Wyoming Immunization Registry (WyIR) Health Level Seven (HL7) Implementation Guide

Version 3.0

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1.0 Benefits of the Wyoming Immunization Registry (WyIR) to the Provider

- Real-time electronic system eliminates lag time of viewing immunization data after reporting.
- Reduces paperwork.
- Provides easy access to consolidated patient immunization records.
- Decreases the need to pull and refile paper patient records.
- Consolidates immunizations from multiple providers into one record.
- Provides source for obtaining immunization histories for patients.
- Generates parental reminder notices on due, overdue, or invalid immunizations.
- Supports efforts to improve immunization coverage rates.
- Supports the ability to recall vaccines based on manufacturer error.
- Prints a completed official Immunization Certificate of Compliance (Form 121).
- Reduces calls from schools and daycare centers during registration.
- Provides vaccine inventory management.
- Generates doses administered and immunization assessment reports upon demand.
- Provides forecasting recommendations based on the Advisory Committee on Immunization Practices/American Academy of Pediatrics (ACIP/AAP) schedule.
- Satisfies "Meaningful Use" Criteria for interfacing with existing Electronic Medical Record/Electronic Health Record Systems (EMR/EHRS).

2.0 Overview of IWeb Software

The IWeb is a population-based immunization registry that helps local and state public health agencies and vaccine providers make informed decisions that improve their residents. It is a web-based product which is used by public health officials, public health employees, and private providers. This product allows:

- Vaccinators to view a child's complete vaccination record, thus preventing over and under vaccination.
- Health officials to measure and improve vaccination rates by providing a big picture through various reports.
- Health officials to send mailings to remind parents of needed vaccinations.
- School nurses to review student vaccination records.

2.1 Immunization Data Interface

The Health Level 7 (HL7) interface supports standard immunization messages and is the recommended format for submitting immunization data to the WyIR.

Providers should have at least 250 patients with immunizations in their EMR/EHRS so that adequate technical and data quality testing can be completed prior to activating an electronic interface. Providers are responsible for keeping their vaccination codes in their EMR/EHRS

current and ensure that staff administers the appropriate vaccinations in their EMR documentation to preserve WyIR data integrity during testing and ongoing usage.

2.1.1 HL7

The WyIR sends and receives HL7 immunization queries and updates. In order to do so successfully, the WyIR uses a nested hierarchy of HL7 guides: the HL7 2.5.1 message standard, the Centers for Disease Control and Prevention (CDC) HL7 2.5.1 Implementation Guide, the software vendor's guide, and the statewide HL7 guide (this document).

The first document is the HL7 2.5.1 standard developed by Health Level Seven, a not-for-profit American National Standards Institute (ANSI)-accredited standards developing organization. This standard defines the structure and content of immunization messages, but leaves many specific implementation details undecided. Beneficial information on HL7 and a copy of the HL7 message standard can be obtained from the Health Level Seven website at http://www.hl7.org.

The second document is the CDC's HL7 2.5.1 Implementation Guide for Immunization Messaging, Release 1.2 (CDC IG). This guide gives specific instructions regarding how to report to immunization information systems, but still leaves some implementation decisions to each state IIS. This guide and other technical information can be obtained from the CDC website at http://www.cdc.gov/vaccines/programs/iis/stds/standards.htm.

For additional detailed information about how IWeb processes HL7 data please reference the WyIR's software vendor guide titled IWeb HL7 Interface Specification Guide (https://wdhstaging.health.wyo.gov/Media.aspx?mediaId=13216).

This guide (the WyIR HL7 Implementation Guide) presents details on the requirements specific to Wyoming's Immunization Registry, the WyIR.

2.1.1.1 WyIR HL7 Capabilities

The WyIR:

- Accepts the following patient update messages: VXU, ADT, DFT, and ORU.
- Responds to immunization record query messages: VXQ.
- Queries external registries by sending immunization record query messages: VXQ.
- Sends batch updates to external registries: VXU.

2.1.1.2 Sample HL7 Messages

2.1.1.2.1 Vaccination Update (VXU) Message

```
MSH|^~\&|^STC-IWeb&2.10.0.1^|KEVIN^STC-Nathan^|nathan^STC-IWeb^|^savetofile^|
    20050608111146||VXU^V04|1118254306762.100000010|P|2.3.1|
PID|1||43773^^^^MR||DOE^JOHN^C^^^^L||19420915|M|||||||||||||||||||||N|
PD1|||^^^^^^MR|^^^^^^^^^^^^MR|||||||02^Reminder/recall -any method^HL70215||||| A^Active^HL70441|
ZSP||^^PH~^^FX~^INTERNET^NET|
PV1||R|
RXA|0|999|20041214|20041214|33^pneumococcal^CVX^90732^Pneumococcal(PPV23)^CPT~
    31^Pneumococcal(PPV23)^STC0292|999|||00^New immunization record^NIP001||||||||||||
    A|20050608111146|
RXR|OTH^Other/Miscellaneous^HL70162|
```

```
ZSV|^^^^^^MR~^^^^^^SR|^^PH~^^FX~^INTERNET^NET|
RXA|0|999|20021122|20021122|15^influenza, split (incl. purified surface antigen)^CVX^
    90658^Influenza Split^CPT~61^Influenza Split^STC0292|999|||00^New immunization record^
    NIP001||||||||||||A|20050608111146|
RXR|OTH^Other/Miscellaneous^HL70162|
ZSV|^^^^^^MR~^^^^^^SR|^^PH~^^FX~^INTERNET^NET|
RXA|0|999|20041214|20041214|15^influenza, split (incl. purified surface antigen)^CVX^
    90658^Influenza Split^CPT~61^Influenza Split^STC0292|999|||00^New immunization record^
    NIP001||||||||||||A|20050608111146|
RXR|OTH^Other/Miscellaneous^HL70162|
ZSV|^^^^^^MR~^^^^^^SR|^^PH~^^FX~^INTERNET^NET|
```

2.1.1.2.2 Acknowledgement (ACK) Message

```
MSH|^~\&|^^|DOE^^|DCC^^|DOE^^|20050829141336||ACK^|1125342816253.100000055|P|2.3.1|
MSA|AE|00000001|Patient id was not found, must be of type 'MR'|||^^HL70357|
ERR|PID^1^3^^^HL70357|
```

2.1.1.2.3 Vaccination Query (VXQ) Message

```
MSH|^~\&|DBO^QSInsight^L|QS4444|5.0^QSInsight^L||20030828104856+0000||VXQ^V01|QS44443786100000004
    2|P|2.3.1|||NE|AL|
QRD|20030828104856+0000|R|I|QueryID01|||5|000000001^Bucket^Pail^^^^^^^^^^MR|VXI|SIIS|
QRF|QS4444|20030828104856+0000|20030828104856+0000||100000001~19460401~~~~~~~~~~1 Somewhere Lane
    Boulevard^Indianapolis^IN~10000|
```

2.1.1.2.4 Query Acknowledgement (QCK) Message

```
MSH|^~\&|5.0^QSInsight^L|^^|DBO^QSInsight^L|QS4444^^|20051019154952||QCK^|1129754992182.100000002
    |P|2.3.1|
MSA|AA|QS444437861000000042|No patients found for this query|
QAK||NF|
```

2.1.1.2.5 Vaccination Query Possible Match (VXX) Message

```
MSH|^~\&|5.0^QSInsight^L|^^|DBO^QSInsight^L|QS4444^^|20051019163235||VXX^V02|1129757555111.100000
    025|P|2.3.1|
MSA|AA|QS444437861000000042||
QRD|20030828104856|R|I|QueryID01|||5|10^SNOW^MARY^^^^^^^^^^SR|VXI^Vaccine
    Information^HL70048|SIIS|
QRF|QS4444|20030828104856|20030828104856||100000001~20021223|
PID|1||41565^^^^SR~2410629811:72318911||SNOW^MARY^^^^^L||20021223|F|||2 NORTH WAY
    RD^^MOORESVILLE^INDIANA^46158^^M||(317)123-4567^^PH||EN^English^HL70296||||||||||||||N|
PID|2||28694^^^^SR~2663391364:111111111||FROG^KERMIT^^^^^L||20021223|
NK1|1|PIGGY^MISS|GRD^Guardian^HL70063|
```

2.1.1.2.6 Vaccination Query Record (VXR) Message

```
MSH|^~\&|5.0^QSInsight^L|^^|DBO^QSInsight^L|QS4444^^|20051019163315||VXR^V03|1129757595953.100000
    029|P|2.3.1|
MSA|AA|QS444437861000000042||
QRD|20030828104856|R|I|QueryID01|||5|41565^SNOW^MARY^^^^^^^^^^SR|VXI^Vaccine
    Information^HL70048|SIIS|
QRF|QS4444|20030828104856|20030828104856||100000001~20021223|
PID|1||41565^^^^SR~2410629811:72318911||FROG^KERMIT^^^^^L||20021223|F|||3 SOUTH WAY
    RD^^MOORESVILLE^INDIANA^46158^^M||(317)222-1234^^PH||EN^English^HL70296||||||||||||||N|
PD1|||^^^^^^SR|^^^^^^^^^^^^SR||||||02^Reminder/recall -any method^HL70215|||||A^Active^HL70441|
PV1||R|
```

2.2 File Size & Data Migration

The maximum size for import files will vary depending on the speed and quality of the provider's Internet connection. A data set of 1000 records is recommended.

In general, five years of data are requested, but WyIR can accept as much historical data as the provider has available. The historical data will need to be submitted in a different process than the administered data in order to ensure that patient ownership and patient demographic information is not inappropriately updated.

For the historical data upload, WyIR will establish the provider as "non-owner" of the patient record so that existing data in WyIR does not change ownership. This may require several separate uploads of 1,000 records until the entire historical data set has been sent to the Immunization Program.

2.3 Deduplication (Patient Matching)

The WyIR has a very sophisticated de-duplication algorithm, which runs nightly. Automatic deduplication requests that are sent during off hours are queued to run after the nightly process. Records accepted during the day will be processed during the night and will be viewable in the WyIR the following day.

2.4 Required and Expected Fields

Data quality is a high priority for the WyIR as any information received is used to create a permanent vaccination record for patients. It is important that the information is accurate and as complete as possible.

For this reason, certain fields are required in every message (for example, patient date of birth) and other fields are expected to be sent (for example, patient phone number). Fields that are expected to be sent may be empty if there is no information to send but normally should have a value.

During an initial data quality analysis and periodic checks, the WyIR administration will review the information to ensure that expected fields are being sent as anticipated. Completing all or most of the expected fields will reduce the number of duplicate records and increase the overall integrity of the data.

2.4.1 IWeb Fields for Data Import

IWeb has several fields that are required. Any files that do not include any required information will fail to import into the WyIR. Those fields required by the WyIR will technically import but will not be accepted by WyIR unless the acceptance threshold is met during the testing phase.

2.4.1.1 WyIR Required Data Fields

2.4.1.1 WyIR Required Data Fields

* = % correctly populated during testing

+= if present, required

FIELD	REQUIRED BY WYIR	ACCEPTANCE THRESHOLD *
GUARDIAN FIELDS		
Name First	✓* guardian first name or mother maiden name	100%
Name Last	✓	100%
Name Middle		
Phone		
Relationship	✓	100%
Social Security Number		
PATIENT FIELDS		
Address City	✓	100%
Address County		
Address State	✓	100%
Address Street1	✓	100%
Address Street2		
Address Zip	✓	100%
Alias First		
Alias Last		
Birth Country		
Birth Date	✓	100%
Birth File Number		
Birth Multiple		

Birth Order		
Birth State		
Comment		
Deceased		
Email		
Ethnicity	✓	100%
Facility Address City		
Facility Address State		
Facility Address Street 1		
Facility Address Street 2		
Facility Address Zip		
Facility Email		
Facility Fax		
Facility Phone		
Facility Health District		
Gender	✓	100%
Facility Id Remote		
Facility Name		
Health District		
Immunization Registry Status		
Inactive Code		
Medicaid Number		
Mother Maiden Name	✓* guardian first name or mother maiden name	100%
Name First	✓	100%

Name Last	✓	100%
Name Middle		
Name Suffix		
Patient External Id (Medical Record Number)	✓	100%
Patient VFC Eligibility	✓	100%
Patient Internal Id		
Phone	✓	100%
Physical Address Street 1		
Physician Bomex Number		
Physician Id Local		
Physician Id Remote		
Physician Name First		
Physician Name Last		
Physician Name Middle		
Physician Name Suffix		
Physician SSN		
Primary Language		
Publicity Code		
Race	✓	100%
Race 2		
Race 3		
Race 4		
Race 5		
Social Security Number		

QUERY FIELDS		
Father Name First		
Father Name Last		
Father Social Security Number		
Mother Name First		
Mother Name Last		
Mother Name Maiden	✓* guardian first name or mother maiden name	100%
Mother Social Security Number		
Patient Address 1 City		
Patient Address 1 State		
Patient Address 1 Street 1		
Patient Address 1 Zip		
Patient Birth Date		
Patient Id	✓	100%
Patient Medicaid Number		
Patient Name First	✓	100%
Patient Name Id Type Code		
Patient Name Last	✓	100%
Patient Name Middle		
Patient Name Suffix		
Patient Phone Number		
Patient Social Security Number		
Quantity Limit		

What Subject Filter		
When Date End		
When Date Start		
Patient Internal Id (SIIS ID)		
VACCINATION FIELDS		
Action Code		
Administered Amount		
Comment		
Dose		
Facility Address City		
Facility Address State		
Facility Address Street 1		
Facility Address Street 2		
Facility Address Zip		
Facility Email		
Facility Fax		
Facility Id Local	✓	100%
Facility Id Remote		
Facility Name	✓	100%
Facility Phone		
Form VIS Given Date		
Historical		
Indication		
Induration TB		

Physician Bomex Number		
Physician Id Local		
Physician Id Remote		
Physician Name First		
Physician Name Last		
Physician Name Middle		
Physician Name Suffix		
Physician SSN		
Publication Date VIS 1		
Publication Date VIS 2		
Publication Date VIS 3		
Publication Date VIS 4		
Route	✓	100%
Site	✓	100%
Vaccine Adverse Reaction	✓+	+ If present, required
Vaccination Date	✓	100%
Vaccine Code CPT	✓ If no CVX code	100%
Vaccine Code CVX	✓ If no CPT code	100%
Vaccine Code PCI		
Vaccine Eligible VFC	✓	100%
Vaccine Lot Number	✓	100%
Vaccine Manufacturer	✓	100%
Vaccine Manufacturer Code	✓	100%
Vaccine Name	✓	100%

Vaccine Publicly Supplied	✓	100%
Contraindication Code	✓+	+ If present, required
Contraindication Vaccine Code	✓+	+ If present, required

2.5 Submitting HL7 Data

HL7 message files must be submitted initially to the Total Health Record in order to connect to the WyIR, per the Wyoming Immunization Registry (WyIR) Health Level 7 (HL7) Onboarding through the Total Health Record (THR) Policy**.**

If the file submission is batch, not real time, and automated, the application should schedule the submission nightly when the WyIR is not generally in use.

HL7 messages may be sent one at a time (one for every HTTPS request) or together as a batch. Batched messages do not require special separators or wrappers.

Response: The WyIR always returns responses in HL7 format. Responses are returned based on how the account is configured in the WyIR. The response configurations available are Always, Never, On Error (only for those messages are not accepted), or Determined by Message (incoming request message indicates in the Message Header [MSH] segment whether to always, never or only on error).

The HL7 response can indicate any one of the following things:

- Authentication error – i.e., username and password are incorrect or account does not have permission to accept HL7.
- Message parsing error – i.e., incoming messages do not conform to HL7 standards.
- Message content error – i.e., incoming message is missing or incorrect information.
- Message processing exception – i.e., incoming message has an unexpected problem.
- Message accepted – i.e., data has been accepted and has been sent to deduplication.
- Response to query – i.e., the WyIR responds to query with query results.

3.0 Best Practices

In order for a HL7 message to meet Wyoming's 'gold standard' message, it must contain certain information, outside of what is required in a successfully consumed message. This Best Practices Addendum was developed as a tool to assist provider practices in sending the highest quality of data within the HL7 message that comes from a Provider's Electronic Health Record (EHR) system and is stored in the WyIR. As data is stored and viewed from different practices throughout Wyoming, it is imperative that data be as accurate as possible to ensure the best delivery of care.

Patient Demographics

The Health Information Exchange will be sending and receiving information from many different sources, including Vital Records (birth certificate data), hospitals, and provider practices. In order to make it easier to find a patient record, providers should ensure the correct name is entered into the EHR system. For example, a patient may go by his nickname of TJ, but if he is in other systems under his birth name of Thomas James, it will be difficult to match up, hence causing a duplicate, incomplete record.

Below are some best practices when entering demographic information into EHRs to ensure that data is matched up correctly and is displayed accurately.

Patient Naming Conventions Best Practices

- Always use the patient's ***legal*** First and Last Name.

  Examples: A legal name of Nicholas should not be shortened to Nick; a last name of Smith-Jones should not be shortened to Smith.

- The First Name field should always contain a valid first name.

  Examples: Avoid using 'Baby' Smith, 'BabyBoy' Jones, 'nbjane' Doe

- Do not put comments within the First or Last Name field.

  Examples: 'duplicate', 'transferred', 'see other record'.

- A Middle Initial should be captured in its own separate field and not collapsed into the First Name field of the patient

  Example: JaneD Smith should be Jane D. Smith

- A Suffix should be captured in its own separate field and not be collapsed into either the First Name or Last Name field. The following lists valid Suffixes that will process within the message:

  Example: JR, SR, I, II, III, IV, V, VI, VII, VIII, IX, X

Why is entering this information accurately important?

- ***Minimize duplicates***

  Reduce instances where the same patient appears multiple times, but under slightly different variations of a name, making it easier to identify which patient to view and less risk of choosing the wrong patient.

- ***Create one comprehensive record***

Minimize the chance of records not matching up and creating multiple records with fragmented information, increasing time spent searching each individual record in order to give the correct immunizations.

- ***Bi-Directional Flow***

  Eventually the systems will be able to 'talk' to one another, moving records to another entity with a click of a button. Accurate information will simplify this flow from one office to another making it easier to exchange data amongst one another.

Address/Phone Number Information Best Practices

- The zip code **MUST** be filled in and be a 5 digit code. It must match the accurate state and city affiliation or the message will be rejected.
- The area code should be entered into each record and as a 3 digit code.

Other Gold Standard Best Practices

Below reflects additional fields that are not required in the HL7 message, but are extremely helpful in patient matching and additional statistics that may be run.

Entering Mother's Maiden Name

This field can be very helpful for patient matching. Names change as mothers marry and divorce, but including this field gives a helpful constant.

Entering Race

This field can be helpful for statistics and is strongly recommended by CDC on a national level. The table below reflects the codes to be sent within the HL7 message.

3.1.1.1.1 Race Fields

Race Description	Race Code	SIIS Code
White	2106-3	1
Black or African American	2054-5	2
Asian	2028-9	4
American Indian or Alaska Native	1002-5	5
Native Hawaiian or Other Pacific Islander	2079-2	7
Multi-Racial	2131-1	6
Unknown	U	9

Entering Ethnicity

This field can be helpful for statistics and is strongly recommended by CDC on a national level. The table below reflects the codes to be sent within the HL7 message.

3.1.1.1.2 Ethnicity Fields

Ethnicity Description	Ethnicity Code
Hispanic or Latino	H
Not Hispanic or Latino	N
Unknown	U

Immunization Information

Accurate immunization coding and populating within an EHR system will create a successful "gold standard" HL7 message. The immunization portion of the message is used to enable certain functionality and reporting within the WyIR, such as the Vaccine Forecasting, Reminder/Recall and Vaccine Administered Reports.

Below are some best practices when entering immunization information into an EHR to ensure that data is displayed accurately and the message is successfully consumed.

CVX Codes Best Practices

All successful HL7 messages must contain a valid CVX code. A CVX code is defined as a numeric string, which represents the type of product used in an immunization. Every immunization that uses a given type of product will have the same CVX, regardless of who received it. As such, it's not easy to determine which CVX code to choose when setting up an EMR or when entering an immunization. Hib vaccine, for instance, has 10 different CVX codes.

Below are tables that display the CVX code and current CPT to help with ensuring that the correct CPT code is sent. The titles have been color-coded to reflect the following:

Green: active/current immunizations codes that should be sent in an HL7 message.

Orange: advise caution when sending these codes. These should not be used when sending current immunizations, only historical.

Red: please do not send these codes.

Immunizations Currently Distributed through the Wyoming Immunization Program

Below is a list of the vaccines currently distributed through the State of Wyoming Immunization Program. When receiving subsidized vaccine through the Immunization Program, these are the codes to choose.

3.1.1.1.3 Immunizations Currently Distributed through the WY Immunization Program

Immunization Name	CVX Code	CPT Code	Brand Name
DTaP	20	90700	**Infanrix®**
DTaP-Hep B-IPV	110	90723	**Pediarix®**
DTaP-IPV-Hib	120	90698	**Pentacel®**
DTaP-IPV	130	90696	**Kinrix®**
Hep A, adult	52	90632	**Havrix®** (Adult dose) **VAQTA®** (Adult dose)
Hep A, ped/adol, 2 dose	83	90633	**Havrix®** (Ped/Adol dose) **VAQTA®** (Ped/Adol dose)
Hep A-Hep B	104	90636	**Twinrix®**
Hep B, adolescent or pediatric, preservative free	8	90744	**Engerix-B®** (Ped/Adol dose) **Recombivax-HB®** (Ped/Adol dose)
Hep B, adult	43	90743 or 90746	**Engerix-B®** (Adult dose) **Recombivax-HB®**(Adult 1 dose)
Hib, PRP-T	48	90648	**ActHib®, Hiberix®**
Hib-PRP-OMP	49	90647	**PedvaxHib®**
HPV, bivalent			**Cervarix®**
HPV, quadrivalent	62	90649	**Gardasil®**
Influenza, live, intranasal	111	90660	**FluMist™**
Influenza, seasonal, injectable, preservative free (6-35 mos and 3+ administration)	140	90655 (6-35 mos) or 90656 (3+)	**Fluzone PF®** single-dose vial/syringe, **Fluarix™** single-dose syringe
Influenza, seasonal, injectable (6-35 mos and 3+administration)	141	90657 (6-36 mos) or 90658 (3+)	**Fluzone®** multi-dose vial
IPV	10	90713	**IPOL®**
Meningococcal, MCV4P	114	90734	**Menactra®**
Meningococcal, MCV4O	136	90734	**Menveo®**
MMR	3	90707	**MMR-II®**
MMR/Varicella	94	90710	**ProQuad®**
Pneumococcal conjugate, PCV 13	133	90670	**Prevnar™**

Pneumococcal polysaccharide PPV23	33	90732	**Pneumovax-23®**
Rotavirus, monovalent RV1	119	90681	**Rotarix®**
Rotavirus, pentavalent RV5	116	90680	**Rotateq®**
Td (Adult)	113	90714	**Tenivac®**
Tdap	115	90715	**Adacel®, Boostrix®**
Varicella	21	90716	**Varivax®**
Zoster, live	121	90736	**Zostavax®**

Additional Codes Currently Accepted

Below are additional codes that are currently accepted in Wyoming. This table also includes some of the more rarely administered immunizations that are in a patient's history, but are not part of the usual schedule. Most EMR systems should accommodate these codes as well.

3.1.1.1.4 Additional Codes Currently Accepted

Immunization Name	CVX Code	CPT Code
Adenovirus, type 4	54	90476
Adenovirus, type 7	55	90477
Adenovirus types 4 and 7	143	-
Anthrax	24	90581
BCG	19	90585
Botulinum Antitoxin	27	90287
Cholera	26	90725
CMVIG	29	90291
DT (pediatric)	28	90702
Diphtheria Antitoxin	12	90296
DTaP-Hib	50	90721
DTP	1	90701
DTP-Hib	22	90720
Hep A, ped/adol, 3 dose	84	90634
Hep B, dialysis	44	90740, 90747
Hib (HbOC)	47	90645
Hib (PRP-D)	46	90646
Hib-Hep B	51	90748

HBIG	30	90371
IG	86	90281
IGIV	87	90283
Influenza, high dose seasonal	135	90662
Influenza, seasonal, intradermal, preservative free	144	90654
Japanese encephalitis SC	39	90735
Japanese Encephalitis IM	134	90738
Lyme disease	66	90665
M/R	4	90708
Measles	5	90705
Meningococcal C/Y-HIB PRP	148	90644
Meningococcal MPSV4	32	90733
Mumps	7	90704
Plague	23	90727
OPV	2	90712
RIG	34	90375, 90376
Rabies, intradermal injection	40	90676
Rabies, intramuscular injection	18	90675
RSV-MAb	93	90378
RSV-IGIV	71	90379
Rubella	6	90706
Rubella/Mumps	38	-
Td (adult), adsorbed	9	90718
Td (adult), not adsorbed	138	-
TIG	13	90389
Tetanus toxoid, adsorbed	35	90703
Typhoid, parenteral, AKD (U.S. military)	53	90693
Typhoid, parenteral	41	90692
Typhoid, oral	25	90690
Typhoid, ViCPs	101	90691
Vaccinia immune globulin	79	90393
Vaccinia, smallpox	75	-

VZIG	36	90396
Yellow Fever	37	90717

Historical Codes

Below are codes that should only be used when entering a past immunization. They should never be used when entering in an immunization being administered today.

3.1.1.1.5 Historical Codes

Immunization Name	CVX Code	CPT Code
Hep B, adolescent/high risk infant	42	90745
Novel Influenza-H1N1-09, all formulations	128	90470
Novel Influenza-H1N1-09, all formulations	128	90663
Novel Influenza-H1N1-09, nasal	125	90664
Novel influenza-H1N1-09	127	90668
Novel influenza-H1N1-09, preservative-free	126	90666
Influenza, inactive [retired code]	15	-
Influenza, whole	16	90659
Pneumococcal conjugate PCV 7	100	90669
Rotavirus, tetravalent	74	-

Non-Specific Formulations

Below is a table of codes that should not be sent in an HL7 message. These codes could impact how a provider continues to immunize a patient and are not specific enough to enable the WyIR forecaster to predict the next scheduled immunization correctly.

3.1.1.1.6 Non-Specific Formulations

Immunization Name	CVX Code	CPT Code
DTaP, unspecified formulation	107	-
Hib, unspecified formulation	17	90737
Hep A, pediatric, unspecified formulation	31	-
Hep A, unspecified formulation	85	90730
Hep B, unspecified formulation	45	90731
HPV, unspecified formulation	137	-
IG, unspecified formulation	14	90741

Influenza, unspecified formulation	88	90724
Meningococcal, unspecified formulation	108	-
Meningococcal MCV4, unspecified formulation	147	-
Pneumococcal, unspecified formulation	109	-
Polio, unspecified formulation	89	-
Rabies, unspecified formulation	90	90726
Rotavirus, unspecified formulation	122	-
Td(adult) unspecified formulation	139	-
Typhoid, unspecified formulation	91	90714

Other Gold Standard Immunization Best Practices

Below reflects additional fields that are not required in the HL7 message, but are extremely helpful in vaccine ordering, reminder/recall, adverse reactions, and running WyIR reports.

Entering VFC Eligibility

VFC Eligibility is a required field in HL7 for patients under the age of 19 when entering in **current** immunizations. If the VFC status is not entered for each current immunization administered to that age group, the immunization will be considered historical and information stored for that immunization will only include Date of Administration, CVX Code and Lot Number.

In addition, VFC Eligibility will correctly identify an immunization as publicly supplied or privately purchased. These statistics assist the Immunization Program determine how much supply is needed to immunize the under 19 Wyoming population in an effort to not have either a shortage or abundance of these immunizations.

The table below reflects the codes to be sent within the HL7 message.

3.1.1.1.7 VFC Eligibility

VFC Code	VFC Status
V01	Not VFC eligible
V02	VFC eligible - Medicaid
V03	VFC eligible - Uninsured
V04	VFC Eligible - American Indian/Alaskan Native
V05	VFC Eligible - Underinsured
V07	KidsCare
V10	Insured

Entering Immunization Lot Number

Entering this information reflects a current immunization and can be invaluable in times of recall. Patients can be notified and appropriate action taken to revaccinate, if required. This field is strongly recommended by CDC on a national level.

Entering Immunization Manufacturer

This field is sent using an MVX code and should always be filled in when entering a lot number. The table below represents the valid codes to be sent within the HL7 message.

3.1.1.1.8 Immunization Manufacturers

Manufacturers Name	MVX Code
Abbott Laboratories	AB
Adams Laboratories, Inc.	AD
Akorn, Inc	AKR
Alpha Therapeutic Corporation	ALP
Barr Laboratories	BRR
Baxter Healthcare Corporation	BAH
Berna Products Corporation	BPC
Biotest Pharmaceuticals Corporation	BTP
Cangene Corporation	CNJ
CSL Behring, Inc	CSL
DynPort Vaccine Company, LLC	DVC
Emergent BioDefense Operations Lansing	MIP
GeoVax Labs, Inc.	GEO
GlaxoSmithKline	SKB
Greer Laboratories, Inc.	GRE
Immuno-U.S., Inc.	IUS
Intercell Biomedical	INT
Johnson and Johnson	JNJ
Korea Green Cross Corporation	KGC
Massachusetts Biologic Laboratories	MBL
MedImmune, Inc.	MED
Merck & Co., Inc.	MSD
NABI	NAB

New York Blood Center	NYB
Novartis Pharmaceutical Corporation	NOV
Novavax, Inc.	NVX
Organon Teknika Corporation	OTC
Ortho-clinical Diagnostics	ORT
Other manufacturer	OTH
Pfizer, Inc	PFR
Sanofi Pasteur	PMC
Sclavo, Inc.	SCL
Talecris Biotherapeutics	TAL
The Research Foundation for Microbial Diseases of Osaka University (BIKEN)	JPN
United States Army Medical Research and Material Command	USA
Unknown	UNK
Wyeth	WAL

Entering Route

This field is strongly recommended by CDC on a national level. The table below reflects the codes to be sent within the HL7 message.

3.1.1.1.9 Administration Route

Administration Route	Accepted Route Code
Intradermal	ID
Intramuscular	IM
Intranasal	IN
Intravenous	IV
Oral	PO
Subcutaneous	SC
Transdermal	TD

Entering Administration Site

This field is strongly recommended by CDC on a national level. The table below reflects the codes to be sent within the HL7 message.

3.1.1.1.10 Administration Site

Administration Site	Accepted Site Code
Left Thigh	LT
Left Arm	LA
Left Deltoid	LD
Left Gluteus Medius	LG
Left Vastus Lateralis	LVL
Left Lower Forearm	LLFA
Right Arm	RA
Right Thigh	RT
Right Vastus Lateralis	RVL
Right Gluteus Medius	RG
Right Deltoid	RD
Right Lower Forearm	RLFA

Inventory Decrementation

In order to get the imported vaccination information from a provider's EMR to decrement with the current vaccine inventory in the WyIR the following needs to be considered:

1. Align the inventory in both systems. Using the WyIR Vaccine Cheat Sheet (http://www.health.wyo.gov/Media.aspx?mediaId=12903) may be helpful in getting the proper vaccine name, and manufacturer, applied to the inventory maintained in both systems.

2. Send the correct facility ID in the HL7 message that matches what is mapped in the WyIR. This information will be supplied to the software vendor prior to commencement of testing.

   If the inventory matches between the two systems, and the correct information is sent, the inventory should align between the two systems. Regular review of the inventory once a system "goes live" will assist with possibly eliminating exponentially growing issues at a later time.