New Jersey Immunization Information System (NJIIS)

Interface Specifications for HL7 Message Types

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Introduction

New Jersey Immunization Information System (NJIIS) is the official state-wide immunization registry that allows users to ensure that all children within New Jersey are protected against vaccine preventable diseases. New Jersey Statewide Immunization Registry Act NJSA: 26:4-131 was signed in October 2004. The application is in use in all 21 counties by health care providers, state and local health departments, hospitals, schools, Health Maintenance Organizations and commercial insurance companies. The system was designed and developed by the Office of Information Technology Services (OITS) staff and now OITS staff provides full operational, technical and helpdesk support for this application functions. NJIIS was recognized twice by Center for Disease Control and Prevention (CDC) and received Connect and Grow Awards. Most infants are initially enrolled in NJIIS through the Electronic Birth Certificate (EBC) process. Immunization entry is done via user's web interactive interface by physicians or through electronic interfaces with Medicaid, Managed Care Organizations and other external systems. The NJIIS Interface Management System has been developed to provide a standard mechanism for the batch transfer of information between NJIIS and heterogeneous systems.

NJIIS contains records of children who see providers practicing within the state of New Jersey only.

Each facility using interface may submit their files on a different schedule with one condition - the maximum interval between files submission is 30 days unless there is no data to submit.

Healthcare providers will be able to perform the following NJIIS transactions through the submission of electronic files →

- Add a new patient to NJIIS.
- Add and/or delete immunization for a patient.

Effective July 01, 2012, NJDHSS will strictly enforce NJAC 8:57- 3.16 (d) for all new interfaces set up with NJIIS. Vaccine lot number will be a required field; name of manufacturer and vaccine expiration will be enforced as conditionally required fields. For interfaces set up prior to July 1, 2012, these fields are still optional, however, providers are highly encouraged to start sending this information to make sure the immunization information can be utilized effectively. For provider offices manually entering data into NJIIS, lot number, name of manufacturer and vaccine expiration date will become mandatory fields effective July 01, 2012. Providers can utilize the inventory management module within NJIIS to ease data entry.

Instructions for Practices to Initiate Interface with NJIIS

To establish electronic interface with NJIIS >

- 1. Visit NJIIS home page → https://njiis.nj.gov. Click on "NJIIS Documents" link on the left navigation bar → https://njiis.nj.gov/njiis/html/documents.html. Click on "NJIIS Interface Enrollment Request Form" link and fill out the electronic form.
- Visit NJIIS home page → https://njiis.nj.gov. Click on "NJIIS Documents" link on the left navigation bar → https://njiis.nj.gov/njiis/html/documents.html. Download and study following documents with your EHR vendor →

- a. NJIIS Interface Process Flow Document
- b. Interface Specifications for HL7 Message Type
- 3. If the vendor has already established interface with NJIIS for another practices, your practice will be added to this interface and the vendor will be notified by NJIIS support. Otherwise, NJIIS support will work with the new vendor on interface development and test.
- 4. Please note the following → on the form, select HL7 for "File Format" and SFTP or HTTPS for "Interface Type". Talk to your vendor regarding which "Interface Type" you will be using.

Available Interface Types:

- SFTP
- HTTPS (Manual upload via NJIIS website will require user name and password. Please read #4 on next page.)
- 5. When you are ready, email your "HL7 TEST Message" (for new vendor) to njiis.support@doh.state.nj.us mailbox. Once the HL7 message has tested successfully, we will set up this interface.
- 6. To ensure a truly successful data exchange, each practice must have at least one staff member that is an authorized user of NJIIS, who has completed formal NJIIS training. This is necessary even if you are using an EHR that automatically transfers data to NJIIS. Appropriately trained staff will ensure that your practice can routinely conduct quality assurance activities. Training is free and available statewide. Please visit NJIIS Training Opportunities page at https://njiis.nj.gov/njiis/jsp/trainingschedule.jsp. After completing fundamental training, advanced training will also be available via webinar for practices using an interface with NJIIS.

Instructions for Vendors to Initiate Interface with NJIIS

Use HL7 version 2.5.1 specification Unsolicited Vaccination Record Update (VXU^V04). NJIIS still supports HL7 version 2.3.1.

Latest version of HL7 specifications can be found on CDC website also → http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html

Other related Code Sets, such as CPT, CVX, MVX and NDC, can be found at → http://www.cdc.gov/vaccines/programs/iis/code-sets.html

If the vendor has already established an interface with NJIIS for at least one practice, no additional tests are required to add more practices.

To add more practices under the existing interface, they need to fill out on-line "NJIIS Interface Enrollment Request Form" for <u>each</u> practice. Upon receipt of this request form, a new practice will be added to the existing interface and the practice and vendor both will be notified by NJIIS support.

Otherwise, NJIIS support will work with the vendor on interface development and testing.

Generate your Test File according to this Interface Specifications requirement and email it to njiis.support@doh.state.nj.us mailbox.

- 1. Please note the following → all required segments and fields must be present, for the record completeness, please provide maximum information for conditional and optional fields. The more "additional" information you supply the higher the likelihood of a patient match against the NJIIS database. NJIIS will not be able to add patients if some of the data not supplied. Even if some data elements are optional in HL7 specification, they are essential for NJIIS data integrity and therefore required by this specification.
- 2. NJIIS support will contact you with Test File results and may ask you to send a new test file. This process will repeat until successful completion of the test.
- 3. NJIIS support will work with the vendor on establishing the interface type.
- 4. To establish **HTTPS** interface type, at least one employee at the practice must have user name and password to login to NJIIS. Instructions on how to upload file to NJIIS are attached to this document. Current NJIIS users can use their existing user name and password. All new users should attend NJIIS training. For more information, please visit NJIIS Training Opportunities page at https://njiis.nj.gov/njiis/jsp/trainingschedule.jsp
- To establish SFTP interface type, you will receive additional document that describes step by step
 process on how to create an SFTP Account. SFTP access requires the use of both, User
 Name/Password AND Public Key for access.
- 6. To accept and upload interface files, NJIIS support needs to create a database record, **review and test the initial file**. Once this is done, no assistance from NJIIS support will be required for interface files processing.

<u>Important Notes:</u>

- **Zip** file should not be encrypted. Data files should be in the root directory of the zipped file.
- Please do not submit interface files without prior testing, arrangement and approval.
- When the interface type is established, all files will be processed against NJIIS production database. At this point you should send real patients' data only, no test data allowed.
- Submit test files and inquiries to → njiis.support@doh.state.nj.us

HL7 File Specification

Use HL7 version 2.5.1 specification Unsolicited Vaccination Record Update (VXU^V04). NJIIS still supports HL7 version 2.3.1

Interface Types are SFTP and HTTPS (manual upload via NJIIS website).

Latest version of HL7 specifications can be found on CDC website also → http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html

Other related Code Sets, such as CPT, CVX, MVX and NDC, can be found at
http://www.cdc.gov/vaccines/programs/iis/code-sets.html

Below are the fields to be included in the submitted file.

HL7 Sample Message

PID|||113^^^MR~2605574^^^NJIIS^SR||JONES^LOUISIANA^^^^L||20060214|M||2106-3^WHITE^HL70005|123 FAKE STREET^^SOMEVILLE^NJ^08732^^M||(555)555-

4444^^^^\|EN^ENGLISH^HL70296|||||N^NOT HISPANIC OR LATINO^HL70189||N|

NK1|1|JONES^JANUARY^|MTH^MOTHER^HL70063|123 FAKE STREET^^SOMEVILLE^NJ^08732^^C|

RXA|||20060215||08^HepB^CVX||||01^Historical information-source

unspecified^NIP0001|||||||A

RXA|||20070928||03^MMR^CVX||||00^New immunization record^NIP0001|00123456^Demo

Doctor^^&9454&L^^^^^^VEI~||||1116Y|20110806|MSD^MERCK^MVX||||A

RXR|SC^SUBCUTANEOUS^HL70162|LA^LEFT ARM^HL70163

RXA|||20100728||21^Var^CVX||||00^New immunization record^NIP0001|00123456^Demo Doctor |^^&9484&L|||0226Z|20120128|MSD^MERCK^MVX|||A

RXR | SC^SUBCUTANEOUS^HL70162 | LA^LEFT ARM^HL70163

RXA|||20110512||136^MCV4O^CVX||||00^New immunization record^NIP0001|00123456^Demo

Doctor|^^^&9484&L||||U3464AA|20110917|PMC^SANOFI PASTEUR^MVX||||A

RXR|IM^INTRAMUSCULAR^HL70162|LT^LEFT THIGH^HL70163

Key

Value	Description
R	Required
С	Conditionally Required
0	Optional
I	Ignored

Value	Description
Υ	Yes
N	No
F	Future

A. Message Types Supported

Message Type	In	Out
VXU (Inbound)	Υ	F
VXR (Inbound)	N	F
VXQ (Inbound)	F	N
VXX (Inbound)	N	F

B. Required Message Segments

1. VXU

Segment	In	Out	Conditions
MSH	R		
MSA	1		
QRD	1		
QRF	I		
PID	R		
PD1	С		Required to establish new patients that born before 1.1.1998
NK1	С		Required to establish new patients. If providing the segment, all fields marked with "c" are required
PV1	С		Required for VFC eligible patients
PV2	1		
IN1-3	1		
ORC	I		
RXA	R		
RXR	ĺ		

C. Required Fields within Message Segments

The fields listed below are required <u>IF</u> the segment itself is required. If the segment is optional or not provided, the field requirements below do not apply.

1. MSH

Data Elements	Position	In	Out	
Field Separator	MSH.1	R		
Encoding Characters	MSH.2	R		
Sending Application	MSH.3	R		Vendor Name
Sending Facility	MSH.4	R		NJIIS Provider Id (PID). This Id will be supplied by NJIIS to the vendor during interface establishment
Receiving Application	MSH.5	0		
Receiving Facility	MSH.6	0		
Date/Time of Message	MSH.7	0		
Message Type	MSH.9	R		
Message Control ID	MSH.10	R		
Processing ID	MSH.11	R		
Version ID	MSH.12	R		
Application Acknowledgment Type	MSH.16	I		

2. PID

Data Elements	Position	In	Out	
Medical Record Number	PID.3	R		
State Registry ID	PID.3	0		NJIIS Registry ID if available
Medicaid Number	PID.3	I		
SSN	PID.3	- 1		
Local Registry ID	PID.3	- 1		
Alternate Patient ID	PID.4	I		
Patient Last Name	PID.5	R		
Patient First Name	PID.5	R		
Patient Middle Name	PID.5	0		
Mother's Maiden Last Name	PID.6	0		
Patient DOB	PID.7	R		Formatted as yyyymmdd
Patient Gender	PID.8	R		Allowed values are M , F , and U
Patient Alias	PID.9	I		
Patient Race	PID.10	0		
Patient Address Street	PID.11	R		
Patient Address Street2	PID.11	0		
Patient Address City	PID.11	R		
Patient Address County Code	PID.11	0		
Patient Address State	PID.11	R		
Patient Address Zip	PID.11	R		
Patient Address Country	PID.11	0		
Patient Home Phone	PID.13	0		
Patient Work Phone	PID.14	0		
Patient Primary Language	PID.15	0		
Patient Ethnicity	PID.22	0		
Patient Birth Place	PID.23	0		
Multiple Birth Indicator	PID.24	R		Enter the total number of infants delivered by the mother including the patient. To improve patient data de-duplication process, it is a required field and should have value of 1 if only one child was born or should indicate number of children born on the same day (2 for twins, 3 for triplets and so forth.). This field should not indicate number of children in the family that have different date of birth.
Patient Birth Order	PID.25	0		Enter the number of the birth for this patient if from a multiple birth. Desirable for twins' identification.

3. PD1

Data Elements	Position	In	Out	
Protection Indicator	PD1.12	R		Indicates patient consent to participate in NJIIS. Required if DOB before 1.1.98 Allowed values are Y (consent given) and N (consent denied)
Protection Indicator Date	PD1.13	R		Date when consent was given Formatted as yyyymmdd

Consent value changes per HL7 2.5.1 documentation:

Protection State	Code
Yes, protect the data. Client (or guardian) has indicated that the information shall be protected. (Do not share data)	Y
No, it is not necessary to protect data from other clinicians. Client (or guardian) has indicated that the information does not need to be protected. (Sharing is OK)	Z

Notes on use of Y for Protection Indicator in 2.5.1 Guide vs. earlier Guides.

Note that the previous Implementation Guide stated that Y meant that a person's information could be shared. This was an incorrect interpretation of the use of this field. The meaning now aligns with the definition of HL7. That is, Y means data must be protected. Existing systems that use the old meaning will need to determine how they will send the correct value in a 2.5.1 message.

Note that the value sent in a message that is based on the 2.3.1 or 2.4 version of the HL7 standard shall continue to follow the old guidance. That is, Y means sharing is allowed and N means sharing is not allowed.

Effective July 01, 2012,

If HL7 version in the file sent to NJIIS is specified as "2.5.1" in MSH.12, the value "Y" in PD1.12 will be interpreted as NJIIS Consent = No.

If any other value is sent for HL7 version in the file sent to NJIIS in MSH.12, the value "Y" in PD1.12 is interpreted as NJIIS Consent = Yes.

Example of MSH segment with "2.5.1" as an HL7 version number: MSH|^~\&|Tec|Tec&223346995&L|||20120604165501||VXU^V04^VXU_V04|0604165501|T|2.5.1|

4. NK1

All conditional data elements are required if segment is provided.

Data Elements	Position	In	Out	
Set ID – NK1	NK1.1	R		
Patient Contact Last Name	NK1.2	С		Required to establish new patients
Patient Contact First Name	NK1.2	С		Required to establish new patients
Patient Contact Relationship	NK1.3	С		Required to establish new patients. Use HL7 table 0063. For patients over 18 years old the value can be "SEL – Self"
Patient Contact Address Street	NK1.4	С		Required to establish new patients
Patient Contact Address Street2	NK1.4	0		
Patient Contact Address City	NK1.4	С		Required to establish new patients
Patient Contact Address County Code	NK1.4	С		Required to establish new patients
Patient Contact Address State	NK1.4	С		Required to establish new patients
Patient Contact Address Zip	NK1.4	С		Required to establish new patients
Patient Contact Address Country	NK1.4	0		
Patient Contact Phone	NK1.5	0		

5. PV1

Data Elements	Position	ln	Out	
VFC Eligibility and Effective Date	PV1.20	С		Required for VFC Eligible patients. Use HL7Table 0064 – Financial class. Date should be formatted as yyyymmdd

6. RXA

Effective July 01, 2012, NJDHSS will strictly enforce NJAC 8:57- 3.16 (d) for all new interfaces set up with NJIIS. Vaccine lot number will be a required field; name of manufacturer and vaccine expiration will be enforced as conditionally required fields. For interfaces set up prior to July 1, 2012, these fields are still optional, however, providers are highly encouraged to start sending this information to make sure the immunization information can be utilized effectively. For provider offices manually entering data into NJIIS, lot number, name of manufacturer and vaccine expiration date will become mandatory fields effective July 01, 2012. Providers can utilize the inventory management module within NJIIS to ease data entry.

Data Elements	Position	In	Out	
Give Sub-ID Counter	RXA.1	R		
Administration Sub-ID Counter	RXA.2	R		
Date/Time Admin Start	RXA.3	R		Date should be formatted as yyyymmdd
Date/Time Admin End	RXA.4	R		Date should be formatted as yyyymmdd
Vaccine Administered Code	RXA.5	R		CVX and CPT codes are accepted
Vaccine Administered Amount	RXA.6	I		
Administration Notes	RXA.9	С		Required if sending facility wants to send doses given at their office and at other facility (History shots) for complete immunization record. Use HL7 table NIP001.
Administering Provider Name	RXA.10	0		
Administering Provider Tax ID	RXA.10	0		
Administering Provider VFC ID	RXA.10	0		
Administering Provider State ID	RXA.10	0		
Administering Clinic	RXA.11	С		Used when multiple practices sends data in one file and need to identify location where the shot was given. The sample shows minimum required data in this filed: ^^^&9454&L Position 4 should include NJIIS Provider ID (obtained from NJIIS) coded between two ampersands and L for Local ID. All other data in this field will be ignored.
Lot Number	RXA.15	С		Required for Provider shots; Optional for History shots (Effective July 01, 2012).
Lot Expiration Date	RXA.16	0		Date should be formatted as yyyymmdd
Lot Manufacturer	RXA.17	С		Required if lot number is provided. Use HI7 table
Substance Refusal Reason	RXA.18	1		
Action Code	RXA.21	R		Allowed values are A (add dose) and D (delete dose)

Detailed explanation of some complex fields

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

Definition: This field contains the address of the sending facility.

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

- (1) Namespace ID (IS). Refer to User-defined Table 0300 Namespace ID for suggested values.
- (2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type.

The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it.

The UID must follow the syntactic rules of the particular scheme defined in the third component.

(3) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to *HL7 Table 0301 - Universal ID type* for valid values.

MSH|^~\&|SampleVendor|**SampleVendor&2150&L**|||20110804090531||VXU^V04^VXU_V04|080409 0531|T|2.5.1|

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

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

The specific components of fields using the CM data type are defined within the field descriptions. The components for this field are: <point of care (IS)>^< room (IS)>^<bd (IS)>^< facility (HD)>^<location status (IS)>^<point to cation type (IS)>^<bd (IS)>

RXA|||20110512||136^MCV4O^CVX||||00^New immunization record^NIP0001|00123456^Demo Doctor|^^**&9484&L**||||U3464AA|20110917|PMC^SANOFI PASTEUR^MVX||||A

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

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

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

- (1) ID number (ST).
- (2) Check digit (ST). Defined as in the CK data type except as a ST. The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null
- (3) Code identifying check digit scheme employed (ID). Refer to HL7 Table 0061 Check digit scheme for valid values.
- (4) Assigning authority (HD).

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

- (5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to *User-defined Table 0203 Identifier type* for suggested values.
- (6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.

Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

HL7 recommends that this field be used to record all patient identifiers.

PID|||**113^^^MR**~**2605574^^^NJIIS^SR**||JONES^LOUISIANA^^^^L||20060214|M||2106-3^WHITE^HL70005|123 FAKE STREET^^SOMEVILLE^NJ^08732^^M||(555)555-4444^^^^^||EN^ENGLISH^HL70296||||||N^NOT HISPANIC OR LATINO^HL70189||N|

Instructions for HTTPS File Upload via NJIIS Website

Log in to NJIIS https://njiis.nj.gov using NJIIS User Name/Password.

If you are **NJIIS** user, first select the appropriate provider from the drop down list on "Search for Patient" page. Click on "**Interface Upload**" link on the left navigation bar then on "**Upload data**" link. The system will display "**Interface File Upload**" page.

If you are an Interface user, the system will direct you to the "Interface File Upload" page after log in.



Figure 1: Interface File Upload and Upload File Status screen

Top portion of the page will allow you to upload your file.

- Use "Browse" button to select the file from your local directory.
- Select "HL7 Batch" from "File Type" dropdown.
- Click "Upload" button to load the file into NJIIS.
- Zip file should not be encrypted and should be in the root-directory only, not in any subdirectory folders.

Uploaded files are placed in queue in order they received and processed automatically. The file process outcome status could be either "Processed Successfully" or "Error Processing".

For history purposes, files with "Processed Successfully" status cannot be deleted from the list.

Bottom portion of the page will display a list of all previously processed files. Provider can view their last 200 files on upload pages.

- To view file process statistics, click on "Processed successfully" hyperlink in "Status" column.
- To view processing errors, click on "Error processing" hyperlink in "Status" column.
- You can select any file to "Process Again", if needed, but the initial statistics will be changed.
- To view the initial input file, click on file's hyperlink in "File Name" column.



Figure 2: Interface File Statistics screen

Click on "View Input File" button to review the initial input file.

Click on "XML Output Report" button to review process log in XML Format.

Click on "Excel Output Report" button to review process results in Excel format.

Appendix

CPT Codes

Please refer to CDC's CPT code table for latest valid CPT codes.

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

CVX Codes

Please refer to CDC's CVX code table for latest valid CVX codes.

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

MVX Codes

Please refer to CDC's MVX code table for latest valid CVX codes.

CDC HL7 Guide

Please refer to CDC's website for HL7 Latest Version Implementation Guide for Immunization Messaging.

Latest version of HL7 specifications can be found on CDC website also → http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html

CDC Code Sets Guide

Other related Code Sets, such as CPT, CVX, MVX and NDC, can be found at
http://www.cdc.gov/vaccines/programs/iis/code-sets.html

List of File Process Status

File Process Status	Description
Received	File is received but not processed.
Processing	File is in the process.
Error processing	Some errors occurred while processing the file. Click on hyperlinked
	status to see the errors.
Processed successfully	File is processed. Click on hyperlinked status to see the Interface File
	Statistics.