

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.

Table of Contents

Interoperability Steps with NDHS.....	3
Quality Assurance Criteria	4
VFC Eligibility.....	4
Funding Source	5
Lot Number	5
Required Fields.....	5
CVX Codes	7

Interoperability Steps with NDIIS

1. Message Transport
 - The North Dakota Department of Health (NDDoH) is prioritizing 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. The NDDoH has already contacted eligible sites.
 - For sites that are directly connecting to the NDIIS, review Transport Layer Protocol <http://www.ndhealth.gov/Immunize/Documents/Interop/transport-specification.pdf>
 - The NDIIS currently supports SOAP web services connections using the CDC WSDL.
 - Other providers with a certified EHR wishing to connect directly to the NDIIS should fill out the initial interest form on the NDIIS Interoperability web page <http://www.ndhealth.gov/disease/mu/MU.aspx>
 - These providers will be prioritized according to the volume of immunizations administered and the readiness of their EHR to connect based on North Dakota specifications and requirements.
 - North Dakota Health Information Network Connectivity (NDHIN) –The NDIIS is connected to the NDHIN and the NDDoH is encouraging immunization providers to connect to the NDIIS through the NDHIN.
 - EHR systems that do not have query/response capabilities can utilize the NDHIN for this NDIIS requirement.
2. Validate the certified EHR captures the required fields.
 - See the Quality Assurance Criteria and the “[Required Fields](#)” table.
3. Validate the certified EHR contains the CVX and Vaccine Eligibility codes.
 - See the [CVX Codes](#) table
4. Message format – Validate the message format by submitting a message to the meaningful use test site at www.ndhealth.gov/immunize/MUTest/.
5. Content validation – once you have passed Step 4 (Message Format). Content validation will need to occur with the NDIIS vendor.
 - Complete Initial On-Boarding Questionnaire
 - Review Roles and Responsibilities Matrix; Identify Key Resources
 - 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
6. Testing – Being able to utilize aged production data for this testing is a best practice and a lesson learned from previous connections. Ambulatory testing should occur with staff who have knowledge of and experience working with the NDIIS (i.e., immunization data entry staff, immunization nurses, etc.)
7. Go-Live – prior to go-live, the provider site must complete a NDIIS [HL7 Responsibilities and Contact Information Form](#) and send to the [NDDoH Sentinel Site Coordinator](#). 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 passed content validation and have been trained by NDIIS staff, the messages will be transmitted 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 patients 18 and under and for adults 19 and older for those vaccines that are available through North Dakota’s adult vaccination programs. VFC Eligibility will identify the patient’s eligibility to receive publicly purchased vaccine. This is required for all vaccines, regardless of if the provider maintains an active private inventory in the NDIIS. 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 each dose of vaccine. 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

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. For providers enrolled in the Prevention Partnership Program and receiving state-supplied vaccines, lot number is required.

Reminder/Recall

Correct Patient Home Phone Number and Address are “Required” to enable patient immunization reminder and recall notice follow up.

Required Fields

All required fields should be included in the message. Below is a list of required fields for the NDIIS. All required fields should be included in the message. *It is a production requirement to meet the required fields.* Filler or “dummy” data should not be contained in the required fields. If there is no value in a required field because it was not entered or because there was no value known, then empty should still be sent. The full specification can be found here:

www.ndhealth.gov/Immunize/Documents/Interop/NDIISpecV251_release_12.pdf.

HL7 Element Name	HL7 Segment
MSH – Message Segment Header	
Field Separator	MSH-1
Encoding Characters	MSH-2
Sending Application	MSH-3 (Provided by NDIIS Technical Staff)
Sending Facility	MSH-4 (Provided by NDIIS 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 – NKI	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

CVX Codes

All successful HL7 messages must contain a valid CVX code. Below is a table that displays the NDIIS accepted CVX codes.

Name	CVX Code	Notes
Anthrax	24	
BCG	19	
botulinum antitoxin	27	
Cholera	26	
CMVIG	29	
diphtheria antitoxin	12	
DT (pediatric)	28	
DTaP	20	
DTaP, 5 pertussis antigens	106	
DTaP-Hep B-IPV	110	
DTaP-Hib	50	
DTaP-Hib-IPV	120	
DTaP-IPV	130	
DTP	01	Used only for documenting historical vaccinations
DTP/Hib	22	Used only for documenting historical vaccinations
H1N1 (inactivated P/F)	126	Used only for documenting historical vaccinations
H1N1 (inactivated W/P)	127	Used only for documenting historical vaccinations
H1N1 (live virus)	125	Used only for documenting historical vaccinations
H1N1 (unknown)	128	Used only for documenting historical vaccinations

HBIG	30	
Hep A, adult	52	
Hep A, ped/adol (2 dose)	83	
Hep A (3 dose)	84	Used only for documenting historical vaccinations
HAV (unknown)	85	Used only when exact Hep A formulation is not known
Hep A-Hep B	104	
HBIG	30	
Hep B, adolescent or pediatric	08	
Hep B, adult	43	
Hep B, dialysis	44	
Hep B (unknown)	45	Used only when exact Hep B formulation is not known
HBVP/Hib	51	
Hib (PRP-OMP)	49	
Hib (PRP-T)	48	Code for ACTHib and HIBERIX
Hib (HbOC)	47	
Hib (PRP-D)	46	
HPV, bivalent	118	
HPV, quadrivalent	62	
HPV, 9-valent	165	
HPV (unknown)	137	Used only when exact HPV formulation is not known
IG	86	
Influenza, high dose seasonal	135	
Influenza, live, intranasal, trivalent	111	
Influenza, live, intranasal, quadrivalent	149	
Influenza, seasonal, injectable, trivalent	141	
Influenza, seasonal, injectable, trivalent, preservative free	140	
Influenza, seasonal, intradermal, preservative free	144	
Influenza, seasonal, intradermal, quadrivalent, preservative free	166	
Influenza, seasonal, injectable, quadrivalent, preservative free	150	
Influenza, seasonal, injectable, quadrivalent	158	
Influenza, injectable, MDCK, preservative free	153	
Influenza, recombinant, injectable, preservative free	155	
Influenza, seasonal, injectable, quadrivalent, preservative free, pediatric	161	
Influenza, whole cell	16	Used only for documenting historical vaccinations

Influenza (unknown)	88	Used only when exact influenza formulation is not known
IPV	10	
Japanese Encephalitis IM	134	
Japanese encephalitis SC	39	
LYME DISEASE	66	
Measles	05	Used only for documenting historical vaccinations
Meningococcal MCV4O	136	MCV4 Menveo
Meningococcal MCV4P	114	MCV4 Menactra
Meningococcal B	162	Trumenba
Meningococcal B (OMV)	163	Bexsero
MEN C/Y-HIB	148	
Meningococcal C Conjugate	103	Used only for documenting vaccinations given outside the US
meningococcal MPSV4	32	
MMR	03	
MMRV	94	
MR	04	Used only for documenting historical vaccinations
Mumps	07	
OPV	02	Used only for documenting historical vaccinations
Plague	23	
Pneumococcal conjugate PCV 13	133	
pneumococcal conjugate PCV 7	100	
pneumococcal polysaccharide PPV23	33	
rabies, intradermal injection	40	
rabies, intramuscular injection	18	
RIG	34	
Rotavirus, monovalent (2 dose)	119	
Rotavirus, pentavalent (3 dose)	116	
Rotavirus (Rotashield)	74	Used only for documenting historical vaccinations
Rotavirus (unspecified)	122	Used only when exact Rotavirus formulation is not known
Rubella	06	Used only for documenting historical vaccinations
Rubella/Mumps	38	Used only for documenting historical vaccinations
Td (adult) preservative free	113	
Td, adsorbed	09	
Tdap	115	
tetanus toxoid, adsorbed	35	
TIG	13	
typhoid, oral	25	

typhoid, parenteral	41	
typhoid, parenteral, AKD (U.S. military)	53	
typhoid, ViCPs	101	
vaccinia (smallpox)	75	
varicella	21	
VZIG	36	
yellow fever	37	
zoster	121	