North Dakota Immunization Information System (NDIIS)

Real-time HL7 Transfer Specification Version 2.5.1

Release 1.5

February 28, 2018

Contents

Introduction

The North Dakota Immunization Information System (NDIIS) has been enhanced to provide HL7 real-time bidirectional messaging service using the CDC HL7 version 2.5.1 Release 1.5 Implementation Guide for Immunization Messaging and its published addendum. Providers who already store and process immunization data in their own electronic health record (EHR) systems will be able to submit and receive client and immunization data via HL7 messaging, eliminating the need to enter data into both the NDIIS and the provider's EHR. HL7 real-time data exchange system requirements for providers include the following.

• Ability to create and consume HL7 version 2.5.1 release 1.5 messages in accordance with this NDIIS HL7 Real-time transfer specification, and complete the associated onboarding certification process.

• Ability to transport messages securely using an approved protocol (e.g., SOAP/HTTPS).

• Ability to correct messages with errors and resend the corrected messages.

Scope of this Document

NDIIS supports a specific subset of HL7 messages pertaining to client and vaccination information. The CDC Implementation Guide (see References section) provides technical details. Please refer to this guide for message, segment, and field technical information. This document provides NDIIS implementation information and example messages.

Real-time Processing

1. Providers must be able to transmit messages to and receive messages from the NDIIS messaging system. Providers are responsible for obtaining or developing client software for sending and receiving messages.

2. Provider connectivity to the test and production environments will be coordinated during the NDIIS On-boarding process.

3. The NDIIS Technical Staff will work with providers to test message transport and formatting using the NDIIS test environment.

References

The HL7 Version 2.5.1Implementation Guide for Immunization Messaging, Release 1.5, 10/1/2014 and addendum, are available at the following links. https://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-5-2014-11.pdf
https://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-addendum-7-2015.pdf

NDIIS follows these implementation guides and supports the Centers for Disease Control's (CDC) and American Immunization Registry Association (AIRA) goal of HL7 uniformity.

NDIIS interoperability documentation is available on the North Dakota Department of Health web site.
https://www.health.nd.gov/immunize/ndiis/interoperability

Information for the HL7 standard can be found at http://www.hl7.org
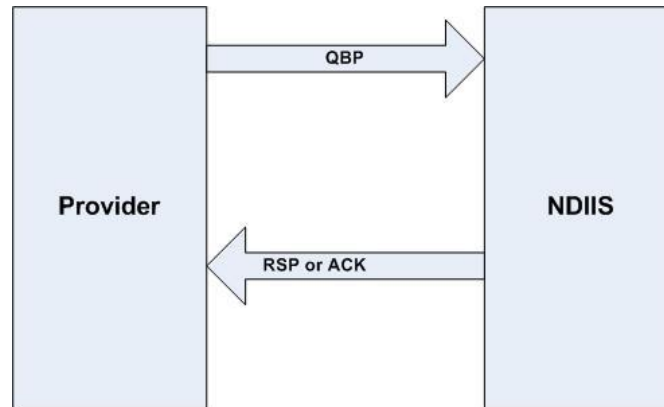

Real-time HL7 Messages

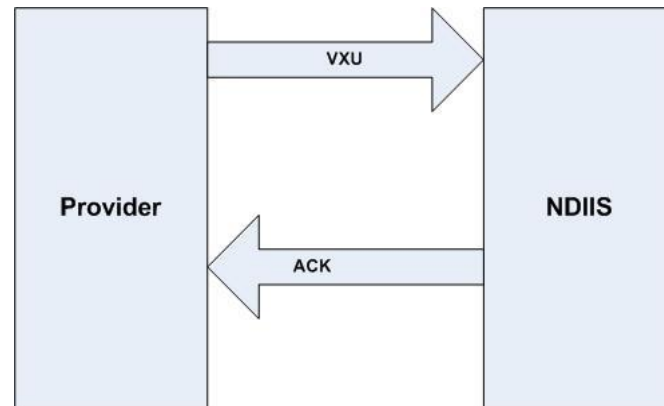The supported HL7 messages are listed below.

- QBP   Query by Parameter.
- RSP   Respond to QBP message.
- VXU   Unsolicited Vaccination Record Update.
- ACK   General Acknowledgment, Indicates NDIIS Received the Message but there was an Error.

The data exchanges are illustrated below.

QBP

VXU

Message Structure

Note: HL7 optional segments are indicated by square brackets, [ ], and repeatable segments are indicated by curly braces, { }. NDIIS required segment names are bolded.

- **QBP/RSP Messaging.**

Message Type: **Query**
Query Statement ID: **Z34**
Message Name: **Request Complete Immunization History**

Query Grammar			
Segment	**Segment Name**	**Usage**	**Comment**
MSH	Message Header Segment	R	
QPD	Query Parameter Definition	R	
RCP	Response Control Parameter	R	

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

MSH|^~\&|EHRsystem|272727|ND0000|NDIIS|20170515001020-0500||QBP^Q11^QBP_Q11|793543|P|2.5.1|||ER|AL|||||Z34^CDCPHINVS
QPD|Z34^Request Immunization
History^CDCPHINVS|37374859|123456^^^EHRsystem^MR|Doe^John^P^^^^L|Doe^Mary^^^^^M|20050511|M|123 Testing
Way^^Fargo^ND^^^L
RCP|I|10RD&records&HL70126

Message Type: **Query**
Query Statement ID: **Z44**
Message Name: **Request Evaluated Immunization History and Forecast**

Query Grammar			
Segment	**Segment Name**	**Usage**	**Comment**
MSH	Message Header Segment	R	
QPD	Query Parameter Definition	R	
RCP	Response Control Parameter	R	

Example.

MSH|^~\&|EHRsystem|272727|ND0000|NDIIS|20140515001020-0500||QBP^Q11^QBP_Q11|793543|P|2.5.1|||ER|AL|||||Z44^CDCPHINVS
QPD|Z44^Request Evaluated History and
Forecast^CDCPHINVS|37374859|123456^^^EHRsystem^MR|Doe^John^P^^^^L|Doe^Mary^^^^^M|20050511|M|123 Testing
Way^^Fargo^ND^^^L
RCP|I|1RD&Records&HL70126

Message Type: **Response**
Query Statement ID: **Z31**
Message Name: **Return List of Candidates**

Response Grammar			
Segment	**Segment Name**	**Usage**	**Comment**
MSH	Message Header Segment	R	
MSA	Query Parameter Definition	R	
[ERR]	Response Control Parameter	RE	Populated if errors exist
QAK	Query Acknowledgement Segment	R	
QPD	Query Parameter Definition	R	
{		R	Begin Patient Identifier
PID	Patient Identifier Segment	R	
[PD1]	Patient Demographic Segment	RE	
[{NK1}]	Next of Kin Segment	O	End Patient Identifier
}		R	

Example.

MSH|^~\&|ND0000|NDIIS|EHRsystem|272727|20091105100020-
0500||RSP^K11^RSP_K11|37374859|P|2.5.1|||NE|NE|||||Z31^CDCPHINVS|A_Clinic^SOME_SYSTEM^^^^X68&&^AN^^^A_Clinic1234^
MSA|AA|793543
QAK|37374859|OK|Z34^Request Immunization History^CDCPHINVS

QPD|Z34^Request Immunization History^CDCPHINVS|37374859|123456^^^EHRsystem^MR|Doe^John^P^^^^L|Doe^Mary^^^^^M|20050511|M|123 Testing Way^^Fargo^ND^^^L
PID|1||99445566^^^NDIIS^SR||Doe^John^^^^^L||20050511|M
NK1|1|Child^Susan^^^^^L|MTH^Mother^HL70063|432 Test Ave^^Warwick^MA^02452^USA^L
PID|2||123456^^^NDIIS^SR||Doe^John^^^^^L||20050511|M

Message Type: **Response**
Query Statement ID: **Z32**
Message Name: **Return Complete Immunization History**

Response Grammar			
Segment	**Segment Name**	**Usage**	**Comment**
MSH	Message Header Segment	R	
MSA	Query Parameter Definition	R	
[ERR]	Response Control Parameter	RE	Populated if errors exist
QAK	Query Acknowledgement Segment	R	
QPD	Query Parameter Definition	R	
PID	Patient Identifier Segment	R	
[PD1]	Patient Demographic Segment	RE	
[{NK1}]	Next of Kin Segment	RE	
[PV1]	Patient Visit Segment	O	
[IN1]	Insurance Segment	O	
[{		RE	
ORC	Order Request Segment	R	Required if client has immunization records in RXA segment. One ORC for each RXA.
RXA		R	Pharmacy/Treatment Administration Segment
[RXR]		RE	Pharmacy/Treatment Route Segment
[{		RE	Begin Observation

OBX		R	Observational Result Segment
[NTE]		RE	Note Segment
}]			End Observation
}]			

Example.

MSH|^~\&|ND0000|NDIIS|EHRsystem|272727|20091130020020-
0500||RSP^K11^RSP_K11|7731029|P|2.5.1|||NE|NE|||||Z32^CDCPHINVS|Clinic
B^^^^1.2.3.5&&^AN^^^1234^|A_Clinic^SOME_SYSTEM^^^^272727&&^AN^^^C8887^
MSA|AA|793543
QAK|37374859|OK|Z34^Request Immunization History^CDCPHINVS
QPD|Z34^Request Immunization History^CDCPHINVS|37374859||Doe^John^P^^^^L|Doe^Jane^^^^^M|20050511|M|123 Testing
Way^^Fargo^ND^^^L
PID|1||123456^^^EHRsystem^MR~987633^^^MYIIS^SR||Doe^John^P^^^^L|Doe^Mary^^^^^M|20070706|M|||111 Test
Street^^Fargo^ND^58103^USA^L
PD1|||||||||||||N|20091130
NK1|1|Doe^Mary^^^^^L|MTH^Mother^HL70063
ORC|RE||142324567^YOUR_EHR|||||||^Olson^Pat||^Smith^Sarah^^^^^^^^^^^^^MD
RXA|0|1|20120814||140^Influenza, seasonal, injectable, preservative free^CVX|0.5|mL^MilliLiter [SI Volume Units]^UCUM||00^New
immunization record^NIP001|7832-1^Lutz^Alan^N^^^^48474^^^^PRN|^^^272727||||Z0860BB|20121104|CSL^CSL Behring^MVX|||CP|A

Message Type: **Response**
Query Statement ID: **Z33**
Message Name: **Return Response with No Matches**

Response Grammar			
Segment	**Segment Name**	**Usage**	**Comment**
MSH	Message Header Segment	R	
MSA	Query Parameter Definition	R	
[ERR]	Response Control Parameter	RE	Populated if errors exist
QAK	Query Acknowledgement Segment	R	
QPD	Query Parameter Definition	R	

Example.

MSH|^~\&|ND0000|NDIIS|EHRsystem|272727|20091130020020-
0500||RSP^K11^RSP_K11|7731029|P|2.5.1|||NE|NE|||||Z33^CDCPHINVS|A_System^SOME_SYSTEM^^^^1.2.3.5&&^AN^^^A_Syst1234^|
A_Clinic^SOME_SYSTEM^^^^X68&&^AN^^^A_Clinic1234^
MSA|AA|793543
QAK|37374859|TM|Z34^request Immunization history^CDCPHINVS
QPD|Z34^Request Immunization
History^CDCPHINVS|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy^^^^^M|20050512|M|10 East Testing
St^^Myfaircity^GA^^^L

Message Type: **Response**
Query Statement ID: **Z42**
Message Name: **Return Evaluated Immunization History and Forecast**

Segment	Segment Name	Usage	Comment
Response Grammar			
Segment	**Segment Name**	**Usage**	**Comment**
MSH	Message Header Segment	R	
MSA	Query Parameter Definition	R	
[ERR]	Response Control Parameter	RE	Populated if errors exist
QAK	Query Acknowledgement Segment	R	
QPD	Query Parameter Definition	R	
PID	Patient Identifier Segment	R	
[{		R	
ORC	Order Request Segment	O	Required if client has immunization records in RXA segment. One ORC for each RXA.
RXA		R	Pharmacy/Treatment Administration Segment
[RXR]		RE	Pharmacy/Treatment Route Segment
[{		R	Begin Observation

OBX			R	Observational Result Segment
	}]			End Observation
}]				

Example.

MSH|^~\&|ND0000|NDIIS|EHRsystem|272727|20180207020020-
0500||RSP^K11^RSP_K11|7731029|P|2.5.1|||NE|NE|||||Z42^CDCPHINVS|A_Clinic^SOME_SYSTEM^^^^272727&&^AN^^^A_Clinic1234^
MSA|AA|793543
QAK|37374859|OK|Z44^Request Evaluated History and Forecast^CDCPHINVS
QPD|Z44^Request Evaluated History and Forecast^CDCPHINVS|37374859||Child^Bobbie^Q^^^^L|Que^Suzy^^^^^M|20050512|M|10 East
Test St^^Myfaircity^GA^^^L
PID|1||123456^^^MYEHR^MR~987633^^^MYIIS^SR||Child^Robert^Q^^^^L|Que^Suzy^^^^^M|20070706|M|||432 Test Street
Ave^^Warwick^MA^02452^USA^L
ORC|RE||197027^DCS|||||||^Clerk^Myron||^Pediatric^MARY^^^^^^^L^^^^^^^^^^MD
RXA|0|1|20050514|20050514|08^Hep B, adolescent or pediatric^CVX|0.5|mL^^UCUM||00^new immunization
record^NIP001|^Sticker^Nurse|^^^DCS_DC||||4433b2a||PMC^sanofi^MVX|||CP|A
RXR|C28161^IM^NCIT^IM^IM^HL70162|
OBX|1|CE|59779-9^Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||||F|||20090415
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|62^HPV^CVX|||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20160512|||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|20320511|||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20140512|||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1|||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|33^PPV^CVX|||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20710512|||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|21250512|||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20710512|||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1|||||||F|||20180207

ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|121^Zoster^CVX|||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20650512|||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|21250512|||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20650512|||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1|||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|88^Influenza^CVX|||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20170801|||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|21250512|||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20170801|||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1|||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|114^MCV4^CVX|||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20160512|||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|20270511|||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20160512|||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1|||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|115^Td/Tdap^CVX|||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20120512|||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|21250512|||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20120512|||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1|||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162

OBX||TS|30956-7^vaccine type^LN|1|164^Meningococcal B^CVX||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20210512||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|20290511||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20210512||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|133^PCV^CVX||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20700512||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|21250512||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20700512||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|45^HEP B^CVX||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20050612||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|21250512||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20050611||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|2||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|10^POLIO^CVX||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20050712||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|20230511||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20050623||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|03^MMR^CVX||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20060512||||||F|||20180207

OBX||DT|59777-3^Latest date to give vaccine^LN|1|21250512||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20060512||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|21^VARICELLA^CVX||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20060512||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|20650511||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20060512||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1||||||F|||20180207
ORC|RE||0000388353^NDIIS|||||||||||||||
RXA|0|1|20180207|20180207|998^No Vaccine Administered^CVX|999|||||||||||||||||
RXR|^HL70162
OBX||TS|30956-7^vaccine type^LN|1|85^HEP A^CVX||||||F||20180207
OBX||CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS||||||F|||20180207
OBX||DT|30980-7^Date vaccination due^LN|1|20060512||||||F|||20180207
OBX||DT|59777-3^Latest date to give vaccine^LN|1|20240511||||||F|||20180207
OBX||DT|30981-5^Earliest date to give^LN|1|20060512||||||F|||20180207
OBX||NM|30973-2^Dose number in series^LN|1|1||||||F|||20180207

● VXU/ACK Messaging.

Message Type: **VXU**
Query Statement ID: **Z22**
Message Name: **Send Unsolicited Immunization Update using a VXU**

VXU Grammar			
Segment	**Segment Name**	**Usage**	**Comment**
MSH	Message Header Segment	R	
PID	Patient Identifier Segment	R	
PD1		RE	
NK1		RE	
PV1		O	
[{		RE	
ORC	Order Request Segment	R	The order group in a VXU must have at least one ORC segment.
RXA		R	Pharmacy/Treatment Administration Segment
[RXR]		RE	Pharmacy/Treatment Route Segment
[{		R	Begin Observation
OBX		R	Observational Result Segment
}]			End Observation
}]			

VXU Example 1. Medicaid VFC eligibility, Federally funded vaccine. (note the use of NDC code in RXA-5).

MSH|^~\&|EHRsystem|272727|ND0000|NDIIS|20120701082230-0500||VXU^V04^VXU_V04|38882|P|2.5.1|||ER|AL|||||Z22^CDCPHINVS
PID|1||C48473635^^^SDRT^MR||Doe^Jane^Betty^^^^L|Mother^Susan^^^^^M|20070705|F||2076-8^Native Hawaiian or Other Pacific Islander^CDCREC|123 Testing St^^Fargo^ND^58103^USA^L||^PRN^PH^^^701^7675534|||||||||2186-5^non Hispanic or Latino^CDCREC
PD1|||||||||||02^Reminder/Recall - any method^HL70215|||||A|20120701|20120701
NK1|1|Mother^Susan^^^^^L|MTH^Mother^HL70063|555 Testing Way^^Fargo^ND^58103^USA^L |^PRN^PH^^^701^7675534

ORC|RE||383722 ^NDA|||||||26255^Tester^Deb^T^^^^^DD-383766^^^^PRN||373625^Testing^James^^^^^^DD-383788^L^^^ND
RXA|0|1|20120814||00006-4681-00^M-M-R II^NDC|0.5|mL^MilliLiter [SI Volume Units]^UCUM||00^New immunization record^NIP001|6609-1^LastName^FirstName^MI^^^^ DD-383788^^^^PRN|^^^272727||||H83736|20131001|MSD^Merck and Co, Inc^MVX|||CP|A
RXR|C28161^Intramuscular^NCIT|LD^Left Arm^HL70163
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V02^VFC eligible-Medicaid ^HL70064|||||||F|||20120701|||VXC40^Eligibility captured at the immunization level^CDCPHINVS
OBX|2|CE|30963-3^Vaccine purchased with^LN||VXC50^Public Funds^ CDCPHINVS|||||||F|||20120701
OBX|3|CE|30956-7^vaccine type^LN|2|03^MMR ^CVX|||||||F
OBX|4|TS|29768-9^Date vaccine information statement published^LN|2|20120702|||||||F
OBX|5|TS|29769-7^Date vaccine information statement presented^LN|2|20120814|||||||F

VXU Example 2. Not VFC eligible, Privately funded vaccine. (note the use of NDC code in RXA-5).

MSH|^~\&|EHRsystem|272727|ND0000|NDIIS|20120701082240-0500||VXU^V04^VXU_V04|38883|P|2.5.1|||ER|AL|||||Z22^CDCPHINVS
PID|1||C48473635^^^SDRT^MR||Doe^Jane^Betty^^^^L|Mother^Susan^^^^^M|20070705|F||2076-8^Native Hawaiian or Other Pacific Islander^CDCREC|123 Testing St^^Fargo^ND^58103^USA^L||^PRN^PH^^^701^7675534|||||||||2186-5^non Hispanic or Latino^CDCREC
PD1|||||||||||02^Reminder/Recall - any method^HL70215|||||A|20120701|20120701
NK1|1|Mother^Susan^^^^L|MTH^Mother^HL70063|555Testing Way^^Fargo^ND^58103^USA^L |^PRN^PH^^^701^7675534
ORC|RE||383722 ^NDA|||||||26255^Tester^Deb^T^^^^^DD-383766^^^^PRN||373625^Testing^James^^^^^^DD-383788^L^^^ND
RXA|0|1|20120814||33332-0010-01^Influenza, seasonal, injectable, preservative free^NDC|0.5|mL^MilliLiter [SI Volume Units]^UCUM||00^New immunization record^NIP001|6609-1^LastName^FirstName^MI^^^^ DD-383788^^^^PRN|^^^272727||||Z0860BB|20121104|CSL^CSL Behring^MVX|||CP|A
RXR|C28161^Intramuscular^NCIT|LD^Left Arm^HL70163
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V01^Not VFC Eligible ^HL70064|||||||F|||20120701|||VXC40^Eligibility captured at the immunization level^CDCPHINVS
OBX|2|CE|30963-3^Vaccine purchased with^LN||PHC70^Private Funds^ CDCPHINVS|||||||F|||20120701
OBX|3|CE|30956-7^vaccine type^LN|2|88^Influenza, unspecified formulation^CVX|||||||F
OBX|4|TS|29768-9^Date vaccine information statement published^LN|2|20120702|||||||F
OBX|5|TS|29769-7^Date vaccine information statement presented^LN|2|20120814|||||||F

VXU Example 3. Historical vaccine. (note the use of CVX code in RXA-5 when RXA-9 indicates historical immunization)

MSH|^~\&|EHRsystem|272727|ND0000|NDIIS|20120701082220-0500||VXU^V04^VXU_V04|38881|P|2.5.1|||ER|AL|||||Z22^CDCPHINVS
PID|1||C48473635^^^SDRT^MR||Doe^Jane^Betty^^^^L|Mother^Susan^^^^^M|20070705|F||2076-8^Native Hawaiian or Other Pacific Islander^CDCREC|555 Testing Way^^Fargo^ND^58103^USA^L||^PRN^PH^^^701^7675534|||||||||2186-5^non Hispanic or Latino^CDCREC
PD1|||||||||||02^Reminder/Recall - any method^HL70215|||||A|20120701|20120701
NK1|1|Mother^Susan^^^^L|MTH^Mother^HL70063|555 Testing Way^^Fargo^ND^58103^USA^L |^PRN^PH^^^701^7675534

ORC|RE||383722 ^NDA|||||||26255^Tester^Deb^T^^^^^DD-383766^^^^PRN||373625^Testing^James^^^^^^DD-383788^L^^^ND
RXA|0|1|20100714||115^Tdap^CVX|999|mL^MilliLiter [SI Volume Units]^UCUM||01^Historical immunization record^NIP001|
|^^^272727|||||||||CP|A

Message Type: **ACK**
Query Statement ID: **Z23**
Message Name: **Return an Acknowledgement**

Acknowledgement Grammar			
Segment	**Segment Name**	**Usage**	**Comment**
MSH	Message Header Segment	R	
MSA	Query Parameter Definition	R	
[{ERR}]	Error Segment	RE	Included if there are errors.

Example 1. Send acknowledgement of success.

MSH|^~\&|ND0000|NDIIS|EHRsystem|272727|201706040000||ACK^V04^ACK|1234567|P|2.5.1
MSA|AA|9299381

Example 2. Send acknowledgement of message rejection due to processing error.

MSH|^~\&|ND0000|NDIIS|EHRsystem|272727|201706040000||ACK^V04^ACK|13434534|P|2.5.1|||
MSA|AE|9299381
ERR||PID^1^5|101^required field missing^HL70357|E|7^required data missing^HL70533||||Patient name is required

Example 3. Send acknowledgement of application message rejection error.

MSH|^~\&|ND0000|NDIIS|EHRsystem|272727|201706040000||ACK^V04^ACK|12343467|P|2.5.1|||
MSA|AR|9299381
ERR||MSH^1^12|203^unsupported version id^^HL70357|E||||Unsupported HL7 Version ID—Message rejected

VFC vaccine accountability

All ND providers receiving VFC vaccine (i.e., State) must send the dose-level VFC eligibility and the vaccine funding source.

Two OBX segments are utilized to transmit the information as shown in the following examples.

Not VFC eligible, Privately funded vaccine.
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V01^Not VFC Eligible^HL70064||||||F|||20140714|||VXC40^Eligibility captured at the immunization level^CDCPHINVS||||||||
OBX|2|CE|30963-3^Vaccine purchased with^LN||PHC70^Private Funds^HL70396||||||F|||20140714|||||||||||

VFC eligible, Publically funded vaccine.
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V02^VFC eligible - Medicaid/Medicaid Managed Care^HL70064||||||F|||20141027|||VXC40^Eligibility captured at the immunization level^CDCPHINVS||||||||
OBX|2|CE|30963-3^Vaccine purchased with^LN||VXC50^Public Funds^HL70396||||||F|||20141027|||||||||||

Vaccine Borrow-Return (ND only). Administering a vaccination from a private lot for a VFC eligible patient, or administering a vaccination from a VFC lot for a VFC not-eligible patient will trigger a Borrow event in the NDIIS.

NDIIS VFC Eligibility and Vaccine Funding Source

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-5.1.

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

Code	Label	Definition
V01	Not VFC eligible	Client does not qualify for VFC because they do not have one of the status below (V02-05)
V02	VFC eligible – Medicaid/Medicaid Managed Care	All of the following are true: • Client is currently eligible for Medicaid or Medicaid Managed Care • Client is < 19 years old • The type of vaccine administered is eligible for VFC funding
V03	VFC eligible – Uninsured	All of the following are true: • Client does not have health insurance • Client is < 19 years old • The type of vaccine administered is eligible for VFC funding
V04	VFC eligible – American Indian/Alaska native	All of the following are true: • Client is a member of a federally recognized tribe • Client is < 19 years old • The type of vaccine administered is eligible for VFC funding
V05	VFC eligible – underinsured at FQHC/RHC/deputized provider	All of the following are true: • Client has insurance but insurance does not cover vaccines, limits the vaccines covered or caps vaccine coverage at a certain amount • Client is receiving care at an FQHC, RHC or deputized provider • Client is < 19 years old • The type of vaccine administered is eligible for VFC funding
V25	State program eligibility	Client is eligible for a state vaccine program

* 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.

Code	Label	Definition
PHC70	Private	Vaccine stock used was privately funded
VXC50	Public	Vaccine stock used was publicly funded

* Unknown Funding Source is not an accepted value.