective date of his VFC and Medicaid status is June 7, 1990.

Since a single VFC effective date is being submitted, this status should only be applied to the immunizations given on June 7, 1990. The eligibility status for the other immunization dates is unknown.

Every effort should be made to associate an effective date with a corresponding immunization date. For instance, since the only status submitted in the sample PV1 segment has a date of June 7, 1990, no information about the eligibility status of the other incoming immunizations should be inferred from this message. It is also possible that a VFC status and date may be sent that was not related to an immunization event: the status may not be applicable to any immunizations in the message.

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Example:
PV1||R|||||||||||||||||V02^19900607~H02^19900607|<CR>

This PV1 segment shows that the patient is a recurring patient who is VFC eligible and is a Medicaid patient. The effective date of his VFC and Medicaid status is June 7, 1990.

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Revised, Added or Deleted Text (version 2.2, June 2006) Page 75.1

(All material on this page is added: thus, no extra bolding and italics are used.)

Summary

(For combination vaccine Vaccine Information Statements (VIS), the first example demonstrates use of the Observation sub-ID to indicate separate VIS for each component antigen. The second example demonstrates use of the Observation sub-ID with the 'Dose Number in Series' for a combination vaccine, and contrasts this with previous use of separate LOINC codes for dose count.)

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Some information about combination vaccines (vaccines that contain multiple component antigens) can be specific to an individual vaccine component. For example, there can be separate VIS statements for each vaccine component. In the example below the combination vaccine has two component vaccines. The RXA segment describes the entire combination vaccine and does not have a value in the Observation sub-ID. Following the RXA, the first set of 5 OBX segments describes one vaccine component so all have the value “1” in the Observation sub-ID. The next set of 5 OBX segments describes another vaccine component so all have the value “2” in the Observation sub-ID.

RXA|0|1|19901207|19901207|51^HepB-HIB^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN ^ROBERT^A^^DR^MD|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||W22532806|19901230|MSD^MERCK^MVX||||<CR>
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|45^HEP B, NOS^CVX|||||F|<CR>
OBX|2|TS|38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|1|20010711||||||F|<CR>
OBX|3|TS|38890-0&29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|1|19901207||||||F|<CR>
OBX|4|ST|38890-0&30973-2^Dose number in series^LN|1|3|||||F|<CR>
OBX|5|ST|38890-0&30959-1^LOT^LN|1|MY85542||||||F|<CR>

OBX|6|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|17^HIB,NOS^CVX||||||F|<CR>
OBX|7|TS|38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|2|19981216||||||F|<CR>
OBX|8|TS|38890-0&29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|2|19901207||||||F|<CR>
OBX|9|ST|38890-0&30973-2^Dose number in series^LN|2|1||||||F|<CR>
OBX|10|ST|38890-0&30959-1^LOT^LN|2|WP95441||||||F|<CR>

The following is a simplified example that illustrates specifically how "Dose number in series" should be portrayed for a combination vaccine using the Observation sub-ID to group the OBX segments for each component vaccine type. Note the use of LOINC® codes 38890-0&30973-2 for every component vaccine dose number in series. This is preferred over the previous method for portraying "dose count in combination vaccine" which used a different LOINC® code for each component vaccine and which lacked a code for the dose count for the Polio vaccine component of a combination vaccine.

RXA|0|1|19901207|19901207|110^DTAP/Polio/Hep B^CVX|.5|ML^^ISO+|||1234567891^O'BRIAN ^ROBERT^A^^DR^MD|^^^CHILD HEALTHCARE CLINIC^^^^^101 MAIN STREET^^BOSTON^MA||||AC21A016AA|19901230|SKB^SKB^MVX||||<CR>
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|107^DTAP, NOS^CVX|||||F|<CR>
OBX|2|ST|38890-0&30973-2^Dose number in series^LN|1|2|||||F|<CR>
OBX|3|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|89^Polio, NOS^CVX|||||F|<CR>
OBX|4|ST|38890-0&30973-2^Dose number in series^LN|2|2|||||F|<CR>
OBX|5|CE|38890-0^COMPONENT VACCINE TYPE^LN|3|45^HEP B, NOS^CVX|||||F|<CR>
OBX|6|ST|38890-0&30973-2^Dose number in series^LN|3|3|||||F|<CR>

(continues on next page)

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3.2 PATIENT ADMINISTRATION MESSAGE DEFINITIONS

Use of the Optional Admission/Discharge, Transfer (ADT) Segments

The HL7 standard defines many specialized ADT messages for administrative events dealing with patients; e.g., admit, discharge, transfer, merge record. ***The VXU message can be used for adding a person or additional information about the person, so ADT messages are not necessary for registries to communicate with each other. However, intercommunicating private providers and immunization registries may decide to use the ADT message when there is no immunization information, especially when the communicating partner already has implemented the ADT but not the VXU. The challenge for registries becomes to identify which ADT messages to use. There are 51 different ADT messages distinguished from each other by 51 different trigger event codes.***

At this writing, the set of ADT messages most likely to be needed by registries is not yet fully bounded. Registries are accepting the messages sent by their communicating partners. Registries may receive extra messages that they are not interested in, in which case it will need to handle them appropriately.

2.3.1 ADT messages currently identified and accepted by registries include (by event code):
A01 (admit/visit notification)
A04 (register a patient)
A05 (pre-admit a patient)
A08 (update patient information)
A18 (merge patient information)
A28 (add person information)
A31 (update person information)
A47 (change patient identifier list)
As registry experience with ADT grows, this section of this document will be further refined.

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(Strike-through indicates material deleted from newer version above)

3.2 **PATIENT ADMINISTRATION MESSAGE DEFINITIONS**

Use of the Optional Admission/Discharge, Transfer (ADT) Segments

Note: The HL7 standard defines many specialized ADT messages for administrative events dealing with patients; e.g., admit, discharge, transfer, merge record. ~~The ADT messages are distinguished from each other by the trigger event code. Some ADT messages are for use with admitted patients only. These include event code A01 (admit/visit notification), A08 (update patient information), A18 (merge patient information), and A23 (delete a patient record). We will not define those in this document, because their utility to immunization registries is limited. Even though the segments and fields are identical, the A28, A29, and A31 events are not duplicate messages, because they are not intended to be used for notification of admitted patient events.~~

~~The VXU message can be used for adding a person or additional information about the person, so ADT messages are not necessary for registries to communicate with each other. However, intercommunicating private providers and immunization registries may decide to use the ADT/A28 message to add or update person data from a different data system to a registry or vice versa. The data would be kept in both places. The purpose of the ADT A28, A29, A30, and A31 messages is to allow sites with multiple systems and respective master patient databases to communicate activity related to a person regardless of whether that person is currently a patient on each system. Each system has an interest in the database activity of the others in order to maintain data integrity across an institution. Though they are defined within the ADT message set, these messages differ in that they are not patient specific. To a certain registry, the person may be a person of interest, a potential future patient, a parent or guardian, or a potential guarantor. For example, these events can be used to maintain an MPI (master patient index), a cancer or immunization registry, members of a managed care plan, an HIV database, etc. Visit information may be included but is not required. These events are primarily for demographic data, but optional historical non-demographic data may be sent as well.~~

~~The A28 event can be used to send all known demographics about a person. An A28 (add person information) or A31 (update person information) can also be used for back loading MPI information for the person, or for back loading all personal and historical information from one system to another. In addition to adding (A28) a person to a database, the delete (A29), update (A31), and merge (A30) messages work in a similar manner to maintain concurrent person information. It is left up to site-specific negotiations to decide how much data must be transmitted or re-transmitted when a person becomes a patient. For immunization registries, only items listed in the CDC core data set should be required for entry to a registry. These items can be found at <www.cdc.gov/nip/registry>.~~

~~Note that all segments are optional except the MSH, EVN, and PID. The segments that are useful for immunization registries have been defined above, except for the EVN and MRG segments, which are described below. The syntax for the ADT^A28 and ADT^A31 are identical. These messages are distinguished by the second component of *MSH-9-Message type*, a CM data type formatted as <message type (ID)>^<trigger event (ID)>^<message structure (ID)>.~~

Revised, Added or Deleted Text (version 2.2, June 2006)

Other material revised, added, or deleted in this version is detailed in the corresponding Appendix and appropriate Table. Therefore, it is not repeated here.

A1-12 to A1-17	*HL7-defined Tables 0227 & 0292 - Current MVX & CVX code tables replace older versions*
A1-24 to A1-27	*NIP defined Table NIP003 - Observation Identifiers: Dose Number for Combination Vaccines & Vaccine Component (of a combination vaccine) clarification & observation examples furnished*
A1-26 to A1-27	*NIP defined Table NIP003 - Observation Identifiers: Examples furnished for Vaccines Due Next & VAERS ORU Message; new LOINC for sibling replacing separate LOINCs for brother and sister for VAERS ORU Message*

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