

# Oklahoma State Immunization Information System

## HL7 2.5.1 Specification for Vaccination Messages

### Release 1.5 Profile Z22

Message types supported:

- Vaccination Update (VXU)
- Profile Z22

The OSIIS 2.5.1 interface is currently Release 1.5 and is backwards compatible to Release 1.4.

## Document Description

This guide is intended to assist immunization providers and their vendors in submitting HL7 messages to the Oklahoma State Immunization Information System (OSIIS). OSIIS is an immunization registry that compiles complete immunization histories for children and adults in Oklahoma. Electronic Health Record (EHR) systems that comply with Meaningful Use requirements must be able to submit immunization administration data to their state registry. This document explains technical details of this interface. The recommendations here are in line with CDC and HL7 standards and should be compatible with EHR Systems that are following Meaningful Use guidelines.

### OSIIS HL7 Submission Information and References

#### OSIIS Vaccine Codes including U.S. Licensed CVX, and MVX documents

OSIIS codes reflect those maintained at the CDC National Immunization Program website:

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

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# Oklahoma State Immunization Information System

## Introduction and History

### Transfer Interfaces Available

This document primarily describes the interface for accepting reports of administered and historical vaccinations via a VXU real-time update. Query by Parameter (QBP) will be developed soon and will be documented in an updated version of this document.

### How to Format Data

The OSIIS interface is currently using HL7 Version 2.5.1 Release 1.5, however it is backwards compatible to Release 1.4.

### Release Compatibility

HL7 is built to be backwards compatible with older releases. New fields that are introduced should be ignored by older releases and older messages should still process correctly in new systems. The release number in HL7 version 2.5.1 messages indicates the standards release that the message is associated with. A system built using the HL7 version 2.5.1 Release 1.5 should still be able to accept HL7 version 2.5.1 Release 1.4.

### Meaningful Use

OSIIS is able to receive submissions for sites who are looking to attest for meaningful use in regards to submitting immunization messages. For more information about on-boarding and initial set-up please visit <https://www.phin.state.ok.us/MeaningfulUse>.

### How to Send Data

HL7 specifically avoided defining how messages should be structured or formatted, thus there is no definitive national standard.

OSIIS requires connectivity through the State HIE Gateway.

Please contact the Meaningful Use team via e-mail at [MeaningfulUse@health.ok.gov](mailto:MeaningfulUse@health.ok.gov) for questions about submitting messages.

## Health Level Seven (HL7)

### History

HL7 was first formed as a standard in the late 1980s as a collaboration between vendors of health systems and hospitals. The goal was to create a standard message format that disparate systems could use to exchange health data.

The name of HL7 was settled on because HL7 was originally conceived to define message structures in the seventh level of the ideal model of networks. At that time, the Internet was not widespread and there was quite a lot of variation in hospital networks. It was decided that HL7 would only define messages and not how these messages were sent.

Within a year HL7 version 2 was released. This version has been in use for over 20 years. HL7 version 3 is a new standards track with major improvements over version 2. It is not fully completed. OSIIS is currently using HL7 Version 2.5.1 messages.

### Message Specifications

There are three controlling documents that define how the OSIIS interface works. They are arranged in a hierarchy of documents, each refining and constraining the standard:

The first is the HL7 2.5.1 standard Release 1.5 which was developed by Health Level Seven, a not-for-profit ANSI-accredited standards developing organization. This standard defines the structure and content of immunization messages but leaves many specific implementation details undecided. Contact HL7 in order to obtain a version of the HL7 Standard: <http://www.hl7.org/>.

The second document is the CDC HL7 Version 2.5.1 Implementation Guide for Immunization Messaging. This guide gives specific instructions regarding how to report to immunization registries, but still leaves some implementation decisions to each state registry. This guide and other technical information can be found at this CDC website: <http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html>.

What you are reading now is the Oklahoma Implementation Guide. It finalizes all implementation decisions and defines exactly what OSIIS will and will not accept. It is written in accordance with the standards set in the first two documents.

Each of these standards should be consulted when developing an interface with OSIIS.

## Message Structure

- HL7 messages are made of multiple lines called **segments**. Each segment starts with a three letter name that identifies the segment. Each line/segment is separated by a carriage return.

**Note:** Windows systems separate lines by carriage returns + line feeds, so some Windows applications will not correctly display HL7 messages. Windows Notepad will display HL7 messages as one long continuous line. This is very hard to read. It is better to view an HL7 message in WordPad or some other text editor.

- Each segment is broken into **fields** that are normally separated by vertical bars |.
- Each field can also be broken into **components** by a caret ^.
- Separators are only sent to keep fields in their correct position. (For example: field1|||field4) Separators at the end of segments and fields are omitted if all the values there are empty.
- Some fields within a segment can also repeat. Repeating fields are separated by a tilde ~.

For more information about HL7 formatting please read the CDC and HL7 guides which can be found here: <http://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html>.

## Immunization Messages

### Vaccination Update (VXU)

Unsolicited Vaccination Update (VXU) messages are the preferred method for OSIIS to receive vaccination information. The VXU is based off a pharmacy message and can indicate a patient's demographics and zero or more vaccinations. VXU messages may also be used to register a patient who does not have vaccinations yet, by simply sending a VXU without any vaccinations.

### Vaccination Query

A Vaccination Query is used to query or pull a patient record from another system. These types of messages will be supported in the future.

## How to Read This Document

This document is written to be easy to read and implement. The finer details and explanations of HL7 have been glossed over and simplified. This guide is not a complete elaboration of HL7 rather it is a



straight-forward how-to guide. To see the original information please review the HL7 standard and the CDC guide.

Each field and component has an associated status. This status indicates what OSIIS expects from a sending system. This status is descriptive and does not necessarily match the HL7 standard.

A few important points about these status messages:

Symbol	Definition	Implementation	Operation Requirement
R	Required	The application <b>SHALL</b> implement "R" elements.	The application <b>SHALL</b> populate "R" elements with a non-empty value.
RE	Required but may be empty	The application <b>SHALL</b> implement "RE" elements.	The application <b>SHALL</b> populate "RE" elements with a non-empty value if there is relevant data.
C(a/b)	Conditional	An element with a conditional usage code has an associated condition predicate that determines the operational requirements (usage code) of the element. If the condition predicate associated with the element is true, follow the rules for <b>a</b> which shall be one of "R", "RE", "O" or "X". If the condition predicate associated with the element is false, follow the rules for <b>b</b> which shall be one of "R", "RE", "O" or "X". <b>a</b> and <b>b</b> can be valued the same. Note: when C(O/X) or similar is used a condition predicate will not be provided.	
O	Optional	This element is optional, OSIIS may or may not capture. Message will not be rejected if populated.	None.
X	Not supported in this guide	The application (or as configured) <b>SHALL NOT</b> implement "X" elements.	The application <b>SHALL NOT</b> populate "X" elements.

Code values also have their own status. These are slightly different:

- **Accepted** means that OSIIS recognizes the value and will read it.
- **Optional** means OSIIS will accept this value but may not update.
- **Not Accepted** means that OSIIS cannot accept the value and will generate some kind of error condition.

In addition, code values listed in this guide represent all code values OSIIS expects to receive. In some tables HL7 defines a larger set of permissible or expected values. These are not listed in this guide for brevity or clarity. In most cases OSIIS does not expect to receive these codes and may reject messages with **invalid** or **unrecognized** codes. However, invalid or unrecognized codes in non-critical fields are normally ignored and the rest of message is processed normally.

In summary, the status messages are meant as a general guide. Please continue reading for further explanation.

# Vaccination Update Message (VXU)

## Message Structure

Segment	Description	Status
MSH	Message Header	R
PID	Patient Identification	R
PD1	Additional Demographics	RE
NK1	Next of Kin/Associated Parties	RE
ORC	Common Order	R
RXA	Pharmacy Administration	R
RXR	Pharmacy Route	RE
OBX	Observation/Result	R

Each message must begin with a Message Header (MSH) segment. The MSH indicates the start of the message and gives meta data about the message including type, sender and other important information.

Each message contains one Patient Identification (PID) segment. Only one patient at a time may be sent in a message. This segment gives identifying details about the patient and is used to find matching patients in the registry. The Additional Demographics (PD1) segment is used to indicate reminder/recall participation. The Next of Kin/Associated Parties (NK1) segment identifies the responsible party for patients under 19 years of age.

The Pharmacy Administration (RXA) segment carries pharmacy administration data. Zero or more of these may be sent for each patient. Some systems send only one vaccination in a message (thus multiple messages are sent for a single patient), while others aggregate all received immunizations under one message. Either method is acceptable. The Pharmacy Route (RXR) segment should also be included to indicate where and how the vaccination was given.

## HL7 Version 2.5.1 Example Message

Note: The fields supported by OSIIS are shown below. Please review the standard for complete information.

```

MSH|^~\&|Sending
Application^2.16.840.1.113883.3.1014.11.1234567^DNS|6573|OSDHMessaging^2.16.840.1.113883.3.10
14.4^ISO|OSDH^2.16.840.1.113883.3.1014^ISO|2017020515160000+0000||VXU^V04^VXU_V04|NIS
T-IZ-019.01|P|2.5.1||AL|AL||ASCII||Z22^CDCPHINVS
PID|1||4502064190^^^MR~999887777^^^SS||Smith^John^G^Jr^^^L|Wilson^^^M|201601
26|M||2028-9^Asian^HL70005|1000 NE 10th St^^Oklahoma City^OK^73117^USA^M^^55~13200 4th
Street^^Yukon^OK^73099^^C||^PRN^PH^^^405^8675308^111|^WPN^PH^^^405^8675309^333
9|eng^English^HL70296|||||2186-5||N|||||N
PD1|||||||01^reminder/recall - any method^HL70215|N|||A
NK1|1|Smith^John^B^Sr^Mr^^L|FTH^Father^HL70063|1000 NE 10th St^^Oklahoma
City^OK^73117^^M|^PRN^PH^^^405^8675308|^WPN^PH^^^405^9876654
ORC|RE|PS-4525199^Placer System|FS-ORC31^Filler
System|||||^Day^Charles||5555555558^Johnson^George^^^NPI
RXA|0|1|20161214||00000456742^DTaP^NDC^20^DTaP^CVX|55|ML||00^New immunization
record^NIP001|354684444^Kelly^Charlie^^^RN|^6573|||VXUTEST101|20250101|OTH
^Other manufacturer^MVX||CP|A
RXR|C38238^Intradermal^NCIT|LA^Left Arm^HL70163
OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V05^VFC eligible - Federally
Qualified Health Center Patient (under-insured)^HL70064||||F||20161107
OBX|2|CE|30963-3^Vaccine funding source^LN||VXC1^Federal funds^HL70396||||F||20161129
OBX|3|CE|30956-7^vaccine type^LN|1|107^DTAP^CVX||||F||20161108
OBX|4|TS|29768-9^Date vaccine information statement
published^LN|1|20071335011212000+0000||||F
OBX|5|TS|29769-7^Date vaccine information statement
presented^LN|1|20161130011212000+0000||||F
OBX|6|CE|31044-1^Reaction^LN|1|VXC9^Persistent, inconsolable crying lasting > 3 hours within 48
hours of dose^CDCPHINVS||||F||20170201

```

**Note:** HL7 requires that segments are separated by carriage returns <cr> but Windows automatically separates lines by carriage returns <cr> + line feeds <lf>. OSIIS prefers the HL7 standard separator but will accept the Windows ones as well. OSIIS recommends using the proper HL7 separators when developing a new HL7 interface to any registry.

## Master Field List

The Master Field List shows every field accepted by OSIIS in one correlated table. For more details on each field please see the documentation under the segment and field description. A few pointers on how to read this table:

- The field status table is a quick summary of the details contained further in the document. Use this table as a quick rule-of-thumb but read the expanded notes for more information.

Entity	Field	Status	HL7
MSH	Encoding Characters	R	MSH-2
MSH	Sending Application	R	MSH-3
MSH	Sending Facility	R	MSH-4
MSH	Receiving Application	R	MSH-5
MSH	Receiving Facility	R	MSH-6
MSH	Date/Time of Message	R	MSH-7
MSH	Message Type	R	MSH-9
MSH	Message Control ID	R	MSH-10
MSH	Processing ID	R	MSH-11
MSH	Version ID	R	MSH-12
MSH	Accept Acknowledgment Type	R	MSH-15
MSH	Application Acknowledgment Type	R	MSH-16
MSH	Message Profile Identifier	R	MSH-21
MSH	Sending Responsible Organization	R	MSH-22
MSH	Receiving Responsible Organization	R	MSH-23
PATIENT	Set ID	R	PID-1
PATIENT	Patient Identifier List	R	PID-3
PATIENT	Patient Name	R	PID-5
PATIENT	Mother's Maiden Name	R	PID-6
PATIENT	Date of Birth	R	PID-7
PATIENT	Sex	RE	PID-8
PATIENT	Race	RE	PID-10
PATIENT	Patient Address	R	PID-11

Entity	Field	Status	HL7
PATIENT	Phone Number - Home	RE	PID-13
PATIENT	Phone Number - Business	O	PID-14
PATIENT	Primary Language	O	PID-15
PATIENT	Ethnic Group	RE	PID-22
PATIENT	Multiple Birth Indicator	RE	PID-24
PATIENT	Birth Order	C(RE/O)	PID-25
PATIENT	Patient Death Date and Time	C(RE/X)	PID-29
PATIENT	Patient Death Indicator	RE	PID-30
PATIENT	Publicity Code	RE	PD1-11
PATIENT	Protection Indicator	RE	PD1-12
PATIENT	Immunization Registry Status	RE	PD1-16
PATIENT	Set ID – NK1	R	NK1-1
PATIENT	Name	R	NK1-2
PATIENT	Relationship	R	NK1-3
VACCINATION	Order Control	R	ORC-1
VACCINATION	Placer Order Number	RE	ORC-2
VACCINATION	Filler Order Number	R	ORC-3
VACCINATION	Entered By	RE	ORC-10
VACCINATION	Ordering Provider	C(RE/O)	ORC-12
VACCINATION	Entering Organization	RE	ORC-17
VACCINATION	Give Sub-ID Counter	R	RXA-1
VACCINATION	Administration Sub-ID Counter	R	RXA-2
VACCINATION	Date/Time Start of Administration	R	RXA-3
VACCINATION	Administered Code	R	RXA-5
VACCINATION	Administered Amount	R	RXA-6
VACCINATION	Administered Units	C(R/O)	RXA-7
VACCINATION	Administration Notes	C(R/O)	RXA-9
VACCINATION	Administering Provider	C(R/O)	RXA-10
VACCINATION	Administered-At Location	C(RE/O)	RXA-11
VACCINATION	Substance Lot Number	C(R/O)	RXA-15

Entity	Field	Status	HL7
VACCINATION	Substance Expiration Date	C(RE/O)	RXA-16
VACCINATION	Substance Manufacturer Name	C(R/O)	RXA-17
VACCINATION	Substance Refusal Reason	C(R/X)	RXA-18
VACCINATION	Completion Status	RE	RXA-20
VACCINATION	Action Code	C(R/O)	RXA-21
VACCINATION	Route	R	RXR-1
VACCINATION	Site	RE	RXR-2
VACCINATION	Set ID - OBX	R	OBX-1
VACCINATION	Value Type	R	OBX-2
VACCINATION	Observation Identifier	R	OBX-3
VACCINATION	Observation Sub-ID	R	OBX-4
VACCINATION	Observation Value	R	OBX-5
VACCINATION	Observation Result Status	R	OBX-11
VACCINATION	Date/Time of Observation	RE	OBX-14

## MSH: Message Header Segment

The Message Header (MSH) segment is R for each message sent.

Position	Field Name	Status
1	Field Separator	R
2	Encoding Characters	R
3	Sending Application	R
4	Sending Facility	R
5	Receiving Application	R
6	Receiving Facility	R
7	Date/Time of Message	R
8	Security	O
9	Message Type	R
10	Message Control ID	R
11	Processing ID	R
12	Version ID	R

Position	Field Name	Status
13	Sequence number	O
14	Continuation pointer	O
15	Accept Acknowledgment Type	R
16	Application Acknowledgment Type	R
17	Country Code	O
18	Character Set	O
19	Principal Language of Message	O
20	Alternate Character Set Handling Scheme	O
21	Message Profile Identifier	R
22	Sending Responsible Organization	RE
23	Receiving Responsible Organization	RE
24	Sending Network Address	O
25	Receiving Network Address	O

### MSH-1: Field Separator

OSIIS expects to receive standard character: |

### MSH-2: Encoding Characters

OSIIS expects standard encoding characters: ^~\&

### MSH-3: Sending Application

This field uniquely identifies the sending system. A human readable name should be sent as the Namespace ID. MSH-3.2 (Universal ID) must contain the sending application's OID. This information will be used for logging or debugging purposes.

Position	Field Name	Status
1	Namespace ID	C(R/O)
2	Universal ID	C(R/O)
3	Universal ID Type	C(R/X)

### MSH-4: Sending Facility

OSDH controls and defines the value in this field. Please contact Meaningful Use (<https://www.phin.state.ok.us/MeaningfulUse>) for details and to be assigned an OSDH Site ID (Master Site ID) for this field. The value assigned by OSDH for your sending facility must be used for all messages sent.



**MSH-5: Receiving Application**

The receiving application is used to indicate the application name of the receiving system. Data must be sent as noted below.

Position	Field Name	Value
1	Namespace ID	OSDHMessaging
2	Universal ID	2.16.840.1.113883.3.1014.4
3	Universal ID Type	ISO

**MSH-6: Receiving Facility**

The receiving facility is used to indicate the application name of the receiving system. Data must be sent as noted below.

Position	Field Name	Value
1	Namespace ID	OSDH
2	Universal ID	2.16.840.1.113883.3.1014
3	Universal ID Type	ISO

**MSH-7: Date/Time of Message**

The date and time when the message was created is a required field. The degree of precision must be to the millisecond including time zone.

Format: YYYYMMDDHHmmssSSS+/-HHmm

**MSH-9: Message Type**

The type of message being sent. "VXU^V04^VXU\_V04"

Message Type: VXU

Trigger Event: V04

Message Structure: VXU\_V04

Position	Field Name	Status
1	Message Type	R
2	Trigger Event	R
3	Message Structure	R

### MSH-10: Message Control ID

Definition: This field contains the identifier assigned by the sending application (MSH-3) that uniquely identifies a message instance. This identifier is unique within the scope of the sending facility (MSH-4), sending application (MSH-3), and the YYYYMMDD portion of message date (MSH-7). The receiving system echoes this ID back to the sending system in the Message Acknowledgment Segment (MSA). The content and format of the data sent in this field is the responsibility of the sender.

### MSH-11: Processing ID

In most cases "P" will be sent in MSH-11.1.

Position	Field Name	Status
1	Processing ID	R
2	Processing Mode	O

### MSH-12: Version ID

The OSIIS interface is currently using HL7 2.5.1 Release 1.5 and is backwards compatible to Release 1.4. Please indicate here the version that was used to construct this message.

Position	Field Name	Status
1	Version ID	R
2	Internationalization Code	O
3	International Version ID	O

### MSH-15: Accept Acknowledgment Type

This field identifies the conditions under which accept acknowledgments are required to be returned in response to this message. It is required for enhanced acknowledgment mode. This implementation guide does not support enhanced acknowledgment mode. Refer to HL7 Table 0155 - Accept/Application acknowledgment conditions for valid values.

Accept acknowledgment indicates if the message was safely received or not. It does not indicate successful processing. Application acknowledgment indicates the outcome of processing.

### MSH-16: Application Acknowledgment Type

Indicates whether or not a response should be returned, and if so under what conditions.

Note: Currently OSIIS always returns an ACK. In the future this field may be used to control when/if an ACK is generated or not.

Table 0155 - Accept/Application acknowledgment conditions

Value	Description	Status
AL	Always	Accepted
NE	Never	Not Accepted
ER	Error/reject conditions only	Not Accepted
SU	Successful completion only	Not Accepted

### MSH-21: Message Profile Identifier

Sites may use this field to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages. It also includes child profiles that constrain the response to the query.

### MSH-22: Responsible Sending Organization

This is defined as the business organization that originated and is accountable for the content of the message.

Currently, MSH provides fields to transmit both sending/receiving applications and facilities. However, these levels of organization do not necessarily relate to or imply a legal entity such as a business organization. As such, multiple legal entities (organizations) may share a service bureau, with the same application and facility identifiers. Another level of detail is required to delineate the various organizations using the same service bureau. Therefore, the Sending Responsible Organization field provides a complete picture from the application level to the overall business level. The Business Organization represents the legal entity responsible for the contents of the message.

### MSH-23: Responsible Receiving Organization

This is defined as the business organization that is the intended receiver of the message and is accountable for acting on the data conveyed by the transaction.

This field has the same justification as the Sending Responsible Organization except in the role of the Receiving Responsible Organization. The receiving organization has the legal responsibility to act on the information in the message.

### PID: Patient Identifier Segment

The Patient Identifier Segment includes essential information for matching an incoming patient record to patient records previously sent by other providers. It also includes information that may be used for reminder/recall or other outreach activities.

Position	Field Name	Status
1	Set ID	R

Position	Field Name	Status
3	Patient Identifier List	R
5	Patient Name	R
6	Mother's Maiden Name	R
7	Date of Birth	R
8	Sex	RE
10	Race	RE
11	Patient Address	R
13	Phone Number - Home	RE
14	Phone Number - Business	O
15	Primary Language	O
22	Ethnic Group	RE
24	Multiple Birth Indicator	RE
25	Birth Order	C(RE/O)
29	Patient Death Date/Time	C(RE/X)
30	Patient Death Indicator	RE

**PID-1: Set ID**

This field contains the number that identifies this transaction and shall contain the literal value "1".

**PID-3: Patient Identifier List**

Position	Field Name	Status
1	ID	R
5	Identifier Type	R

Table 0203 - Identifier type

Value	Description	Status
MA	Medicaid Number	Accepted
MR	Medical Record Number	Accepted
PT	Patient External Identifier	Accepted
PI	Patient Internal Identifier	Accepted
SR	State Registry (OSIIS ID)	Accepted
SS	Social Security Number	Accepted

**Note:** The Medical Record Number (MR), Patient External Identifier (PT) or Patient Internal Identifier (PI) must be included for the message to be processed successfully. Medical Record Number (MR) is given the highest priority, followed by Patient External Identifier (PT) and then Patient Internal Identifier (PI).

ID Type	Description	PID-3.5
Patient ID	Also known as Medical Record Number (MRN), chart number, etc.	MR, PT or PI
OSIIS ID	Unique ID assigned by OSIIS (not normally sent).	SR
Medicaid Number	Number assigned by Medicaid. Should be sent if known.	MA
SSN	The patient's Social Security number.	SS

Other patient identifier types not listed here may also be sent but will be ignored.

It is important that the sending system's patient ID (MR, PT or PI) be unique in the sending system. This number **should not** be reused for different patients. It is not ideal, but okay for one patient to have more than one patient ID (e.g. when there is a duplicate patient record). The patient ID does not have to be unique outside of this sending system. For example, two different submitters can send patients in with the same patient ID and OSIIS will keep them separate because they are from different systems.

### PID-5: Patient Name

The legal name must be in the first repetition. The last, first, and middle names must be alpha characters only (A-Z). The family name and given name fields should not contain the patient's suffix (e.g. JR or III).

The first name should not include the patient's middle name or middle initial. These should be sent in their appropriate fields.

Position	Field	Status
1	Family Name	R
2	Given Name	R
3	Middle Initial or Name	RE
4	Suffix	O
7	Name Type Code	R

Table 0200 – Name type

Value	Description	Status
A	Alias Name	Accepted
L	Legal Name	Accepted

### PID-6: Mother's Maiden Name

The patient's mother's maiden name. This field only contains the maiden name. It should not include the mother's current first and middle name. This field is used for patient matching. This field contains the family name under which the mother was born.

Position	Field	Status
----------	-------	--------

1	Family Name	R
7	Name Type Code	R

### PID-7: Date of Birth

The patient's date of birth. This date is required because it is critical to several functions including immunization recommendations/forecast. This field must be:

- a valid date
- on or before date of submission (recorded in MSH-7)
- on or before today
- on or before indicated death date

Format: YYYYMMDD

The date may contain additional time information but this will be ignored.

### PID-8: Sex

The patient's sex.

Table 0001 – Sex

Value	Description	Status
F	Female	Accepted
M	Male	Accepted
O	Other can include any entry other than "F" or "M".	Accepted

### PID-10: Race

The patient's race is sent in this field. This field may repeat to indicate additional races.

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R

Table 0005 - Race

Value	Description	Status
1002-5	American Indian or Alaska Native	Accepted
2028-9	Asian	Accepted
2076-8	Native Hawaiian or Other Pacific Islander	Accepted
2054-5	Black or African-American	Accepted
2106-3	White	Accepted

## PID-11: Patient Address

OSIIS requires that the patient's address be sent in PID-11. This field may repeat to capture multiple addresses; however, the mailing address (PID-11.7 contains "M") is required.

All addresses without country specified will be assumed to be USA. The address must be a valid postal address. The correct format for a numeric ZIP+4 code, by United States Postal Service (USPS) standards, is five digits, a hyphen and four digits (optional): NNNNN[-NNNN]. All Post Offices are assigned at least one unique 5-digit ZIP code. A 5-digit ZIP code is required. The 4-digit extension is optional but if sent it **must** include the hyphen.

Street Address (PID-11.1) should contain the house (dwelling) number in the beginning of the field followed by the street name. If the field exceeds 40 characters, it will be truncated.

If PID-11.6 is populated it must contain one of the values from HL7 Table 0399.

Example:

```
|305 Kerr Blvd^Apt 7C^Oklahoma City^OK^12345-1234^^M|
```

**Note:** One repetition of PID-11 may be used to report the patient's Birth State and/or Birth Country by using the value "BR" in PID-11.7. If PID-11.7 contains "BR" then only the values in PID-11.4 and PID-11.6 are recorded.

Position	Field	Status
1	Street Address	R
2	Other Designation	R
3	City	R
4	State or Province	R
5	ZIP or Postal Code	R
6	Country	R
7	Address Type	R
9	County/Parish Code	R

Table 0190 Address type

Value	Description	Status
C	Current or Temporary	Accepted
P	Permanent	Accepted
M	Mailing	Accepted
B	Business	Accepted
O	Office	Accepted

H	Home	Accepted
L	Legal Address	Accepted
BR	Residence at Birth	Accepted
RH	Registry Home	Accepted
BA	Bad Address	Accepted

### PID-13: Phone Number - Home

The patient's phone number should be sent in PID-13. The area code is required when the phone number is sent. The patient's cell phone number as well as their email may also be sent, if known.

Example:

|^PRN^PH^^^405^5551212~^ORN^CP^^^918^5551212~^NET^X.400^jon.doe2@isp.com|

Position	Field	Status
2	Use Code	RE
3	Equipment Type	RE
4	Email Address	C(R/X)
6	Area Code	RE
7	Phone	RE
8	Extension	O

Table 0201 – Telecommunication use code

Value	Description	Status
PRN	Primary Residence Number	Accepted
ORN	Other Residence Number	Accepted
EMR	Emergency Number	Accepted
NET	Network (Email) Address	Accepted

Table 0202 – Telecommunication equipment type code

Value	Description	Status
PH	Phone	Accepted
CP	Cell Phone	Accepted
X.400	Email Address	Accepted

### PID-14: Business Phone

The patient's work number if available should be sent in PID-14. The area code is required when the phone number is sent. Format for phone number: |^WPN^PH^^^405^5551414^100|



Table 0201 – Telecommunication use code

Value	Description	Status
WPN	Work Number	Accepted

Table 0202 – Telecommunication Equipment Type Code

Value	Description	Status
PH	Phone	Accepted
CP	Cell Phone	Accepted

### PID-15: Primary Language

The primary language of the patient or responsible party (if child). This information is used to ensure that the appropriate language is used in mailings or other contacts.

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R

ISO 639 - Language

Value	Description	Status
sgn	Sign Language	Accepted
eng	English	Accepted
spa	Spanish	Accepted
und	Undetermined	Accepted

### PID-22: Ethnic Group

The ethnicity of the patient. This field further defines the patient's ancestry.

Table 0189 - Ethnic group

Value	Description	Status
2135-2	Hispanic or Latino	Accepted
2186-5	Not Hispanic or Latino	Accepted
U	Unknown	Accepted

### PID-24: Multiple Birth Indicator

This field indicates whether the patient was part of a multiple birth. Refer to HL7 Table 0136 - Yes/No Indicator for valid values.

Y means the patient was part of a multiple birth. N means the patient was a single birth. An empty field means multiple birth status is undetermined.

### PID-25: Birth Order

When a patient was part of a multiple birth, a value (number) indicating the patient's birth order is entered in this field. If PID-24 is populated, then this field should be populated.

### PID-30: Patient Death Indicator

This optional field indicates that the patient has died. This field may be valued as N (no) if patient is not deceased or is not known to be deceased. This field should be valued Y (yes) if the patient is known to be deceased and the date should be sent in PID-29.

Table 0136 - Yes/No Indicator

Value	Description	Status
Y	Yes	Accepted
N	No	Accepted

## PD1: Patient Demographic Segment

Position	Field Name	Status
11	Publicity Code	RE
12	Protection Indicator	RE
16	Immunization Registry Status	RE

### PD1-11: Publicity Code

This field indicates whether the patient wishes to receive reminder/recall notices. . The default value for all clients will be "Reminder/Recall – Any Method".

This field is currently ignored by OSIIS. Providers will be trained to manually change this status in OSIIS for clients who do not want to be on any R/R list.

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R

Table 0215 - Publicity code

Value	Description	Status
01	No Reminder/Recall	Accepted
02	Reminder/Recall - Any Method	Accepted

Value	Description	Status
03	Reminder/Recall – No Calls	Accepted
04	Reminder Only – Any Method	Accepted
05	Reminder Only – No Calls	Accepted
06	Recall Only – Any Method	Accepted
07	Recall Only – No Calls	Accepted

### PD1-12: Protection Indicator

Indicates whether the patient record should be protected. This field should not be auto-filled based on local policies. Use this field to indicate a specific request from the patient/parent or leave empty.

OSIIS currently ignores this field.

Value	HL7 Standard
(empty)	No indication that the record should be protected, the patient did not refuse to participate in OSIIS, record will be included
Y	The patient refused participation in OSIIS. <b>This field is currently ignored by OSIIS. OSIIS will process records sent with a Y value.</b> OSIIS has a manual process in place to mark a patient record as “protected”. Patient protection cannot be indicated through an electronically submitted message to OSIIS.
N	The record does not need to be protected; the patient did not refuse to participate in OSIIS, record will be included.

### PD1-16: Immunization Registry Status

Indicates the status of the patient in the reporting system. This is used to indicate if a patient is currently active at this site, and if not, why. This field can be used to indicate moved-or-gone-elsewhere (MOGE).

The default value for all patients will be set to “active”.

Table 0441 - Immunization registry status

Value	Description	Status
A	Active	Accepted
I	Inactive	Accepted
L	Inactive-Lost to follow-up (cannot contact)	Accepted
M	Inactive-Moved or gone elsewhere (transferred)	Accepted
P	Inactive-Permanently inactive (do not reactivate or add new entries to this record)	Accepted
U	Unknown	Accepted

## NK1: Next of Kin/Associated Parties Segment

Position	Field Name	Status
1	Set ID - NK1	R
2	Name	R
3	Relationship	R
4	Address	RE
5	Phone Number/Email	RE
6	Business phone number	O

### NK1-2: Name

Name of the responsible party or, if the patient is an adult, the next of kin.

Position	Field	Status
1	Family Name	R
2	Given Name	R
3	Middle Initial or Name	RE
4	Suffix	O

### NK1-3: Relationship

Indicates the relationship of the responsible person to the patient/client. Only relationships that indicate a "responsible party" are accepted (guardian, mother, father, other), all others are ignored. It is important that this information is included to ensure a good patient match.

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R

Table 0063 - Relationship

Value	Description	Status
GRD	Legal Guardian	Accepted
FTH	Father	Accepted
MTH	Mother	Accepted
OTH	Other	Accepted

## ORC: Order Request Segment

The Order Request (ORC) segment is required for 2.5.1 messages if there is an order group. It indicates information about the pharmaceutical order. While many of the elements don't apply directly to immunizations (as the immunizations are usually ordered, delivered and administered at the same location) some fields allow for better control of immunization data.

Position	Field Name	Status
1	Order Control	R
2	Placer Order Number	RE
3	Filler Order Number	R
10	Entered By	RE
12	Ordering Provider	C(RE/O)
17	Entering Organization	RE

### ORC-1: Order Control

This field must contain the value "RE".

### ORC-2: Placer Order Number

The placer order number is used to uniquely identify this order among all orders sent by a provider organization. If known, this may be used by OSIIS to associate this information with the correct immunization. In the case where the ordering provider organization is not known, the sending system may leave this field empty.

### ORC-3: Filler Order Number

The filler order number is used to uniquely identify this order among all orders sent by a provider organization that filled the order. Every vaccination given should be assigned an ID unique to the sending system. This way, if the message includes an update to a previously submitted vaccination, OSIIS can determine which vaccination to update.

If RXA-20 contains "RE" or "NA" then ORC-3 must be populated with "9999".

### ORC-10: Entered By

This identifies the individual that entered the order.

Position	Field	Status
2	Family Name	RE
3	Given Name	RE

### ORC-12: Ordering Provider

This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician). In the case where this segment is associated with an historic immunization record and the ordering provider is not known, then this field should not be populated.

Position	Field	Status
1	ID Number	C(RE/O)
2	Family Name	C(RE/O)
3	Given Name	C(RE/O)
4	Middle Initial or Name	RE
5	Suffix	O
6	Prefix	O
13	Identifier Type Code	C(RE/O)
21	Professional Suffix	O

### ORC-17: Entering Organization

This field identifies the organization that the enterer belonged to at the time he/she enters/maintains the order, such as medical group or department. The person who entered the request is defined in ORC-10 (entered by).

### RXA: Pharmacy Administration Segment

The Pharmacy Administration (RXA) segment is required to indicate which vaccinations are given. This segment is required if there are vaccinations to report. All vaccinations for a patient may be reported in one message, or in separate messages.

Position	Field Name	Status
1	Give Sub-ID Counter	R
2	Administration Sub-ID Counter	R
3	Date/Time Start of Administration	R
5	Administered Code	R
6	Administered Amount	R
7	Administered Units	C(R/O)

Position	Field Name	Status
9	Administration Notes	C(R/O)
10	Administering Provider	C(R/O)
11	Administered-At Location	C(RE/O)
15	Substance Lot Number	C(R/O)
16	Substance Expiration Date	C(RE/O)
17	Substance Manufacturer Name	C(R/O)
18	Substance Refusal Reason	C(R/X)
20	Completion Status	RE
21	Action Code	C(R/O)

### RXA-1: Give Sub-ID Counter

Definition: This field is used to match an RXA and RXG. Constrain to "0" (zero).

### RXA-2: Administration Sub-ID Counter

Constrain to "1" (one).

### RXA-3: Date/Time Start of Administration

The date/time start of administration is used to record the date of when the vaccination was given. Any time information is ignored, and need not be sent. It is important that this date be the actual date the vaccination was given and not the date that it was recorded or billed.

**Note:** The entire message will be rejected if a vaccination is recorded in the future, after the message was created, after the indicated death date, or before the patient's date of birth.

Format: YYYYMMDD

### RXA-5: Administered Code

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R
4	Alternate Identifier	R
5	Alternate Text	C(RE/X)
6	Name of Alternate Coding System	R

This field identifies the medical substance administered. **The CVX code is required in RXA-5.1 and the NDC code be sent in RXA-5.4.** If no vaccine was administered RXA-5.1 must contain "998" and RXA-6 must contain "999".

### RXA-6: Administered Amount

The amount of vaccine that was given. This should be expressed in milliliters (ML). The amount should be placed here and the units in RXA-7. Do not include units in this field. RXA-6 must contain "999" when any of the following apply:

- If the administered amount is unknown.
- If RXA-20 is valued "RE".
- If RXA-5.1 contains "998".
- If RXA-9.1 does not contain "00".

### RXA-7: Administered Units

The units associated with the number in RXA-6. A value of ML is preferred. This field is not required if the previous field is populated with 999.

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R

### RXA-9: Administration Notes

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R

OSIIS expects RXA-9 to convey whether the immunization is based on a historical record or was given by the provider recording the immunization. This field should not repeat and it should not be used to record any other type of administration notes. RXA-9.1 is required if RXA-20 contains "CP" or "PA", but if RXA-20 does not contain one of those values then RXA-9.1 must be blank.

A value of "00" must be sent to indicate a new immunization record. **OSIIS prefers a value of "01" be used to indicate an historical non-administered vaccine is being sent.** If a value of "02" through "08" is sent OSIIS will convert the value to "01" to indicate historical source unspecified.

NIP001 - Immunization information source

Value	Description	Status
00	New immunization record	Accepted
01	Historical information – source unspecified	Accepted



Value	Description	Status
02	Historical information – from other provider	Accepted
03	Historical information – from parent's written record	Accepted
04	Historical information – from parent's recall	Accepted
05	Historical information – from other registry	Accepted
06	Historical information – from birth certificate	Accepted
07	Historical information – from school record	Accepted
08	Historical information – from public agency	Accepted

### RXA-10: Administering Provider

This field indicates the ID and name of the person who administered the vaccination.

Position	Field	Status
1	ID Number	C(R/O)
2	Family Name	C(R/O)
3	Given Name	C(R/O)
4	Middle Initial or Name	C(R/O)
5	Suffix	O
6	Prefix	O
9	Assigning Authority	C(R/O)
13	Identifier Type Code	O
21	Professional Suffix	O

### RXA-11: Administered-At Location

The administered-at location is used to indicate the facility at which the immunization was given. The OSDH Master Site ID should be sent in position 4.

Position	Field Name	Status
4	Facility	R

### RXA-15: Substance Lot Number

The vaccine lot number is **required for administered vaccinations**. The actual lot number should be entered here, just as it appears on the vaccine box.

### RXA-16 Substance Expiration Date

This field contains the expiration date of the medical substance administered. It may remain empty if the dose is from a historical record.

**Note:** Vaccine expiration date does not always have a day component; therefore, such a date may be transmitted as expiring on the last day of that month.

**RXA-17: Substance Manufacturer**

The vaccine manufacturer is required for administered vaccinations.

Position	Field	Status
1	Identifier	C(R/O)
2	Text	C(R/O)
3	Name of Coding System	C(R/O)

The manufacturer codes are maintained by the CDC's National Center for Immunization and Respiratory Diseases (NCIRD) and can be found here:

<http://www2a.cdc.gov/vaccines/iis/iisstandards/vaccines.asp?rpt=mvx>.

**RXA-18: Substance Refusal Reason**

This field contains the reason why a vaccine was not given. Any entry in the field indicates that the patient did not take the substance. If this field is populated then RXA-20, Completion Status, must be populated with "RE".

The following example illustrates how to accomplish this. Note that the ORC is still required. Filler Order Number (ORC-3) is still required, but meaningless, and should contain a value of "9999". RXA-2 is not used to indicate dose number, as it had in the past guide; it is constrained to have a value of "1".

ORC|RE||9999^DCS|||||^Clerk^Myron

RXA|0|1|20091010||107^DTAP-NOS^CVX|||||||00^Parental decision^NIP002||RE

Position	Field	Status
1	Identifier	C(R/X)
2	Text	RE
3	Name of Coding System	R

NIP002 - Substance refusal reason

Value	Description	Status
00	Parental decision	Accepted
02	Other	Accepted
03	Patient decision	Accepted

**RXA-20: Completion Status**

This field indicates the final status of the administration of the vaccination. Normally a vaccination is "CP" for Complete, but if the vaccination was refused by the patient, wasted or partially administered this can be indicated here.

Table 0322 – Completion status

Value	Description	Status
CP	Complete	Accepted
RE	Refused	Accepted
NA	Not Administered	Accepted
PA	Partially Administered	Accepted

**RXA-21: Action Code**

The action to take with vaccination information.

Value	Description	Status
A	Add	Accepted
U	Update	Accepted
D	Delete	Accepted

**RXR: Pharmacy Route Segment**

The Pharmacy Route (RXR) segment is a continuation of RXA segment.

Position	Field	Status
1	Route	R
2	Site	RE

**RXR-1: Route**

The route is the place or method that was used to give the vaccination. This is normally dependent on the type of vaccination given.

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R

Table 0162 - Route of administration

Value	Description	Coding System	Status
ID	Intradermal	HL70162	Accepted
IM	Intramuscular	HL70162	Accepted
NS	Intranasal	HL70162	Accepted
IV	Intravenous	HL70162	Accepted
PO	Oral	HL70162	Accepted
OTH	Other/Miscellaneous	HL70162	Accepted
SC	Subcutaneous	HL70162	Accepted
TD	Transdermal	HL70162	Accepted
C38238	Intradermal	NCIT	Accepted
C28161	Intramuscular	NCIT	Accepted
C38284	Nasal	NCIT	Accepted
C38276	Intravenous	NCIT	Accepted
C38288	Oral	NCIT	Accepted
C38299	Subcutaneous	NCIT	Accepted
C38305	Transdermal	NCIT	Accepted

### RXR-2: Site

The administration site is the place on the body that the vaccination was given. This is normally decided at time of administration.

Position	Field	Status
1	Identifier	RE
2	Text	RE
3	Name of Coding System	RE

Table 0163 - Administrative site

Value	Description	Status
LT	Left Thigh	Accepted
LA	Left Arm	Accepted
LD	Left Deltoid	Accepted
LG	Left Gluteus Medius	Accepted
LVL	Left Vastus Lateralis	Accepted
LLFA	Left Lower Forearm	Accepted
RA	Right Arm	Accepted
RT	Right Thigh	Accepted

Value	Description	Status
RVL	Right Vastus Lateralis	Accepted
RG	Right Gluteus Medius	Accepted
RD	Right Deltoid	Accepted
RLFA	Right Lower Forearm	Accepted

## OBX: Observation Result Segment

The Observation segment includes additional information that could not be sent in the RXA. OSIIS will only recognize a limited set of Observation values.

Position	Field Name	Status
1	Set ID – OBX	R
2	Value Type	R
3	Observation Identifier	R
4	Observation Sub-ID	R
5	Observation Value	R
11	Observation Result Status	R
14	Date/Time of Observation	RE

### OBX-1: Set ID – OBX

Indicates the current sequence number for this OBX as it sits under the RXA. The first instance shall be set to "1" and each subsequent instance shall be the next number in sequence. Numbering is not restarted within a message. That is, if a message had 3 order groups and each had 3 OBX, the last OBX in the message would have value of 9 for this field.

### OBX-2: Value Type

Indicates what kind of data will be sent in OBX-5.

### OBX-3: Observation Identifier

This indicates what kind of data is being sent in this OBX. One way to look at this is OBX-3 poses the question and OBX-5 answers it.

Position	Field	Status
1	Identifier	R
2	Text	RE
3	Name of Coding System	R

Table LN – LOINC Codes

Value	Description	Value Type
64994-7	Vaccine funding program eligibility category	CE
30963-3	Vaccine funding source	CE
31044-1	Reaction	CE

**OBX-4: Observation Sub-ID**

Use this field to group related observations by setting the value to the same number.

**OBX-5: Observation Value**

This is the answer to the question posed in OBX-3.

**OBX-11: Observation Result Status**

This field contains the observation result status. The expected value is "F" for final.

**OBX-14: Date/Time of Observation**

Records the time of the observation.

## What is VFC Eligibility Status?

Vaccines For Children (VFC) is a federally funded program that supplies vaccines without charge to primary care providers to administer to groups of children who would otherwise not be able to receive vaccinations. This program is critical to ensuring that all children are able to receive vaccinations. Before administering a VFC vaccination the provider is required to determine the VFC eligibility status of the patient. This information must be reported in aggregate by the provider on a regular basis to the VFC program as part of regular inventory review of usage. OSIIS provides support to VFC providers by providing a mechanism to keep track of vaccine inventory and VFC status of each administered vaccination.

Federal regulations specify that patient vaccine eligibility status be assessed at each immunization encounter. Eligibility refers to what funding program should pay for the vaccine.

## How to Send VFC Eligibility Status

The original registry standard specified that the VFC eligibility status be sent at the patient level. This standard had limitations because:

- While PV1 indicates information associated with a visit, the vaccination message may contain information from previous visits. Simply filling in the VFC status only indicates that status for the new vaccinations being reported.
- Additional VFC codes from previous visits may be sent but requires advanced message construction and advanced message processing by the registry. Many submitters and immunization registries do not support a full list of VFC status history.
- The field applies to all vaccinations given to the patient on a visit and cannot be used to indicate which vaccinations the VFC specifically applies to. It is possible for a patient to receive both private and VFC supplied vaccines in the same visit.

Because of these limitations the immunization standard has been updated with the recommendation that VFC status be sent at the vaccination level as an observation. OSIIS has adopted this recommendation in order to support current VFC (public) and Non-VFC (private) inventory functions. The following information is consistent with national standards.

**Note:** OSIIS receives VFC status at the Vaccination level in an OBX segment. OSIIS is not supporting VFC status in PV1-20.

## VFC Eligibility Status Codes

There are two types of VFC codes that OSIIS accepts in the OBX segment:

- VFC codes defined by the CDC immunization guide that apply to all immunization registries.
- VFC codes defined by OSIIS in accordance with guidance from the CDC.

**Here is an example of how to report eligibility in the OBX segment:**

OBX11ICEI64994-7^Vaccine funding program eligibility category^LNI1IV03^VFC eligible - Uninsured^HL70064|||||F|||20090706

Table 0064 – Financial class

Value	Vaccine Eligibility	Funding Source	Definition
V01	Not VFC Eligible	Private	Patient (<19 years old): <ul style="list-style-type: none"> <li>• has health insurance that covers some/all of the cost of vaccine, or the patient is paying for vaccine out-of-pocket and is receiving non-VFC vaccine</li> </ul> Patient (19 years or older): <ul style="list-style-type: none"> <li>• has health insurance (including Medicaid) and is receiving non-VFC vaccine</li> </ul>
V02	Medicaid VFC*	VFC/Public	Patient (<19 years old) and is currently enrolled in Medicaid and is receiving a VFC vaccine.
V03	Uninsured *	VFC/Public	Patient (<19 years old) does not have any health insurance.
V04	Native American/Alaskan Native *	VFC/Public	Patient (<19 years old) is Native American or Alaskan Native.
V05	Under-Insured *	VFC/Public	Patient (<19 years old) has health insurance, but the insurance does not cover any of the cost of vaccine.
V23	State Program Eligible (317) – Under/Uninsured Adults	Public- Non VFC	Patient (19 years or older) is Uninsured or Underinsured and is being vaccinated at a facility that has 317 vaccine.
V24	Medicare	Private	Patient is enrolled in Medicare.

**\* The Oklahoma Vaccines for Children Program includes patients in these four eligibility categories, under the age of 19 years old.**



## Funding Source Status Codes

Indicates the Funding Source of the vaccine administered. For example, whether the vaccine administered was federally funded, privately funded, etc. Here is an example of how to report funding source in the OBX segment:

OBXI1ICEI30963-3^Vaccine funding source^LNI1PHC70^Private Funds^CDCPHINVS|||||F|||20090613

Concept Code	Concept Name
PHC70	Private Funds
VXC51	Public VFC
VXC52	Public non-VFC ( <i>which includes STATE and 317 funded vaccines</i> )

## Vaccine Funding Source

The VFC Eligibility Status Code and Funding Source Status Code are used in combination to identify a specific inventory item. Inventory is decremented if a match is found for the vaccine type, lot number, VFC Eligibility Status Code and Funding Source Status Code. The table below shows how VFC Eligibility Status Code and Funding Source Status Code are mapped to a vaccine funding source.

Eligibility Status Code	Funding Source Status Code	Vaccine Funding Source
V01	PHC70	Private – Locally Purchased
V02	VXC51	VFC/Federal
V03	VXC51	VFC/Federal
V04	VXC51	VFC/Federal
V05	VXC51	VFC/Federal
V23	VXC52	317 ( <i>Only used by County Health Departments</i> )
V24	PHC70	Private – Locally Purchased
V24	VXC52	State ( <i>Only used by County Health Departments</i> )

## Acknowledgment Message (ACK)

The Oklahoma Immunization Information System (OSIIS) is built to identify issues in incoming data and reject messages that do not meet minimum standards.

Message submitters will receive ACK messages from OSIIS. The ACK message may contain error information that caused the message to be rejected. The MSA-1 field will be set to "AE" to indicate there were errors and details of those errors will be reported in the ERR segment in accordance with HL7 standards. Examples of issues that may cause a message to be rejected include:

- Message violates HL7 2.5.1 standards.
- Message is missing fields required by OSIIS.
- Value is not valid for the given type (e.g. there is an alphanumeric data value in a date field) or is not a recognized valid value.
- Value is inconsistent with other values given in the same message.

### ERR-4 (Severity)

Value	Description	Comment
I	Information	Transaction successful, but includes returned information.
W	Warning	Transaction successful, but there may be issues. These may include non-fatal errors with potential for loss of data.
E	Error	Transaction was not successful. OSIIS rejected data that it views as important. This could include required fields or the entire message. The sender will be alerted to review and correct the message.

Any ACK message returned with errors will require resubmission of the corrected message by the provider.

### Warning and Error Severity

If there are any warnings (W) in the ACK OSIIS will note these issues on data quality reports but will still process the message. The warnings will not cause OSIIS to reject the message. However, those warnings will be reported in the ERR segment of OSIIS' response message in order to facilitate the partner's integration testing of their system to promote data quality.

If there are any errors (E) in the ACK, OSIIS will not process the message. Messages that receive an ACK with an error (E) should be corrected and resubmitted.

## Scenarios

Scenario	ACK Example
OSIIS accepted message.	MSH ^~\& OSDHMessaging^2.16.840.1.113883.3.1014.4^ISO OSDH^2.16.840.1.113883.3.1014^ISO Sending Application^2.16.840.1.113883.3.1014.9999^ISO 6573 20171026150528543-0500  ACK 8216 P 2.5.1 MSA AA NIST-IZ-019.01
OSIIS accepted message with additional information (I).	MSH ^~\& OSDHMessaging^2.16.840.1.113883.3.1014.4^ISO OSDH^2.16.840.1.113883.3.1014^ISO Sending Application^2.16.840.1.113883.3.1014.9999^ISO 6573 20171026152714016-0500  ACK 8219 P 2.5.1 MSA AA NIST-IZ-019.02 ERR  ORC^1^10^1^3 ORC103^Immunization Entered By Given Name is missing^L  ORC103^Immunization Entered By Given Name is missing^L ERR  RXA^1^5^1^4 RXA54^CVX code is missing^L  RXA54^CVX code is missing^L
OSIIS wants to warn (W) submitter of an issue. No error (E) level problems with message.	MSH ^~\& OSDHMessaging^2.16.840.1.113883.3.1014.4^ISO OSDH^2.16.840.1.113883.3.1014^ISO Sending Application^2.16.840.1.113883.3.1014.9999^ISO 6573 20171026153027113-0500  ACK 8222 P 2.5.1 MSA AE NIST-IZ-019.03 ERR  NK1^1^3^1^1 NK131^Next of Kin relationship to patient is missing^L W NK131^Next of Kin relationship to patient is missing^L ERR  RXA^1^15^1 RXA15^Lot number is missing^L W RXA15^Lot number is missing^L
OSIIS reports error (E) level issue with the message.	MSH ^~\& OSDHMessaging^2.16.840.1.113883.3.1014.4^ISO OSDH^2.16.840.1.113883.3.1014^ISO Sending Application^2.16.840.1.113883.3.1014.9999^ISO 6573 20171026153842386-0500  ACK 8225 P 2.5.1 MSA AE NIST-IZ-019.04 ERR  ORC^1^3^1^1 ORC31^Filler Order Number Entity Identifier is missing^L E ORC31^Filler Order Number Entity Identifier is missing^L ERR  RXA^1^3^1 RXA3^Date/Time start of administration is missing^L E RXA3^Date/Time start of administration is missing^L
OSIIS reports warning (W) and information (I).	MSH ^~\& OSDHMessaging^2.16.840.1.113883.3.1014.4^ISO OSDH^2.16.840.1.113883.3.1014^ISO Sending Application^2.16.840.1.113883.3.1014.9999^ISO 6573 20171026154543080-0500  ACK 8228  2.5.1 MSA AE NIST-IZ-019.05 ERR  PID^1^5^1^7 PID57^Name Type Code is missing e.g. Legal Name (L), Alias (A)^L W PID57^Name Type Code is missing e.g. Legal Name (L), Alias (A)^L ERR  MSH^1^11^1 MSH11^Processing ID is missing^L  MSH11^Processing ID is missing^L

Scenario	ACK Example
OSIIS reports warnings (W) and errors (E)	<pre>MSH ^~\&amp; OSDHMessaging^2.16.840.1.113883.3.1014.4^ISO OSDH^2.16.840.1.113883.3.1014^ISO Sending Application^2.16.840.1.113883.3.1014.9999^ISO 6573 20171026155422635-0500  ACK 8233 P 2.5.1 MSA AE NIST-IZ-019.06 ERR  RXA^1^9^1^1 RXA91^Administered notes is missing. Required to know if this immunization is historical/administered^L E RXA91^Administered notes is missing. Required to know if this immunization is historical/administered^L ERR  PID^1^11^1^5 PID115^Patient address is incomplete e.g. zip or postal code^L W PID115^Patient address is incomplete e.g. zip or postal code^L</pre>
OSIIS reports information (I) and errors (E).	<pre>MSH ^~\&amp; OSDHMessaging^2.16.840.1.113883.3.1014.4^ISO OSDH^2.16.840.1.113883.3.1014^ISO Sending Application^2.16.840.1.113883.3.1014.9999^ISO 6573 20171026160104995-0500  ACK 8241 P 2.5.1 MSA AE NIST-IZ-019.07 ERR  RXA^1^5^1^1 RXA51^NDC Code is missing^L E RXA51^NDC Code is missing^L ERR  RXA^1^18^1 RXA18^Reason for refusal is not populated^L I RXA18^Reason for refusal is not populated^L</pre>

## Oklahoma County Codes

County Code	County Name
01	ADAIR
02	ALFALFA
03	ATOKA
04	BEAVER
05	BECKHAM
06	BLAINE
07	BRYAN
08	CADDO
09	CANADIAN
10	CARTER
11	CHEROKEE
12	CHOCTAW
13	CIMARRON
14	CLEVELAND
15	COAL
16	COMANCHE
17	COTTON
18	CRAIG
19	CREEK
20	CUSTER
21	DELAWARE
22	DEWEY
23	ELLIS
24	GARFIELD
25	GARVIN
26	GRADY

County Code	County Name
27	GRANT
28	GREER
29	HARMON
30	HARPER
31	HASKELL
32	HUGHES
33	JACKSON
34	JEFFERSON
35	JOHNSTON
36	KAY
37	KINGFISHER
38	KIOWA
39	LATIMER
40	LEFLORE
41	LINCOLN
42	LOGAN
43	LOVE
44	MCCLAIN
45	MCCURTAIN
46	MCINTOSH
47	MAJOR
48	MARSHALL
49	MAYES
50	MURRAY
51	MUSKOGEE
52	NOBLE

County Code	County Name
53	NOWATA
54	OKFUSKEE
55	OKLAHOMA
56	OKMULGEE
57	OSAGE
58	OTTAWA
59	PAWNEE
60	PAYNE
61	PITTSBURG
62	PONTOTOC
63	POTTAWATOMIE
64	PUSHMATAHA
65	ROGER MILLS
66	ROGERS
67	SEMINOLE
68	SEQUOYAH
69	STEPHENS
70	TEXAS
71	TILLMAN
72	TULSA
73	WAGONER
74	WASHINGTON
75	WASHITA
76	WOODS
77	WOODWARD

Source: Oklahoma State Department of Health