Ohio Immunization Information System (ImpactSIIS)

HL7 TRANSFER SPECIFICATION VERSION 2.5.1

July 23, 2013

Version 1.1

Contents

Introduction

The Ohio Department of Health Immunization Information System (ImpactSIIS) has been enhanced to provide HL7 real-time bidirectional messaging service. Providers who already store and process immunization data in their own electronic information systems will be able to submit and receive client and immunization data via HL7 messaging, eliminating the need to enter data into both ImpactSIIS and the provider's system. HL7 real-time data exchange system requirements for providers include the following.

- Ability to create and consume HL7 version 2.5.1 messages in accordance with the ImpactSIIS HL7 Real-time Data Exchange specification, and complete the associated certification process.
- Ability to transport messages securely using an approved protocol (e.g., SOAP/HTTPS).
- Ability to correct messages with errors and resend the corrected messages.

Scope of this Document

ImpactSIIS supports a specific subset of HL7 messages pertaining to client and vaccination information. Specifications within this document define how these messages should be constructed.

Real-time Processing

- Providers must be able to transmit messages to and receive messages from the ImpactSIIS messaging system. Providers are responsible for obtaining or developing client software for sending and receiving messages.
- The Provider will need to obtain a login from the ImpactSIIS Technical Staff for the test and production environments.
- The ImpactSIIS Technical Staff will work with providers to test message transport and formatting using the ImpactSIIS test environment.

References

ImpactSIIS supports the Centers for Disease Control's (CDC) and American Immunization Registry Association (AIRA) goal of HL7 uniformity.
The HL7 Version 2.5.1 Implementation Guide for Immunization Messaging, Release 1.4, 8/1/2012, is available at
http://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-4-2012-08.pdf
Information for the HL7 standard can be found at http://www.hl7.org

Real-time HL7 Messages

The Ohio Immunization Information System (ImpactSIIS) will accept QBP HL7 message type and Respond to QBP message listed below.

- QBP   Query by Parameter.
- RSP   Respond to QBP message.
- Fault Message Fault Message will indicate ImpactSIIS received the Message but there was an error.

ImpactSIIS HL7 Web Service Specification

The IMPACTSIIS HL7 Web Service is collection of operations that can be utilized by HL7 data exchange partners. The names of the operations and their purposes are listed below.

Web Services Description Language (WSDL) Operation

The Web Services Description Language operation returns the WSDL definition for the IMPACTSIIS HL7 Web Service and all of the operations that it supports.

- For 2.5.1 messages, the IMPACTSIIS HL7 Web Service utilizes the new national standard WSDL approved by the EHR-IIS Interoperability Expert Panel Project. Additional information about the EHR-IIS Expert Panel Project can be found at:
  http://www.cdc.gov/vaccines/programs/iis/interop-proj/ehr.html

- For a copy of and additional information about the WSDL go to:
  http://www.cdc.gov/vaccines/programs/iis/technical-guidance/SOAP/wsdl.html

- For UAT (the test environment), use this URL to get to the WSDL:
  https://odhgatewaytst.odh.ohio.gov/ELRBiDirectionalServiceHost/ELRImmunizationHistory.svc?wsdl
  It is important that generated WSDL includes http-based SOAP address. Before importing generated WSDL into client application, please manually update WSDL to utilize https-based SOAP address (see below).
  <soap:address location= "https://odhgatewaytst.odh.ohio.gov/ELRBiDirectionalServiceHost/ELRImmunizationHistory.svc"/>

- For Production, use this URL to get to the WSDL:
  https://odhgateway.odh.ohio.gov/ELRBiDirectionalServiceHost/ELRImmunizationHistory.svc?wsdl

ConnectivityTest Operation

The purpose of this operation is to test connectivity. It allows the calling system to verify they can connect to the IMPACTSIIS HL7 Web Service.

Before developing or modifying software, HL7 Data Exchange Partners should always first use soapUI or WCFClient utilities for initial connectivity testing. Connectivity testing will allow an HL7 Data Exchange Partner to confirm they can access the IMPACTSIIS HL7 Web Service or, if not, to more easily identify and correct problems.

Parameter	Input/Output	Data type	Description
echoBack	Input	String	Data to be sent back by the connectivity test.
Return	Output	String	String data "Success" is sent back by the test.

GetImmunizationHistory Operation

This operation is used for submitting a 2.5.1 QBP (Query-based Parameter) message and receiving RSP (Response) message in response. The username, password, and facilityID parameters are <u>required</u> for calling this operation. These parameters are assigned by ODH will be provided to the sender prior to initiating HL7 transmissions.

Parameter	Input/Output	Data type	Description
username	Input	String	ImpactSIIS username
password	Input	String	ImpactSIIS password
facilityID	Input	String	ImpactSIIS Facility ID
Hl7Message	Input	String	HL7 version 2.5.1 QBP message intended for ImpactSIIS
Return	Output	String	HL7 version 2.5.1 RSP response or from ImpactSIIS or SOAP Fault message

SOAP Fault Messages

The SOAP Fault element is used to indicate error messages related to the SOAP operations and to carry detailed information within a SOAP message regarding the error. Following SOAP Faults are returned from ImpactSIIS SOAP Web Service depending upon the type of processing error:

- SecurityFault_Message – generated if the authentication credentials supplied in the GetImmunizationHistory operation are not validated.
- ErrorParsing_Message – Any SOAP fault related to HL7 message parsing will return this generic error message.

- UnknownFault_Message – Any SOAP fault that does not fit into one of the above three SOAP Fault categories will be returned as an "unknown" fault.

Each type of SOAP Fault contains the following parameters:

Parameter	Input/Output	Data type	Description
Code	Output	Integer	SOAP Fault code number, intended for automated use by client software to identify the fault.
Reason	Output	String	SOAP Fault reason, intended to be a human-readable explanation of the error that caused the fault.
Detail	Output	String	Detailed explanation of fault.

ImpactSIIS HL7 web service will return following information in SOAP faults. Detail parameter information will vary and may include detail error information.

SOAP Fault	Error Code	Error Reason
SecurityFault_Message	9000	Authorization failed. No security information provided.
UnknownFault_Message	9004	Error processing request. Please contact ODH.
ErrorParsing_Message	9005	Error Processing HL7 Message.

The generic term "IMPACTSIIS HL7 Web Service" is utilized throughout this document in place of the more specific names of the individual operations. However, it should always be clear from the context which operation is being discussed. Although the operations share some common infrastructure and attributes, such as security and authentication, there is no generic "IMPACTSIIS HL7 Web Service" operation. The IMPACTSIIS HL7 Web Service's functionality is limited to the operations listed above. The bulk of this document describes the GetImmunizationHistory operation and the messages that this operation processes.

Supported HL7 Message Type

The table below identifies the types of HL7 request and response messages that the IMPACTSIIS HL7 Web Service will support

HL7 Request Message	HL7 Response Messages
Query By Parameter (QBP)	Query Response (RSP)

The data exchanges are illustrated below.
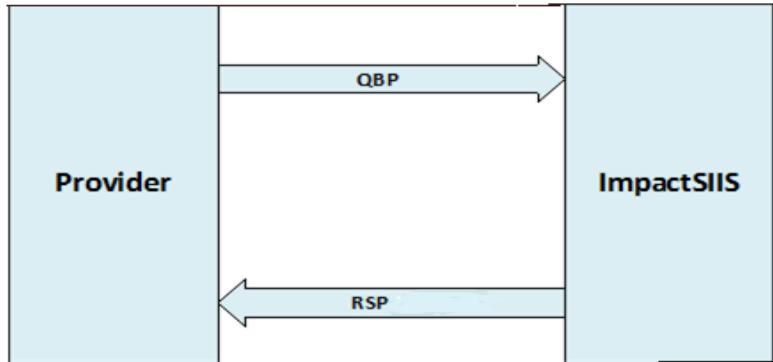
Message Structure

Note: HL7 optional segments are indicated by square brackets, [ ], and repeatable segments are indicated by curly braces, { }. ImpactSIIS required segment names are bolded. In QBP/RSP message structure ODH expects segment separator as X0D.

QBP/RSP Messaging

Message Type: QBP^Q11

Message Name: Query for Vaccination Record

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

QBP Example (all examples in this document relate to fictitious patients).

MSH|^~\&|VENDORX|OH9999|IMPACT||201006091100||QBP^Q11^QBP_Q11|4766546|P|2.5.1|||||ER|||||Z34^CDCPHINVSX0DQPD|Z34^RequestImmunizationHistory^HL70471|Qry_01|1111111^^^ImpactSIIS^SR|DOE^JANE^R|DOE^SALLY|19980101|F|1111 Any Main St^^DUBLIN^OH^43016^US^^^FranklinX0DRCP|I|5RD|R^real-time^HL70394X0D

Message Type: RSP^K11

Message Name: Respond to QBP message (Single client match, with forecast data).

Segment	Segment Name
MSH	Message Header Segment
MSA	Message Acknowledgement Segment
[ERR]	Error
QAK	Query Acknowledgement QPD
QPD	Query Parameter Definition
[{	
[{	
PID	Patient Identification Segment
[PID1]	Additional Demographics (not supported)
[{NK1}]	Next of Kin/Associated Parties (not supported)
}]	
[	
[PV1]	
[IN1]	
[{	
ORC	Order Request
RXA	Pharmacy Administration
[RXR]	Pharmacy / Treatment Route
[{	
OBX	Observation/Result
[{NTE}]	Notes
}]	
}]	
]	
}]	
}]	

RSP Example 1, one client match found.

QBP

MSH|^~\&|EPIC|OH8299|IMPACT||20130311||QBP^Q11^QBP_Q11|123456MJ|P|2.5.1|||||ER|||||Z34^CDCPHINVSX0DQPD|Z34^Request Immunization History|Qry_01|1592682^^^^LR|Smith^Jane||19980304X0DRCP|I|5RD|R^real-time^HL70394X0D

RSP

```
MSH|^~\&|ImpactSIIS|ODH||OH8299|20130606115758||RSP^K11^RSP_K11|20130606115758ODH|P|2.5.1|||||NE|||||Z32^CDCPHINVSX0D
MSA|AA|123456MJX0D
QAK|Qry_01|OKX0D
QPD|Z34^Request Immunization History|Qry_01|1592682^^^^LR|Smith^Jane||19980304X0D
PID|1||508939^^^^SR||SMITH^JANE||19980304|||||6666 Any ROAD^^DUBLIN^OHIO^43016||6148888888X0D
ORC|RE|||||||||||1780782722^^^^^^^^^^^NPIX0D
RXA|0|1|20090504|20090504|^^^115^Adacel^CVX|999|||||||||||GSK^Glaxo-SmithKline^MVXX0D
ORC|RE|||||||||||1780782722^^^^^^^^^^^NPIX0D
RXA|0|1|20070420|20070420|^^^21^varicella^CVX|999|||||||||||UNK^Unknown^MVX
ORC|RE|||||||||||9999999999^^^^^^^^^^^NPIX0D
RXA|0|1|20130606|20130606|998^No vaccine administered^CVX|999X0D
OBX|1|CE|30956-7^vaccine type^LN|1|1^DTP^CVX|||||||F|||20130606X0D
OBX|2|CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP Schedule^CDCPHINVS|||||||F|||20130606X0D
OBX|3|N|30973-2^Dose number in Series^LN|1|2|||||||F|||20130606X0D
OBX|4|DT|30980-7^Date vaccine due^LN|1|20141104|||||||F|||20130606X0D
NTE|1||Vaccine forecasting and evaluation is a tool to use for your benefit. It is not meant to replace onsite evaluation from the provider.X0D
```

RSP Example 2, multiple matches found.

QBP

```
MSH|^~\&|EPIC|OH7953|IMPACT||20130311||QBP^Q11^QBP_Q11|123456MJ|P|2.5.1|||||ER|||||Z34^CDCPHINVSX
0DQPD|Z34^Request Immunization History|Qry_01||Smith^Johnathan||20000101X0DRCP|I|5^RD|R^real-
time^HL70394X0D
```

RSP

```
MSH|^~\&|ImpactSIIS|ODH||OH7953|20130606114343||RSP^K11^RSP_K11|20130606114343ODH|P|2.5.1|||||NE|||||Z31^CDCPHINVSX0D
MSA|AA|123456MJX0D
QAK|Qry_01|OKX0D
QPD|Z34^Request Immunization History|Qry_01||Smith^Johnathan||20000101X0D
PID|1||123456^^^^SR||SMITH^JOHNATHAN||20000101X0D
PID|2||888888^^^^SR||SMITH^JOHNATHAN||20000101|||||1111 SomeStreet^^CLEVELAND^OHIO^44135X0D
```

RSP Example 3, no match found.

QBP

```
MSH|^~\&|EPIC|OH8299|IMPACT||20130311||QBP^Q11^QBP_Q11|123456MJ|P|2.5.1|||||ER|||||Z34^CDCPHINVSX0DQPD|Z34^RequestIm
munizationHistory|Qry_01||Joshis^Pretty||19991106|F||(614)999-9999||X0DRCP|I|5^RD|R^real-time^HL70394X0D
```

RSP

```
MSH|^~\&|ImpactSIIS|ODH||OH8299|20130606133529||RSP^K11^RSP_K11|20130606133529ODH|P|2.5.1||||NE|||||Z32^CDCPHINVSX0D
MSA|AA|123456MJX0D
QAK|Qry_01|NFX0D
QPD|Z34^RequestImmunizationHistory|Qry_01||Joshis^Pretty||19991106|F||(614)999-9999X0D
```

RSP Example 4, required parameter missing

QBP

```
MSH|^~\&||OH8265|||20100824||QBP^Q11^QBP_Q11|MyMessageId|T|2.5.1^^|||ER||||||Z34^CDCPHINVSX0D
QPD|Z34^Request Immunization History|Qry_01||he^keira||X0D
RCP|I|5^RD|R^real-time^HL70394X0D
```

RSP

```
MSH|^~\&|ImpactSIIS|ODH||OH8265|20130606152832||RSP^K11^RSP_K11|20130606152832ODH|T|2.5.1^^|||ER|NE|||||Z32^CDCPHINVSX0D
MSA|AR|MyMessageIdX0D
ERR|QPD|||||||Missing required parameters.X0D
QAK|Qry_01|ARX0D
QPD|Z34^Request Immunization History|Qry_01||he^keiraX0
```

Segment Descriptions

Segment Structure

The tables below define the structure of the HL7 segments. The table column definitions are:

SEQ	Sequence of the elements (fields) as they are numbered in the segment
LEN	Recommended maximum length of the element. Lengths are provided only for primitive data types.
Data Type	HL7 Data type.
Cardinality	Indicator of the minimum and maximum number of times the element may appear. [0..0] Element never present. [0..1] Element may be omitted and can have at most, one occurrence. [1..1] Element must have exactly one occurrence. [0..n] Element may be omitted or may repeat up to n times. [1..n] Element must appear at least once, and may repeat up to n times. [0..*] Element may be omitted or repeat for an unlimited number of times. [1..*] Element must appear at least once, and may repeat unlimited number of times. [m..n] Element must appear at least m and, at most, n times.
Value Set	See CDC/AIRA Implementation Guide for Immunization Messaging, Release 1.4, 08/01/2012, Appendix A, which contains the tables of value sets referenced by these data types.
Item #	Unique item identifier in HL7
Element Name	HL7 descriptor of the element in the segment.
Usage	Indicates whether the field is supported. Indicates if the field, component, or subcomponent is required, optional, or conditional in the corresponding segment, field, or component. See Usage Code Interpretation, above. Note: A required field in an optional segment does not mean the segment must be present in the message. It means that if the segment is present, the required fields within that segment must be populated. The same applies to required components of optional fields. If the field is populated, then the required component must be populated. The same applies to required sub-components of optional components. If a component is populated, the required sub-components of that component must also be populated.
Comment	Lists any constraints imposed and other comments.

Delimiter Characters

Delimiter values are specified in MSH-2. ImpactSIIS uses the recommended delimiter set.

X0D	Segment Terminator (carriage return)
|	Field Separator
^	Component Separator
&	Sub-component Separator
~	Repetition Separator
\\	Escape Character

MSA—Message Acknowledgement Segment

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	ELEMENT NAME	Usage	Comment
1	2	ID	[1..1]	8	18	Acknowledgment Code	Required	Supported
2	20	ST	[1..1]		10	Message Control ID	Required	
3	80	ST	[0..1]		20	Text Message	Optional	(not supported)
4	15	NM	[0..1]		21	Expected Sequence Number	Optional	(not supported)
5			[0..1]		22	Delayed Acknowledgment Type	Optional	(not supported)
6		CE	[0..0]	357	23	Error Condition	Not Used	(not supported)

MSA field definitions

MSA-1 Acknowledgment Code (ID) 00018

Definition: This field contains an acknowledgment code, see message processing rules. Refer to HL7 Table 0008 - Acknowledgment code for valid values. See Table Below:

Scenario	MSA-1	QAK-2
No match found	AA	NF
Single Match	AA	OK
Multiple Match	AA	OK
Missing Parameters	AR	AR

MSA-2 Message Control ID (ST) 00010

Definition: This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended. This field echoes the message control id sent in MSH-10 by the initiating system.

MSH—Message Header Segment in a RSP

SEQ	LEN	Data Type	Cardinality	Value set	ITEM #	ELEMENT NAME	Usage	ODH Sending	Constraint
1	1	ST	[1..1]		1	Field Separator	Required	Yes	The MSH.1 field shall be |
2	4	ST	[1..1]		2	Encoding Characters	Required	Yes	The MSH.2 field shall be ^~\&
3		HD	[0..1]	361	3	Sending Application	Required	yes	ImpactSIIS
4		HD	[0..1]	362	4	Sending Facility	Required	yes	Provided by ImpactSIIS Technical Staff and begins with OH
5		HD	[0..1]	361	5	Receiving Application	Required	yes	Blank
6		HD	[0..1]	362	6	Receiving Facility	Required	yes	Same as sending facility in QBP
7		TS	[1..1]		7	Date/Time Of Message	Required	yes	Format YYYYMMDDHHMM
8	40	ST	[0..1]		8	Security	Optional	no	
9	15	MSG	[1..1]		9	Message Type	Required	Yes	RSP^K11^RSP_K11
10	20	ST	[1..1]		10	Message Control ID	Required	yes	ODH generated unique ID
11	3	PT	[1..1]		11	Processing ID	Required	yes	Always send "P"

12		VID	[1..1]		12	Version ID	Required	yes	2.5.1
13	15	NM	[0..1]		13	Sequence Number	Optional		Null
14	180	ST	[0..1]		14	Continuation Pointer	Optional		Null
15	2	ID	[0..1]	155	15	Accept Acknowledgement Type	Required, may be empty		Blank
16	2	ID	[0..1]	155	16	Application Acknowledgment Type	Required, may be empty		NE-Never (ODH will always send NE).
17	3	ID	[0..1]	399	17	Country Code	Optional		
18	16	ID	[0..1]	211	692	Character Set	Optional		blank defaults to ASCII printable
19		CE	[0..1]		693	Principal Language Of Message	Optional		Blank
20	20	ID	[0..1]	356	1317	Alternate Character Set Handling Scheme	Optional		Blank
21		EI	[0..*]		1598	Message Profile Identifier	Optional		See Table Below

MSH field definitions

MSH-1 Field Separator (ST) 00001

Definition: This field contains the separator between the segment ID and the first real field, MSH-2-encoding characters. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. Required value is |, (ASCII 124).

Example:
MSH|^~\&|ImpactSIIS|ODH||OH8299|20130606133529||RSP^K11^RSP_K11|20130606133529ODH|P|2.5.1|||||NE|||||Z32^CDCPHINVS
X0D

MSH-2 Encoding Characters (ST) 00002

Definition: This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Required values are ^~\& (ASCII 94, 126, 92, and 38, respectively).

MSH-3 Sending Application (HD) 00003

Definition: The value for this field will always be "ImpactSIIS".

MSH-4 Sending Facility (HD) 00004

Definition: The value for this field will always be "ODH".

MSH-5 Receiving Application (HD) 00005

Definition: The value for this field will be blank.

MSH-6 Receiving Facility (HD) 00006

Definition: The value for this field will be provided by the ImpactSIIS Technical Staff.

MSH-7 Date/Time Of Message (TS) 00007

Definition: This field contains the date/time that the sending system created the message. The degree of precision is to the second. Eastern Time zone will be used throughout the message as default time zone.

MSH-8 Security (ST) 00008

Definition: The value for this field will be blank.

MSH-9 Message Type (MSG) 0000

Definition: This field contains the message type, trigger event, and the message structure ID for the message. Refer to HL7 Table 0076 - Message type for valid values for the message type code. This table contains values such as ACK, ADT, VXU, ORU etc. The following table lists those anticipated to be used by IIS.

Message Types

Transaction	Message type
Unsolicited update of immunization record	VXU
Unsolicited update of demographic data	ADT
Response to query	RSP

MSH-10 Message Control ID (ST) 00010

Definition: This field contains the identifier assigned by the sending application (MSH.3) that uniquely identifies a message instance. This identifier is unique within the scope of the sending facility portion of message date (MSH.7). The receiving system echoes this ID back to the sending system in the Message acknowledgment segment (MSA). The content and format of the data sent in this field is the responsibility of the sender. The receiver returns exactly what was sent in response messages. (MSH.4), sending application (MSH.3), and the YYYYMMDDHHMMSS

MSH-11 Processing ID (PT) 00011

Definition: This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules. Reference Table HL7 0103 in Appendix A. The choices are Production, Debugging and Training. ODH will always send production.

MSH-12 Version ID (VID) 00012

Definition: This field contains the identifier of the version of the HL7 messaging standard used in constructing, interpreting, and validating the message. Only the first component need be populated.

MSH-16 Application Acknowledgment Type (ID) 00016

Definition: This field value will always be "NE".

MSH-21 Message Profile Identifier (EI) 01598

Definition: Sites may use this field to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages.

Concept Code	Concept Name	Definition	HL7 Table 0396 Code
Z31	Return Candidate Clients	Return Candidate Clients	CDCPHINVS
Z32	Return Immunization History	Return Immunization History	CDCPHINVS
Z33	Return No match found in the registry	Return No candidate match found in the registry	CDCPHINVS
Z34	Request Immunization History	Request Immunization History	CDCPHINVS

MSH—Message Header Segment in a QBP

SEQ	LEN	Data Type	Cardinality	Value set	ITEM #	ELEMENT NAME	Usage	ODH Sending	Constraint
1	1	ST	[1..1]		00001	Field Separator	Required	Yes	The MSH.1 field shall be	
2	4	ST	[1..1]		00002	Encoding Characters	Required	Yes	The MSH.2 field shall be ^~\&
3		HD	[0..1]	361	00003	Sending Application	Required	yes	Provider application
4		HD	[0..1]	362	00004	Sending Facility	Required	yes	Provided by ImpactSIIS Technical Staff and begins with OH
5		HD	[0..1]	361	00005	Receiving Application	Required	yes	ImpactSIIS
6		HD	[0..1]	362	00006	Receiving Facility	Required	yes	ODH
7		TS	[1..1]		00007	Date/Time Of Message	Required	yes	Format: YYYYMMDDHHMMSS
8	40	ST	[0..1]		00008	Security	Optional	no	
9	15	MSG	[1..1]		00009	Message Type	Required	Yes	QBP^Q11^QBP_Q11
10	20	ST	[1..1]		00010	Message Control ID	Required	yes	Provider generated unique ID
11	3	PT	[1..1]		00011	Processing ID	Required	yes	Always send "P"
12		VID	[1..1]		00012	Version ID	Required	yes	2.5.1
13	15	NM	[0..1]		00013	Sequence Number	Optional		Blank
14	180	ST	[0..1]		00014	Continuation Pointer	Optional		Blank
15	2	ID	[0..1]	155	00015	Accept Acknowledgement Type	Required, may be empty		Blank
16	2	ID	[0..1]	155	00016	Application Acknowledgment Type	Required, may be empty		"AL"
17	3	ID	[0..1]	399	00017	Country Code	Optional	Not Supported	

18	16	ID	[0..1]	211	00692	Character Set	Optional		blank defaults to ASCII printable
19		CE	[0..1]		00693	Principal Language Of Message	Optional		Blank
20	20	ID	[0..1]	356	001317	Alternate Character Set Handling Scheme	Optional		Blank
21		EI	[0..*]		01598	Message Profile Identifier	Optional		

MSH field definitions

MSH-1 Field Separator (ST) 00001

Definition: This field contains the separator between the segment ID and the first real field, MSH-2-encoding characters. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. Required value is |, (ASCII 124).

Example: MSH|^~\&|EPIC|OH8299|IMPACT||20130311||QBP^Q11^QBP_Q11|123456MJ|P|2.5.1|||||ER|||||Z34^CDCPHINVSX0D

MSH-2 Encoding Characters (ST) 00002

Definition: This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Required values are ^~\& (ASCII 94, 126, 92, and 38, respectively).

MSH-3 Sending Application (HD) 00003

Definition: The value for this field will always be application name of the provider.

MSH-4 Sending Facility (HD) 00004

Definition: The value for this field will always be an ODH-provided facility ID, a 3 to 5-digit number preceded by the state prefix "OH".

MSH-5 Receiving Application (HD) 00005

Definition: The value for this field will be "ImpactSIIS".

MSH-6 Receiving Facility (HD) 00006

Definition: The value for this field will be "ODH".

MSH-7 Date/Time of Message (TS) 00007

Definition: This field contains the date/time that the sending system created the message. The degree of precision is to the second. Eastern Time zone will be used throughout the message as default time zone.

MSH-8 Security (ST) 00008

Definition: The value for this field will be blank.

MSH-9 Message Type (MSG) 00009

Definition: This field contains the message type, trigger event, and the message structure ID for the message. Refer to HL7 Table 0076 - Message type for valid values for the message type code. This table contains values such as ACK, ADT, VXU, ORU etc. The following table lists those anticipated to be used by IIS.

Message Types

Transaction	Message type
Unsolicited update of immunization record	VXU
Unsolicited update of demographic data	ADT
Query to another system	QBP
Response to query	RSP

MSH-10 Message Control ID (ST) 00010

Definition: This field contains the identifier assigned by the sending application (MSH.3) that uniquely identifies a message instance. This identifier is unique within the scope of the sending facility (MSH.4), sending application (MSH.3), and the YYYYMMDDHHMMSS portion of message date (MSH.7). The receiving system echoes this ID back to the sending system in the Message acknowledgment segment (MSA). The content and format of the data sent in this field is the responsibility of the sender. The receiver returns exactly what was sent in response messages.

MSH-11 Processing ID (PT) 00011

Definition: This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules. Reference Table HL7 0103 in an appendix. The choices are Production, Debugging and Training.

MSH-12 Version ID (VID) 00012

Definition: This field contains the identifier of the version of the HL7 messaging standard used in constructing, interpreting, and validating the message. Only the first component need be populated.

MSH-16 Application Acknowledgment Type (ID) 00016

Definition: This field value should be "AL".

MSH-21 Message Profile Identifier (EI) 01598

Definition: This field will be used QPD to reference query profile "Z34^CDCPHINVS"

NK1—Next of Kin Segment

(Not Supported)

NTE—Note Segment

The NTE segment is used for sending notes and comments. It is used in relation to OBX in the RSP.

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	ELEMENT NAME	Usage	Comment
1	4	SI	[0..1]		00096	Set ID - NTE	Optional	
2	8	ID	[0..1]	105	00097	Source of Comment	Optional	
3		FT	[1..1]		00098	Comment	Required	"Vaccine forecasting and evaluation is a tool to use for your benefit. It is not meant to replace onsite evaluation from the provider."
4		CE	[0..1]	364	01318	Comment Type	Optional	

NTE field definitions

NTE-3 Comment (FT) 00098

Definition: This field contains the comment contained in the segment.

OBX—Observation Result Segment

The OBX segment is also part of the Response Message. The Response Message will only be returned when a single matching patient is found.
The observation result segment has many uses. It carries observations about the object of its parent segment. In the QBP/RSP it is associated with the forecasting for patient immunization record. The basic format is a question (OBX-3) and an answer (OBX-5). The basic structure for the recommendation in the message is:

    ORC-order segment

    RXA-vaccine, CVX-Unspecified formulation (no dose given)

    OBX-vaccine type

    OBX-the schedule

    OBX-dose number in the series

    OBX-recommended next dose due

    Optional NTE-comment (Disclaimer)

SEQ	Element Name	Data Type	Value Set	IMPACTSIIS HL7 Web Service Usage
1	Set ID – OBX	SI		Required
2	Value Type	ID	0125	Required
3	Observation Identifier	CE		Required
4	Observation Sub-ID	ST		Required
5	Observation Value	varies		Required
6	Units	CE		Not Supported
7	References Range	ST		Not Supported
8	Abnormal Flags	IS	0078	Not Supported
9	Probability	NM		Not Supported
10	Nature of Abnormal Test	ID	0080	Not Supported
11	Observation Result Status	ID	0085	Required
12	Effective Date of Reference Range Values	TS		Not Supported
13	User Defined Access Checks	ST		Not Supported
14	Date/Time of the Observation	TS		Required

Forecasting will be recommended for the following group vaccines

1	DTP	1
2	HBV	45
3	HIB	17
4	MMR	3
5	POL	89
6	VAR	21
7	PNE	109
8	Rotavirus	122
9	HAV	85
10	Meningococcal	108
11	HPV	137

OBX field definitions

OBX Field Usage Notes

OBX-1 Set ID - OBX (SI)

This field contains the sequence number.
For each OBX under an RXA, the IMPACTSIIS HL7 Web Service will value the first OBX with "1"; each subsequent OBX will be valued with the next number in sequence. The OBX Set ID numbering schema will restart at "1" for the next set of OBX segments (under the next RXA segment).

OBX-2 Value Type (ID)

The IMPACTSIIS HL7 Web Service will value this field with the data type (e.g., CE, ID, ST, or DT) that corresponds to the format of the observation value (OBX-5). For example, if the OBX-2 value is "CE" then the OBX-5 value will be a coded entry.

Value Type	Used with IMPACTSIIS HL7 Supported Observation(s)
CE	Component Vaccine Type (38890-0) and Immunization Schedule used (59779-)
DT	Date next dose is recommended (30980-7)
N	Dose number in Series (30973-2)

Example:

RXA|0|1|20130606|20130606|998^No vaccine administered^CVX|999

OBX|1|CE|30956-7^vaccine type^LN|1|21^DTP^CVX||||||F|||20130514

OBX|2|CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP Schedule^CDCPHINVS||||||F|||20130514

OBX|3|N|30973-2^Dose number in Series^LN|1|2||||||F|||20130514

OBX|4|DT|30980-7^Date vaccine due^LN|1|20061004||||||F|||20130514

NTE|1||Vaccine forecasting and evaluation is a tool to use for your benefit. It is not meant to replace onsite evaluation from the provider.

OBX-3 Observation Identifier (CE)

This field contains a unique identifier for the observation. The format is that of the Coded Element (CE). Example: |30980-7^Date vaccine due^LN|. OBX-3 may be thought of as a question that the observation (OBX-5) answers. In the example above, the question is "when is the next dose of this vaccine due (recommended)". The answer in OBX-5 could be "20130714".

The IMPACTSIIS HL7 Web Service will populate this field with the corresponding identifier for each of the following IMPACTSIIS HL7 Web Service supported observations:

Observations Related to Recommendations/Forecasting:

Vaccine Type: |30956-7^vaccine type^LN|

OBX-5 sample answer: |21^DTP^CVX|

Immunization Schedule Used: |59779-9^Immunization Schedule used^LN|

OBX-5 answer: |VXC16^ACIP^CDCPHINVS|

Date Next Dose number in Series: |30973-2^Dose number in Series^LN|

OBX-5 sample answer: |2|

Date Next Dose is Recommended for this Vaccine: |30980-7^Date vaccine due^LN|

OBX-5 sample answer: |20061004|

The 2.3.1 Implementation Guide used suffixes on the first sequence in OBX-3 to group related observations. For instance, reporting a vaccine due date for a recommended vaccine added a suffix of one LOINC code to a second LOINC code, e.g., 30979-9 (vaccine due next) + 30980-7 (date vaccine due) represented as 30979-9&30980-7^DATE VACCINE DUE^LN. This is no longer acceptable. Grouping of related observations will be accomplished using Observation sub-id (OBX-4).

OBX-4 Observation Sub-ID (ST)

This field is used to group related observations by setting the value to the same number.
Each related observation would share an Observation sub-id.

For example:

```
ORC|RE|||||||||||9999999999^^^^^^^^^^NPI
RXA|0|1|20130606|20130606|998^No vaccine administered^CVX|999
OBX|1|CE|30956-7^vaccine type^LN|1|1^DTP^CVX||||||F|||20130606
OBX|2|CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP Schedule^CDCPHINVS||||||F|||20130606
OBX|3|N|30973-2^Dose number in Series^LN|1|2||||||F|||20130606
OBX|4|DT|30980-7^Date vaccine due^LN|1|20141104||||||F|||20130606
```

OBX-5 Observation Value (varies)

This field contains the observation (answer) posed by the question in OBX-3 (Observation Identifier). OBX-2 (Value Type) contains the data type for this field. For a list of observations returned by the IMPACTSIIS HL7 Web Service, see the field usage notes for OBX-3.

OBX-11 Observation Result Status (ID)

The IMPACTSIIS HL7 Web Service will value this field with "F" (Final).

OBX-14 Date/Time of the Observation (TS)

This field represents the time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation. The IMPACTSIIS HL7 Web Service will value this field with the date and time the immunization history was accessed and the recommendation was generated, which is also the date and time of the RSP message.

ORC—Order Request Segment

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM#	ELEMENT NAME	Usage	ODH Sending	Comment
1	2	ID	[1..1]	119	215	Order Control	Required	Supported	use "RE"
2		EI	[0..1]		216	Placer Order Number	Required, may be empty	Not Supported	Blank
3		EI	[0..1]		217	Filler Order Number	Required	Not Supported	Blank
4		EI	[0..1]		218	Placer Group Number	Optional	Not Supported	
5	2	ID	[0..1]	38	219	Order Status	Optional	Not Supported	
6	1	ID	[0..1]	121	220	Response Flag	Optional	Not Supported	
7		TQ	[0..1]		221	Quantity/Timing	Not Used	Not Supported	
8		EIP	[0..1]		222	Parent	Optional	Not Supported	
9		TS	[0..1]		223	Date/Time of Transaction	Optional	Not Supported	
10		XCN	[0..1]		224	Entered By	Required, may be empty	Not Supported	Blank
11		XCN	[0..1]		225	Verified By	Optional	Not Supported	
12		XCN	[0..1]		226	Ordering Provider	Required, may be empty	Supported	This shall be the provider ordering the immunization. It is expected to be "999999999" if the immunization record is transcribed from a historical record or unknown provider. Note: For forecasting ODH will always send "999999999"
13		PL	[0..1]		227	Enterer's Location	Optional	Not Supported	
14		XTN	[0..1]		228	Call Back Phone Number	Optional	Not Supported	
15		TS	[0..1]		229	Order Effective Date/Time	Optional	Not Supported	

16		CE	[0..1]		230	Order Control Code	Optional	Not Supported	
17		CE	[0..1]		231	Entering Organization	Optional	Not Supported	
18		CE	[0..1]		232	Entering Device	Optional	Not Supported	
19		XCN	[0..1]		233	Action By	Optional	Not Supported	
20		CD	[0..1]	339	1310	Advance Beneficiary Notice Code	Optional	Not Supported	
21		XON	[0..1]		1311	Ordering Facility Name	Optional	Not Supported	
22		XAD	[0..1]		1312	Ordering Facility Address	Optional	Not Supported	
23		XTN	[0..1]		1313	Ordering Facility Phone Number	Optional	Not Supported	
24		XAD	[0..1]		1314	Ordering Provider Address	Optional	Not Supported	
25		CWE	[0..1]		1473	Order Status Modifier	Optional	Not Supported	
26		CWE	[0..1]	552	1641	Advanced Beneficiary Notice Override Reason	Optional	Not Supported	
27		TS	[0..1]		1642	Filer's Expected Availability Date/Time	Optional	Not Supported	
28		CWE	[0..1]	177	615	Confidentiality Code	Optional	Not Supported	
29		CWE	[0..1]	482	1643	Order Type	Optional	Not Supported	
30		CNE	[0..1]	483	1644	Enterer Authorization Mode	Optional	Not Supported	
31		CWE	[0..1]		2286	Parent Universal Service Identifier	Optional	Not Supported	

ORC field definitions

ORC-1 Order Control (ID) 00215

Definition: Determines the function of the order segment. The value for RSP shall be "RE".

ORC-2 Placer Order Number (EI) 00216

The placer order number is used to uniquely identify this order among all orders sent by a provider organization.

ORC-3 Filler Order Number (EI) 00217

The filler order number is used to uniquely identify this order among all orders sent by a provider organization that filled the order.

ORC-12 Ordering Provider (XCN) 00226

Definition: This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician). In the case where this segment is associated with a historic immunization record and the ordering provider is not known, then this field will be populated with "999999999"

PD1—Patient Demographic Segment
Not supported

PID—Patient Identifier Segment

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

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM#	Element Name	Usage	ODH supported	Comments
1	4	SI	[0..1]		00104	Set ID - PID	Required, may be empty	Yes	
2		CX	[0..1]		00105	Patient ID	Not Used	No	
3		CX	[1..*]		00106	Patient Identifier List	Required	Yes	State Immunization Registry ID with ID type "SR"
4		CX	[0..1]		00107	Alternate Patient ID - 106	Not Used	No	
5		XPN	[1..*]		00108	Patient Name	Required	Yes	Will include patient first name, middle name, and last name.
6		XPN	[0..1]		00109	Mother's Maiden Name	Required, may be empty	No	

7		TS	[1..1]		00110	Date/Time of Birth	Required	Yes	Standard month, day and year
8	1	IS	[0..1]	1	00111	Administrative Sex	Required	Yes	Always send "U"
9		XPN	[0..1]		00112	Patient Alias	Not Used	No	
10		CE	[0..*]	5	00113	Race	Required	Yes	Always send "Blank"
11		XAD	[0..*]		00114	Patient Address	Required	Yes	ODH will send patient primary address. If Patient Primary Address does not exist ODH will send Primary Contact Primary Address in RSP.
12	4	IS	[0..1]	289	00115	County Code	Not Used	No	Null. County belongs in address field.
13		XTN	[0..*]		00116	Phone Number - Home	Required, may be empty	Yes	ODH will send the patient's primary phone number. If Patient primary phone number does not exist, ODH will send Primary Contact Primary Phone number in RSP.
14		XTN	[0..1]		00117	Phone Number - Business	Optional	No	
15		CE	[0..1]	296	00118	Primary Language	Optional	No	
16		CE	[0..1]	2	00119	Marital Status	Optional	No	
17		CE	[0..1]	6	00120	Religion	Optional	No	
18		CX	[0..1]		00121	Patient Account Number	Optional	No	
19	16	ST	[0..1]		00122	SSN Number - Patient	Not Used	No	
20		DLN	[0..1]		00123	Driver's License Number - Patient	Not Used	No	
21		CX	[0..1]		00124	Mother's Identifier	Not Used	No	
22		CE	[0..1]	189	00125	Ethnic Group	Required	Yes	Blank
23	60	ST	[0..1]		00126	Birth Place	Optional	No	
24	1	ID	[0..1]	136	00127	Multiple Birth Indicator	Required, may be empty	No	
25	2	NM	[0..1]		00128	Birth Order	Conditional, May be empty	No	
26		CE	[0..1]	171	00129	Citizenship	Optional	No	

27		CE	[0..1]	172	00130	Veterans Military Status	Optional	No	
28		CE	[0..1]	212	00739	Nationality	Optional	No	
29		TS	[0..1]		00740	Patient Death Date and Time	Conditional	No	
30	1	ID	[0..1]	136	00741	Patient Death Indicator	Required, may be empty	No	
31	1	ID	[0..1]	136	01535	Identity Unknown Indicator	Optional	No	
32	20	IS	[0..1]	445	01536	Identity Reliability Code	Optional	No	
33		TS	[0..1]		01537	Last Update Date/Time	Optional	No	
34		HD	[0..1]		01538	Last Update	Optional	No	
35		CE	[0..1]	446	01539	Species Code	Optional	No	
36		CE	[0..1]	447	01540	Breed Code	Optional	No	
37	80	ST	[0..1]		01541	Strain	Optional	No	
38		CE	[0..1]	429	01542	Production Class Code	Optional	No	
39		CWE	[0..1]	171	01840	Tribal Citizenship	Optional	No	

PID field definitions

PID-1 Set ID - PID (SI) 00104

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

PID-3 Patient Identifier List (CX) 00106

Definition: This field contains the list of identifiers (one or more) used by the health care facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.). ODH will always send back the immunization registry number.

PID-5 Patient Name (XPN) 00108

Definition: This field contains the names of the patient, The primary or legal name of the patient is reported first. Therefore, the name type code in this field should be —L - Legal. Refer to HL7 Table 0200 - Name Type for valid values. ODH will always send patient first name, middle name and last name.

PID-7 Date/Time of Birth (TS) 00110

Definition: This field contains the patient's date and time of birth.

PID-11 Patient Address (XAD) 00114

Definition: This field contains the mailing address of the patient. Address type codes are defined by HL7 Table 0190 - Address Type. Multiple addresses for the same person may be sent in the following sequence: The primary mailing address must be sent first in the sequence (for backward compatibility); if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence.

PID-13 Phone Number - Home (XTN) 00116

Definition: This field contains the patient's personal phone numbers. All personal phone numbers for the patient are sent in the following sequence. The first sequence is considered the primary number (for backward compatibility). If the primary number is not sent, then a repeat delimiter is sent in the first sequence. Each type of telecommunication shall be in its own repetition. For example, if a person has a phone number and an email address, they shall each have a repetition. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

PV1—Patient Visit Segment

Not Supported

QAK—Query Acknowledgement Segment

SEQ	LEN	DataType	Cardinality	Value set	ITEM#	ELEMENT NAME	Usage	ODH Supported	Comment
1	32	ST	[1..1]		00696	Query Tag	Required	Yes	Echo sent
2	2	ID	[0..1]	208	00708	Query Response Status	Required, may be empty	Yes	See Table Below

3		CE	[0..1]	471	01375	Message Query	Required	Yes	Echo Back
4	10	NM	[0..1]		01434	Hit Count	Optional	No	
5	10	NM	[0..1]		01622	This payload	Optional	No	
6	10	NM	[0..1]		01623	Hits remaining	Optional	No	

QAK field definitions

QAK-1 Query Tag (ST) 00696

Definition: This field contains the value sent in QPD-2 (query tag) by the initiating system, and will be used to match response messages to the originating query. The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

QAK-2 Query Response Status (ID) 00708

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

Scenario	MSA-1	QAK-2
No match found	AA	NF
Single Match	AA	OK
Multiple Match	AA	OK
Missing Parameters	AR	AR

QAK-3 Message Query Name (CE) 01375

Definition: This field contains the name of the query. This shall mirror the QPD-1 (Message Query Name) found in the query message that is being responded to.

QPD – Query Parameter Definition

The QPD segment defines the parameters of the query.

Field Seq (Query ID=Z34)	Name	TYPE	OPT	ODH Supported	Segment Field Name in PID	Element Name or Value	Description
QPD-1	MessageQueryName	CE	R	Yes		Z34^Request Immunization History^HL70471	Z34^Request Immunization History^HL70471
QPD- 2	QueryTag	ST	R	Yes			Unique to each query message instance.
QPD-3	PatientList	CX	RE	Yes	PID.3	PID-3: Patient Identifier List: MA = Medicaid Number LR = Local Registry ID SR = State Registry ID SS = Social Security Number MR = Medical Record Number	The combination of values for Patientlist.ID, patientlst.identifiercode and Patientlist.AssigningAuthority are intended to allow unique identification of a client, if the data are found in the responding system.
QPD-3.1		ST			PID-3.1	ID	If this field is not valued, PatientList is not considered when seeking matching clients.
QPD-3.4		HD			PID-3.4	Assigning Authority	If this field is not valued, PatientList is not considered when seeking matching clients.
QPD-3.5		IS			PID-3.5	Identifier Type Code	If this field is not valued, PatientList is not considered when seeking matching clients.
QPD -4	PatientName	XPN	RE	Yes	PID.5	PID-5: Patient Name	If this field is not valued, then the query will return an error, since this is a required field.
QPD - 4.1		FN			PID-5.1	Family Name	If this field is not valued, then patient name is considered to contain no value.

QPD-4.2		ST			PID-5.2	Given Name	If this field is not valued, then patient name is considered to contain no value. Given name is required.
QPD-4.3		ST			PID-5.3	Second or other names	If this field is not valued, then all values for this field are considered a match.
QPD-4.4		ST			PID-5.4	Suffix	If this field is not valued, then all values for this field are considered a match.
QPD-5	PatientMotherMaiden Name	XPN	RE	Yes	PID.6	PID-6: Mother's maiden name	If this field is not valued, Mother's maiden name is not considered when seeking matching clients.
QPD-5.1		FN			PID-6.1	Family Name	If this field is not valued, then mother's maiden name is considered to contain no value.
QPD-5.2		ST			PID-6.2	Given Name	If this field is not valued, then all values for this field are considered a match.
QPD- 6	Patient Date of Birth	TS	RE	Yes	PID.7	PID-7: Patient date of birth	If this field is not valued to an accuracy of at least day, then this field is considered not valued.
QPD-7	Patient Sex	IS	RE	No	PID.8	PID-8: Patient sex	If this field is not valued, then all values for this field are considered a match.
QPD-8	Patient Address	XAD	RE	Yes	PID.11	PID-11: Patient Address	If this field is not valued, then address will not be considered when seeking matching clients.
QPD-8.1		SAD				Street Address	If this field is not valued, then all values for this field are considered a match.
QPD-8.3		ST				City	If this field is not valued, then address is considered to contain no value.

QPD-8.4		ST				State	If this field is not valued, then address is considered to contain no value.
QPD-8.5		ST				Zip	If this field is not valued, then all values for this field are considered a match.
QPD-8.7		IS				Address Type	If this field is not valued, then it shall default to L, legal address.
QPD-9	Patient home phone	XTN	RE	Yes	XTN.1	PID-13: Patient home phone	This field will be considered the Home phone. If this field, PID.13, is not valued, then phone number is not considered when seeking matching clients. The format must be without special characters. Ex: 6145551212
QPD-10	Patient multiple birth indicator	ID	RE	No	PID-24	PID-24: Patient multiple birth indicator	If this field is not valued, then Multiple Birth Indicator is not considered when seeking matching clients.
QPD-11	Patient birth order	NM	RE	No	PID-25	PID-25: Patient birth order	If this field, is not valued, then birth order is not considered when seeking matching clients
QPD-12	Client last updated date	TS	RE	No	PID-33	PID-33: Patient last update date	If this field, is not valued, then client last updated date is not considered when seeking matching clients.
QPD-13	Client last update facility	HD	RE	No	PID-34	PID-34: Patient last update facility	If this field is not valued, then client last updating facility is not considered when seeking matching clients.
QPD-14	Patient Mother Name	XPN	RE	Yes	Patient Mother Name		If this field is not valued, Mother's name is not considered when seeking matching clients.

QPD-14.1		FN			Family Name		If this field is not valued, then mother's name is considered to contain no value.
QPD-14.2		ST			Given Name		If this field is not valued, then all values for this field are considered a match.
QPD-15	Mothers Date of Birth	TS	RE	Yes		Mothers date of birth	If this field is not valued to an accuracy of at least a day, then this field is considered not valued.

QPD field definitions

QPD-1 Message Query Name (CE) 01375

Definition: This field contains the name of the query. These names are assigned by the function-specific chapters of this specification. It is one to one with the conformance statement for this query name, and it is in fact an identifier for that conformance statement.

QPD-2 Query Tag (ST) 00696

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

QPD-3-n User Parameters (Varies) 01435

ImpactSIIS usage

*QPD-3: <Patient System ID>^^^<System Name>^*

*QPD-4: <Last Name>^<First Name>^<Middle Initial>^*

QPD-5: <Mother Last Name>^<Mother First Name>^^^^^<Relationship to Patient>

QPD-6: <Patient Birth Date, CCYYMMD format>

QPD-7 <Patient Gender>

*QPD-8 <Patient Address>^^<Patient City>^<Patient State>^<Patient Zip>^^^^*

QPD-9 <Patient Phone Number>

QPD-14 < Patient Mother Name >

QPD-15 < Mothers Date of Birth >

Definition: These successive parameter fields hold the values that the Client passes to the Server. The client data is presented as a sequence of HL7 fields. Beginning at *QPD-3-User parameters*, the remaining fields of the QPD segment carry user parameter data. Each QPD user parameter field corresponds to one parameter defined in the Conformance Statement, where each name, type, optionality, and repetition of each parameter has been specified. Parameter fields in the QPD segment appear in the same order as in the Conformance Statement.

RCP – Response Control Parameter Segment

The RCP segment is used to restrict the amount of data that should be returned in response to query. By default, if there are multiple matches then ODH will return a maximum of 10 records. It lists the segments to be returned.

SEQ	LEN	Data Type	Cardinality	Value Set	Item #	ELEMENT NAME	Usage	Comment
1	1	ID	[0..1]	91	27	Query Priority	Required, may be empty	Constrain to I. Immediate priority is expected.
2		CQ	[0..1]	126	31	Quantity Limited Request	Required, may be empty	By default if there are multiple matches then ODH will return maximum of 10 records.
3		CE	[0..1]	394	1440	Response	Optional	Blank
4		TS	[0..1]		1441	Execution and Delivery Time	Optional	Blank
5	1	ID	[0..1]	395	1443	Modify Indicator	Optional	Blank
6		SRT	[0..1]		1624	Sort-by Field	Optional	Blank
7		ID	[0..*]		1594	Segment group inclusion	Optional	Blank

RCP field definitions

RCP-1 Query Priority (ID) 00027

Definition: This field contains the time frame in which the response is expected. Refer to HL7 Table 0091 - Query priority for valid values. Table values and subsequent fields specify time frames for response. Only "I" for "immediate" shall be used for this field.

RCP-2 Quantity Limited Request (CQ) 00031

Definition: This field contains the maximum length of the response that can be accepted by the requesting system. Valid entries are numerical values (in the first component) given in the units specified in the second component. Default is LI (lines). The expected type is records, so the second component is constrained to RD. By default, if there are multiple matches then ODH will return a maximum of 10 records.

RXA- Pharmacy/Treatment Administration Segment

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

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM #	ELEMENT NAME	Usage	ODH Supported	Comment
1	4	NM	[1..1]		00342	Give Sub-ID Counter	Required	Yes	Constrain to 0 (zero)
2	4	NM	[1..1]		00344	Administration Sub-ID Counter	Required	Yes	Constrain to 1
3		TS	[1..1]		00345	Date/Time Start of Administration	Required	Yes	YYYYMMDD
4		TS	[0..1]		00346	Date/Time End of Administration	Required, may be empty	Yes	YYYYMMDD
5		CE	[1..1]	0292	00347	Administered Code	Required	Yes	CVX and/or CPT code is strongly preferred.
6	20	NM	[1..1]		00348	Administered Amount	Required	Yes	Always send 999
7		CE	[0..1]		00349	Administered Units	Conditional, May be empty	No	Blank
8		CE	[0..1]		00350	Administered Dosage Form	Optional	No	Blank
9		CE	[0..*]	NIP 1	00351	Administration Notes	Conditional	No	Blank
10		XCN	[0..1]		00352	Administering Provider	Required, may be empty	No	NPI number will be sent.

11		LA2	[0..1]		00353	Administered-at Location	Required	No	Blank
12	20	ST	[0..1]		00354	Administered Per (Time	Optional	No	Blank
13	20	NM	[0..1]		01134	Administered Strength	Optional	No	Blank
14		CE	[0..1]		01135	Administered Strength	Optional	No	Blank
15	20	ST	[0..*]		01129	Substance Lot Number	Conditional	No	Blank
16		TS	[0..1]		01130	Substance Expiration Date	Conditional, May be empty	No	Blank
17		CE	[0..*]	227	01131	Substance Manufacturer Name	Conditional	Yes	MVX code is sent
18		CE	[0..*]		01136	Substance/Treatment Refusal Reason	Conditional	No	Blank
19		CE	[0..1]		01123	Indication	Optional	No	Blank
20	2	ID	[0..1]	322	01223	Completion Status	Required, may be empty	No	Blank
21	2	ID	[0..1]	323	01224	Action Code-RXA	Required, may be empty	No	Blank
22		TS	[0..1]		01225	System Entry Date/Time	Optional	No	Blank
23	5	NM	[0..1]		01696	Administered Drug Strength Volume	Optional	No	Blank
24		CWE	[0..1]		01697	Administered Drug Strength Volume Units	Optional	No	Blank
25		CWE	[0..1]		01698	Administered Barcode Identifier	Optional	No	Blank
26	1	ID	[0..1]	480	01699	Pharmacy Order Type	Optional	No	Blank

RXA field definitions

RXA-1 Give Sub-ID Counter (NM) 00342

Definition: Not a function under IIS. Constrain to 0 (zero).

RXA-2 Administration Sub-ID Counter (NM) 00344

Definition: This field is used to track multiple RXA under an ORC. Since each ORC has only one RXA in immunization messages, constrain to 1.
This should not be used for indicating dose number, which belongs in an OBX.

RXA-3 Date/Time Start of Administration (TS) 00345

Definition: The date this vaccination occurred. In case of forecasting this will be a timestamp when RSP is generated.

RXA-4 Date/Time End of Administration (If Applies) (TS) 00346

Definition: In the context of immunization, this is equivalent to the Start date/time. If populated it should be = RXA-3. If null, the date/time of *RXA-3- Date/Time Start of Administration* is assumed.

RXA-5 Administered Code (CE) 00347

Definition: This field identifies the medical substance administered, or is the vaccine that is recommended in forecasting. If the substance administered is a vaccine, CVX codes should be used in the first triplet to code this field. For forecasting the CVX code '998' will always be used. CVX code is the strongly preferred code system.

RXA-6 Administered Amount (NM) 00348

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

RXA-7 Administered units (CE) 00349

Definition: This field is conditional because it is required if the administered amount code does not imply units. This field must be in simple units that reflect the actual quantity of the substance administered. It does not include compound units. This field is not required if the previous field is populated with 999.

RXA-10 Administering Provider (XCN) 00352

Definition: This field is intended to contain the name and provider ID of the person physically administering the pharmaceutical. For unknown providers the NPI number will be sent as "999999999"

RXA-17 Substance Manufacturer Name (CE) 01131

Definition: This field contains the manufacturer of the medical substance administered.

RXA-22 System Entry Date/Time (TS) 01225

This field records the date/time that this record was created in the originating system.

RXR-- Pharmacy/Treatment Route Segment (Not Supported)

The Pharmacy/Treatment Route segment contains the alternative combination of route, site, administration device, and administration method that are prescribed as they apply to a particular order.

APPENDIX

HL7 TABLES

HL7-defined Table 0003 - Event type

Only selected values listed Use in MSH-9, second component. Only these values are expected.
This code indicates the trigger event.

Value	Description
A2	ADT/ACK - Add person information
A0	ADT/ACK – Update person information
A0	ADT/ACK – Register a patient
Q11	QBP - Query by parameter requesting an RSP segment pattern response (Query for vaccination record)
K11	RSP - Segment pattern response in response to QBP^Q11 (Response to vaccination query)
V0	VXU - Unsolicited vaccination record update

HL7-defined Table 0008 - Acknowledgment code

This code indicates the type of acknowledgement expected.
Use in MSA-1.

Value	Description
A	Application Accept
A	Application Error
A	Application Reject

HL7-defined Table 0076 - Message type

Only selected values listed. Use in MSH-9, first component.

Value		Usage in this guide
AC	General acknowledgment	
AD	ADT message	
QBP	Query by Parameter	Supported
RS	Response to Query by parameter	Supported
VXU	Unsolicited vaccination record update	

HL7 Table 0091: Query priority

Value	Description
D	Deferred
I	Immediate

HL7-defined Table 0103 - Processing ID

Use in MSH-11.

Value	Description
D	Debugging
P	Production
T	Training

HL7 Table 0126: Quantity limited request

Value	Description
CH	Characters
LI	Lines
PG	Pages
RD	Records

HL7-defined Table 0155 - Accept/Application acknowledgment conditions

Value	Description
A	Always
N	Never
E	Error/Reject conditions only
S	Successful completion only

Use in MSH-15 and 16

User-defined Table 0203 - Identifier type

HL7 Table 0203 - Identifier type

Value	Description	Comment
DL	Driver's license number	
LR	Local Registry ID	
MR	Medical record Number	
MA	Patient Medicaid Number	
NPI	National Provider Identifier	Class: Insurance In the US, the Assigning Authority for this value is typically CMS, but it may be used by all providers and insurance companies in HIPAA related transactions.
PI	Patient Internal Identifier	A number that is unique to a patient within an Assigning Authority.
SR	State Registry ID	An identifier that is unique to Impact SIIS.
SS	Social security number	

User-defined Table 0208 - Query response status

Values suggested by HL7 use in QAK-2.

Value	Description
OK	Data found, no errors (this is the default)
NF	No data found, no errors
AE	Application error
AR	Application reject
TM	Too many candidates found

HL7-defined Table 0354 - Message structure

Use in MSH-9, third component. [*Only selected values listed*]

Value	Event
ACK	ACK
QBP_Q11	QBP
RSP_K11	RSP
VXU_V04	VXU

HL7 Table 0394: Response modality

Value	Description
R	Real Time
T	A series of responses sent at the same time without use of batch formatting
B	Batch

HL7 Table 0396 – Profile Identifiers

Used in MSH-21

Value set definition: Identifies the profile used by the message.

Concept Code	Concept Name	Definition	Code
Z31	Return Candidate Clients	Return Candidate Clients	CDCPHINVS
Z32	Return Immunization History	Return Immunization History	CDCPHINVS
Z33	Return No match found in the Registry	Return No candidate match found in the registry	CDCPHINVS
Z34	Request Immunization History	Request Immunization History	CDCPHINVS

HL7-defined Table 0227 - Manufacturers of vaccines (code = MVX)

Use in RXA-17

The CDC's National Center for Immunization and Respiratory Diseases (NCIRD)

Maintains the HL7 external code set MVX.

http://www2a.cdc.gov/vaccines/IIS/IISStandards/vaccines.asp?rpt=mvx

Manufacturer (MVX) codes are used in RXA-16

Code Value	Description
AB	Abbott
ACA	Acambis
AD	Adams
AKR	Akorn Inc
ALP	Alpha
AR	Armour
AVB	Aventis Behring
AVEN	Aventis Pasteur
AVI	Aviron
BA	Baxter
BAH	Baxter Healthcare
BAY	Bayer
BP	Berna Products
BPC	Berna
BPT	BioPort
BTP	Biotest Pharmaceuticals
CEN	Centeon L.L.C.
CHI	Chiron
CMP	Celltech Medeva
CNJ	Cangene
CON	Connaught
CSL	CSL Biotherapies
DVC	DynPort Vaccine
EVN	Evans
GEO	GeoVax Labs
GRE	Greer
GSK	Glaxo-SmithKline
IAG	Immuno International AG
IM	Merieux
INT	Intercell Biomedical
IUS	Immuno-US
JPN	Microbial DIS/OSAK U

Code Value	Description
KGC	Korea Green Cross
LED	Lederle
MA	Massachusetts Public
MBL	Massachusetts Biologic
MED	MedImmune
MIL	Miles
MIP	Michigan Dept Public
MSD	Merck
NAB	North American Bio.
NAV	NAVA
NOV	Novartis
NVX	Novavax
NYB	New York Blood Cente
ORT	Ortho-Clinical
OTC	Organon Teknika
OTH	Other
PD	Parke Davis
PFR	Pfizer Inc
PMC	Sanofi Pasteur
PRX	Praxis Biologics
PWJ	PowderJect Pharmaceuticals
SCL	Sclavo Lab
SI	Swiss Serum and Vac.
SKB	GlaxoSmithKline
SOL	Solvay Pharmaceuticals
TAL	Talecris Biotherapeutics
UNK	Unknown
USA	US Army Medical Research
VXG	VaxGen
WA	Wyeth-Ayer
WAL	Wyeth
ZLB	ZLB Behring

HL7-defined Table 0292 - Codes for Vaccines administered (code=CVX)

Use in RXA-5, OBX-5. New codes are added as needed; therefore, see the most current version of this code set at the website Web
site: http://www2a.cdc.gov/vaccines/IIS/IISStandards/vaccines.asp?rpt=cvx

CVX Value	CVX Name
1	DTP
2	OPV
3	MMR
4	M/R
5	measles
6	rubella
7	mumps
8	Hep B, adolescent or pediatric
9	Td (adult)
10	IPV
12	diphtheria antitoxin
15	influenza, split (incl. purified surface antigen)
16	influenza, (whole)
17	Hib, NOS
18	rabies, intramuscular injection
19	BCG
20	DTaP
21	varicella
22	DTP-Hib
23	plague
24	anthrax
25	typhoid, oral
26	cholera
27	botulinum antitoxin
28	DT (pediatric)
29	CMVIG
30	HBIG
32	meningococcal

CVX Value	CVX Name
33	pneumococcal
34	RIG
35	tetanus toxoid
36	VZIG
37	yellow fever
38	rubella/mumps
39	Japanese encephalitis SC
40	rabies, intradermal
41	typhoid, parenteral
42	Hep B, adolescent/high risk infant
43	Hep B, adult
44	Hep B, dialysis
45	Hep B, NOS
46	Hib (PRP-D)
47	Hib (HbOC)
48	Hib (PRP-T)
49	Hib (PRP-OMP)
50	DTaP-Hib
51	Hib-Hep B
52	Hep A, adult
53	typhoid, parenteral, AKD (U.S. military)
54	adenovirus, type 4
55	Adenovirus, type 7
62	HPV, quadrivalent
74	rotavirus, tetravalent
75	smallpox
79	vaccinia immune globulin
82	adenovirus, NOS
83	Hep A, ped/adol, 2 d

CVX Value	CVX Name		CVX Value	CVX Name
84	Hep A, ped/adol, 3 d		126	H1N1 injec-pres free
85	Hep A, NOS		127	H1N1-09 injectable
88	influenza, NOS		128	H1N1-09 all formula
89	polio, NOS		129	Japanese Encephalitis, unspecified formulation
90	rabies, NOS		130	DTaP-IPV
91	typhoid, NOS		133	pneumococcal13valent
94	MMRV		134	Japanese Encephalitis IM
100	pneumococcal conjugate PCV 7		135	Influenza, high dose seasonal
101	typhoid, ViCPs		136	Meningococcal MCV4O
104	Hep A-Hep B		137	HPV, unspecified formulation
106	DTaP, 5 pertussis antigens		139	Td(adult) unspecified formulation
107	DTaP, unspecified formulation		140	Influenza, seasonal, injectable, preservative free
108	meningococcal, unspecified formulation		141	Influenza, seasonal, injectable
109	Pneumococcal, unspecified formulation		144	Seasonal influenza, intradermal, preservative free
110	DTPa-HBV-POLIPV		147	meningococcal MCV4, unspecified formulation
111	Influenza intranasal		148	Meningococcal C/Y-HIB PRP
113	Td preservative free		149	influenza, live, intranasal, quadrivalent
114	meningococcal MCV4P		150	influenza, injectable, quadrivalent, preservative free
115	Adacel/Boostrix/Tdap-UNK		151	influenza nasal, unspecified formulation
116	rotavirus, pentavalent		152	Pneumococcal Conjugate, unspecified formulation
118	HPV, bivalent		153	Influenza, injectable, MDCK, preservative free
119	rotavirus mono		154	Hep A, IG
120	DTaP-Hib-IPV		155	influenza, recombinant, injectable, preservative free
121	HPV			
122	rotavirus NOS		999	unknown
125	H1N1-09 live nasal		998	Vaccine Not Administered