Rhode Island Department of Health
KIDSNET

HL7 Version 2.3.1 Implementation Guide for Immunization Transactions

Version 1.11

Last Updated: May 13, 2013

This document is a work in process. If you have questions or comments please contact Kim Salisbury-Keith at the Rhode Island Department of Health.

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Summary of Updates

Version 1.5 August 2006	Initial release
Version 1.6 October 2006:	Updates from a meeting at the Department of Health with EMR vendors and other interested parties 9/29/2006. 1. Batch protocol example updates clarifying the required information (sender id and batch control id) 2. HL7 Table 0155, Accept/Application acknowledgment conditions where added to Appendix 1 MSH15-MSH16 3. In the Matrix of Information in Sample Message, financial class (PV1-20) was changed from required to not required but desired and used in KIDSNET 4. Following the "Sample HL7 Messages Narrative" is a new section "KIDSNET Specific Information for Senders" which contains important information about the content of the batch header, the message header, and the immunization segments. 5. Added RXA-21 Action Code to the first sample immunization message in the Matrix of Information in Sample Message.
Version 1.7 January 15, 2007	1. Removed reference to the File Header Segment (FHS) segment in the Batch Protocol Example. We do not expect the need to use this segment. 2. HTTPS Post Method was added in the Transport section. A Secure File Transfer method is mentioned directly below this. 3. A description of the Testing Procedure follows mention of the Secure File Transfer method. 4. Date format definition (see table of contents) 5. Insurance segment: Made changes to the IN2 and IN3 fields in the sample KIDSNET HL7 Messages and in the Matrix of Information in Sample Messages.
Version 1.8 January 22, 2008	1. In the Information Exchange Rules: a. A qualification has been added about only accepting Immunization information for people less than 19 years old. b. User Agreement requirement was added. 2. A new section: Assuring Patients are Uniquely Identified – Use of NK-1 has been added. 3. A new section: Recording Vaccine for Children (VFC) eligibility – Use of IN1-2 and PV1-20 has been added. 4. In the HTTPS Post transport section two transmission modes are available. A brief explanation of each is included (Batch vs. Real-Time). 5. In the Matrix of Information in Sample Message: a. The KIDSNET Provider Id now goes in the Administered at Location (RXA-11) not the

	Administering Provider (RXA-10). **The KIDSNET Provider Id must be sent in RXA-11,** KIDSNET does not use RXA-10. b. Reduced the number of examples, updated the matrix to more closely align with the CDC guide. Under the required column it is noted whether the field is required by the CDC and or whether it is consider a core data element. c. A sample optional Pharmacy/Treatment Route (RXR) segment has been added to the first sample message. d. The Next of Kin (NK1) segment now includes the Date Of Birth. e. In the Administrative Notes (RXA-9) field the "Data Value" column has been updated. 6. In the BHS Attributes section and in the Standard HL7 Message Header (MSH) section the required field value in the BHS-4 and MSH-4 Sending Facility fields has been changed. a. The KIDSNET assigned Sender Id will now be required in these fields, not the KIDSNET Provider Id. **The KIDSNET Provider Id is required in RXA-11 formatted as shown in the examples below**. 7. In the Unsolicited Vaccination Record Update (VXU) Message section the required segments are highlighted in the list of possible VXU message segments. 8. Appendix updates: a. Route of Administration table (HL7 table 0162) has been added for RXR Segment. b. NIP001 table has been updated in the Appendix. Several descriptions were incorrect. c. Relationship table (HL7 table 0063) in the Appendix has been updated. Several duplicate entries have been removed. d. Manufacturer code table has been updated.
Version 1.8a May 11, 2011	1. Corrected references to HL7 version 2.4 to be HL7 version 2.3.1.
Version 1.8b July 3, 2012	1. Removed references to the insurance segment since KIDNSET had decided not to read or use this information. 2. Table 0162 in Appendix Code for Subcutaneous was changed to be SC not SCH. 3. In the Information Exchange Rules section, the following bullet was removed: To send null for a data field use empty double quotes "".
Version 1.8c July 20, 2012	1. Remove Appendix pages containing valid vaccine codes and manufacturer codes and replace these with links to CDC information and email addresses for the appropriate Rhode Island Department of Health personnel.
Version 1.9 August 23, 2012	1. General review and update to specify items that have changed and clarify other sections including:

	a. VFC Eligibility requirement (PV1-20) b. Use of CVX codes (RXA-5) c. Provider identifier (RXA-11.4) d. Action Code (RXA-21) e. HL7 Acknowledgements f. Appendix Code Table updates
Version 1.10 January 17, 2013	1. Added new Soap interface to the Transport section and removed the Web File Repository option. Other related changes to the Transport section. 2. Changes to the Testing section.
Version 1.11 February 21, 2013	1. Changes to three sections (Information Exchange Rules, Transport, Message Acknowledgement (ACK)) emphasizing the importance of checking for the HL7 ACKs from KIDSNET for each VXU that is sent. 2. Also add text about HL7 single batch limits of 8,000 messages and 18,000 total immunizations in the Information Exchange Rules section. 3. Change to recommendation for MSH=16 ("AL")
Version 1.11 May 10, 2013	1. Regenerate PDF to enable links in SOAP section.

Rhode Island Department of Health – KIDSNET System

Access to KIDSNET through the secure web application is role-based. Individual users and groups have their level of access specified in User Agreements or Data Sharing Agreements. Access is based on the "need to know."

The Health Level Seven (HL7) Standard

The ANSI HL7 standard is widely used for exchanging health care data. The full standard is extensive and a single application is not likely to use the full range of HL7 messages. The standard is designed to enable information exchange ranging from patient care, healthcare finance, and healthcare administration information. The CDC together with public and private healthcare professionals and software developers have worked together to define a set of messages that promote standardized exchange of immunization data.

Document Scope – HL7 2.3.1

The goal of this document is to define the flow of electronic messages and the subset of **HL7 version 2.3.1** that will be used to exchange patient and immunization data between external systems and KIDSNET. **A separate implementation guide will become available for HL7 version 2.5.1**. In addition, this document contains additional specifications and instruction to assist in the implementation of the information exchange.

This document assumes the sending system understands and will adhere to the base HL7 message formatting and encoding rules. These rules are highlighted in this document. For more detailed information about this topic please reference the CDC Implementation Guide

for Immunization Data Transactions (http://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide.pdf) and the full HL7 Specification available from the Health Level 7 organization (http://www.hl7.org).

The HEALTH HL7 Immunization Information Exchange Specification is based on the CDC Implementation Guide. The CDC guide was developed and is maintained through the efforts of a diverse, dedicated workgroup comprised Public Health professionals from various jurisdictions throughout the United States in cooperation with CDC (http://www.cdc.gov/), AIRA (American Immunization Registry Association), HL7, vendors, and other interested parties.

The CDC implementation guide covers a broad set of possible messages. This release of the Rhode Island KIDSNET Immunization Information Exchange will enable a one way electronic exchange of immunization information between external (sending) systems to the KIDSNET (receiving) system.

Information Flow

Initially the immunization information will flow from the medical provider to the KIDSNET system. In the future the information will be transmitted in both directions: from immunization provider to KIDSNET, and from KIDSNET to the immunization provider. Bi-directional information exchange will provide the ability for queries and responses,.

The KIDSNET system will accept electronic HL7 messages containing new and updated patient and immunization information. The patient and immunization data sent to KIDSNET by the external systems will be checked to ensure that the required data is present and that all data provided is in the correct format. If the patient and immunization information is accepted it will be staged for automatic processing by the KIDSNET deduplication and matching software.

Information that passes successfully through the matching and deduplication software will be staged for processing by the KIDSNET database update functions which will add or change appropriate information in the KIDSNET database.

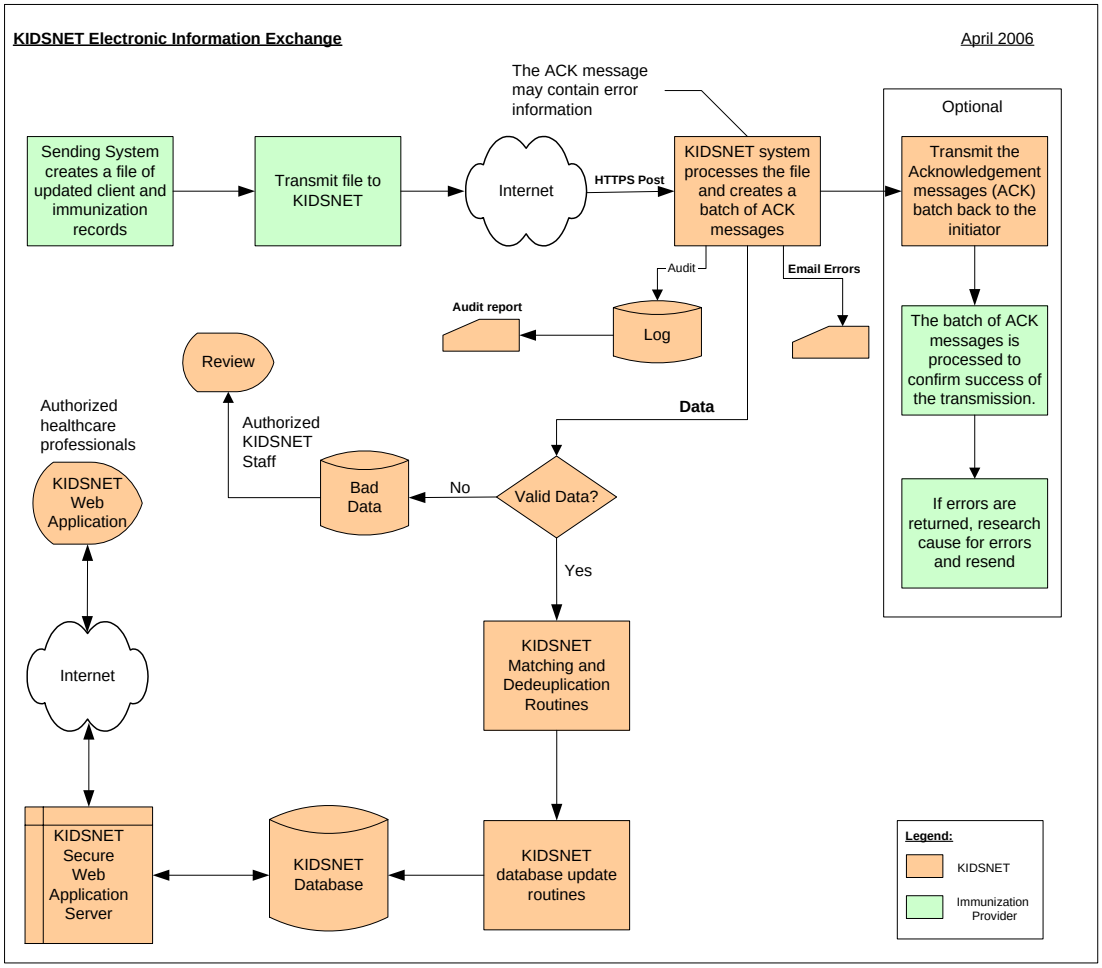

Figure 1: KIDSNET Electronic Information Exchange

The HL7 standard defines the message formatting and data mapping rules for information exchange. Use of the HL7 standard will allow the KIDSNET electronic exchange interface to be used by many medical healthcare entities throughout Rhode Island. This will eliminate the need for customized software interfaces for each external system and it will minimize the need for expensive, time-consuming software and administrative upgrades.

KIDSNET- Information Exchange Capability

This release of the KIDSNET electronic information exchange system will accept the HL7 VXU (Unsolicited Vaccination Record Update) message which will contain patient and immunization information sent by external systems.

Patient and immunization data will be electronically gathered, packaged, and transmitted to the Rhode Island Department of Health KIDSNET system. Information may be electronically exchanged in a batch mode following an agreed upon schedule (e.g. daily or weekly) or may be sent in real time. The batch submission will adhere to the specifications in section 2.23.3 (HL7 Batch Protocol) within the CDC Implementation Guide. The batch protocol

specification is also covered in more detail in the HL7 Batch Protocol section of this document.

After receipt, the KIDSNET system can send an electronic HL7 acknowledgement message to the initiating system. This process is described in more detail later in this document.

Information Exchange Rules

Before information can be exchanged with KIDSNET, a User Agreement must be signed. If a KIDSNET User Agreement already exists, an amendment may be needed to allow the Provider's EHR vendor to handle any data from KIDSNET. For more information please contact Kim Salisbury Keith at the Department of Health. (Email: Kim.SalisburyKeith@health.ri.gov, Phone: (401) 222-5925)

The following are general rules for sending systems:

- At this time immunizations are only added to KIDSNET for people who are less than 19 years old when the immunization was administered. This restriction may be removed in the future.
- The required segment order is specified in the HL7 message format.
- All segments must contain the appropriate segment ID (for example RXA)
- Standard HL7 recommended encoding characters will be used ("^~\&").
- Data must be encoded according to the appropriate HL7 data type format.
- Information systems may report VFC-eligibility in PV1-20 (at time of reporting) VFC reporting will be handled differently in HL7 2.5.1 messages.
- Ignore data segments that are included but not expected rather than treating it as an error. Also ignore data fields found but not expected within a segment.
- Trailing separators may optionally be omitted. For example, |field1|field2||||| is equivalent to |field1|field2, when field3 and subsequent fields are not present.
- End each segment with the segment terminator (always the carriage return character, ASCII hex 0D).
- Information systems that send data for more than one practice or office will have different identifiers for each location supplied for RXA-11.4
- The sending system must check for an HL7 Acknowledgement (ACK) for each VXU message that is sent to KIDSNET. If an HL7 ACK is not received, the sending system must resend the VXU. If the sending system receives an "AR" (Application Reject) in MSA-1 of an ACK, the HL7 senders MUST resend that VXU message after the reason for the rejection is corrected. See Message Acknowledgement (ACK) - KIDSNET Response section for more detail.
- If a transmission includes multiple messages, the number of messages must be less than 8,000 and the total immunizations must be less than 18,000.

KIDSNET accepts both CVX and CPT codes to identify immunization information. The appropriate code must be sent in the RXA-5 field. A list of codes for vaccines currently used

in Rhode Island can be obtained from the KIDSNET program. CDC maintains a complete list of all valid codes at: http://www.cdc.gov/vaccines/programs/iis/code-sets.html.

Tips on sending data to KIDSNET:

- Make sure there are no gaps in data sent to KIDSNET. Data should be transmitted based on dates vaccine is entered into your data system, not on dates administered.
- KIDSNET currently only processes A=Add using the RXA-21 action code. U = Update, and D=Delete action codes are not processed. If RXA-21 is empty it will be processed as an Add.
- Practices are required to report immunizations within one week of vaccine administration. HL7 transmissions should be sent at least that frequently.
- When new vaccines are added, please confirm that they are coded correctly and sent as part of your transmission.
- A medical record number should be sent only if it is unique to the child. Do not send family medical record numbers without unique identifiers.
- Make sure only VALID VALUES are used for all data. See Appendix 1 for the required code values.
- Valid values for vaccines may include codes that were historically used but are no longer in use. In Rhode Island the codes for vaccines currently in use can be obtained from KIDSNET.

Patient Identifier

It is important that accurate patient identifier be present in the HL7 PID:3 location. This patient identifier is used to link the new and updated information to the proper patient. Acceptable patient identifiers include the KIDSNET ID (unique ID assigned to each patient in the KIDSNET database) and an externally defined ID, normally referred to as the Medical Record number. The medical record number must be unique for each patient.

Every patient identifier present in PID:3 must have an associated identifier type. Additional patient identifiers will be ignored.

Type of ID	Identifier Type
KIDSNET ID	“SR” (State Registry)
Medical Record Id (i.e. chart number)	“MR”

Assuring Patients are Uniquely Identified – Use of the NK1

Parent/guardian name and date of birth are utilized as part of the matching and de-duplication routines in KIDSNET and can be sent in an HL7 message in the Next of Kin (NK1) segment. This information enhances the ability of the registry to assure that each child has only one record in the registry. Currently Providers who submit immunization data on paper include Parent/guardian name and date of birth. This information is particularly important when the child has a name change or when different providers submit information for the same child but with name variations. We **strongly encourage that all HL7 records be submitted with**

information in the HL7 NK1 segment and that whenever possible that this information be the mother's. When information is not sent in the NK1 segment it increases the likelihood of creating a duplicate record in KIDSNET for a child. Since duplicate child records will cause an incomplete view of the immunization information for a child it will be impossible to accurately assess the child's immunization record. Please help us in maintaining a single record for each child by including parent/guardian information in the NK1 segment. The mother's name is preferred in this segment since it can be matched to information in the birth record.

Recording Vaccine for Children (VFC) eligibility – Use of PV1-20

Through the Federal Vaccine for Children (VFC) program Rhode Island is able to supply federally purchased vaccine at no cost to Providers, to eligible children under the age of 19. This Federal program pays for over 40% of Rhode Island's total childhood vaccine budget. To receive VFC vaccine the Provider must agree to screen patients at all immunization encounters for VFC eligibility and update any changes in eligibility. Initial screening and changes must be documented.

PV1-20 in the HL7 2.3.1 message may be used to report VFC eligibility screening. VFC information is messaged differently in HL7 2.5.1 The Provider is required to maintain a record of an initial VFC screening and any changes in eligibility regardless of whether it is included in the HL7 message. The HL7 0064 code table for Financial class has the values used to transmit this information in the HL7 message.

Transport

HL7 messages may be sent to KIDSNET using a SOAP transport or an HTTPS post transport. Each transmission will be encrypted for security purposes using the industry standard secured socket layer (SSL) protocol. Only authorized partners will be permitted to exchange information.

For more information about how to obtain a sender id and password to send HL7 messages or about the methods to securely upload HL7 immunization information to KIDSNET please contact Jeff Goggin or Kim Salisbury Keith at the Department of Health:
Jeff.Goggin@health.ri.gov, (401) 222-4968
Kim.SalisburyKeith@health.ri.gov, (401) 222-5925

Please note that connectivity over the Internet can fail at any time for a number of reasons. HL7 senders MUST resend a VXU message if an ACK message is not received in response from KIDSNET. Please refer to the Message Acknowledgement (ACK) - KIDSNET Response section for more detail.

After the sender is successful authenticated and HL7 messages are sent, the KIDSNET system will read the electronic batch of messages including the HL7 BHS batch headers if present (see HL7 Batch Protocol). After processing the batch header the HL7 VXU messages will be parsed, edited, and processed. Any errors encountered while processing the HL7 batches and messages will either be sent back to the originating system for correction, or the errors will be written to an error queue where a KIDSNET data manager will attempt to correct errors before resubmission to the KIDSNET system.

The Rhode Island Department of Health will work with each trading partner to ensure an acceptable error notification and correction process is in place. All transactions received will be logged for tracking, audit, and correction purposes.

SOAP Method (preferred transport)

KIDSNET offers a SOAP transport that implements the SOAP 1.2 WSDL specification developed by the Transport Layer Expert Panel of the CDC EHR-IIS Interoperability Expert Panel Project for the purpose of submitting HL7 immunization messages. This is the preferred transport method. The specification and reference implementation code in Java and .NET are available from CDC at:

http://www.cdc.gov/vaccines/programs/iis/interop-proj/index.html

The SOAP operation in the specification that is used to submit HL7 messages is **submitSingleMessage**. It has the same workflow and uses the same username, password, and message fields as the HTTPS POST method (see below):

Operation: **submitSingleMessage**

Parameter	Input/Output	Data type	Description
username	Input	String	Username supplied by KIDSNET
password	Input	String	Password supplied by KIDSNET
facilityID	Input	String	Not used - Null for KIDSNET
Hl7Message	Input	String	HL7 version 2.3.1 intended for KIDSNET
Return	Output	String	HL7 version 2.3.1 response from KIDSNET

HTTPS Post Method

HTTPS Post transport method is also accepted by KIDSNET. HTTPS post transport provides a streamlined method of automating the secure exchange of immunization information.

The following information is required in the HTTPS post:

1) **FIELD_USERID**
2) **FIELD_PASSWORD**
3) **FIELD_MESSAGEDATA** (the HL7 message)

The first two items (i.e. user id and password) and the required Uniform Resource Locator (URL) for the HTTPS post will be supplied by KIDSNET during the initial setup process. The third required field (FIELD_MESSAGEDATA) contains the HL7 message batch in its entirety. Sample Java program code to perform an HTTPS post transmission is available upon request.

Senders using the SOAP or HTTPS post protocol can choose between two transmission modes.

Batch Transmission Mode

In the batch mode of sending child and immunization information the HL7 messages containing information for multiple children are batched together prior to sending the "batch" to the RI Department of Health.

The batch mode of sending HL7 messages may be used by EHR vendors and their practice customers to send information at a scheduled time during the day or week. For example, immunizations administered for the day are sent each day at 7 PM or immunizations administered for the week are sent once a week on Thursday at 10 PM.

Real-Time Transmission Mode

In the real-time mode of sending child and immunization information , one HL7 message is created and sent by the practice's EHR as the information is entered and saved or the record locked. This method alleviates the need for a scheduled transmission daily or weekly because each immunization is sent to KIDSNET when it is saved or the record locked.

The real-time HL7 transmission mode allows for an immediate response (i.e. acknowledgement) from KIDSNET notifying the sender about whether the HL7 message was received successfully and whether the message passed the KIDSNET initial parsing and edit routines successfully. It should be noted that the initial KIDSNET edits are preliminary. More detailed editing is performed by the KIDSNET back-end matching, deduplication, and load processes. Transactions sent to KIDSNET in real-time are processed in batch mode and will not appear in the database until processed.

Testing Procedure

Before permitting the KIDSNET system to be updated with HL7 immunization data from a potential information exchange partner, a series of tests are required. Testing is an iterative

process. When all issues have been resolved, the first production HL7 information exchange will be scheduled with the newly authorized information exchange partner. Testing consists of several phases:
1) Meaningful Use testing
2) Transport testing
3) HL7 compliance
4) Data Quality

During the testing process the Practice must continue to submit KIDSNET immunization data at least weekly either using data sheets or using an already approved electronic format.

Meaningful Use:

1. Contact Jeff Goggin jeff.goggin@health.ri.gov (401-222-4968) or Kim Salisbury-Keith kim.salisburykeith@health.ri.gov (401-222-5925) to identifying the contact people for the provider and their electronic health record (EHR) vendor.
2. After contacting KIDSNET, a provider wishing to submit a test message for Meaningful Use, may submit a single test message generated from their office's EHR using a fictitious patient by email to jeff.goggin@health.ri.gov. Only one message may be submitted. This step may be skipped if an EHR transport has already been established or if the provider is not attesting for Meaningful Use.

Transport:

3. The Provider must sign an Addendum to the KIDSNET Agreement if data from the EHR or authentication information will be shared with a vendor.
4. KIDSNET will provide the potential information exchange partner with a Sender Id, a Password, and the appropriate URL for testing once a transport method has been identified.

HL7 Compliance:

5. Test messages using real patient data will be sent using the designated transport. Identifiers for MSH-4 and RXA-11.4 will be supplied. A valid KIDSNET provider Id is required for each HL7 immunization message.
6. The transmissions will be processed by the test KIDSNET system and compliance with the requirements in RI's Implementation Guide will be assessed by KIDSNET staff. During testing, receipt of an HL7 ACK response which contains "AA" or "AE" in MSA-1 indicating that receipt of the VXU was successful, does not mean that all testing requirements have been met. Prior to moving to production, some non-fatal errors will be required to be corrected.

Data Quality:

7. Test messages will also be reviewed for data quality. Issues related to coding and correct use of the electronic health record will be addressed.
8. KIDSNET does not consider testing complete until technical issues are resolved **and** data is being recorded in the EHR in such a way that quality data can be sent to KIDSNET.
9. When testing is completed, KIDSNET will work with the newly authorized and tested information exchange partner to plan for the start of the production HL7 immunization information exchange.

HL7 2.3.1 Information Exchange Specification

The CDC HL7 2.3.1 Implementation Guide for Immunization Data Transactions (http://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide.pdf) is the basis for the KIDSNET HL7 Information Exchange Specification. It contains more detailed examples, explanations, and information about HL7 data types and older HL7 standard code set tables. The code-sets to be used for the Rhode Island information exchange are outlined in Appendix 1 of this document.

Please refer to the CDC implementation guide if more detailed information is needed.

HL7 Batch Protocol

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

(Portions below have been excerpted from the CDC Implementation Guide for Immunization Data Transactions).

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

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

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

Batch Protocol Example

BHS|^~\&|EHR NAME|1492||KIDSNET|20070802091524||||20070802RI149201|<CR>
MSH|...(1)VXU…
MSH|...(2)VXU…
MSH|...(3)VXU…
BTS|3<CR>

This example demonstrates three HL7 VXU messages being sent from an EHR system for KIDSNET Provider 1492 to KIDSNET (the Rhode Island Integrated Child Health System) on August 2, 1999, at 9:15 a.m.

BHS Attributes - bolded fields are required

SEQ	LEN	DT	R/O	ELEMENT NAME	Value
1	**1**	**ST**	**R**	**Batch field separator**	|
2	**3**	**ST**	**R**	**Batch encoding characters**	**^~\&**
3	15	ST	O	Batch sending application	Practice name, EHR name, ASP name
4	**20**	**ST**	**O**	**Batch sending facility**	**KIDSNET assigned Sender Id. Contact the KIDSNET help desk for more information**
5	15	ST	O	Batch receiving application	
6	20	ST	O	Batch receiving facility	KIDSNET
7	**26**	**TS**	**O**	**Batch creation date/time**	**20070802091524**
8	40	ST	O	Batch security	
9	20	ST	O	Batch name/ID/type	
10	80	ST	O	Batch comment	
11	**20**	**ST**	**O**	**Batch control ID**	**Sender determined, must be unique Example: date (YYYYMMDD)+StateCode+Sender Id + sequential number.) 20070802RI149201**
12	20	ST	O	Reference batch control ID	

During the initial contact and testing of the information exchange with each information exchange partner, the values to be sent in the HL7 batch header (BHS) and message headers (MSH) will be reviewed and agreed upon.

Standard HL7 Message Header

Each message must be prefaced with a standard HL7 message header. Refer to Section 2.4 (Message Control Segments) in the CDC Implementation Guide for Immunization Data Transactions for more detail.

Example:

```
MSH|^~\&|OCEANSYS|IMM51||KIDSNET|20070802091524||VXU^V04|20070802RI149201|P|2.3.1|||NE|AL<CR>
```

** MSH fields not described in the table below are not processed by the KIDNSET information exchange at this time.

In the MSH example below the **bolded fields** are the minimal data elements needed for the Rhode Island Department of Health to process a message.

Sample information	Data value	HL7	Edit
• **Message Sender**			

Field Separators	**|**	**MSH-1**	**Required by HL7 and Rhode Island.**
• **Encoding characters**	**^~\&**	**MSH-2**	**Required by HL7 and Rhode Island**
Sending Application	OCEANSYS Sender defined, during initial set up with KIDSNET this value will be defined	MSH-3	Optional and returned in response
Sending Facility	**KIDSNET assigned Sender Id. Examples: RI51 or RI99070323 Contact the KIDSNET help desk for more information.**	**MSH-4**	**Required by Rhode Island, returned in response**
Receiving Application		MSH-5	Optional and returned in response
Receiving Facility	KIDSNET	MSH-6	Optional and returned in response
Date/Time of Message	**20070802091524** **Date/time, Use YYYYMMDDHHMMSS**	**MSH-7**	**Required by Rhode Island.**
Message Type	**VXU^V04 (subcomponents below)**	**MSH-9**	
• Message type	VXU (Unsolicited vaccination record update)	MSH-9	Required by HL7 and Rhode Island.
• Trigger event	V04	MSH-9	Required by HL7 and Rhode Island
Message Control Id	**20070802RI149201** **Sender determined, must be unique (The receiving system echoes this ID back to the sending system in the message acknowledgment segment (MSA). Example: date (YYYYMMDD)+KIDSNET Provider Id code + sequential number.)**	**MSH-10**	**Required by HL7, must be unique – returned in response**
Processing Id	**Possible values (P=Production, T=Training, D=Debugging)**	**MSH-11**	**Required by HL7 and Rhode Island.**
Version Id	**2.3.1**	**MSH-12**	**Required by HL7 and Rhode Island.**
Accept acknowledgment type	NE (Never)	MSH-15	Optional
Application acknowledgment type	Recommend AL AL (Always, other possible values NE=Never, ER=Error/Reject conditions only, SU=Successful completion only)	MSH-16	Optional

Date Format

Dates (e.g. date of administration) should be submitted in the following format:

Example Date (no time): 19920204

- the first 4 digits are the full century and year - 1992
- month is 2 digits afterwards - 02 (February)
- day is 2 digits after the month - 04

Example Date and Time: 1992020412322.111

- date format is the same as above, followed by:
  - hours, minutes and seconds have subsequent 2 digits - 12:23:22.111 (111 means milliseconds)

Unsolicited Vaccination Record Update (VXU) Message

The KIDSNET VXU (HL7 Message) contains segments: MSH, PID, PV1 (optional), NK1 (optional, but strongly encouraged, may repeat), RXA, RXR (optional), (RXR, RXA may repeat).

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

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

Segments support by KIDSNET Information Exchange System. BOLD segments are required.

KIDSNET EXAMPLE

The next examples are based on the Rhode Island Department of Health KIDSNET specific requirements which use the CDC implementation guide fundamentals. The matrix below displays the information in layman terms. It shows the messages including which information is required and any associated rules. Detailed rules concerning HL7 formatting as well as more examples can be found in the CDC Implementation Guide for Immunization Data Transactions.

A detailed narrative follows the examples below to explain the intent of the messages and the information contained within each. 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>.

Sample KIDSNET HL7 Messages:

```
BHS|^~\&|OCEANSYS|1492||KIDSNET|20070802091523||||00010223|<CR>
MSH|^~\&|OCEANSYS|1492||KIDSNET|20070802091524||VXU^V04|20070802RI149201|P|2.3.1|||NE|AL|<CR>
PID|||123456^^^^SR~45999^^^^MR^||MILLER^GEORGE^M^JR| JONES^MARTHA^G |20070227|M|||127 W STATE ST^^
PROVIDENCE^RI^12501^US^^^ PROVIDENCE|<CR>
PV1||R||||||||||||||||||V02^20070227|<CR>NK1|1|MILLER^MARTHA|MTH^MOTHER^HL70063|127 W STATE ST^^
PROVIDENCE^RI^12501^US|(401)123-4567||||||||||19750411|<CR>
RXA|0|999|20070729|20070729|90744^ HEPB-PEDIATRIC/ADOLESCENT ^CPT|999|||00^NEW IMMUNIZATION
RECORD^NIP001||^^^RI1492||||0039F||MSD^MERCK^MVX||||A|<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163|<CR>
MSH|^~\&|OCEANSYS|1492||KIDSNET|20070802091524||VXU^V04|20070802RI149202|P|2.3.1|||AL|<CR>
PID|||123456^^^^SR~23LK729^^^^MR^||CALIFANO^MARIA|SMITH^ MARIA^G|20060413|F|||44 OCEAN BLVD^^
NEWPORT^RI^12502^US^^^ NEWPORT|<CR>
NK1|1| CALIFANO^MARIA|MTH^MOTHER^HL70063|44 OCEAN BLVD^APT 101^ NEWPORT^RI^12502^US|(401)987-
8877||||||||||19780403|<CR>
RXA|0|999|20070723|20070723|90700^DTAP^CPT|999|||00^NEW IMMUNIZATION
RECORD^NIP001||^^^RI1492||||AC21B101AA||SKB^GLAXOSMITHKLINE^MVX||||A|<CR>
RXA|0|999|20070723|20070723|90707^MMR^CPT|999|||00^NEW IMMUNIZATION
RECORD^NIP001||^^^RI1492||||1218F||MSD^MERCK^MVX||||A|<CR>
BTS|2|<CR>
```

Legend for color coding of Required column below

	Required
	Not required but desired and used in KIDSNET
	Not required but desired. Will be used by KIDSNET in the future
	Optional Segment

Matrix of Information in Sample Message:

Sample information to be transmitted	Data value	HL7	Required
• **Patient #1**			

Patient Identifier Segment		**PID Segment**	Required
Patient Id List	Id identifiers in the example are SR= State Registry ID, MR-medical record number 123456^^^^SR~45999^^^^MR^ (subcomponents below)	PID-3	This field is not required but is desired and used by KIDSNET if medical record number. Required by HL7 – CDC core data element.
Medical Record Number (often the chart number	45999 (ID identifier "MR")	PID -3	
KIDSNET ID repeating PID3	123456 (ID identifier is "SR")	PID -3	
Name	**Format**: Lastname^Firstname^Middle Initial^Suffix MILLER^GEORGE^M^JR	PID-5	Required
Mother's maiden name	**Format**: Lastname^Firstname^Middle Initial^Suffix JONES^MARTHA^G	PID-6	Not required but desired. Will be used by KIDSNET in the future. CDC core data element.
Birth date	February 27, 1995 **Format**: YYYYMMDD, time optional, omit if not available 19950227	PID-7	Required
Sex	M Possible values: M, F U or O See table0001 in appendix 1.	PID-8	Required by Rhode Island.
Race	Valid code see table 0005 in Appendix 1 No race shown in example HL7.	PID-10	Not required but desired. Will be used by KIDSNET in the future
Sample information to be transmitted	**Data value**	**HL7**	**Required**
Address	127 W STATE ST^APT 23^PROVIDENCE^RI^12501 **Required format**: Street1^Apartment or Street2^City^State^Zip^Country	PID-11	Required by Rhode Island if this is a new patient. CDC Core data element.
Patient Visit		**PV1 segment**	Not Required
Patient Class	R = Patients are recurring	PV1-2	Not Required for Rhode Island. If the PV1 segment

			is included, this field is required by HL7.
Financial class	<financial class – table 0064)>^<effective date> V02^20070227 (VFC status is effective February 27, 2007)	PV1-20	Not Required but may be used to record VFC eligibility..
Next of Kin: Responsible Person (parent or other person who cares for Patient)		**NK1 segment**	Optional for Rhode Island, required by HL7.
Set Id	1 (serial counter showing the sequence of this NK1)	NK1-1	Required.
Name	Lastname^Firstname^Middle Initial^Suffix MILLER^ MARTHA	NK1-2	Not Required but highly desired and used in KIDSNET. CDC core data element.
Relationship to Patient	MTH (Table 0063 - Relationship)	NK1-3	Not Required but desired and used in KIDSNET. CDC core data element.
Sample information to be transmitted	**Data value**	**HL7**	**Required**
Address	127 W STATE ST^APT 5^PROVIDENCE^RI^12501 **Required format**: Street1^Apartment or Street2^City^State^Zip^Country	NK1-4	Not Required but desired and used in KIDSNET
Telephone	(401)123-4567	NK1-5	Not Required but desired and used in KIDSNET.
Date of Birth	19950729 **Format**: YYYYMMDD, time optional, if supplied use 24 hour method i.e. HHMM, 1525 is 3:15 p.m.	NK1-16	Not Required but desired and used in KIDSNET
Immunization		**RXA segment**	At least one RXA segment is required
Give Sub-ID Counter	Always “0”	RXA-1	Required
Administration Sub-ID Counter	Always “999”	RXA-2	Required
Date/time start of administration	19950729 **Format**: YYYYMMDD, time optional, if supplied use 24 hour method i.e. HHMM, 1525 is 3:15 p.m.	RXA-3	Required

Date/time end of administration	19950729	RXA-4	Required by HL7 but not required by KIDSNET.
Administered code	**Format**: 90744^ HEPB-PEDIATRIC/ADOLESCENT ^CPT (CVX may also be used)	RXA-5	Required
Administered Amount (Dose)	999	RXA-6	Required by HL7. Not required by Rhode Island.
Administration Notes	00^NEW IMMUNIZATION RECORD^NIP001 This field is used to determine the source of information (new or historical) Use NIP0001 code set (see Appendix)	RXA-9	Not Required but desired and used in KIDSNET.
Administered at Location	^ ^ ^RI1492 KIDSNET Provider Id (e.g. RI1492)	RXA-11	Required and assigned by Rhode Island.
Substance Lot Number	Lot number (e.g. 0039F)	RXA-15	Not Required but desired and used in KIDSNET. Required by HL7 and CDC core data element.
Sample information to be transmitted	**Data value**	**HL7**	**Required**
Lot manufacturer	Manufacturer (e.g. MSD^Merck) Please reference Manufacturer Code Set (MVX) and Product Name mapped to CVX/MVX at: http://www.cdc.gov/vaccines/programs/iis/code-sets.html	RXA-17	Not Required but desired and used in KIDSNET. Required by HL7 and CDC core data element..
Substance Refusal Reason	Information in this field is not read by KIDSNET for HL7 2.3.1 messages	RXA-18	KIDSNET does not process refusals
Action Code	A = Add	RXA-21	Only Add messages are processed. When the action code is empty it is processed as an Add
Pharmacy/Treatment Route		**RXR segment**	Not required but desired. Will be used by KIDSNET in the future

Route	Refer to HL7 Table 0162 - Route of administration for valid values.	RXR-1	If RXR is present, this field is required and will be used by KIDSNET in the future.
Site	Refer to HL7 Table 0163 – Administrative Site for valid values.	RXR-2	Not required but desired. Will be used by KIDSNET in the future
• **Patient #2**			
Patient Identifier Segment		**PID Segment**	Required
Patient Id List	Id identifiers in the example are SR= State Registry ID, , LR – local registry, MR-medical record number 123456^^^^SR~23LK729^^^^MR^ (subcomponents below)	PID-3	This field is not required but is desired and used by KIDSNET if medical record number. Required by HL7 – CDC core data element.
Medical Record Number (often the chart number)	23LK729	PID -3	
KIDSNET ID repeating PID-3	123456 (id identifier also is "SR")	PID -3	
Sample information to be transmitted	**Data value**	**HL7**	**Required**
Name	**Format**: Lastname^Firstname^Middle Initial^Suffix CALIFANO^MARIA	PID-5	Required
Birth date	April 13, 1998 **Format**: YYYYMMDD, time optional 19980413	PID-7	Required
Sex	F Possible values: M, F U or O See table0001 in appendix 1.	PID-8	Required by Rhode Island.
Address	44 OCEAN BLVD^APT 101^ NEWPORT^RI^12502^US^^^ NEWPORT Street1^Apartment or Street2^City^State^Zip^Country	PID-11	Required by Rhode Island if this is a new patient. CDC Core data element

Next of Kin: Responsible Person (parent or other person who cares for Patient)		**NK1 segment**	Optional for Rhode Island, required by HL7.
Set Id	1 (serial counter showing the sequence of this NK1)	NK1-1	Required.
Name	Lastname^Firstname^Middle Initial^Suffix M CALIFANO^MARIA	NK1-2	Not Required but highly desired and used in KIDSNET. CDC core data element.
Relationship to Patient	MTH (Table 0063 - Relationship)	NK1-3	Not Required but desired and used in KIDSNET. CDC core data element.
Sample information to be transmitted	**Data value**	**HL7**	**Required**
Address	44 OCEAN BLVD^APT 101^ NEWPORT^RI^12502^US^^^ NEWPORT Street1^Apartment or Street2^City^State^Zip^Country	NK1-4	Not Required but desired and used in KIDSNET
Date of Birth	19780403 **Format**: YYYYMMDD, time optional, if supplied use 24 hour method i.e. HHMM, 1525 is 3:15 p.m.	NK1-16	Not Required but desired and used in KIDSNET
Immunization		**RXA segment**	At least one RXA segment is required
Give Sub-ID Counter	Always "0"	RXA-1	Required.
Administration Sub-ID Counter	Always "999"	RXA-2	Required.
Date administered	19990723 (July 23, 1999)	RXA-3	Required.
Date/time end of administration	19990723	RXA-4	Not required or used by KIDSNET. This field is required by HL7.
Administered code	**Format**: 90700^DTaP^CPT CVX codes may also be used	RXA-5	Required.
Administered Amount (Dose)	999	RXA-6	Required by HL7. Not required by Rhode Island.
Administration Notes	00^NEW IMMUNIZATION RECORD^NIP001 This field is used to determine the source	RXA-9	Not Required but desired and used in

	of information (new or historical). Use NIP0001 code set (see Appendix)		KIDSNET.
Administered at Location	^ ^ ^RI1492 KIDSNET Provider Id (e.g. RI1492)	RXA-11	Required and assigned by Rhode Island.
Substance Lot Number	Lot number (e.g. AC21B101AA)	RXA-15	Not Required but desired and used in KIDSNET. This field is required by HL7.
Lot manufacturer	Manufacturer (e.g. SKB^GLAXOSMITHKLINE^MVX)	RXA-17	Not Required but desired and used in KIDSNET. This field is required by HL7.
Sample information to be transmitted	**Data value**	**HL7**	**Required**
Action Code	A = Add	RXA-21	Only Add messages are processed. When the action code is empty it is processed as an Add.
Immunization		**RXA segment**	At least one RXA segment is required
Give Sub-ID Counter	Always "0"	RXA-1	Required.
Administration Sub-ID Counter	Always "999"	RXA-2	Required.
Date administered	July 23,1999	RXA-3	Required.
Administered code	**Format**: 90707^MMR^CPT CVX codes may also be used	RXA-5	Required.
Administered Amount (Dose)	999	RXA-6	Not required by Rhode Island. but desired. This field is required by HL7.
Administration Notes	00^NEW IMMUNIZATION RECORD^NIP001 This field is used to determine the source of information (new or historical) Use NIP0001 code set (see Appendix).	RXA-9	Not Required but desired and used in KIDSNET.
Administered at Location	^ ^ ^RI1492 KIDSNET Provider Id (e.g. RI1492)	RXA-11	Required and assigned by Rhode Island.

Substance Lot Number	Lot number (e.g. 1218F)	RXA-15	Not Required but desired and used in KIDSNET. This field is required by HL7.
Substance Manufacturer Name	Manufacturer (e.g. MSD^MERCK^MVX) (**Note** the code ZZZ is invalid above. It is used in the next section to describe one way to handle errors)	RXA-17	Not Required but desired and used in KIDSNET. This field is required by HL7.
Action Code	A = Add	RXA-21	Only Add messages are processed. When the action code is empty it is processed as an Add.

Sample KIDSNET HL7 Messages: (Duplicated from above for convenience)

```
BHS|^~\&|OCEANSYS|1492||KIDSNET|20070802091523||||00010223|<CR>
MSH|^~\&|OCEANSYS|1492||KIDSNET|20070802091524||VXU^V04|20070802RI149201|P|2.3.1|||NE|AL|<CR>
PID|||123456^^^^SR~45999^^^^MR^||MILLER^GEORGE^M^JR| JONES^MARTHA^G |20070227|M|||127 W STATE ST^^
PROVIDENCE^RI^12501^US^^^ PROVIDENCE|<CR>
PV1||R||||||||||||||||||V02^20070227|<CR>
NK1|1|MILLER^MARTHA|MTH^MOTHER^HL70063|127 W STATE ST^^ PROVIDENCE^RI^12501^US|(401)123-
4567||||||||||19750411|<CR>
RXA|0|999|20070729|20070729|90744^ HEPB-PEDIATRIC/ADOLESCENT ^CPT|999|||00^NEW IMMUNIZATION
RECORD^NIP001||^^^RI1492||||0039F||MSD^MERCK^MVX||||A|<CR>
RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163|<CR>
MSH|^~\&|OCEANSYS|1492||KIDSNET|20070802091524||VXU^V04|20070802RI149202|P|2.3.1|||AL|<CR>
PID|||123456^^^^SR~23LK729^^^^MR^||CALIFANO^MARIA|SMITH^ MARIA^G|20060413|F|||44 OCEAN BLVD^^
NEWPORT^RI^12502^US^^^ NEWPORT|<CR>
NK1|1| CALIFANO^MARIA|MTH^MOTHER^HL70063|44 OCEAN BLVD^^ NEWPORT^RI^12502^US|(401)987-
8877||||||||||19780403|<CR>
RXA|0|999|20070723|20070723|90700^DTAP^CPT|999|||00^NEW IMMUNIZATION
RECORD^NIP001||^^^RI1492||||AC21B101AA||SKB^GLAXOSMITHKLINE^MVX||||A|<CR>
RXA|0|999|20070723|20070723|90707^MMR^CPT|999|||00^NEW IMMUNIZATION
RECORD^NIP001||^^^RI1492||||1218F||MSD^MERCK^MVX||||A|<CR>
BTS|2|<CR>
```

Sample HL7 Messages - Narrative:

Above, Ocean Clinic transmits two HL7 messages to KIDSNET. Note the batch header and footer segments. Each message is an HL7 VXU message type. Patient George M Miller Jr. is identified by Ocean Clinic's chart number 45999 in his PID segment. The message also includes George's KIDSNET ID number "123456" in field PID-3 with the id type of "SR" (i.e. state registry id).

George's birth date, sex, and address also serve to identify him. Fields not defined in this implementation guide are not currently used by KIDSNET. Additional fields can be sent, but KIDSNET will not use them at this time.

In the first example message above, an NK1 segment provides some information for George's mother. KIDSNET responds to the transmission with ACK messages. Ocean Clinic's message "20070802RI149201" had the value AL in field MSH-15, asking for acknowledgements for each message sent. The value AA in MSA-1 below indicates that this message was processed without error

```
BHS|^~\&||KIDSNET||1492|20070802||||20070802RI149201<CR>
MSH|^~\&||KIDSNET||1492|20070802||ACK|20070802RI149201|P|2.3.1<CR>
MSA|AA|20070802RI149201<CR>
MSH|^~\&| |KIDSNET||OCEANCLIN|20070802||ACK|20070802RI149202|P|2.3.1<CR>
MSA|AE|20070802|RI149202|INVALID MANUFACTURER CODE<CR>
BTS|2<CR>
```

For message "20070802RI149202" an error was detected. \ The MSA segment contains an error message and an acknowledgement code of AE – Application Error. Errors are generated when there is missing required data, invalid data or any other inconsistencies from the rules documented within this guide or by the HL7 organization. Currently the KIDSNET system does not return ERR segments in the HL7 acknowledgement.

KIDSNET Specific Information for Senders

The following section contains important information regarding the content of the batch header, the message header, and the immunization segments.

Batch Header and Message Header Segments

- Batch control ID (BHS-11) must contain a unique identifier for the batch.
  - The batch control id helps to identify which batch transmission contained specific messages. The receiving system echoes this Id back to the sending system in the response BHS.
  - Example batch control id:
    - 20070802RI347801 = date (YYYYMMDD)+State Code+KIDSNET Provider Id code + sequential number.)
  - The batch control Id can be any number or combination of characters that was never sent as a batch control id before for this sender Id.

- Message control ID (MSH-10) must contain a unique identifier for the message.
  - The message control id is required so that the sender can match the original message with an acknowledgement and possible error responses from the receiver. The receiving system echoes this ID back to the sending system in

the message acknowledgment segment (MSA). It is also very useful for debugging issues.

- Example batch control id:
  - 20070802RI34781091 = date (YYYYMMDD)+Provider Id code(RI3487) + sequential number (1091).)
- The message control Id can be any be any number or combination of characters that was never sent as a message control id before for this sender Id.

- Accept/Application acknowledgment conditions (MSH-15 and MSH-16)
  - MSH-15 - KIDSNET defaults this value to NE - Never.
  - MSH-16 - KIDSNET defaults this value to be AL - Always.

Immunization Segment (HL7 Pharmacy Treatment Administration RXA Segment)

- Administered Code (RXA-5)
  - KIDSNET accepts both CPT and CVX codes.
  - CVX codes are required for Meaningful Use.
- Administered at location (RXA-11)
  - The RXA-11.4 must contain the KIDSNET provider id. This Id is controlled by, and will be provided by the RI Department of Health Immunization Program:
    - For example: John Smith Family Practice is a participating KIDSNET Provider assigned to KIDSNET Provider Id = 3478. In this case John Smith Family Practice would send |^^^RI3478| in RXA-11.

- Action Code (RXA-21)
  1. This field is not required. **KIDSNET currently only processes Add transactions** (A= Add). Other codes used in this field will be ignored and if it is empty it will be processed as an add.

Message Acknowledgement (ACK) - KIDSNET Response

To verify that a HL7 ACK is received, the sending application needs to review the MSA segment of the ACK message. MSA-1 must contain the acknowledgment status of the message. Below are the possible values for this field:

AA – Application Accept
AE – Application Error
AR – Application Reject

If the VXU message is received and processed, the KIDSNET HL7 system will send an HL7 ACK response which will contain "AA" or "AE" in MSA-1 indicating that receipt of the VXU was successful. MSA-2 will contain the MSH-10 Message Control ID from the VXU message. The VXU will be staged for processing by the KIDSNET matching and deduplication routines (see Figure 1).

If the sending system receives an "AR" (Application Reject) in MSA-1 of an ACK, the **HL7 senders MUST resend that VXU message after the reason for the rejection is corrected**.

Connectivity over the Internet can fail at any time for a number of reasons. HL7 senders MUST resend a VXU message if an ACK message is not received in response from KIDSNET. Ideally, the sending system will stage the retransmission, waiting a reasonable period of time to ensure that the reason for the original failure is rectified.

If the sending system fails to receive an HL7 ACK for each VXU message from KIDSNET over a period of time, or the sending system receives an "AR" in MSA-1 of an ACK, and the reason for the failures appear to be related to issues outside of the control of the sending system, please notify Jeff Goggin (Jeff.Goggin@health.ri.gov 401-222-4968) or Kim SalisburyKeith (Kim.SalisburyKeith@health.ri.gov 401-222-5925).

Receipt of an ACK from KIDSNET does not mean that all of the information in the VXU has been accepted and will be used to update the KIDSNET database. It simply means that the VXU message was received successfully.

ACK Examples:

No Errors:
MSH|^~\&|KIDSNET||SENDING SYSTEM ||||ACK|20488|P|2.3.1|||NE|AL|
MSA|AA|20488|

Non-Fatal Error:
MSH|^~\&|KIDSNET|| SENDING SYSTEM ||||ACK|20489|P|2.3.1|||NE|AL|
MSA|AE|20489|Patient sex is missing |

Fatal Error:
MSH|^~\&|KIDSNET|| SENDING SYSTEM ||||ACK|20499|P|2.3.1|||NE|AL|
MSA|AR||AUTHORIZATION FAILED

Reviewing ACK:

A sending application should review each ACK response and verify three things:

1. The response is an HL7 formatted message.

2. The response is a positive HL7 ACK. MSA-1 contains:
    a. AA – Application Accept
    b. AE – Application Error

3. The response received is for the HL7 message that was sent.

a. The third piece of qualifying the response is verifying that the message control ID value in MSA-2 of the ACK message matches the message control ID that was in MSH-10 of the message that was originally sent.

Acknowledgment Messages (with Non-Fatal Errors):

If there are only non-fatal errors in the VXU message, the ACK returned from KIDSNET will contain an MSA-1 value of "AE" as well as an error description in MSA-3 that provides information about the error. For example: " Patient sex is missing ".

The cause of the non-fatal errors should be addressed so that the error is not present in future HL7 messages. Please do not resend the VXU in this case.

MSA - Message Acknowledgment Segment

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0008	Acknowledgment code
2	20	ST	R			Message control ID
3	80	ST	O			Text message

Notes:

- MSA 01: The acknowledgment code indicates whether the message was accepted, rejected, error, etc…This is a required field. KIDSNET will generate an "AE" (i.e. application error) for informational or error messages. An "AA" (i.e. application accepted) is generated for a simple acknowledgment acceptance.
- MSA 02: The message control ID is the unique ID that is sent by the sending system. This is a required field and it allows the sending and receiving systems to associate each message with the originator or receiver. When responding, this Id is the same as the control ID (see MSH-10) sent by the sending system.
- MSA 03: This optional field describes the error condition.

This document is a work in process. If you have questions or comments please contact Kim Salisbury-Keith at the Rhode Island Department of Health.
Email: Kim.SalisburyKeith@health.ri.gov **Phone: (401) 222-5925**

Appendix 1 –Code Tables

Type	Table	Name	Value	Description
HL7	0001	**Sex**		PID:8 (Code Source=HL7 table 0001)
	0001		F	Female
	0001		M	Male
	0001		U	Unknown
AIRA	0005	**Race**		PID:10 (2006 AIRA code-sets)
	0005		1002-5	American Indian or Alaska Native
	0005		2028-9	Asian
	0005		2076-8	Native Hawaiian or Other Pacific Islander
	0005		2054-5	Black or African-American
	0005		2106-3	White
	0005		2131-1	Other race
HL7	0008	**Acknowledgment Code**		HL7 Table0008
	0008		AA	Application Accept
	0008		AE	Application Error
	0008		AR	Application Reject
User	0063	**Relationship**		NK1:3 (Code Source=HL7 table0063)
	0063		BRO	Brother
	0063		CGV	Care giver
	0063		FCH	Foster child
	0063		FTH	Father
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MTH	Mother
	0063		OTH	Other
	0063		PAR	Parent
	0063		SCH	Stepchild
	0063		SEL	Self
	0063		SIB	Sibling
	0063		SIS	Sister
	0063		SPO	Spouse
HL7	0064	**Financial class**		PV1:20 (Code Source=HL7 table 0064)
	0064		V00	VFC eligibility not determined/unknown
	0064		V01	Not VFC eligible
	0064		V02	VFC eligible – Medicaid/Medicaid Managed Care
	0064		V03	VFC eligible – Uninsured
	0064		V04	VFC eligible – American Indian/Alaskan Native
	0064		V05	VFC eligible – Federally Qualified Health Center Patient (under-insured)
	0064		V06	VFC eligible – State-specific eligibility (e.g. S-Chip plan)
HL7	0103	**Processing ID**		MSH-11

			T	Test
	0103		P	Production
HL7	0104	**Version ID**		MSH-12
	0104		2.3.1	Release 2.3.1 1999
HL7	0155	**Accept/Application acknowledgment conditions**		use in MSH-15 and 16
	0155		AL	Always
	0155		ER	Error/Reject conditions only
	0155		NE	Never
	0155		SU	Successful completion
HL7	0162	**Route of Administration**		RXR:1 (Code Source=HL7 table 0162) Used in KIDSNET
	0162		ID	Intradermal
	0162		IM	Intramuscular
	0162		NS	Nasal
	0162		IV	Intravenous
	0162		PO	Oral
	0162		OTH	Other/Miscellaneous
	0162		SC	Subcutaneous
	0162		TD	Transdermal
HL7	0163	**Administrative Site**		RXR:2 (Code Source=HL7 table 0163) [Used by KIDSNET
	0163		LT	Left Thigh
	0163		LA	Left Arm
	0163		LD	Left Deltoid
	0163		LG	Left Gluteus Medius
	0163		LVL	Left Vastus Lateralis
	0163		LLFA	Left Lower Forearm
	0163		RA	Right Arm
	0163		RT	Right Thigh
	0163		RVL	Right Vastus Lateralis
	0163		RG	Right Gluteus Medius
	0163		RD	Right Deltoid
	0163		RLFA	Right Lower Forearm
HL7	0203	**Identifier Type**		PID:3 (Code Source=HL7 table 0203) **Note: Subset of table**
	0203		MR	Medical Record Number
	0203		SR	State Registry Identifier
NIP	NIP001	**Immunization Information Source**		RXA:9 (Code source = NIP table 001) **Note**: **Subset of table**
	NIP001		00	New Immunization Record
	NIP001		01	Historical Information –source unspecified

Immunization Codes

Current CVX and CPT code sets can be found at:http://www.cdc.gov/vaccines/programs/iis/code-sets.html

Codes for vaccines currently distributed in RI may be requested by email:
jeff.goggin@health.ri.gov or kim.salisburykeith@health.ri.gov

Manufacturer Codes

Manufacturer Code Set (MVX) and Product Name mapped to CVX/MVX can be found at:
http://www.cdc.gov/vaccines/programs/iis/code-sets.html