

Idaho's Immunization Reminder Information System (IRIS)

Local Implementation Guide for **HL7 2.5.1 Release 1.3**
Vaccination Update

Version 3.5.9

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Change History

Published / Revised Date	Version #	Author	Section / Nature of Change
10/26/2012	1.0	HP Enterprise Services	Created for IRIS HL7 2.5.1 Implementation
12/21/2012	1.4	HP Enterprise Services	Added NDC code segments. Updated requirement for RXA5 to include NDC code segments and added new table for NDC codes in Appendix B
02/15/2013	1.4.1	HP Enterprise Services	HL7 segments on inbound VXU messages can be terminated with the HL7 standard terminator Carriage Return (CR) HL7 segment termination with Carriage Return Line Feed (CRLF) will be allowed on for backward compatibility. The CRLF will continue to be used on outbound ACK, VXU messages.
04/03/2013	1.4.1.1	HP Enterprise Services	Added MenHibrix trade name and Meningococcal C/Y-HIB PRP vaccine to acceptable vaccines list (CV148. C4 90644) Added CVX 147 as acceptable code for Mening-MCV4 vaccine.
08/16/2013	1.5	HP Enterprise Services	Added new 2013-2014 Influenza vaccines Added Appendix C False Name List
07/31/2014	1.6.1	HP Enterprise Services	Update Vaccine Name, Trade Name, CVX, CPT and manufacturer lists in Appendix B Corrections to existing text
08/27/2014	1.6.1.1	HP Enterprise Services	Updates to Influenza CVX codes for 2014-2015 season
03/16/2015	1.7	HP Enterprise Services	Update Appendix B. Added new vaccines, trade names, CPT and CVX codes for HPV9, Meningococcal B, and Meningococcal C Changed code set name 0292 to CVX
06/30/2015	1.7.1	Hewlett Packard Enterprise	Added Quadracel Trade Name (DTaP-IPV) in Appendix B
2/16/2016	1.7.2	Hewlett Packard Enterprise	Update Vaccine Name, Trade Name, CVX, CPT and manufacturer lists in Appendix B.
10/14/2016	1.8	Hewlett Packard Enterprise	Update Vaccine Name, Trade Name, CVX, CPT and manufacturer lists in Appendix B.
11/22/2016	1.8	Hewlett Packard Enterprise	Update Vaccine Name, Trade Name, CVX, CPT and manufacturer lists in Appendix B.
11/3/2017	2.0	DXC Technology	<ul style="list-style-type: none"> - Introduction/Intended Audience/References <ul style="list-style-type: none"> o Updated introduction language to be in sync with HL724 guide - References <ul style="list-style-type: none"> o Updated email address for Idaho Immunization Program Contact - HL7 Message Types Used in IRIS Transmissions <ul style="list-style-type: none"> o Removed ADT from supported message types - MSH <ul style="list-style-type: none"> o MSH-4.1 Sending Org ID is required o MSH-16 Application Accept as 'AL' always - PID <ul style="list-style-type: none"> o PID-29 Death Date is required if Patient status (PD1-16) is 'P' Deceased o PID-30 Death Indicator must be 'Y' if Death Date (PID-29) is populated.

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			<ul style="list-style-type: none"> - IN1 - Updated IN1 to confirm to CDC Implementation Guide HL7251 guidelines for IN1 <ul style="list-style-type: none"> o IN1 Insurance Segment is not repeatable. o IN1-1 Set-ID must be 1 o IN1-12 Effective Date and IN1-13 Expiration Date fields are deprecated o IN1-15 Plan Type added o IN1-29 Verification Date added - ORC <ul style="list-style-type: none"> o ORC-10 Entered By added as optional XCN field o ORC-12 Ordering Provider defined as XCN field - RXA <ul style="list-style-type: none"> o RXA-7 Administered Units added o RXA-9 IRIS immunization ID not sent on outbound o RXA-10 Administering Provider defined as XCN field o RXA-21 Action Code added - OBX <ul style="list-style-type: none"> o OBX-3 Deprecated LOINC for contraindication effective and expiration dates. o OBX-14 Date/Time of Observation used for patient comment (contraindication/immunity) start date o OBX-17 Observation Method - ERR –Updated ERR segment to align more with HL7 guide <ul style="list-style-type: none"> o ERR-2 Error Location defined as Error Location o ERR-3 HL7 Code added o ERR-4 Error Severity definitions updated o ERR-5 Application Error code added - Appendix B - Updated Code Sets <ul style="list-style-type: none"> o Action Code – removed ‘D’ Delete feature o Address Type o Administrative Site o Application Error Codes o Assigning Authority o Coding System o Completion Status o Country o Event Type o Manufacturer o Message Error Status Codes o Message Structure o Message Type o Insurer ID (NAIC Codes) o Observation Identifier Code sets (OBX.3) o Observation Method (OBX.17) o Observation Value Sets (OBX.5) o Patient Status o Plan Types o Professional Suffix or Degree o Query Response Status o Query Name

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			<ul style="list-style-type: none"> ○ Responsible Person Relationship ○ Reaction Codes ○ Route of Administration ○ Telecommunication Equipment Type ○ Telecommunication Use Code ○ Vaccines – CVX, CPT, Trade Names ○ Deprecated NDC in RXA-5– future TBD ○ Versions of HL7 supported by IIRS
12/7/2020	3.5.1	Gainwell Technologies	<ul style="list-style-type: none"> – Updated MSH-7 to TS_Z data format. – Renamed Appendix A Data Types to Appendix 1 – Removed Appendix B and C – replaced with reference to the HL7 2.5.1 Appendix A Code Sets(separate document shared between LI7 2.5.1 r 1.3 and HL7 2.5.1 r 1.5).
2/1/2022	3.5.9	Gainwell Technologies	<ul style="list-style-type: none"> – Updated IRIS contact information for data exchange – Updated Appendix A (separate document)

Table of Contents:

Table of Contents

Change History.....2

Introduction.....7

Intended Audience7

References.....7

The Health Level Seven (HL7) Standard8

 Delimiter characters 8

 HL7 data types 9

 HL7 Message Types Used in IRIS Transmissions 9

 VXU - Unsolicited Vaccination Record Update 10

 ACK - General Acknowledgment..... 10

 Example Reading Message Format..... 11

Message Segments: Field Specifications and Usage.....12

 HL7 Segment Structure 12

 Rules for Sending Systems 13

 Rules for Receiving systems..... 13

 MSH – Message Header Segment 14

 PID – Patient Identification Segment..... 16

 PD1 – Patient Additional Demographic Segment 19

 NK1 – Next of Kin /Associated Parties Segment 20

 PV1 – Patient Visit Segment (Deprecated) 21

 IN1 – Insurance Segment (Not sent on outbound files from IRIS)..... 22

 ORC - Common Order Segment..... 23

 RXA - Pharmacy/Treatment Administration Segment 24

 RXR – Pharmacy/Treatment Administration Segment 29

 OBX - Observation/Result Segment..... 30

 MSA – Message Acknowledgement Segment 34

 ERR – Error Segment..... 34

 FHS - File Header Segment 36

 FTS - File Trailer Segment 37

 BHS - Batch Header Segment..... 37

 BTS - Batch Trailer Segment 38

Data Exchange between IRIS and Outside Systems.....39

 Examples..... 41

Appendix 1 -- HL7 Data Types47

 CE - Coded Element 47

 CWE - Coded with Exceptions 47

 CX - Extended Composite ID with Check Digit 48

 DTM - Date \Time 48

 EI - Entity Identifier 48

 ERL - Error Location..... 49

 HD - Hierarchic Designator 49

 ID - Coded Value for HL7 Defined Tables..... 49

 IS - Coded Value for User Defined Tables 49

 MSG - Message Type 49

 NM - Numeric 49

 LA2 - Location with Address Variation 2..... 50

PT - Processing Type	50
SAD - Street Address	50
SI - Sequence ID	50
ST - String Data	50
TS Time Stamp and TS_Z - Time Stamp with Time Zone.....	51
VID - Version ID.....	51
XAD - Address	52
XCN - Extended Composite ID Number and Name for Persons.....	52
XPN - Extended Person Name.....	52
XTN - Extended Telecommunication Number.	53
<i>Appendix A -- HL7 Code Sets</i>	<i>54</i>

IDAHO - IRIS

Introduction

Idaho's Immunization Reminder Information System (IRIS) has made available an interactive user interface on the World Wide Web for authorized users to enter, query, and update patient immunization records. The web interface makes IRIS information and functions available from the internet around the state. However, some immunization providers already store and process similar data in their own Electronic Health Record Systems (EHR-S) and may wish to keep using those systems while also participating in the statewide central immunization information system.

Standardized HL7 messaging is the preferred format for exchanging data with IRIS. HL7 does not specify how messages are transmitted. The format is flexible enough to be used for both real-time (web service) interface submission of a single message or a user logging into IRIS to submit a large batch file containing many messages. The standard defines optional file header and file trailer segments that can be used when a number of messages are gathered into a batch for transmission as a file.

IRIS is designed to accept HL7 messages through a variety of methods. The preferred data exchange method is real-time messaging through the web service. HL7 batch messages uploaded through the IRIS User Interface is also considered valid data exchange method.

Timely data submission to IRIS benefits providers and the patients they serve by making complete immunization records accessible through the system as soon as possible. IRIS staff will work with your team to identify the data exchange method, format, and frequency that makes most sense for your practice. IRIS is designed to send and receive supported messages via real-time via Web Service or batch data submission in the HL7 2.5.1. Release 1.3 format.

NOTE: In the IRIS Implementation Guide, HL7 version 2.5.1 Release 1.3 corresponds to the CDC Implementation Guide version listed as 'HL7 version 2.5.1: Implementation Guide for Immunization Messaging Release 1.3' August 2011.

Intended Audience

This Implementation Guide (IG) is intended for technical groups from Immunization Information Systems (IIS) and Electronic Health Record Systems (EHR-S) that must implement these guidelines. The reader of this Local IG should have a solid HL7 foundation and be very familiar with the contents of the CDC Implementation guide noted in the references in the next section. Chapters 2 and 3 of the CDC IG provide HL7 foundational concepts and set the stage for this Local Query Implementation Guide. The goal of this guide is to provide an unambiguous specification for creating and interpreting queries.

References

- Refer to Health Level 7 standard for a full description of all messages, segments, and fields. Information regarding HL7 is at <http://www.hl7.org>.
- The National Immunization Program within the Center for Disease Control (CDC) has published an Implementation Guide for Immunization Data with the purpose of keeping the use of HL7 for immunization data as uniform as possible. It can be found at <http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html> listed as 'HL7 Version 2.5.1: Implementation Guide for Immunization Messaging Release 1.3' August 2011.

- Real Time submission requires setup with IRIS Web Services. The Idaho Web Service Setup Guide can be requested from the Idaho Immunization Program:

IRIS Help Desk
 (208) 334-5995 (8:00 a.m. to 5:00 p.m. Monday through Friday)
iris@dhw.idaho.gov

- For instructions on how to batch data exchange with IRIS please reference Chapter 13 of the User Manual. The user manual is available from the forms section on the Home page.

The Health Level Seven (HL7) Standard

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

- The basic unit transmitted in an HL7 implementation is the **message**.
- Messages are made up of several **segments**, each of which is one line of text, beginning with a three-letter code identifying the segment type such as MSH or PID, etc.
- Segments are in turn made up of several **fields** separated by a delimiter character. In this document the fields are numbered within the segment. For example, the second field in MSH segment is reference as MSH-2. The field delimiters used in a message can be defined by the user in field MSH-2. The recommend delimiters for immunization messages are:

Delimiter:	Definition/Meaning:
<CR> (Carriage Return)	Segment terminator
(Pipe)	Field separator
^	Component separator
&	Sub-component separator
~	Repetition separator
\	Escape character

Delimiter characters

Field values of composite data types consist of several components separated by the **component separator**, “^”. When components are further divided into sub-components, these are separated by the **sub-component separator**, “&”. Some fields are defined to permit repetition separated by the **repetition character**, “~”. When these special characters need to be included within text data, their special interpretations are prevented by preceding them with the **escape character**, “\”.

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

In the example above, the Message Header segment uses the field separator, “|”, immediately after the “MSH” code that identifies the segment. This establishes what character serves as the field separator

throughout the message. The next field, the four characters “^~\&”, establishes, in order, the component separator character, the repetition character, the escape character, and the sub-component separator character that will apply throughout the message. The hypothetical “XXX” segment includes field1 with no internal structure, but the next field has several components separated by “^”, and the third of these is made up of two sub-components separated by “&”. The hypothetical “YYY” segment’s first field permits repetition, in this example the two values “repetition1” and “repetition2”. The hypothetical “ZZZ” segment’s field has a text value that includes the characters “|~”, and these are escaped to prevent their normal structural interpretation.

In IRIS, sub-components, repetition and text values requiring the escape character will be rare. Components within fields are common, since names (last, first, middle) and addresses (street, PO Box, city, state, zip) are represented this way. Although HL7 permits the use of other delimiters IRIS will always use the recommended delimiters when sending files and requires their use for files received.

HL7 data types.

Each field has an HL7 data type. Appendix 1 of this document lists and defines the HL7 data types needed for IRIS. The elemental data types Numeric (NM) and String (ST) consist of one value, while some data types, such as Extended Person Name (XPN) are composites.

HL7 Message Types Used in IRIS Transmissions

IRIS supports the following message types:

- VXU Unsolicited vaccination record updates
- ACK general acknowledgment
- QBP Query by Parameter
- RSP Response to Query by parameter

IRIS can accept multiple messages in batch files through the IRIS user interface or as single message submitted in real-time single message via SOAP web services) transmissions. This document focuses on the VXU and ACK message types. QBP and RSP messages are defined in the HL7 2.5.1 Query Specifications.

Each segment is one line of text ending with the new line character(s) /segment terminator. The HL7 standard segment terminator is a carriage return, denoted in this document as <CR>. For backward compatibility, IRIS will continue to accept HL7 files terminated with a carriage return line feed format, denoted as <CR><LF>. Outbound files, including HL7 ACK response messages will use the <CR><LF> as the segment terminator. The newline character(s) are needed so that the HL7 messages are readable and printable. The messages may appear somewhat cryptic due to the scarcity of white space. (The standard has provisions for inclusion of binary data, but IRIS will not use these features.)

Square brackets [] enclose optional segments and curly braces {} enclose segments that can be repeated; thus, a VXU message type with historical immunization information could be composed of just MSH, PID, ORC, RXA segments. Also, any number of NK1 segments could be included in the message. The full HL7 standard allows additional segments within these message types, but they are unused by IRIS. In order to remain compliant with HL7, their use will not result in an error, but the recipient can ignore the content of the message. The segments that are documented here are sufficient to support the principal IRIS functions of storing data about patients and immunizations.

The following lists the message types and segments used in IRIS:

VXU - Unsolicited Vaccination Record Update

The VXU is used for sending new and/or updated patient demographic information and immunizations. The VXU is the most common message type used in data exchange with IRIS.

MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographic
[[NK1]]	Next of Kin / Associated Parties
[IN1]	Insurance
{ORC	Order Request
RXA	Pharmacy Administration
[RXR]	Pharmacy Route
{{OBX}}	Observation/Result: VFC Eligibility, Contraindications/Precautions, History of Disease Serological Evidence of Immunity, Special indications to Immunize, or Reactions
}	
{{OBX}}	Observation/Result Vaccines Due Next (Included only on messages sent from IRIS)

* Note: The Idaho Immunization Program has **mandated** that VFC eligibility be submitted for all new administered immunizations from public funded vaccine inventory as part of the VFC Program reporting requirements. All systems that submit data to IRIS **are REQUIRED** to submit VFC eligibility within a properly formatted OBX segment. Refer to OBX segment definitions for format requirements. In addition, systems **are REQUIRED** to submit a properly formatted IN1 segment with private insurance information for public funded vaccine administered to a VFC Ineligible patient under 19 years old on the date of vaccination.

ACK - General Acknowledgment

The ACK is used to acknowledge to the sender that a message has been received. The segments that are used to construct each message type are listed below.

MSH	Message Header
MSA	Message Acknowledgment
[ERR]	Error

Example Reading Message Format

The details of how HL7 messages are put together, for IRIS purposes, will be explained later in this document. The example shows the essentials of what a basic VXU message looks like.

```
MSH|^~\&|VALLEY CLINIC|36|IRIS|IRIS|20120920155154-0700||VXU^V04^VXU_V04|MESSAGE 123|P|2.5.1|||ER|AL||| <CR>
PID|1||MED12345^^^P36^PI^||EXAMPLE^NOAH^MICHAEL^JR^^L^|DOE^ANGELA^MARIE^^^M^|20150802|M|||998 ANYSTREET^APT B^
BOISE ^ID^837201444^USA^M^^ID001^^|^PRN^PH^^^208^5554444^1234~^NET^X.400^tammy.example@test.com^^^| <CR>
PD1|||||||||02|N|||A| <CR>
NK1|1|EXAMPLE^ANGELA^MARIE^^^L^|MTH^MOTHER^HL70063|998 ANYSTREET^APT
B^BOISE^ID^837201444^USA^M^^ID001^^|^PRN^PH^^^208^5554444^1234~^NET^X.400^tammy.example@test.com^^^| <CR>
NK1|2|EXAMPLE^NOAH^MICHAEL^SR^^L^|FTH^FATHER^HL70063|998 ANYSTREET^APT
B^BOISE^ID^837201444^USA^M^^ID001^^|^PRN^PH^^^208^5554444^1234~^NET^X.400^noah.m.example@test.com^^^| <CR>
IN1|1|G54321^INSURANCE PLAN^072|60095^^^NAIC^NIIP|||||||||5|||||||||20160905|||||POL999T453K| <CR>
ORC|RE||1234^P36|||||^ENTER^JILL^^^^^^L^^^^^^^|BROWN^MATTHEW^JOHN^MD^DR^^^^L^^^^^^^| <CR>
RXA|0|1|20160905||08^HEPB-PEDS^CVX|0.5|mL||00^NEW ADMINISTERED^NIP001|^CAPSHAW^ILIA^K^RN^^^^L^^^^^^^|
^^^VALLEY CLINIC&36|||XYZ73465|20190816|MSD^MERCCK^MVX|||CP|A <CR>
RXR|C28161^INTRAMUSCULAR^NCIT|RA^RIGHT ARM^HL70163 <CR>
OBX|1|CE|64994-7^VACCINE FUND PGM ELIG CAT^LN|1|V01^VFC INELIGIBLE^HL70064|||||F|||20160905|||VXC40^per
immunization^CDCPHINVS <CR>
OBX|2|CE|59784-9^History of Disease as Evidence of Immunity^LN|2|38907003^History of Varicella Infection^SCT|||||F|||20170708| <CR>
```

In this example, a message is being sent on behalf of Valley Clinic with an IRIS provider organization id of '36' to IRIS. The message consists of six segments. NOTE: Valley Clinic may or may not be the actual transmitter of the message. The transmitter of the message will be identified by IRIS from the web service certificate or IRIS log-in information and not from an HL7 message.

- The Message Header segment (**MSH**) identifies the owner (**VALLEY CLINIC**) of the information being sent and the receiver (**IRIS**). It also identifies the message as being of type **VXU**. The VXU is an Unsolicited Vaccination Record Update, which is one of the message types defined by HL7.
- The Patient Identification segment (**PID**) gives the patient's name (**NOAH MICHAEL EXAMPLE JR**), birth date **August 2, 2015** in YYYYMMDD format, and other identifying fields such as mother's maiden name and patient address and phone numbers.
- The Insurance segment (**IN1**) indicates the patient had private (**5**) insurance coverage. The insurance provider, Blue Cross of ID Health Services, is indicated by the National Association of Insurance Commissioners (NAIC) code **60095**, with an insurance verified on **September 5, 2016**. The IN1 also indicates the patient's policy number **POL999T453K**.
- The Order Request segment (**ORC**) tells that a new vaccine order group is starting. Each immunization will have its own order group, requiring an ORC and RXA segment and may include RXR and multiple OBX segments. In this example the ORC segment indicates the Ordering Authority (**DR MATTHEW JOHN BROWN, MD**).
- The Pharmacy Administration segment (**RXA**) tells that a **HepB Pediatric** vaccine was administered on **September 5, 2016**. The immunization was new administered (**00**) from the **VALLEY CLINIC's** vaccine inventory lot number **XYZ72365**. The administering clinician is noted as **ILIA K CAPSHAW, RN**.
- The Pharmacy Treatment/Route segment (**RXR**) indicates the HepB vaccine was administered intramuscular (**C28161**) in the patient's right arm (**RA**).
- The Observation Result segment (**OBX**) in this example, indicates the patient's VFC eligibility status on the vaccination date. In this example, the patient was **Ineligible** (**V01**) for VFC vaccine verified at Immunization level (**VXC40**). The insurance information was included in the IN1 segment.

- The second OBX segment indicates the patient’s history of chicken pox (**38907003^History of Varicella Infection^SCT**).
- Segments can be repeated within a single message. In this example, the message could have included a second order group (ORC, RXA, RXR, OBX) segments to record additional immunizations given.
- HL7 does not specify how messages are transmitted. It is flexible enough to be used for both real-time interaction and large batches. The standard defines file header and file trailer segments that are used when a number of messages are gathered into a batch for transmission as a file. IRIS will use batch files of messages to communicate with outside systems.

Message Segments: Field Specifications and Usage

HL7 Segment Structure

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

- | | | |
|----|---------------------|---|
| 1. | SEQ | The ordinal position of the field in the segment. Since IRIS does not use all possible fields in the HL7 standard, these are not always consecutive. |
| 2. | LEN | Maximum length of the field |
| 3. | DT | HL7 data type of the field. Refer to below for definition of HL7 data types. |
| 4. | <u>Usage</u> | <p>R Required</p> <p>RE Required but may be empty. If the provider submitting the message knows the data included in the field, it should be sent. Otherwise the field can be left empty</p> <p>C (R/O) Conditional. The field is required if certain conditions are met. Example if a Date of Death is sent, the Patient Status must be ‘P’ Deceased.</p> <p>CE Conditional but may be empty. If the provider submitting the message knows the data included in the field, it should be sent if the condition is met. Otherwise, the field can be left empty.</p> <p>O O indicates an optional field.</p> |
| 5. | RP/# | Y means the field may be repeated any number of times within the segment, an integer gives the maximum number of repetitions, and a blank means no repetition is permitted. |
| 6. | TBL# | Number of the table giving valid values for the field. |
| 7. | ELEMENT NAME | HL7 name for the field. |

Rules for Sending Systems

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

- Encode each segment in the order specified in the message format.
- Begin the segment with the 3-letter segment ID (for example RXA).
- Precede each field with the data field separator (“|”).
- Use HL7 recommended encoding characters (“^~\&”).
- Encode the data fields in the order given in the table defining segment structure.
- Encode the data field according to its HL7 data type format.
- Do not include any characters for fields not present in the segment. Since later fields in the segment are encoded by ordinal position, fields that are not present do not reduce the number of field separators in the segment. For example, when the second and third fields are not present, the field separators maintain the ordinal position of the fourth field: |field1|||field4
- Data fields that are present but explicitly null are represented by empty double quotes “”.
- Trailing separators may optionally be omitted. For example, |field1|field2||| is equivalent to |field1|field2, when field3 and subsequent fields are not present.
- End each segment with the segment terminator (carriage return <CR>).

Rules for Receiving systems

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

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

MSH – Message Header Segment

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

SEQ	COMP	LEN	DT	USAGE	RP	TBL#	ELEMENT NAME
1		1	ST	R			Field Separator
2		4	ST	R			Encoding Characters
3	3.1	180	HD	O			Sending Application Name
4	4.1	180	HD	R		<u>0362</u>	Sending Facility IRIS Organization ID
5	5.1	95	IS	RE			Receiving Application Name
6	6.1	6	HD	RE			Receiving Facility Name
7	7.1	26	TS	R			Date Of Message Date/Time
9	9.1	15	MSG	R		<u>0076</u>	Message Type
	9.2	3	ID	R		<u>0003</u>	Event Type
	9.3	7	ID	R		<u>0354</u>	Message Structure
10		20	ST	R			Message Control ID
11	11.1	3	PT	R			Processing ID
12	12.1	1	ID	R		<u>0103</u>	Processing ID
		60	VID	R			HL7 Version ID
		6	ID	R		<u>0104</u>	Version ID
15		2	ID	RE		<u>0155</u>	Accept /Application Acknowledgment Type
16		2	ID	RE		<u>0155</u>	Application Acknowledgment Type

Field Notes:

- MSH-1 Determines the field separator in effect for the rest of this message. IRIS requires the HL7 recommended field separator of “|”.
- MSH-2 Determines the component separator, repetition separator, escape character, and sub-component separator in effect for the rest of this message. IRIS requires the HL7 recommended values of ^~\&.
- MSH-3 First component (3.1) Name of the sending application. When sending, IRIS will use “IRIS” followed by the current version number of the registry. This field is an optional convenience. Refer to MSH-4 and MSH-6 for the fields principally used to identify sender and receiver of the message.
- MSH-4 This field identifies the IRIS organization for whom the message is being sent (the owner of the message information). The first component (4.1) is **REQUIRED** and is used to submit the IRIS Organization ID. When sending, IRIS will use “IRIS”.

When the message is being sent to IRIS and the Provider Organization owning the information is different than the organization transmitting the message (as in a Parent/Child or Vendor/Client relationship), you must use the IRIS Provider Organization ID of the Provider Organization that **owns** the information e.g., 36). Contact the IRIS Help Desk for the appropriate organization ID.

*Note: If a parent or vendor organization is submitting on behalf of a child organization (facility/ site), the child's Organization ID should be in MSH-4.1. If parent and child organizations are submitting immunizations for the same patient, they should be submitted as separate messages.

MSH-5 First Component (5.1) identifies the application receiving the message. If sent, must be "IRIS".

MSH-6 First component (6.1) identifies the message receiver. If sent, must be "IRIS".

When sending, IRIS will use the short Provider Organization name assigned when the provider first registers with the IRIS database and IRIS-Web interface.

MSH-7 First component (7.1) date and time the message was created. IRIS ignores any time component. Refer to the TS data type.

MSH-9 Message Type is a required field. Three components of this field give the HL7 message type, 9.1 (Refer to Table 0076) and the HL7 triggering event, 9.2 (Refer to Table 0003) and HL7 message structure 9.3 (Refer to table 0354). Within HL7, the triggering event is considered to be the real-world circumstance causing the message to be sent. For IRIS purposes, this field should have the value VXU^V04^VXU_V04 for a message conveying patient and immunization information. IRIS will send ACK^V04^ACK on acknowledgement messages for inbound files.

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

MSH-11 User P for production processing. If this field is null, an informational message is generated indicating that IRIS is defaulting to P.

MSH-12 The first component (12.1) is version ID for HL7. This is a required field. For example, use a value of "2.4" to indicate HL7 Version 2.4 or "2.5.1" to indicate HL7 Version 2.5.1. **Note that HL7 2.4 and HL7 2.5.1 release 1.5 have separate IRIS Implementation Guides.**

*If there is no version number found in the first MSH segment, a hard error will occur and the entire HL7 file will be rejected.

**You will need to tell the Idaho Immunization Program (IIP) which version of HL7 you will be sending: HL7 2.4, HL7 2.5.1 (release 1.3) or HL7 2.5.1 Latest (release 1.5) when setting up your organization for data exchange. IRIS will process your file according to the version configured in IRIS, not the format indicated on the incoming file. The HL7 version selected for the sending organization number "tells" IRIS which parsing and business rules to apply when processing an incoming file and when generating an outbound response.

MSH-15 This field controls whether an accept acknowledgement is generated for the message sent. IRIS will accept a value of ER to ask that acknowledgements be sent only for messages that cannot be processed normally. If the field is empty, IRIS will assume the value of AL 'always'.

MSH-16 This field controls whether an application acknowledgement is generated for the message sent. IRIS will accept a value of AL to ask that acknowledgements be sent for all messages. If the field is empty, IRIS will assume the value of AL.

PID – Patient Identification Segment

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

SEQ	COMP	SUB COMP	LEN	DT	USAGE	RP	TBL#	ELEMENT NAME
1	1		1	SI	RE			Set ID- PID
3				CX	R	Y		Patient ID (Internal ID)
	3.1		20	ST	R			ID
	3.4	3.1.1	6	IS	R		<u>0363</u>	Assigning Authority for Medicaid ID
							<u>0362</u>	Facility ID for Patient ID
	3.5		5	ID	R		<u>0203</u>	Identifier Type Code
5				XP	R	N		Patient Name
	5.1.	5.1.1	35	ST	R			Family Surname
	5.2		25	ST	R			Given Name
	5.3		25	ST	RE			Middle Initial or Name
	5.4		10	ST	RE			Suffix (e.g., JR or III)
	5.7		1	ID	RE		<u>0200</u>	Name Type
6				XP	RE	N		Mother's Maiden Name
	6.1	6.1.1	35	ST	RE			Family Surname
	6.2		25	ST	RE			Given Name
	6.2		1	ID	RE		<u>0200</u>	Name Type
7				TS	R			Date of Birth
	7.1		26	DTM	R			Date
8			1	IS	RE		<u>0001</u>	Sex
10				CE	RE	N		Race
	10.1		50	ST	RE		<u>0005</u>	Race Identifier
	10.2		100	ST	RE			Text
	10.3		20	ID	RE		<u>0396</u>	Name of Coding System
11				XAD	RE	N		Patient Mailing Address (Primary Address)
	11.1		55	SAD	RE			Street Address
		11.1.1	55	ST	RE			Street Address
	11.2		55	ST	RE			Other Designation
	11.3		52	ST	RE			City
	11.4		2	ST	RE			State or Province
	11.5		9	ST	RE			Zip or Postal Code
	11.6		2	ID	RE		<u>0212</u>	Country/Nationality
	11.7		3	ID	RE		<u>0190</u>	Address Type
	11.9		5	IS	RE		<u>0289</u>	County /Parish of Residence
13				XTN	RE	N		Phone number: Primary Residence Number
	13.2		3	ID	RE		<u>0201</u>	Telecommunication Use Code
	13.3		8	ID	RE		<u>0202</u>	Telecommunication Equipment Type
	13.4		80	ST	C(R/X)			Email Address (Required if PID-13.2 is NET)
	13.6		5	NM	C(R/X)			Area /City code (Required if PID-13.2 is <u>not</u> NET)

SEQ	COMP	SUB COMP	LEN	DT	USAGE	RP	TBL#	ELEMENT NAME
	13.7		8	NM	C(R/X)			Phone Number (Required if PID-13.2 is not NET)
	13.8		7	NM	C(R/X)			Extension (Required if PID-13.2 is not NET)
22				CE	RE	N		Ethnic Group
	22.1		50	ST	RE		<u>0189</u>	Ethnic Group Identifier
	22.2		100	ST	RE			Text
	22.3		20	ID	RE		<u>0396</u>	Name of Coding System
24			1	ID	RE		<u>0136</u>	Multiple Birth Indicator (Yes/No)
25			2	NM	C(R/X)			Birth Order
29				TS	C(R/X)			Date of Death
	29.1		26	DTM	R			Date/ Time
30			1	ID	C(R/X)			Death Indicator

Field Notes:

PID-3 There are three components to the Patient Identifier. Refer to CX data type. Components 3.1 (ID) and 3.5 (identifier type code of MA, MC, MR, PI, PN, or PT) are required in the PID-3 field. For component 3.4 (assigning authority) is included, use the IRIS Organization ID for a patient identifier. When a Provider Organization is sending to IRIS, send the organization's Patient ID. IRIS does not support multiple patient identifiers for a single patient for a provider organization. When IRIS is sending to an outside system, IRIS will repeat this field. The first repetition will include the patient's unique state registry ID (IRIS ID), with identifier type code of SR. The second repetition will include provider organization's Patient ID (identifier type code of PI), if it is available in IRIS.

PID-5 There are 4 components for the patient name. Refer to the XPN data type. The Last name/Family name (5.1.1) and first name (5.2) are required in the first two components. Middle name (5.3) and suffix (5.4) are optional. If the Name Type Code component is included, use 'L' for Legal. IRIS does not support repetition of this field. The patient's legal name should be sent.

Note: IRIS does not permit use of false, alias or 'placeholder' names for newborns or other patients. Use of false names facilitates the creation duplicate patient records and incomplete immunization histories. Refer to the False Names List in [HL7 2.5.1 Appendix A \(separate document link under IRIS Forms\) for](#) examples of unacceptable names.

PID-6 First component (6.1) contains the Mother's Maiden last/ family name. Refer to the XPN data type. In this context, where the mother's name is used for patient identification, IRIS uses only last name (6.1) and first name (6.2). If the Name Type Code component is included, use 'M' Maiden. A mother's legal name might also appear in the context of an NK1 segment component 2.1.

IRIS does not support repetition of this field.

PID-7 First component (7.1) gives the year, month, and day of birth (YYYYMMDD). IRIS ignores any time component.

PID-8 Use appropriate code. Refer to Table 0001. Use F, M, or U. If no value sent, U is assigned.

PID-10 First component (10.1) is race identifier. Use appropriate code. Refer to Table 0005. IRIS does not support repetition of this field.

PID-11 Patient's mailing address. Refer to the XAD data type.

| Street Address^Other Designation^City^State^Zip^Country^Address Type^^County|

For example: |123 Main St^Apt 1 ^Anytown^ID^12345^USA^M^^ID001|

If the Address Type Code component (4.7) is included, use 'M' for Mailing. IRIS does not support repetition of this field.

- PID-13 Refer to the XTN data type. This field contains the patient's personal phone numbers and email address. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.
If PRN is specified in component 13.2 (telecommunication use code (ID) from table 0201) IRIS will use the 6th 7th and 8th components for specification of area code (13.6), phone number (13.7), extension (13.8) , respectively. IRIS will save the cell phone number (i.e. PID-13.3 = CP) over a landline phone number (i.e. PID-13.3 = PH) if both are sent.
If NET is specified in component 13.2 (telecommunication use code (ID) from table 0201) and X.400 is specified in component 13.3 (telecommunication equipment type), IRIS will use the 4th component for the email address.
- PID-22 First component (22.1) contains the identifier for ethnicity. Use appropriate code. Refer to Table 0189. IRIS stores and writes "Unknown" values as null. IRIS does not support repetition of this field.
- PID-24 Use 'Y' to indicate that the patient was born in a multiple birth event. If Y is entered in this field, you must supply the required information in PID-25.
- PID-25 Relevant when patient was born in a multiple birth event (i.e. twins, triplets). Use 1 for the first born, 2 for the second, etc. This field is useful in matching patient data to existing records.
Note: You must include Y in PID-24 and indicate the birth order in PID-25 for the birth order to be loaded.
- PID-29 Indicates the date of death, if patient is deceased. Give the year, month, and day (YYYYMMDD). IRIS ignores any time component. If a patient is deceased, then the **date of death is required**, the Patient Registry Status in PD1-16 must indicate a value of "P" for Deceased and Death Indicator (PID-30) must be "Y".
- PID-30 Death Indicator is a "Y" or "N" field. If a patient is deceased, then the death date is required, the Patient Registry Status in PD1-16 must indicate a value of "P" for Deceased and Death Indicator (PID-30) must be "Y".

PD1 – Patient Additional Demographic Segment

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

SEQ	COMP	LEN	DT	USAGE	RP	TBL#	ELEMENT NAME
11			CE	RE			Publicity Code
	11.1	50	ST	RE		<u>0215</u>	Publicity ode
	11.2	100	ST	RE			Text
	11.3	20	ID	RE		<u>0396</u>	Name of Coding System
12		1	ID	X		<u>0136</u>	Protection Indicator
16		1	IS	RE		<u>0441</u>	Patient Registry Status

Field Notes:

PD1-11 Controls whether recall/reminder notices are sent. IRIS will recognize “01” to indicate no recall/reminder notices or “02” recall/reminder notices any method.

PD1-12 IRIS does not allow for protection indicator to be set via data exchange. Patients must have protection indicator of N ‘No Protection’ to be entered or updated in IRIS. *If the patient requested to opt out of the registry, please contact the Idaho Immunization Program at iip@dhw.idaho.gov or 208-334-5931 to obtain the OptOut form.*

PD1-16 Identifies the registry status of the patient for the provider organization. Refer to table 0441. If a code of P is specified the PID-29 Date of Death and PID-30 Death Indicator of “Y” are required. PD1-17 will not indicate date of death.

NK1 – Next of Kin /Associated Parties Segment

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

SEQ	COMP	SUB COMP	LEN	DT	USAGE	RP	TBL#	ELEMENT NAME
1			4	SI	RE			Set ID - NK1
2				XPN	R	N		Name
	2.1	2.1.1	35	ST	R			Family Surname
	2.2		25	ST	RE			Given Name
	2.3		25	ST	RE			Middle Initial or Name
	2.5.		10	ST	RE			Suffix (e.g., JR or III)
	5.7		1	ID	RE		<u>0200</u>	Name Type
3				CE	RE			Relationship
	3.1		50	ST	RE		<u>0063</u>	Relationship Identifier
	3.2		100	ST	RE			Text
	3.3		20	ST	RE		<u>0396</u>	Name of Coding System
4				XAD	RE	N		Address
	4.1		55	SAD	RE			Street Address
		4.1.1	55	ST	RE			Street Address
	4.2		55	ST	RE			Other Designation
	4.3		52	ST	RE			City
	4.4		2	ST	RE			State or Province
	4.5		9	ST	RE			Zip or Postal Code
	4.6		2	ID	RE		<u>0212</u>	Country/Nationality
	4.7		3	ID	O		<u>0190</u>	Address Type
	4.9		5	IS	RE		<u>0289</u>	County /Parish
5				XTN	RE	N		Phone Number
	5.2		3	ID	RE		<u>0201</u>	Telecommunication Use Code
	5.3		8	ID	RE		<u>0202</u>	Telecommunication Equipment Type
	5.4		80	ST	C(R/X)			Email Address
	5.6		5	NM	C(R/X)			(Required if PID-13.2 is NET) Area /City code
	5.7		8	NM	C(R/X)			(Required if PID-13.2 is <u>not</u> NET) Phone Number
	5.8		7	NM	C(R/X)			(Required if PID-13.2 is <u>not</u> NET) Extension

Field Notes:

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

NK1-2 Name of the responsible person who cares for the patient. Refer to the XPN data type. The Last name/Family name (2.1.1) and first name (2.2) are sent in the first two components. Middle

name (2.3) and suffix (5.4) and Name Type (2.7) are optional. If the Name Type Code component (2.7) is included, use 'L' for Legal. IRIS does not support repetition of this field.

NK1-3 Relationship of the responsible person to the patient. Refer to data type CE and Table 0063 in the HL7 tables. Use the first three components of the CE data type, for example |MTH^Mother^HL70063|. If no relationship is sent, IRIS will assign a relationship of Guardian.

NK1-4 Responsible person's mailing address. Refer to the XAD data type.
| Street Address^Other Designation^City^State^Zip^Country^Address Type^^County|
For example: |123 Main St^Apt 1 ^Anytown^ID^12345^USA^M^^ID001|
If the Address Type Code component (4.7) is included, use 'M' for Mailing. IRIS does not support repetition of this field.

NK1-5 Refer to the XTN data type. This field contains the responsible person's personal phone numbers and email address. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.
If PRN is specified in component 13.2 (telecommunication use code (ID) from table 0201) IRIS will use the 6th 7th and 8th components for specification of area code (13.6), phone number (13.7), extension (13.8) , respectively. IRIS will save the cell phone number (i.e. PID-13.3 = CP) over a landline phone number (i.e. PID-13.3 = PH) if both are sent.
If NET is specified in component 13.2 (telecommunication use code (ID) from table 0201) and X.400 is specified in component 13.3 (telecommunication equipment type), IRIS will use the 4th component for the email address.

PV1 – Patient Visit Segment (Deprecated)

The PV1 segment was used in previous HL7 versions to send visit-specific information including the patient's eligibility for vaccine for children (VFC). CDC 2.5.1 Implementation Guide 1.3 August 2011 deprecated this use of the PV1 segment. A patient's eligibility for VFC vaccine should be sent on the immunization level using the OBX segment with the appropriate LOINC code in OBX.3 and eligibility code in OBX.5. Refer to the OBX segment section in this document for codes and examples.

IN1 – Insurance Segment (Not sent on outbound files from IRIS)

The IN1 segment contains information about the patient’s private insurance coverage. In IRIS, insurance information is **REQUIRED** for patients that are less than 19 years old on the date the vaccine was administered and are ineligible for VFC coverage. The IN1 segment is accepted on inbound submissions to IRIS. IRIS will not send IN1 segments on outbound files.

SEQ	COMP	LEN	DT	Usage	RP/#	TBL#	ELEMENT NAME
1		4	SI	R			Set ID – IN1
2			CE	RE			Insurance Plan ID
	2.1	50	ST	RE			ID
	2.2	100	ST	RE			Description
	2.3	20	IS	RE			Name of Coding System
3			CX	R			Insurance Provider ID
	3.1	100	ST	R		<u>ID002</u>	ID
	3.2	100	ST	RE		<u>0363</u>	Assigning Authority
	3.3	20	IS	RE		<u>0203</u>	Identifier Type Code
12		26	TS	X			Insurance Effective Date
	12.1		DTM	X			Date – <i>Deprecated with release 2.0</i>
13		26	TS	X			Insurance Expiration Date
	13.1		DTM	X			Date – <i>Deprecated with release 2.0</i>
15	15	3	IS	O		<u>0086</u>	Plan Type
29		26	TS	O			Verification Date
	19.1		DTM	O			Date
36		15	ST	RE			Policy Number

Field Notes:

- IN1-1 Shall be “1”.
- IN1-2 Insurance Plan is required by HL7 when submitting an IN1 segment; IRIS will ignore its value.
- IN1-3 First component 3.1 indicates the patient’s Insurance Provider. Indicate the insurance provider by sending the insurers National Association of Insurance Commissioners (NAIC) Identifier code. IRIS provides a list of common insurers in Idaho in local table ID002. If an insurance provider you want to submit is not on the table, use ‘Other’.
- IN1-15 Plan Type is used to indicate the type of insurance set. Plan Type is optional in this version of HL7. Refer to User –defined Table 0086 – Plan ID for values.
- IN1-29 This field contains the date/time that the healthcare provider verified that the patient has the indicated benefits.
- IN1-36 Indicate the patient’s insurance policy number in this field. Policy number is optional.

ORC - Common Order Segment

The ORC segment contains information about an order for a health service for the patient. HL7 requires an order (ORC) segment precede *each immunization/refusal (RXA) segment.*

SEQ	COMP	SUB COMP	LEN	DT	Usage	RP	TBL#	ELEMENT NAME
1			2	ID	RE		<u>0119</u>	Order Control
2			250	EI	RE			Placer Order Number
3				EI	R			Filler Order Number
	3.1		199	ST	R			Immunization ID
	3.2		20	IS	RE			Assigning Authority
10				XCN				Entered By
	12.1		15	ST	RE			ID Number
	10.2	10.2.1	35	CM	O			Family Surname
	10.3		25	ST	O			Given Name
	10.4		25	ST	O			Middle Initial or Name
	10.5		10	ST	O		<u>Suffix</u>	Suffix
	10.6		3	ST	O			Prefix (e.g., DR,MS,MR)
	12.9		6	HD	C (RE/X)		<u>0363</u>	Assigning Authority for National
							<u>0362</u>	Identifier
								Facility ID for Local Identifier
	12.10		2	ID	C (RE/X)		<u>0200</u>	Name Type Code
	12.13		5	ID	C (RE/X)		<u>0203</u>	Identifier Type Code
	12.21		10	SST	O		<u>0360</u>	Professional Suffix or Degree (MD RN) is recommended for incoming loads in the suffix field.
12				XCN	RE			Ordering Authority
	12.1		15	ST	RE			ID Number
	12.2	12.2.1	35	CM	RE			Family Surname
	12.3		25	ST	RE			Given Name
	12.4		25	ST	RE			Middle Initial or Name
	12.5		10	ST	RE		<u>Suffix</u>	Suffix
	12.6		3	ST	RE			Prefix (e.g., DR,MS,MR)
	12.9		6	HD	C (RE/X)		<u>0363</u>	Assigning Authority for National
							<u>0362</u>	Identifier
								Facility ID for Local Identifier
	12.10		2	ID	C (RE/X)		<u>0200</u>	Name Type Code
	12.13		5	ID	C (RE/X)		<u>0203</u>	Identifier Type Code
	12.21		10	SST	O		<u>0360</u>	Professional Suffix or Degree (MD RN) is recommended for incoming loads in the suffix field.

Field Notes:

- ORC-1 Determines the function of the order segment. IRIS recommended values of 'RE'
- ORC-3 Indicates the Immunization ID for the sending system. Providers should submit the immunization ID in their system in component 3.1. IRIS will ignore the assigning authority in

component 3.2. Although this field is required by HL7, IRIS will ignore its value. When sending outbound files, IRIS will send the IRIS immunization ID in component 3.1.

Note In the cases where an RXA is conveying information about an immunization which was not given (e.g. refusal, etc.) the filler order number shall be 9999.

ORC-10 Refer to the XCN data type. Identifies the name of the user that entered the information in IRIS. IRIS will use components 12.2 through 12.6 to record the name and 12.10 Name Type 'L' for legal. ORC-12.22 may contain the professional suffix/degree.

Example |87654321^GREEN^JAMIE^^^^^36^L^^^PRN^^^^^^^RMA|

If ID number is specified in component 12.1, then populate the IRIS Organization ID (table 0362) or Assigning Authority (table 0363) in 12.9 Assigning Authority and use 'PRN' in 12.13 Identifier Type Code table 02)

Example |87654321^GREEN^JAMIE^^^^^36^L^^^PRN^^^^^^^RMA|

ORC 12 Refer to the XCN data type. Identifies the name of the person responsible for authorizing the order (ordering authority). IRIS will use components 12.2 through 12.6 to record the name and 12.10 Name Type 'L' for legal. ORC-12.22 may contain the professional suffix/degree.

Example |^BROWN^AVERY^JOHN^JR^DR^^^^L^^^^^^^MD|

If ID number is specified in component 12.1, then populate the IRIS Organization ID (table 0362) or Assigning Authority (table 0363) in 12.9 Assigning Authority and use 'PRN' in 12.13 Identifier Type Code table 02)

Example |12345567^BROWN^AVERY^JOHN^JR^DR^^^36^L^^^PRN^^^^^^^MD|

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

RXA - Pharmacy/Treatment Administration Segment

The RXA carries pharmacy/immunization administration data. It is a repeating segment and can record unlimited numbers of vaccinations. Each RXA should be preceded by an ORC segment.

SEQ	COMP	SUB COMP	LEN	DT	USAGE	R P	TBL#	ELEMENT NAME
1			4	NM	R			Give Sub-ID Counter
2			4	NM	R			Administration Sub-ID Counter
3				TS	R			Date Start of Administration
	3.1		26	DT	R			Date
4				M				
	4.1		26	TS	O			Date End of Administration
					O			Date
				DT				
5				M				
	5.1		50	CE	R			Administered Code
				ST	R			Code
							HL70292 (CVX)	
							C4	
							99VGC	
							99VTN	
	5.2		100	ST	RE			Text
	5.3		20	IS	R			Name of Coding System
6			4	NM	R		0396	Administered Amount
7			20	CE	RE			Administered Units
9			23	CE	C	N		Administration Notes
	9.1		2	ST	C(R/RE)		NIP001	Immunization information Source
								Text
	9.2		15	ST	RE			Name of Coding System
	9.3		3		RE			Administering Provider
10			200	XCN	RE	N		Family Surname
	10.2		35	CM	RE			Given Name
	10.3		25	ST	RE			Middle Initial or Name
	10.4		25	ST	RE			Suffix
	10.5		10	ST	RE		Suffix	Suffix
	10.6		3	ST	RE			Prefix (e.g., DR,MS,MR)
	12.9		6	HD	C (RE/X)		0363	Assigning Authority for National Identifier
							0362	Facility ID for Local Identifier
	12.10		2	ID	C (RE/X)		0200	Name Type Code
	12.13		5	ID	C (RE/X)		0203	Identifier Type Code
	12.21		10	SST	O		0360	Professional Suffix or Degree (MD RN) is recommended for incoming loads in the suffix field.
11				LA2	C(R/RE)			Administered at Location
	11.4		208	HD	C(R/RE)			Facility
		11.4.1	208	IS	C(R/RE)			IRIS Organization ID
15			20	ST	C(R/RE)	N		Lot Number
16			26	TS	O			Substance Expiration Date
17				CE	C			Substance Manufacturer Name
	17.1		50	ST	C(RE/O)		0227	MVX Code
	17.2		100	ST	O			Text
	17.3		20	ID	C(RE/O)		0396	Name of Coding
18				CE	C	N		Substance Refusal Reason
	18.1		50	ST	C(R/X)		NIP002	Substance Refusal Reason Identifier
	18.2		50	ST	CE			Text
	18.3		20	ST	C(R/X)		0396	Name of Coding System

20			2	ID	C(R/RE)		<u>0322</u>	Completion Status
21			2	ID	RE		<u>0323</u>	Action Code

Field Notes:

RXA-1 Required by HL7. Use “0” for IRIS.

RXA-2 Required by HL7. Use “1” for IRIS.

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

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

RXA-5 This field identifies the vaccine administered. IRIS accepts the CVX code, CPT code, IRIS Vaccine Trade Name, or IRIS Vaccine Group Code for the vaccine administered. In this version of HL7, any of the codes can be sent in the first triplet. Refer to the CE data type and HL7 - Table 0292 (CVX Codes), IRIS – Table C4 (CPT Codes), IRIS – Table 99VGC (Vaccine Group Codes) or IRIS – Table 99VTN (Vaccine Trade Names).

Note: IRIS does not accept NDC codes at this time.

Send the CVX, CPT, IRIS Trade Name (99VTN), or IRIS Vaccine Group (99VGC) code in the first component (5.1), the vaccine description in the second component (5.2) and the coding system in the third component (5.3) For example, when indicating an Engerix B Peds formulation was administered, the following codes could be sent. It is preferred that the most specific code possible for your system be sent.

```
| |08^HepB-Peds^CVX|
|90744^HepB-Peds^C4|
|Engerix-B Peds^HepB-Peds^ 99VTN|
|HepB^HepB-Peds^99VGC|
```

*To deduct immunization from inventory, RXA-5 is required to contain a specified formulation of a vaccine. Vaccine Group and CVX/CPT codes for *uncertain formulation (aka unspecified)* vaccines will not be deducted as they do not indicate acceptable level of details to match to IRIS vaccine inventory.

For example:

|08^HepB-Peds^CVX| would be acceptable as HepB-Peds is a specified formulation of HepB vaccine.

|HepB^HepB^ 99VGC|. would not meet the deduct from inventory criteria, as it does not specify if the vaccine administered is HepB Pediatric, HepB Adult, HepB Dialysis formulation.

RXA-6 Administered Amount is the amount of vaccine given. When the administered amount is unknown, this field should record the value “999” in this field. IRIS and HL7 require this field to contain a value. However, on an immunization a value of 1.0 “full dose” as Dose Magnitude will be stored in its place. If more than one dose is administered, the change will have to be made via IRIS user interface.

RXA-7 Administered are the actual quantity of the substance administered in simple units (i.e. mL). It does not include compound units. Should be populated if previous field is populated by any value except 999, it is required. Send “mL

RXA-9 IRIS will recognize 00 to indicate New Immunization Administered/Owned by the Sending Organization or 01 to indicate Historical Record – Source Unspecified. If the source for a historical record is known, please use values 02 through 08 in Table NIP001.

***Conditional Required: To deduct immunization from inventory, RXA-9 value is required and must be 00**

|00^New Administered^NIP001|

NOTE: If this field is left blank, the immunization will be recorded as *historic* (i.e. not administered by the organization that owns the HL7 message) in IRIS. ALL immunizations that were administered in your provider office should be recorded as “00” to ensure that the record is correctly associated with your organization in IRIS.

RXA-10 Refer to the XCN data type. Identifies the name of the administering clinician. IRIS will use components 12.2 through 12. 6 to record the name and 12.10 Name Type ‘L’ for legal. ORC-12.22 may contain the professional suffix/degree.

Example |111222333^BLACK^TAYLOR^J^^^^^36^L^^^PRN^^^^^^^RN|

If ID number is specified in component 12.1, then populate the IRIS Organization ID (table 0362) or Assigning Authority (table 0363) in 12.9 Assigning Authority and use ‘PRN’ in 12.13 Identifier Type Code table 02)

Example |111222333^BLACK^TAYLOR^J^^^^^36^L^^^PRN^^^^^^^RN|

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

RXA-11 IRIS will use this field to identify the facility where the vaccine was administered or the ‘owner’ of the immunization. Place the facility name in component 11.4. Historical location name on historical immunization are entered in RXA-11.4.

*** Conditional Required: To deduct immunization from inventory, RXA-11.4 is required.** Place the Organization name and/or Organization ID in component 4, i.e. or |^^^ORGID| or |^^^ORGNAME&ORGID|. In addition, RXA-11.4 must match the sending organization in MSH-4, if provided. If MSH-4 is blank, RXA 11.4 must match the organization submitting the file.

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

*** Conditional Required: To deduct immunization from inventory, RXA-15 is required.** The owner of the immunization must have a single vaccine lot with an exact matching lot number for the same vaccine sent in RXA-15 in their IRIS inventory management.

RXA-16 Vaccine lot expiration date. Format as YYYYMMDD. IRIS will ignore any incoming value for RXA-16. IRIS will send expiration date of the vaccine lot for new administered immunizations that deducted from IRIS vaccine inventory.

RXA-17 Vaccine manufacturer for the vaccine. Refer to Table 0227, for example |PMC^sanofi pasteur^MVX|. The HL7 2.5.1 specification recommends use of the external code set MVX. However IRIS will ignore and will not store any incoming value for RXA-17. IRIS will send manufacturer if known.

RXA-18 When applicable, this field records the reason the patient refused the vaccine. Component 18.1 is for the refusal code, Refer to table NIP002 and RXA.20 completion status must be 'RE'. Any entry in this field indicates that the patient did not take the substance. Component 18.2 is used for text entered as reason for refusal. 18.3 references the coding system used for refusal, NIP002. The vaccine that was offered should be recorded in RXA-5. Do not record contraindications, immunities or reactions in this field. IRIS does not support repetition of this field. IRIS currently only accepts 00 'Parental Refusal.' Refusal will be rejected if any other values are provided.

Notes on Refusals:

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

b) The Administration date (RXA-3) is used as the refusal comment effective date. IRIS will not write out refusals which do not have a comment effective date. It will write out multiple refusals for the same vaccine on different dates for those patients who have them.

c) The IRIS system will accept incoming refusals of the same vaccine on different dates and file them both. However, if they both have the same comment effective date, one comment will be stored.

d) The sending organization (MSH-4) will become the refusal owner. In general, only the organization who owns the refusal is permitted to edit it. However, in the case of parent and child organizations, the parent may edit the child's refusals and vice versa.

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

```
RXA|0|1|20070101||MMR^MMR^99VGC|999|||||||00^PARENTAL  
REFUSAL^NIP002||RE|A<CR>
```

RXA-20 Indicates the immunization completion status. If this field is not populated, it is assumed to be "CP" or complete. If the Refusal reason is populated, this field shall be set to 'RE'. Use 'PA' for doses which are partially administered. A partially administered dose refers to the scenario where the patient jumps and the needle breaks, resulting in an unknown quantity of vaccine entering the patient's system.

RXA-21 Identifies the action for the RXA segment. If blank, RXA will be processed as an 'add'. **At this time IRIS does not support deletions of immunizations via data exchange.** Refer to Table 0323 for list of action codes.

RXR – Pharmacy/Treatment Administration Segment

The Pharmacy/Treatment Route Segment contains the alternative combination of route and site. The RXR will be ignored if the RXA indicates a refusal of a vaccine.

SEQ	COMP	LEN	DT	USAGE	R	TBL#	ELEMENT NAME
1	1.1	50	CE ST	R R		<u>0162</u> <u>NCIT</u>	Route of Administration Route of Administration Identifier
	1.2	100	ST	CE			Text
2	1.2	20	ID	C		<u>0396</u>	Name of Coding System
			CWE	RE			Administration Body Site
	1.1	50	ST	RE		<u>0163</u>	Administration Body Site Identifier
	1.2	100	ST	CE			Text
	1.2	20	ID	CE		<u>0396</u>	Name of Coding System

Field Notes:

- RXR-1 This is the route of administration from table 0162 or NCIT. This field is required if RXR segment is sent.
- RXR-2 This is the site of the route of administration from table 0163.

OBX - Observation/Result Segment

The OBX Segment is used to transmit an observation including VFC eligibility, patient comments for contraindications\precautions, history of disease, serologic evidence of immunity, special indications to immunize and reactions. *Utilizing OBX-1-set ID, multiple OBX segments can be sent to patient accounts.*

SEQ	COMP	LEN	DT	Usage	RP/#	TBL#	ELEMENT NAME
1		4	SI	R			Set ID-OBX
2		3	ID	R		<u>0125</u>	Value Type
3			CE	R	N	<u>NIP003</u>	Observation Identifier
	3.1	50	ST	R			Observation ID
	3.2	100	ST	RE			Observation Text
	3.3	20	ST	R			Name of Coding System
4		20	ST	RE			Observation sub-ID
5			*Varies	R	N	<u>*Various</u>	Observation Value
	5.1	8	*Varies	R			Observation Identifier/Funding Type
	5.2	100	ST	RE			Name or description of observation
	5.3	6	ST	R			Name Of Coding System
11		1	ID	RE		<u>0085</u>	Observation Result Status
14			TS	RE			Date of Observation
	14.1	26	NM	RE			Date
17			CE	C			Observation Method
	17.1	50	ST	C(R/X)		<u>Eligibility Method</u>	Identifier
	17.2	100	ST	C(R/X)			Text
	17.3	20	ID	C(R/X)		0396	Name of Coding System

Field Notes:

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

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

OBX-3 This field is used to indicate the observation type being sent in OBX.5. LOINC codes are used to identify the type of observation including VFC eligibility; patient comments for contraindications, immunity or special indications to immunize; and reactions. Examples OBX values accepted on inbound files are listed below. To Refer to a complete list, view the NIP003 table in the [HL7 2.5.1 Appendix A \(separate document link under IRIS Forms\)](#).

VFC ELIGIBILITY:

When indicating the patient's **Eligibility for VFC Vaccine**, use 64994-7 in this field and enter a the VFC code (HL7 0064) in OBX-5. Eligibility is **REQUIRED** for all new administered immunizations in which RXA.9 = 00 from public funded lots. If eligibility is not indicated for the incoming new immunization, the eligibility be defaulted to V01 'Ineligible'.

Examples:

VFC Eligible Patient Received Vaccine That Is VFC eligible

```
RXA|0|1|20090531|20090531|48^HIB PRP-T^CVX|999|||^Sticker^Nurse|^DCS_DC|||33k2a|<CR>
RXR|IM^IM^HL70396<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig cat^LN|1|V04^VFC eligible NA/AN^HL70064|||F||20090531|||
VXC40^per immunization^CDCPHINVS |<CR>
```

VFC Ineligible Patient Received Vaccine That Is VFC eligible

```
RXA|0|1|20090531132511|20090531132511|48^HIB PRP-
T^CVX|999|||^Sticker^Nurse|^DCS_DC|||33k2a|<CR>
RXR|IM^IM^HL70396<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig cat^LN|1|V01^Ineligible ^HL70064|||F||20090531|||VXC40^per
immunization^CDCPHINVS |<CR>
```

VFC Eligible Patient Received Vaccine That Is Not VFC eligible

```
RXA|0|1|20090531|20090531|37^yellow fever^CVX|999|||^Sticker^Nurse|^DCS_DC|||33k2a|<CR>
RXR|IM^IM^HL70396<CR>
OBX|1|CE|64994-7^vaccine fund pgm elig cat^LN|1|V01^Ineligible ^HL70064|||F||20090531|||VXC40^per
immunization^CDCPHINVS |<CR>
```

PATIENT COMMENTS:

Contraindications, immunity and special indications to immunize have their own unique LOINC codes in HL7 2.5.1. It is not required, but strongly recommended, that providers submit Date of Observation for all comments

- When indicating a **Vaccination Contraindication/Precaution**, use 30945-0 in this field and enter a Contraindication, or Precaution code (SCT or CDCPHINVS) in OBX-5.

Example

```
OBX|1|CE|30945-0^contraindications^LN|3|294468006^allergy to neomycin^SCT|||F||20160708|||<CR>
```

- When indicating **History of Disease**, use 59784-9 in this field and enter an Immunity code (SCT) in OBX-5.

Example

```
OBX|1|CE|59784-9^History of Disease ^LN|1|66071002^HISTORY OF HEP B^SCT|||F||20160708|||<CR>
```

- When indicating **Serologic Evidence of Immunity**, use 75505-8 in this field and enter an Immunity code (SCT) in OBX-5.

Example

```
OBX|1|CE|75505-8^Serological Evidence of Immunity^LN|1|278971009^Serology HepA
Infection^SCT|||F||20160708|||<CR>
```

- When indicating **Special Indications to Immunize** use 59785-6 in this field and the Indication code (CDCPHINVS) in OBX-5

Example

OBX|1|CE|59785-6^Special Indication^LN|1|VXC7^exposure to rabies^CDCPHINVS|||||F<CR>

REACTIONS:

When indicating a **Reaction to Immunization**, use 31044-1 in this field and enter a Reaction code in OBX-5.

Example: OBX|1|CE|31044-1^Reaction^LN||VXC10^hypotonic^CDCPHINVS^|||||F<CR>

OUTBOUND SERIES AND RECOMMENDATIONS:

On outbound files, IRIS will send eligibility, contraindications\precautions, immunity, reactions and indications to immunize in this field. In addition, observation values for SERIES and RECOMMENDATIONS, etc) may be sent.

Example of Series (outbound only)

ORC|RE||317775|||||||IRIS^Idaho IIS^HL70362 <CR><LF>
RXA|0|1|20171113|20171113|130^DTaP-IPV^CVX^90696^DTaP-IPV^CPT|999|||05^From other registry^NIP001
|||||KN2323||SKB^GlaxoSmithKline (SmithKline Beecham and Glaxo Wellcome)^MVX|||A<CR><LF>
OBX|1|CE|30956-7^COMPONENT VACCINE TYPE^LN|1|107^DTP/aP^CVX|||||F<CR><LF>
OBX|2|NM|30973-2^Dose number in series^LN|1|4|||||F<CR><LF>
OBX|3|NM|59782-3^Number of doses in primary series^LN|1|5|||||F<CR><LF>
OBX|4|CE|30956-7^COMPONENT VACCINE TYPE^LN|2|89^Polio^CVX|||||F<CR><LF>
OBX|5|NM|30973-2^Dose number in series^LN|2|4|||||F<CR><LF>
OBX|6|NM|59782-3^Number of doses in primary series^LN|2|4|||||F<CR><LF>

Example of Recommendations (outbound only)

ORC|RE||9999<CR><LF>
RXA|0|1|20170101|20170101|998^No Vaccine Administered^CVX|999|||||||NA|A<CR><LF>
OBX|7|CE|59784-9^Disease with presumed immunity^LN||40468003^History of Hepatitis A
infection^SCT|||||F||20171113<CR><LF>
OBX|8|CE|X0001-0^Missed Opportunity Vaccine Type^LN||45^HepB^CVX^90731^HepB^CPT|||||F||20171113
<CR><LF>
OBX|9|CE|X0001-0^Missed Opportunity Vaccine
Type^LN||17^Hib^CVX^90737^Hib^CPT|||||F||20171113<CR><LF>
OBX|10|CE|X0001-0^Missed Opportunity Vaccine Type^LN||109^Pneumococcal^CVX|||||F||20171113<CR><LF>
OBX|11|CE|30979-9^Vaccines Due Next^LN|0|107^DTP/aP^CVX|||||F<CR><LF>
OBX|12|TS|30980-7^Date Vaccine Due^LN|0|20171211|||||F<CR><LF>
OBX|13|NM|30973-2^Vaccine due next dose number^LN|0|5|||||F<CR><LF>
OBX|14|TS|30981-5^Earliest date to give^LN|0|20171211|||||F<CR><LF>
OBX|15|CE|30982-3^Reason applied by forecast logic to project this vaccine^LN|0|ACIP schedule|||||F<CR><LF>
OBX|16|CE|30979-9^Vaccines Due Next^LN|1|45^HepB^CVX^90731^HepB^CPT|||||F<CR>
OBX|17|TS|30980-7^Date Vaccine Due^LN|1|20170101|||||F<CR><LF>
OBX|18|NM|30973-2^Vaccine due next dose number^LN|1|1|||||F<CR><LF>
OBX|19|TS|30981-5^Earliest date to give^LN|1|20170101|||||F<CR><LF>
OBX|20|CE|30982-3^Reason applied by forecast logic to project this vaccine^LN|1|ACIP schedule|||||F<CR><LF>

..... recommendations continue on

Note: X0001-0^Missed Opportunity Vaccine Type^LN OBX-3 is a IRIS specific LOINC used in our AFIX reporting to denote a missed opportunity to receive a vaccine. Missed Opportunities are only sent on outbound files.

OBX-4 Identifies the observation sub-id. This field will be used to group associated segments such as a contraindication OBX with effective and expiration date OBX. Since multiple comments can be sent within an order group or within the same message, the OBX.4 field is recommended to group associated OBX together.

Outbound files, **OBX.4** will associate OBX segments with the group such as associating SERIES information for an immunization given to the patient our RECOMMENDATION information for the patient for a specific vaccine group.

OBX-5 The first component (5.1) is required for reporting VFC Eligibility, Contraindication\Precaution, Reactions, Immunity or Special Indications to Immunize has imposed a CE data type upon this field. The second component (5.2) is description text summarizing contraindication, reaction, or VFC Eligibility Component 5.3 gives the identifier for the value code (HL70064. SCT or CDCPHINVS). Examples are given in OBX.3 include examples of values in OBX 5. [Refer to HL7 2.5.1 Appendix A \(separate document link under IRIS Forms\)](#) for Observation value code sets, descriptions and identifiers, view the [Observation Value Sets \(OBX.5\)](#) table in the HL7 2.5.1 [Appendix A](#).

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

OBX-14 Records the time of the observation. IRIS will use this as the comment start date for contraindications/precaution, history of disease, serologic confirmed immunity and special indications. IRIS ignores any time component. YYYYMMDD

OBX-17 This field is used to differentiate the way that VFC Eligibility Status was collected. The field is required when indicating the observation is 64994-7^vaccine fund pgm elig cat^LN in OBX-3. In IRIS use value 'VXC40' recorded in the sending system at the immunization level1.

MSA – Message Acknowledgement Segment

The MSA segment contains information sent while acknowledging another message.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		<u>0008</u>	Acknowledgment Code
2	20	ST	R			Message Control ID

Field Notes:

MSA-1 Acknowledgment code giving receiver's response to a message. AA (Application Accept) means the message was processed normally. AE (Application Error) means an error prevented normal processing. An error message will be sent in the ERR segment of the acknowledgement 'ACK' message.

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

ERR – Error Segment

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

SEQ	COM P	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME	
2		80	ERL	R			Error Code and Location	
	2.1		ST	R				Segment ID
	2.2		NM	R				Sequence (Line Number)
3	2.3		NM	RE			Field Position	
			CWE	R			Message Error Status Code	
	3.1	50	ST	R		<u>0357</u>	Error Code	
4	3.2	100	ST	RE		<u>0357</u>	Description	
	3.3	20	ID	C(R/X)		<u>0396</u>	Table Name	
		2	ID	R		<u>0516</u>	Error Severity	
5			CWE	RE			Application Error Code	
5	3.1	50	ST	R		<u>0533</u>	Error Code	
	3.2	100	ST	RE		<u>0533</u>	Description	
	3.3	20	ID	C(R/X)		<u>0396</u>	Table Name	
8		250	TX	O			User Message	

Field Notes:

ERR-2 An n error location field with four components.

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

The first component (1.1) identifies the segment ID containing the error. The second component (1.2) identifies the input file line number of the segment containing the error, if known. The third component (1.3) identifies by ordinal number the field containing the error. The fourth component (1.4) identifies, by ordinal number, the field component containing the

error (0 is used if not available). The remaining five components of the CE data type are not valued and their '^' separators are not generated. Note that error text is transmitted in field ERR-8. For example, if the NK1 segment is missing a mandatory field:

This error message identifies the PID segment occurring on line 2 of the input file whose mandatory seventh field (Date of Birth) is missing

```
MSH|^~\&|IRIS2.0|IRIS||P36|20171113085458-0700||ACK^V04^ACK|MESSAGE
123|P|2.5.1|||NE|NE|||Z23^CDCPHIMVS|IRIS|P36 <CR><LF>
MSA|AE|MESSAGE 123<CR><LF>
ERR||RXA^1^5^1^1|103^Table value not found^HL70357|E|5^Table value not found^HL70533|||Record Rejected.
188 is an invalid CVX code<CR><LF>
ERR||NK1^1^5^1^2|207^Application internal error^HL70357|W|4^Invalid value^HL70533|||Informational Error - If
supplied, NK1-5.2 must match constraint listed in spec. <CR><LF>
ERR||MSH^1^0|100^Segment sequence error^HL70357|E|4^Invalid value^HL70533|||Record rejected. All
immunizations invalid. <CR><LF>
ERR||RXR^1^1^1|101^Required field missing^HL70357|W|||Information error - Required field RXR-1 missing.
<CR><LF>
```

- ERR-2 The HL7 error Location. Identifies the location in a message related to the identified error, warning or message. Refer to ERL Data Type.
- ERR-3 The HL7 error code. Identifies the HL7 (communications) error code. Refer to HL7 Table 0357 – Message Error Condition Codes for valid values.
- ERR-4 The error severity.
 - An 'E' indicates the error was fatal, causing the rejection of a required field. E severity may cause the rejection of segments, order groups and potentially the message.
 - An 'I' is an informational error. Transaction successful, but includes returned information.
 - 'W' is a warning error. Transaction successful, but there may be issues. These may include non-fatal errors with potential for loss of data.
- ERR-5 Application Error Code. Application specific code identifying the specific error that occurred. Refer to User-Defined Table 0533 – Application Error Code for suggested values.
- ERR-8 User Error message containing the IRIS message text of the error.

Batch Files of HL7 Messages

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

```

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

FHS - File Header Segment

The FHS segment is used to head a file (group of batches). The FHS segment is optional in IRIS when sending a single batch of messages.

SEQ	COM P	LEN	DT	USAGE	RP	TBL #	ELEMENT NAME
1		1	ST	R			Field Separator
2		4	ST	R			Encoding Characters
3		180	HD	O			Sending Application
	3.1	95	IS	O			Name
4		180	HD	O			Sending Facility
	4.1	95	IS	O			IRIS Organization ID
5		95	HD	O			Receiving Application
	5.1	6	IS	O			Name
6		6	HD	O			Receiving Facility
	6.1	6	IS	O			Name
7		26	TS	O			Date Of Message
9		20	ST	O			File Name/ID

Field Notes:

- FHS-1 This field contains the separator between the segment ID and the first real field, *FHS-2-batch encoding characters*. As such it serves as the separator and defines the character to be used as a separator for the rest of the segment. IRIS requires | (ASCII 124).
- FHS-2 This field contains the four characters in the following order: the component separator, repetition separator, escape characters and sub-component separator. IRIS requires ^~\&, (ASCII 94, 126, 92 and 38 respectively).
- FHS-3 Same definition as the corresponding field in the MSH segment.
- FHS-4 Same definition as the corresponding field in the MSH segment.
- FHS-5 Same definition as the corresponding field in the MSH segment.
- FHS-6 Same definition as the corresponding field in the MSH segment.

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

FTS - File Trailer Segment

The File Trailer segment is required if the File Header segment was sent.

The FTS segment defines the end of a file.

SEQ	LEN	DT	USAGE	RP	TBL#	ELEMENT NAME
1	10	NM	O			File Batch Count
2	80	ST	O			File Trailer Comment

Field Notes:

FTS-1 The number of batches contained in this file. IRIS normally sends one batch per file and discourages sending multiple batches per file.

FTS-2 Free text, which may be included for convenience, but has no effect on processing.

BHS - Batch Header Segment

The BHS segment defines the start of a batch. The BHS segment is optional in IRIS when sending a single batch of messages.

SEQ	COMP	LEN	DT	USAGE	RP	TBL#	ELEMENT NAME
1		1	ST	R			Field Separator
2		4	ST	R			Encoding Characters
3		180	HD	O			Sending Application Name
4	3.1	95	IS	O			Sending Facility
5	4.1	95	IS	O			IRIS Organization ID
6	5.1	95	HD	O			Receiving Application Name
7	6.1	6	IS	O			Receiving Facility Name
8		6	HD	O			Date Of Message
9		26	TS	O			

Field Notes:

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

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

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

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

BHS-5 Same definition as the corresponding field in the MSH segment.

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

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

BTS - Batch Trailer Segment

Batch Trailer Segment. The Batch Trailer segment is required if the Batch Header segment was sent.

The BTS segment defines the end of a batch.

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

Field Notes:

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

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

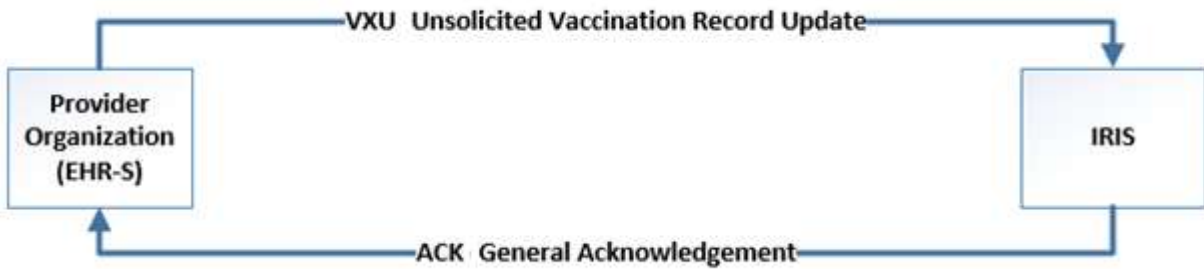
Data Exchange between IRIS and Outside Systems

The central repository of IRIS contains records of patients from around the state. Patient and immunization records flow either to IRIS from outside systems or from IRIS to outside systems. The exchange of information about a given patient is always initiated by the outside system. There are multiple options for data transfer with IRIS:

1. **PO to IRIS**
 - 1.1. **Batch File through User Interface:** The Provider Organization can send data to IRIS and request an acknowledgment from IRIS, which is a Provider Organization to IRIS data transfer. Providers can send a single message or as a batch file.
 - 1.2. **Web Service through SOAP (bi-directional single message):** The Provider Organization can send VXU data to IRIS and request an acknowledgment from IRIS, which is a Provider Organization to IRIS data transfer. The Provider Organization can also submit a query (QBP) for data from IRIS. IRIS returns the patient record that matches the query criteria (RSP). Note that in queries, the provider organization does not need to have an active status or any relationship with the patient.
2. **IRIS to PO batch file:** The Provider Organization can request data from IRIS while not providing data to IRIS, which is an IRIS to Provider Organization data transfer. Data, for a particular patient, is transmitted by IRIS to an outside system (Provider Organization) only if the patient is identified as having an Active relationship with that Organization AND the relationship was created by transmitting the patient's record to IRIS or by creating the relationship via the IRIS-Web interface. IRIS returns the provider organizations patient records that have been updated in IRIS since the last provider data exchange.
3. **Bi-Directional batch file:** The Provider Organization can request bi-directional data transfer, in which the provider initiates the exchange by a PO to IRIS data exchange (as in #1). IRIS returns the provider organization's patient record that have been updated since the provider organization's last data exchange (as in #2). *NOTE: this option is intended only for BATCH, if using query/response refer to PO to IRIS web service.*
4. **Organizational Extract batch file:** Organization Extract is only available for HL7 2.5.1 in Release 1.5 format.

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

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



Provider Organization		IRIS	
		Outgoing	Receiving
1.	Creates a file of patient and immunization records that are new or have changed since they were last transmitted to IRIS.		
2.	Transmits the file to IRIS through the user interface or via web service.		
3.			Processes the file received, creates a file of ACK messages.
4.		Posts the ACK file for the initiator to pick up via the web-interface of the original file submitted.	
5.	Processes the ACK file to confirm success of the file transmission.		

The 15th field, in the MSH message header segment, allows the initiator to ask that the message be acknowledged only in the case of an error and IRIS supports this in order to minimize the number of ACK messages transmitted. In this case, the ACK file contains only error messages (an optional form of the ACK message type). The original messages, with no answering error messages, are implicitly acknowledged as successfully processed.

Examples

To illustrate how an IRIS HL7 file is put together we will document how the fictional organization, Valley Clinic (sending organization ID 36), formats patient and immunization records to be transmitted to IRIS. The following table displays the information to be transmitted and it is organized into HL7 segments and fields. For example, PID-3 refers to the third field in the Patient Identification segment.

Information to transmit	Data value to be entered	HL7 Format
• Patient #1		
• Patient Identifier		PID segment
• Patient ID (Unique Patient Identifier within Valley Clinic's system)	45LR999	PID-3
• Name	Emily Jean Test	PID-5
• Mother's maiden name	Angelica Example	PID-6
• Birth date	April 13, 1998	PID-7
• Address	123 Main ST. Boise, ID 83727	PID-11
• Phone Number	208 123 4567	PID-13
• Multiple Birth Indicator	Y (patient was born as part of a multiple birth)	PID-24
• Birth Order	2 (second birth of a multiple birth)	PID-25
• Patient Demographics		PD1 segment
• Publicity Code	02 (allow reminder recall)	PD1-11
• Protection Indicator	N (patient has not opted-out of registry)	PD1-12
• Patient Registry Status	A (patient is active patient for organization)	PD1-16
• Responsible Person (#1) (parent or other person who cares for patient)		NK1 segment
• Name	Angelica Marie Test	NK1-2
• Relationship to patient	MTH	NK1-3
• Address	123 Main ST. Boise, ID 83727	NK1-4
• Phone	208 123 4567	NK1-5
• Email	angelica.test@gmail.com	NK1-5
• Responsible Person (#2)		NK1 segment
• Name	Michael Lee Test, Jr	NK1-2

Information to transmit	Data value to be entered	HL7 Format
• Relationship to patient	FTH	NK1-3
• Address	555 Elm ST. Boise, ID 83725	NK1-4
• Order Group (#1)		ORC segment
• Providers Immunization ID	12345	ORC-3
• Immunization		RXA segment
• Date administered	July 23, 1999	RXA-3
• Administered Code	CPT 90700 'DTaP'	RXA-5
• Dose size	0.5 mL	RXA-6
• Immunization Source	01 (Historic, unspecified source)	RXA-9
• Administering Organization	East Clinic	RXA-11
• Completion Status	CP 'Complete	RXA-20
• Action	A 'Add'	RXA-21
• Order Group (#2)		ORC segment
• Providers Immunization ID		ORC-3
• Ordering Authority	Dr Jamie L Smith MD	ORC-12
• Immunization		
• Date administered	July 30, 2012	RXA-3
• Administered Code	CVX 08 'HepB Peds'	RXA-5
• Dose size	0.5 mL	RXA-6
• Immunization Source	00 (New Administered immunization)	RXA-9
• Administering Clinician	Kelly Jones RN	RXA-10
• Administered at location	Valley Clinic	RXA-11.4
• Lot number	BC19487	RXA-15
• Manufacturer	MSD 'Merck'	RXA-17
• Completion Status	CP 'Complete	RXA-20
• Action	A 'Add'	RXA-21
• Pharmacy Treatment Route		RXR segment
• Route of Administration	IM (intramuscular	RXR-1
• Body Site	LA (left arm)	RXR-2

Information to transmit	Data value to be entered	HL7 Format
• Observation segment		OBX Segment
• VFC Eligibility	V02 (VFC Eligible - Medicaid)	OBX-5
• Observation Method	VXC40 'eligibility per immunization	OBX-17
• Patient #2		
• Patient Demographics		PID segment
• Chart Number	92HG9257	PID-3
• Name	Joseph Robert Test	PID-5
• Mother's maiden name	Melanie Test	PID-6
• Birth date	May 28, 2010	PID-7
• Sex	M	PID-8
• Address	321 E Water ST.. Boise, ID 83720	PID-11
• County of Residence	ID001 (Ada)	PID.11.9
• Insurance		IN1segment
• Insurer (NAIC code)	47055	IN1.3
• Policy Number	POL55555	IN1.36
• Order Group		ORC segment
• Providers Immunization ID	5736440	ORC-3
• Ordering Authority	Dr Jamie L Smith MD	ORC-12
• Immunization		RXA segment
• Date administered	July 29, 2012	RXA-3
• Administered Code	CPT 90707 'MMR'	RXA-5
• Dose	0.5 mL	RXA-6
• Immunization Source	00 (New Administered immunization)	RXA-9
• Administering Provider	Kelly Doe RN	RXA-10
• Administering Organization	Valley Clinic	RXA-11
• Lot number	AD18227	RXA-15
• Manufacturer	MSD 'Merck'	RXA-17
• Completion Status	CP 'Complete	RXA-20
• Action	A 'Add'	RXA-21

Information to transmit	Data value to be entered	HL7 Format
<ul style="list-style-type: none"> Observation segment 		OBX Segment
<ul style="list-style-type: none"> VFC Eligibility 	V01 (VFC Ineligible)	OBX-5
<ul style="list-style-type: none"> Contraindication 	294468006 'Allergy to neomycin'	OBX.5
<ul style="list-style-type: none"> Contraindication Effective Date 	February 1, 2012	OBX.14

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

```

FHS|^~\&| VALLEY CLINIC|36||IRIS|20121015014519-0700||filename1.hl7| <CR>
BHS|^~\&| VALLEY CLINIC|36||IRIS|20121015014519-0700|| <CR>
MSH|^~\&| VALLEY CLINIC|36||IRIS|20121015014519-0700||VXU^V04^VXU_V04|00000123|P|2.5.1|||ER|AL||| <CR>
PID|||45LR999^^^P36^PI^||TEST^EMILY^JEAN^^^^L^|EXAMPLE^ANGELICA^^^^M^|19980413|||123 MAIN
STREET^^BOISE^ID^83720^^M^^|^PRN^PH^^^208^1234567^|||||||Y|2||||| <CR>
PD1|||||||02|N|||A| <CR>
NK1|1|TEST^ANGELICA^MARIE^^^^L^|MTH^MOTHER^HL70063|123 MAIN
STREET^^BOISE^ID^83720^^M^^|^PRN^PH^^^208^1234567~^NET^X.400^angelica.test@gmail.com^^^^| <CR>
NK1|2|TEST^MICHAEL^LEE^JR^^^^L^|FTH^FATHER^HL70063|555 ELM ST.^BOISE^ID^83725^^M^^| <CR>
ORC|RE||12345^P36| ||||| <CR>
RXA|0|1|19990723||90700^DTaP^C4|0.5|mL||01^historical unspecified source^NIP001||^EAST
CLINIC| |||||CP|A <CR>
ORC|RE||5736440^P36| ||||| ^SMITH^JAMIE^L^MD^DR^^^^L^ ||||| <CR>
RXA|0|1|20120730||08^HEPB-PEDS^CVX|0.5|mL||00^new administered^NIP001
|^DOE^KELLY^^RN^^^^L^ ||||| VALLEY CLINIC&678|||BC19487||MSD^MERCK^MVX|||CP|A <CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163 <CR>
OBX|1|CE|64994-7^vaccine fund pgm elig cat^LN|1|V02^Medicaid^HL70064| |||||F|||20120730||VXC40^per
immunization^CDCPHINVS <CR>
MSH|^~\&| VALLEY CLINIC|678|||20121015014519||VXU^V04^VXU_V04|00000124|P|2.5.1|||ER||| <CR>
PID|||92HG9257^^^P36^PI^||TEST^JOSEPH^ROBERT^^^^L^|TEST^MELANIE^^^^M^|20100528|M||321 E. WATER
ST.^BOISE^ID^837204^^M^^ID001| ||||| <CR>
IN1|1|G54321^Insurance plan^072|47055^^NAIC^NIIP| |||||5| |||||20120729| ||||POL5555| <CR>
ORC|RE||12346^P2| ||||| ^SMITH^JAMIE^L^MD^DR^^^^L^ ||||| <CR>
RXA|0|1|20120729||90707^MMR^C4|0.5|mL||00^new administered^NIP001|
^CAPSHAW^ILIA^RENEE^RN^^^^L^ ||||| VALLEY
CLINIC&678|||AD18227||MSD^MERCK^MVX|||CP|A <CR>
OBX|1|CE|64994-7^vaccine fund pgm elig cat^LN|1|V01^Ineligible ^HL70064| |||||F|||20120729| <CR>
OBX|2|CE|30945-0^Vaccination contraindication^LN|2|294468006^allergy to neomycin^SCT
|||||F|||20120201||VXC40^per immunization^CDCPHINVS <CR>
BTS|2 <CR>
FTS|1 <CR>

```

Note: In the example above, Valley Clinic sends a file of two HL7 messages to IRIS. Batch header/footer segments bracket the messages.

Patient Emily Jean Test is identified by Valley Clinic's Patient ID, 45LR999, in the PID segment. The message could have included Emily's IRIS ID number in field PID-3, but does not have to, if it is not recorded in Valley Clinic's system. Emily's mother's maiden name, birth date, sex, and address also serve to identify her. Some other optional fields are not present, including some fields from the full HL7 standard not defined in this document because they are not used by IRIS. Fields not present do not diminish the number of "|" delimiters, so later fields can be identified by ordinal position in the segment. Two NK1 segments give some information for Emily's mother and father, with address and telephone fields if available. Note that the ORC segment begins the Order or Immunization group. ORC.3 indicates the sending system immunization id. The ORC is followed by the RXA, which can contain immunization or refusal information. The RXR contains information on the route of administration and body site. In this example, the patient's VFC information for the vaccination date is sent on the OBX segment with OBX.3 64994-7^vaccine fund pgm elig cat denoting that VFC code is sent on OBX.5 and VXC40 eligibility per immunization in OBX-17.

Note that currently IRIS can only store only VFC eligibility per patient per date.

The next PID segment in the second messages gives a patient Joseph Robert Test. Joseph's message is similar to Emily's with two notable exceptions, insurance and patient comments. Joseph had private insurance coverage on the vaccination date. The IN1 segment contains the NAIC code of Joseph's insurance company in IN1.3. The Insurance will be applied to Joseph's new administered immunizations in which his VFC eligibility (OBX segment) is V01 Ineligible'. A contraindication was also sent for Joseph noting his allergy to neomycin. Contraindications (30945-0) is sent in an OBX segment with contraindication start date in OBX-14.

It is legitimate to omit more of the RE 'required but may be empty' PID fields, since IRIS must have at least the minimum required information for these patients even to create a record. However, if there is a possibility that Valley Clinic has new or changed information to send to IRIS, these fields should be present, and it does no harm to repeat fields even if they have been transmitted previously.

```
FHS|^~\&|IRIS2.0|IRIS||P36|20171113100858-0700||90168.response<CR><LF>
BHS|^~\&|IRIS2.0|IRIS||P36|20171113100858-0700<CR><LF>
MSH|^~\&|IRIS2.0|IRIS||P36|20171113100858-0700||ACK^V04^ACK|00000123|P|2.5.1|||NE|NE|||Z23^CDCPHIMVS
|IRIS|P36<CR><LF>
MSA|AA|00000123<CR><LF>
MSH|^~\&|IRIS2.0|IRIS||P36|20171113100858-0700||ACK^V04^ACK|00000124|P|2.5.1|||NE|NE|||Z23^CDCPHIMVS
|IRIS|P36<CR><LF>
MSA|AE|00000124<CR><LF>
ERR||OBX^1^17^1^1|101^Required field missing^HL70357|W|||Information error - Required field OBX-17.1 missing.
<CR><LF>
ERR||OBX^1^17^1^3|101^Required field missing^HL70357|W|||Information error - Required field OBX-17.3 missing.
<CR><LF>
BTS|2<CR><LF>
FTS|1<CR><LF>
```

The first message, 00000123, did not contain an error, and the MSA. 1 field indicates AA for Application Accept.

The second message, 00000124, did contain an error, and the MSA. 1 field indicates AE for Application Error. The ERR segment contains the location of the error if known, the error severity and the IRIS error

message text. In this example, the segment (OBX), the segment number (1) where it appears in the input file, the errant field (17) and the field component (1) subcomponent (3).

Errors will be generated for missing required data, invalid data or any other deviance from the form and content of messages as specified in this document. If all three messages in the first file above had requested error acknowledgement only and none had any errors, then the answering file from IRIS would contain just the FSH, BHS, MSH, BTS, and FTS segments. All the messages would be implicitly acknowledged as successfully processed.

In the sample file exchange above, the outside system initiated the exchange with the file of VXU messages and IRIS responded with ACK messages. In the FSH, BHS, and MSH segments, the values of the fourth and sixth fields are reversed to show sender and receiver. IRIS always sends the patient's state registry ID (IRIS ID) in the required field PID-3 and includes the outside system's identifier in PID-3 if known. Outside systems are encouraged to store IRIS's patient ID, and use it in PID-3 when sending to IRIS. This provides a firm basis for patient identification makes processing easier for the IRIS system and avoids errors in storing patient information, such as creation of duplicate records when an insufficiently identified patient record cannot be matched with a record already in the IRIS database. Though IRIS makes a great effort to match patient records effectively, use of the IRIS patient ID is the best guarantee of clean and useful data.

Appendix 1 -- HL7 Data Types

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

CE - Coded Element

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

Example:

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

This data type transmits codes and the text associated with the code. To allow all six components of a CE data type to be valued, the maximum length of this data type must be at least 60.

Identifier (ST)

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

Text (ST)

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

Name of coding system (ST)

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

Alternate components

These three components are defined analogously to the above for the alternate or local coding system. If the Alternate Text component is absent, and the Alternate Identifier is present, the Alternate Text will be taken to be the same as the Text component. If the Alternate Coding System component is absent, it will be taken to mean the locally defined system.

Note: The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.

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

CWE - Coded with Exceptions

CWE specifies a coded element and its associated detail. It is used under the following circumstances:

- 1) more than one table may be applicable
- 2) the specified HL7 or externally defined table may be extended with local values
- 3) when text is in place, the code may be omitted.

The CWE data type shall have the following components:

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (ID)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (ID)> < Coding System Version ID> (ST) <Alternate Coding System Version ID (ST)><Original Text (ST) >

IRIS will redefine the component usage for ease of use. CWE data types will require only the first component except where noted in specific fields but will be capable of processing the full triplet. A valid IRIS identifier should be sent in the first triplet.

CX - Extended Composite ID with Check Digit

IRIS uses this data type only for patient identification in Patient Identification (PID) segments. Refer to the field notes for values used for IRIS. In HL7 2.5.1 the CX data type definition require component 4, Assigning Authority (Table 0363) in HL7 2.5.1 guidelines

Components 1, ID number and Component 5, Identifier Type code are already required

Example PID-3 |1234567^^^P36^MR|:

IRIS will not require Assigning Authority on CX data types will continue to support the loading of PID-3 as in HL7 2.4. PID- 3 will be loaded as the organization specific Patient ID (chart number, medical record number) etc on inbound and outbound and send State Registry ID on outbound. For the State registry ID, the assigning authority will be IDA: Example PID-3 |1234567^^^IDA^SR|:

DTM - Date \Time

First component of TS 'Timestamp' Data type is a DTM data type.

The number of characters populated (excluding the time zone specification) specifies the precision.

Format: YYYY [MM [DD [HH [MM [SS [.S[S[S[S]]]]]]]]] [+/-ZZZZ].

Thus:

- Four digits are used to specify a precision of "year"
- Six are used to specify a precision of "month"
- Eight are used to specify a precision of "day."
- the first ten are used to specify a precision of "hour"
- the first twelve are used to specify a precision of "minute"
- the first fourteen are used to specify a precision of "second"
- the first sixteen are used to specify a precision of "one tenth of a second"
- the first nineteen are used to specify a precision of " one ten thousandths of a second"

When the time zone is not included, it is presumed to be the time zone of the sender.

Example: |199904| specifies April 1999.

Note: IRIS will continue to ignore the Time and Time Zone component of Date fields.

EI - Entity Identifier

Definition: Identifies a specific entity within a series of identifiers.

The EI data type shall have the following components:

<Entity Identifier (ST)>^<Namespace ID (ST)>^<Universal Identifier (NM)>^<Universal ID Type (ID)>

IRIS uses the first two components in ORC-3 field Filler Order Number to identify the sending organizations Immunization ID and assigning authority.

Example:

|12345^IDA |

ERL - Error Location

Definition: Identifies the segment and location where an error has occurred.

The ERL data type shall have the following components:

<Segment Id (ST)>^<Segment Sequence (NM)>^<Field Position (NM)>^<Field Repetition (NM)>^<Component Number (NM)>

HD - Hierarchic Designator

IRIS uses this data type to identify sender and receiver in Message Header (MSH) segments and the owner of a new administered immunization in the RXA.11-4 Administered at location. Refer to the field notes for values used for IRIS.

ID - Coded Value for HL7 Defined Tables

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

IS - Coded Value for User Defined Tables

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

MSG - Message Type

The Message Type data type **replaces** the CM data type. This field contains the message type, trigger event, and the message structure ID for the message.

The MSG data type shall have the following components:

<Message Code (ID) ><Trigger Event (ID) ><Message Structure (ID) >

Example:

MSH – 9 Message Type
|VXU^V04^VXU_V04|

NM - Numeric

A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer. Examples:

|999|
|-123.792|

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, "01.20" and "1.2", are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

LA2 - Location with Address Variation 2

Definition: The first component contains the inpatient or outpatient location at which the drug or treatment was administered (if applicable). The default (null) value is the current census location for the patient. The Facility component is used with IRIS in RXA.11 to denote historical organization or for new administered immunizations, the owner of the immunizations.

Example:

RXA – 11.4 Administered-at location
|^^^OrgID| or |^^^Org Name&OrgID|

The LA2 data type shall have the following components:

<Point of Care (IS)>^<Room (IS)>^<Facility (HD)>^<Location Status (IS)>^<Patient Location Type (IS)>^<Building (IS)>^
<Floor (IS)>^<Street Address (ST)>^<Other Designation (ST)>^<City (ST)>^<State or Providence (ST)>^<Zip or Postal Code (ST)>^<Country (ID)>^<Address Type (ID)>^<Other Geographic Designation (ST)>

PT - Processing Type

Definition: This data type indicates whether to process a message as defined in HL7 Application (level 7) Processing rules. IRIS will only accept P for production.

Example: |P|

SAD - Street Address

This data type specifies an entity's street address and associated detail. IRIS supports only the first component. Users should include the full street address in the first component.

Components: <Street Address(ST)> ^ <Street Name(ST)> ^ <Dwelling(ST)>

SI - Sequence ID

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

ST - String Data

String data is left justified with trailing blanks optional. Any displayable (printable) ACSII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined delimiter characters. Example:

|almost any data at all|

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

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

TS Time Stamp and TS_Z - Time Stamp with Time Zone

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

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

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

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

In the current and future versions of HL7, the precision is indicated by limiting the number of digits used, unless the optional second component is present. Thus, YYYY is used to specify a precision of "year," YYYYMM specifies a precision of "month," YYYYMMDD specifies a precision of "day," YYYYMMDDHH is used to specify a precision of "hour," YYYYMMDDHHMM is used to specify a precision of "minute," YYYYMMDDHHMMSS is used to specify a precision of seconds, and YYYYMMDDHHMMSS.SSSS is used to specify a precision of ten thousandths of a second. In each of these cases, the time zone is an optional component. Maximum length of the time stamp is 26.

Examples:

19760704010159-0600	1:01:59 on July 4, 1976 in the Eastern Standard Time zone.
19760704010159-0500	1:01:59 on July 4, 1976 in the Eastern Daylight Saving Time zone.
198807050000	Midnight of the night extending from July 4 to July 5, 1988 in the local time zone of the sender.
19880705	Same as prior example, but precision extends only to the day. Could be used for a birthdate, if the time of birth is unknown.

The HL7 Standard strongly recommends that all systems routinely send the time zone offset but does not require it. All HL7 systems are required to accept the time zone offset, but its implementation is application specific. For many applications the time of interest is the local time of the sender. For example, an application in the Eastern Standard Time zone receiving notification of an admission that takes place at 11:00 PM in San Francisco on December 11 would prefer to treat the admission as having occurred on December 11 rather than advancing the date to December 12.

One exception to this rule would be a clinical system that processed patient data collected in a clinic and a nearby hospital that happens to be in a different time zone. Such applications may choose to convert the data to a common representation. Similar concerns apply to the transitions to and from daylight saving time. HL7 supports such requirements by requiring that the time zone information be present when the information is sent. It does not, however, specify which of the treatments discussed here will be applied by the receiving system.

VID - Version ID

This specifies the HL7 version. IRIS will support component 1 with values in table 104. For this specification document, the correct version ID is 2.5.1.

Components: <Version ID (ID)>^ <Internationalization Code (CE)> ^ <internationalized ID (CE)>

XAD - Address

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

Example:

| 1234 Main St.^Ste. 123^Boise ^ID^83720^^M^^ID001^^|

Street address (ST)

The street or mailing address of a person or institution.

Other designation (ST)

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

City (ST)

State or province (ST)

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

Zip or postal code (ST)

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

Country (ID)

Defines the country of the address. Refer to Table 0212.

Address type (ID)

Address type is optional.

Other geographic designation (ST)

Other geographic designation includes country, bioregion, SMSA, etc.

County code (IS)

A code that represents the county in which the specified address resides. Refer to *user-defined table 0289 - County*. When this component is used to represent the county, component 8 "other geographic designation" should not duplicate it (i.e., the use of "other geographic designation" to represent the county is allowed only for the purpose of backward compatibility, and should be discouraged in this and future versions of HL7).

Census tract (IS)

An optional code that represents the census track in which the specified address resides. IRIS does not store this value.

XCN - Extended Composite ID Number and Name for Persons

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

XPN - Extended Person Name

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

Example:

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

Family name (ST)
Last Name Prefix (ST)
Given name (ST)
Middle initial or name (ST)

Suffix (ST)

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

Prefix (ST)

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

Degree (ST)

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

Name type code (ID)

A code that represents the type of name. Refer to *HL7 table 0200 - Name type* for valid values.

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

Name representation code (ID)

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

XTN - Extended Telecommunication Number.

The use of component 1 to include the entire phone number is deprecated in HL7 2.5.1. The Area code, phone number and extension should be sent in components 6, 7 and 8 respectively. The email address can be submitted in component 4.

Components: telephone number (X)^ <telecommunication use code (ID)> ^ <telecommunication equipment type (ID)> ^ <email address (ST)> ^ <country code (NM)> ^ <area/city code (NM)> ^ <phone number (NM)> ^ <extension (NM)> ^ <any text (ST)>

Example: A primary residence number

^PRN^PH^jane.doe@gmail.com^^208^5557777^1234

Telecommunication use code (ID)

A code that represents a specific use of a telecommunication number. Refer to *HL7 table 0201 - Telecommunication use code*. IRIS does not support repetition in phone numbers and expects the primary residence number 'PRN' is sent the phone fields.

Telecommunication equipment type (ID)

A code that represents the type of telecommunication equipment. Refer to *HL7 table 0202 - Telecommunication equipment type* for valid values. IRIS does not support telecommunication types other than phone numbers and expects the telecommunication equipment type of 'PH' is sent.

Appendix A -- HL7 Code Sets

HL7 2.5.1 Code Sets are applicable to the HL7 2.5.1 release 1.3 and HL7 2.5.1 release 1.5 specifications. The code sets are located in a separate document HL7 2.5.1 Appendix A. The link for Appendix A can be found on the IRIS website under the FORMS section.

https://iris.dhw.idaho.gov/docs/hl7_251_Appendix_gts.pdf

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