

North Dakota Immunization Information System (NDIIS)

Condensed Specification and Interoperability Steps

HL7 2.5.1 Version 1.4

Document Purpose:

This guide is intended for:

1. Eligible Providers and Eligible Hospitals to use towards meeting the requirements for Meaningful Use Stage One and Two.
2. Immunization Providers that wish to begin reporting their patient immunization data to the NDIIS using the HL7 format.

All NDIIS interoperability documents referenced in this specification guide can be found on the [NDIIS Interoperability website](#).

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Interoperability Steps with NDIIS

The North Dakota Department of Health (NDDoH) prioritizes immunization site connections to the NDIIS based on volume of immunizations administered and the readiness of their Electronic Health Record (EHR) system to connect based on North Dakota specifications and requirements.

1. Review your EHR compliance with the NDIIS messaging system requirements.
 - The full technical specifications for NDIIS connections, can be found on our interoperability web site.
 2. Determine how you'd like your EHR to connect to the NDIIS for immunization messaging.
 - Direct connection between your EHR and the NDIIS via SOAP web services transport; or
 - Connect to the NDIIS via the North Dakota Health Information Network (NDHIN). For this connection, you can choose either a VPN or SOAP web services connection to the NDHIN which will act as a pass-through forwarding your messages to the NDIIS.
 3. Complete and submit required forms.
 - For "direct connections" to the NDIIS:
 - NDIIS Registration of Intent form
 - NDIIS Interoperability Roles and Responsibilities Matrix
 - NDIIS Interoperability Memorandum of Understanding (MOU)
 - For connections via the NDHIN:
 - NDHIN Participation Agreement
 - NDHIN Business Associate Agreement
 - Both of these forms can be found on the NDHIN web site at <http://www.ndhin.org/>
 - NDIIS Registration of Intent form
 - NDIIS Interoperability Roles and Responsibilities Matrix
 - ❖ The NDIIS team works very closely with the NDHIN team and will begin working with providers once their connection with the NDHIN is established.
 - ❖ Upon completion of the required documents, providers will be placed in queue for connecting.
4. Validate the certified EHR captures the required fields.
 - See the Quality Assurance Criteria and the "[Required Fields](#)" table.
 5. Validate the certified EHR contains the required Vaccine Eligibility and Vaccine Funding Source codes.
 - See the [VFC Eligibility Codes](#) table
 - See the [Funding Source Codes](#) table

6. Content validation – Content validation will need to occur with the NDIIS vendor.

- Complete Initial On-Boarding Questionnaire
- Review Connectivity and Security Information
- Confirm Unsolicited Update/Acknowledgement Message Use and Review Examples
- Confirm Query/Response Message Use and Review Examples
- Discuss Required Field Mapping
- Review Testing Process
- Confirm CVX Code Usage
- Verify Defined Fields
- Map Provider Sites

7. Testing

- Being able to utilize aged production data for this testing is a best practice and a lesson learned from previous connections. User acceptance testing should occur with staff who have knowledge of and experience working with the NDIIS (i.e., immunization data entry staff, immunization nurses, etc.)

8. Go-Live

- Prior to go-live, the provider site must complete a NDIIS [HL7 Responsibilities and Contact Information Form](#) and send to the NDIIS Manager. This form assigns your provider staff to monitor the data feed and correct errors. NDIIS staff use information from this form to coordinate training sessions.

Once you have successfully completed the NDIIS interoperability on-boarding process with 100% of your test messages passing without error, connection can be moved to production.

Quality Assurance Criteria

Below are a few fields that close attention should be paid during your GAP analysis, in addition to a listing of required fields.

VFC Eligibility

Dose level Vaccines for Children (VFC) Eligibility field is a required field for all doses of vaccine submitted to the NDIIS. VFC Eligibility will identify the patient's eligibility to receive a dose of publicly purchased vaccine. This is required for all provider sites, regardless of if the provider participates in the North Dakota VFC Program. The VFC Eligibility code is held in OBX-5.

The table below reflects the VFC Eligibility codes to be utilized in the HL7 message.

VFC Code	Label
V01	Not VFC eligible
V02	VFC eligible-Medicaid/Medicaid Managed Care
V03	VFC eligible- Uninsured
V04	VFC eligible- American Indian/Alaskan Native
V05	VFC eligible-Federally Qualified Health Center Patient (under-insured)
V07	Local-specific eligibility

* **Unknown VFC eligibility is not an accepted value.**

Funding Source

Funding source is a required field for all doses of vaccine submitted to the NDIIS. This will identify the immunization as publicly or privately purchased vaccine. Funding source cannot be inferred based on VFC eligibility. Funding Source code is held in the OBX-5.

The table below reflects the funding source codes to be utilized in the HL7 message.

Concept Code	Concept Name	Definition
PHC70	Private funds	Immunization was funded by private funds, including insurance.
VXC1	Federal funds	Immunization was funded with public funds from the federal government.

Lot Number

Lot number is a required field for all doses of administered vaccine submitted to the NDIIS. Entering this information reflects an administered immunization and can be invaluable in times of recall. Patients can be notified and appropriate action taken to revaccinate, if required. Providers enrolled in the Prevention Partnership Program are required to maintain their public vaccine inventory in the NDIIS. All providers are encouraged to enter and maintain their privately purchased vaccine inventory in the NDIIS as well.

Reminder/Recall

Correct patient home address and phone number are necessary to enable patient immunization reminder and recall notices.

CVX Codes

All successful HL7 messages must contain a valid CVX code. A complete list of all CVX codes supported in the NDIIS can be found on the [NDIIS interoperability website](#). Providers will be required to complete a CVX code mapping exercise with the NDIIS interoperability team as part of the on-boarding process.

Required Fields

All required fields must be included in the HL7 message or the message will result in an ACK with Error being returned from the NDIIS. Below is a list of required fields for immunization message exchange with the NDIIS. Filler or “dummy” data should not be submitted in the required fields. If there is no value in a required field because it was not entered in the EHR or because there was no value known, then empty should still be sent. The full specification document for HL7 version 2.5.1 release 1.4 immunization messaging can be found on the [NDIIS interoperability website](#).

HL7 Element Name	HL7 Segment
MSH – Message Segment Header	
Field Separator	MSH-1
Encoding Characters	MSH-2
Sending Application	MSH-3 (Provided by Provider/EHR Technical Staff)
Sending Facility	MSH-4 (Provided by Provider/EHR Technical Staff)
Receiving Application	MSH-5 (Provided by NDIIS Technical Staff)
Receiving Facility	MSH-6 (Provided by NDIIS Technical Staff)
Date/Time of Message	MSH-7
Message Type	MSH-9
Message Control ID	MSH-10
Processing ID	MSH-11
Version ID	MSH-12
NK1 – Next of Kin/Associated Parties	
Set ID – NK1	NK1-1
Name	NK1-2
Relationship	NK1-3
OBX	
Set ID – OBX	OBX-1
Value Type	OBX-2
Observation Identifier	OBX-3
Observation Sub-ID	OBX-4
Observation Value	OBX-5 (VFC Eligibility and Funding Source)
Observation Result Status	OBX-11
Date/Time of the Observation	OBX-14
ORC	
Order Control	ORC-1
Placer Order Number	ORC-2
Filler Order Number	ORC-3
Entered By	ORC-10
Ordering Provider	ORC-12

PD1	
Publicity Code	PD1-11
Protection Indicator	PD1-12
Immunization Registry Status	PD1-16
PID	
Set ID – PID	PID-1
Patient Identifier List	PID-3
Patient Name	PID-5
Mother's Maiden Name	PID-6
Date/Time of Birth	PID-7
Administrative Sex	PID-8
Race	PID-10
Patient Address	PID-11
Phone Number – Home	PID-13
Ethnic Group	PID-22
Multiple Birth Indicator	PID-24
Patient Death Indicator	PID-30
QAK – Query Acknowledgement Segment	
Query Tag	QAK-1
Query Response Status	QAK-2
Message Query Name	QAK-3
QPD – Query Parameter Definition	
Message Query Name	QPD-1
Query Tag	QPD-2
User Parameters	QPD-3
RCP – Response Control Parameter Segment	
Query Priority	RCP-1
Quantity Limited Request	RCP-2
RXA-Pharmacy/Treatment Administration	
Give Sub-ID Counter	RXA-1
Administration Sub-ID Counter	RXA-2
Date/Time Start of Administration	RXA-3
Date/Time End of Administration	RXA-4 (Should be same as RXA3)
Administered Code	RXA-5 (CVX code)
Administered Amount	RXA-6
Administering Provider	RXA-10
Administered-at Location	RXA-11
Completion Status	RXA-20
Action Code	RXA-21
RXR-Pharmacy/Treatment Route	
Route	RXR-1
Administration Site	RXR-2