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Introduction

For an HL7 message to meet Vermont’s ‘gold standard’ message, it must contain certain information, outside of what is required in a successfully consumed message. This Best Practices Guide was developed as a tool to assist Provider Practices in sending the highest quality of data within the HL7 message that comes from a Providers Electronic Health Record (EHR) system and is stored in the IMR. As data is stored and viewable from all different practices throughout Vermont, it is imperative that data be as accurate as possible to ensure the best delivery of care.

The guide is broken out into best practices related to Patient Demographics and Immunization Information. Tables reflect how codes should be mapped and standardized within your own system.

This guide was developed in conjunction with the Vermont HL7 Implementation Guide and should be referred to in order to understand and meet all the required and expected fields within a successfully consumed HL7 message.

Important:

If you enter a test record into your production EHR for any reason, it may be imported into the Immunization Registry. This is a serious problem. We work hard to keep our data clean and accurate, and free of duplicate records. Sending test records, or “fake” records into our system inflates the number of individuals and can lead to lower vaccine coverage rates for your practice.

1. Talk with your EHR vendor about the consequences of entering “test” data into a production EHR.
2. Unless your vendor has designed a way to flag “test” data and prevent it from being included in production reports and HL7 feeds, **test data should never be entered into a production EHR**. Simply naming the person “test” or an agreed upon pseudonym does not suffice.

3. If “test” data in a production EHR cannot be avoided, arrangements will need to be made in advance with VITL and VDH such that “test” data can be identified and captured before it is added to the Vermont Immunization Registry. Please contact the VDH support team at (888) 688-4667 or by email imr@vermont.gov and contact VITL via <http://myvitl.net>.

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, make sure you are entering the correct name into your EHR system. For example, you may know a patient 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 your EHR 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: putting in ‘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:
 - JR, SR, I, II, III, IV, V, VI, VII, VIII, IX, X

Why will entering this information accurately be helpful for you?

- **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.

Address/Phone Number Information Best Practices

- ✓ The street address **MUST** be filled in and be in address field 1 or the message will get rejected.
- ✓ The city, state and zip code **MUST** be filled in or the message will get rejected. The zip must be a 5-digit code. If a 9-digit zip is provided the hyphen must be included. Use the USPS Look Up Tool for assistance: https://tools.usps.com/go/ZipLookupAction_input.
- ✓ 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.

Race Description	Race Code
White	2106-3
Black or African American	2054-5
American Indian or Alaska Native	1002-5
Asian	2028-9
Native Hawaiian or Other Pacific Islander	2076-8
Other	2131-1

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.

*NOTE: Codes H, N, U are only accepted for backward compatibility.

Ethnicity Description	Ethnicity Code
Hispanic or Latino	2135-2
Not Hispanic or Latino	2186-5
Unknown	UNK

Bi-Directional Best Practices

The Vermont Immunization Registry is beginning to implement bi-directional flow, where providers will be able to receive immunization data from the Registry, in addition to sending. Below are some additional best practices specifically for bi-directional flow.

Be Ready!

- To receive immunization histories from the IMR, you must be able to receive and display all immunization related CVX codes. See immunization code tables below, or visit: [cdc.gov/vaccines/programs/iis/code-sets.html](https://www.cdc.gov/vaccines/programs/iis/code-sets.html).
- Talk with your vendor to understand your EHR process for querying, viewing and retrieving data from the IMR. Establish a workflow for your office to help keep operations running efficiently.

Be Aware!

- The IMR is linked with Vital Records; if a patient is born in Vermont, we will have the name on the birth certificate. We do update names after adoptions (monthly) and marriages (annually).
- When you query for a patient history, even if you send a first name, last name, and date of birth that is an exact match to a record in our system, it sometimes happens that there is also a near match.
 - Example:
William Washington 7/28/1979
Bill Washington 6/28/1979
 - These are fictional patients in the IMR test system. If you query for either one of them, we will return both – and your EHR will need to be ready to respond to the information we send back and indicate which is the correct patient they wish to view.

Be Prepared!

- Immunizations have different formulations. Hepatitis B vaccine for instance has 13 different formulations including “unspecified,” “pediatric/adolescent,” and “adult” as well as all the combination vaccines that contain Hepatitis B antigen. This means that in some situations, you will need to review the incoming information carefully before importing it.
 - Example: Your patient received an Influenza High Dose Quadrivalent vaccine on 11/1/2022 at a pharmacy. That pharmacy reported that to the IMR. Someone at your office was notified about that shot too, but entered it into your EHR as “Influenza Unspecified.” Those can look like two different shots, but they are actually the same vaccination event.
- It’s always a good idea to avoid the use of unspecified codes. If you do have them in your system, be alert that you do not inadvertently add duplicate immunizations.
- Sometimes, it’s the Registry that has a code that is not specific. If that happens, feel free to let us know (and we will correct it), but unfortunately at this time it’s not possible to update that information in our system via HL7.

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 IMR, such as the Vaccine Forecaster, Reminder/Recall and Vaccine Administered Reports.

Below are some best practices when entering immunization information into your 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 is not easy to determine which CVX code to choose when setting up an EHR 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 CVX 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 inactive codes. These should not be used when sending current immunizations, only historical.
- **Red:** please do not send these codes.

Immunizations Currently Distributed in VT

Below is a list of the vaccines currently distributed in Vermont through the Vaccines for Children (VFC) or Vaccines for Adults (VFA) programs. If you receive subsidized vaccine through these programs, these are the codes to choose.

Immunization Name	CVX Code	CPT Code	Brand Name/Notes
COVID-19, XBB.1.5, mRNA, LNP-S, PF, tris-sucrose, 3 mcg/0.3 mL, Pfizer	308	91318	Pfizer Fall 2023 COVID-19 vaccine [ages 6 mos – 4 years]
COVID-19, XBB.1.5, mRNA, LNP-S, PF, tris-sucrose, 10 mcg/0.3 mL, Pfizer	310	91319	Pfizer Fall 2023 COVID-19 vaccine [ages 5 – 11 years]
COVID-19, XBB.1.5, mRNA, LNP-S, PF, tris-sucrose, 30 mcg/0.3 mL, Pfizer	309	91320	Pfizer Fall 2023 COVID-19 vaccine [ages 12+ years]
COVID-19, XBB.1.5, mRNA, LNP-S, PF, 25 mcg/0.25 mL, Moderna	311	91321	Moderna Fall 2023 COVID-19 vaccine [ages 6 mos – 11 years]
COVID-19, XBB.1.5, mRNA, LNP-S, PF, 50 mcg/0.5 mL, Moderna	312	91322	Moderna Fall 2023 COVID-19 vaccine [ages 12+ years]
COVID-19, XBB.1.5, subunit, rS-nanoparticle, adjuvanted, PF, Novavax	313	91304	Novavax Fall 2023 COVID-19 Vaccine [ages 12+ years]
DTaP	20	90700	Infanrix
DTaP, 5 pertussis antigens	106	90700	Daptacel
DTaP-Hep B-IPV	110	90723	Pediarix
DTaP-IPV	130	90696	Kinrix or Quadracel
DTaP-Hib-IPV	120	90698	Pentacel
DTaP-IPV-Hib-HepB	146	90697	Vaxelis
Hep A, Adult	52	90632	Havrix-Adult or Vaqta-Adult
Hep A, Ped/Adol, 2 dose	83	90633	Havrix-Peds or Vaqta-Peds
Hep A-Hep B, Adult	104	90636	Twinrix

Hep B, Adult	43	90746	Engerix-B-Adult
Hep B, Ped/Adol	08	90744	Engerix-B-Peds or Recombivax-Peds
HepB (Recombinant) Adjuvanted	189	90739	Heplisav-B
Hib-OMP	49	90647	PedvaxHib
Hib-PRP-T	48	90648	ActHib or Hiberix
HPV-9	165	90651	Gardasil 9
Influenza, IIV4, p-free	150	90686	Fluarix or Flulaval or Fluzone
Influenza, LAIV4, Intranasal	149	90672	Flumist
MCV4, Meningococcal conjugate	114	90734	Menactra
MCV40, Meningococcal Oligo	136	90734	Menveo
Meningococcal ACWY TT conjugate	203	90619	MenQuadfi
Meningococcal B, OMV	163	90620	Bexsero
Meningococcal B, recombinant	162	90621	Trumemba
MMR	03	90707	MMR II
MMRV	94	90710	ProQuad
Pneumococcal conjugate PCV15	215	90671	VAXNEUVANCE
Pneumococcal conjugate PCV20	216	90677	PREVNAR 20
Pneumococcal polysaccharide PPV23	33	90732	Pneumovax 23
Polio, IPV	10	90713	IPOL
Rotavirus, 2 dose, RV1	119	90681	Rotarix
Rotavirus, 3 dose, RV5	116	90680	Rotateq
RSV-MAb	93	90378	Synagis
Td, Adult, 2 Lf tt, preservative free	09	90714	TDVAX
Td, Adult, 5 Lf tt, preservative free	113	90714	Tenivac
Tdap	115	90715	Adacel or Boostrix
Vaccinia, smallpox Mpx	206	90611	JYNNEOS
Varicella	21	90716	Varivax
Zoster, Shingrix	187	90750	Shingrix

Additional Codes Currently Accepted

Below are additional codes that are currently accepted in Vermont. This table also includes some of the more rarely administered immunizations that are not part of the usual schedule but may have been given to a patient. Your EHR system should accommodate these codes as well.

Immunization Name	CVX Code	CPT Code(s)
Adenovirus types 4 and 7	143	-
Anthrax	24	90581
Anthrax immune globulin	181	-
BCG	19	90585
Botulinum Antitoxin	27	90287
Cholera, live attenuated	174	90625
CMVIG	29	90291
Dengue Fever, tetravalent	56	-
Diphtheria Antitoxin	12	90296
DT (pediatric)	28	90702

Ebola Zaire vaccine, live, recombinant, 1mL	204	90758
HBIG	30	90371
Hep B, dialysis, 3 dose	44	90740
Hep B, dialysis or immunosuppressed, 4 dose	43	90747
HepB recombinant, 3-antigen, Al(OH)3	220	90759
IG	86	90281
IGIV	87	90283
Influenza, High Dose, IIV3	135	90662
Influenza, IIV3	141	90657 (.25ml); 90658 (.5ml)
Influenza, IIV3, adjuvanted	168	90653
Influenza, aIIV4, adjuvanted, p-free	205	90694
Influenza, High Dose, IIV4	197	90662
Influenza, IIV4	158	90687 (.25ml); 90688 (.5ml)
Influenza, IIV4 Pediatric, p-free	161	90685
Influenza, IIV4, MDCK	186	90756
Influenza, IIV4, MDCK, p-free	171	90674
Influenza, IIV4, Recombinant, p-free	185	90682
Influenza, IIV4, Southern Hemisphere	202	-
Influenza, IIV4, Southern Hemisphere, p-free	201	-
Influenza, IIV4, Southern Hemisphere, high-dose p-free	231	-
Influenza, IIV4, Southern Hemisphere, Ped, p-free	200	-
Influenza A monovalent (H5N1), ADJUVANTED	160	-
AS03 Adjuvant	801	-
Japanese Encephalitis IM	134	90738
Pneumococcal conjugate PCV-13	133	90670
Rabies – IM Diploid cell culture	175	90675
Rabies – IM fibroblast culture	176	90675
Rho(D)-IG, IM	157	90384, 90385
Rho(D)-IG (IM or IV)	156	90386
RIG	34	90375, 90376
RSV, bivalent, protein subunit preF, PF	305	90678
RSV, recombinant, protein subunit preF, adjuvanted, PF	303	90679
RSV, mAb, 0.5mL, age 0 - <8 mos	306	90380
RSV, mAb, 1.0mL, age 0 - 19 mos	307	90381
Tick-borne encephalitis, inactivated, PF, Pediatric	223	90626
Tick-borne encephalitis, inactivated, PF, Adult	224	90627
TIG	13	90389
Typhoid, oral	25	90690
Typhoid, ViCPs	101	90691
Vaccinia immune globulin	79	90393
Vaccinia, smallpox	75	90622
VZIG	36	90396
Yellow Fever	37	90717
Yellow Fever alternative formulation	183	-

Historical Codes

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

Immunization Name	CVX Code	CPT Code
Adenovirus, type 4	54	90476
Adenovirus, type 7	55	90477
Cholera	26	90725
Cholera, BivWC (non-US)	173	-
Cholera, WC-rBS (non-US)	172	-
COVID-19, mRNA LNP-S, PF, Pfizer, 12+ years	208	91300
COVID-19, mRNA LNP-S, PF, Tris-sucrose, Pfizer, 12+ years	217	91305
COVID-19, mRNA LNP-S, PF, Tris-sucrose, Pfizer, 5 – 11 years	218	91307
COVID-19, mRNA LNP-S, PF, Tris-sucrose, Pfizer, 6 mos – 4 yrs	219	91308
COVID-19, mRNA LNP-S, PF, bivalent, Pfizer, 12+ years	300	91312
COVID-19, mRNA LNP-S, PF, bivalent, Pfizer, 5 – 11 years	301	91315
COVID-19, mRNA LNP-S, PF, bivalent, Pfizer, 6 mos – 4 years	302	91317
COVID-19, mRNA LNP-S, PF, Moderna, 12+ years	207	91301
COVID-19, mRNA LNP-S, PF, Moderna, 6 – 11 years	221	91309
COVID-19, mRNA LNP-S, PF, Moderna, 6 mos – 5 years	228	91311
COVID-19, mRNA LNP-S, PF, bivalent, Moderna, 6+ years	229	91313, 91314
COVID-19, mRNA LNP-S, PF, bivalent, Moderna, 6 mos – 5 yrs	230	91316
COVID-19, rS-nanoparticle, Novavax	211	91304
COVID-19, vector-nr, Janssen	212	91303
COVID-19 DNA Non-US (Zydus Cadila, ZyCoV-D)	514	-
COVID-19 Inactivated Non-US (Minhai Biotechnology Co, KCONVAC)	516	-
COVID-19 Inactivated, Non-US (VLA2001, Valneva)	518	-
COVID-19 IV Non-US (BIBP, Sinopharm)	510	-
COVID-19 IV Non-US (CoronaVac, Sinovac)	511	-
COVID-19 IV Non-US (COVAXIN)	502	-
COVID-19 IV Non-US (QAZCOVID-IN)	501	-
COVID-19 LAV Non-US (COVIVAC)	503	-
COVID-19 mRNA, bivalent, Non-US (Spikevax Bivalent)	519	-
COVID-19 mRNA, bivalent, Non-US (COMIRNATY Bivalent)	520	-
COVID-19 PS Non-US (Anhui Zhifei Longcom, IMCAS)	507	-
COVID-19 PS Non-US (Anhui Zhifei Longcom, Zifivax)	513	-
COVID-19 PS Non-US (Biological E Limited, Corbevax)	517	-
COVID-19 PS Non-US (EpiVacCorona)	509	-
COVID-19 PS Non-US (Jiangsu Province CDC)	508	-
COVID-19 PS Non-US (Medigen, MVC-COV1901)	515	-
COVID-19 SP, protein-based, adjuvanted (VidPrevtyn Beta)	521	-
COVID-19 vector-nr, AstraZeneca, Non-US	210	91302
COVID-19 VLP Non-US (Medicago, Covifenz)	512	-
COVID-19 VVnr Non-US (CONVIDECIA, CanSino Biologics)	506	-
COVID-19 VVnr Non-US (Sputnik Light)	504	-
COVID-19 VVnr Non-US (Sputnik V)	505	-

DTaP-Hib	50	90721
DTaP-IPV-Hib-HepB, historical	132	-
DT, IPV absorbed (non-US)	195	-
DTP	01	90701
DTP-hepB-Hib Pentavalent (non-US)	198	-
DTP-Hib	22	90720
DTP-Hib-Hep B (non-US)	102	-
Hep A, ped/adol, 3 dose	84	90634
Hep B, adolescent, 2 dose schedule	43	90743
Hep B, adolescent/high risk infant	42	90745
Hep A-Hep B ped/adol (non-US)	193	-
Hib-HbOC	47	90645
Hib-PRP-D	46	90646
Hib-Hep B	51	90748
HPV, bivalent	118	90650
HPV, Quadrivalent	62	90649
Influenza, inactive [retired code]	15	-
Influenza, IIV3, p-free	140	90655; 90656
Influenza, IIV3, MDCK, p-free	153	90661
Influenza, Intradermal, IIV3, p-free	144	90654
Influenza, Intradermal, IIV4, p-free	166	90630
Influenza, LAIV3, Intranasal	111	90660
Influenza, whole	16	90659
Japanese Encephalitis SC	39	90735
Lyme disease	66	90665
Measles	05	90705
Measles-Rubella, M/R	04	90708
Meningococcal C/Y-HIB PRP	148	90644
Meningococcal A polysaccharide (non-US)	191	-
Meningococcal AC polysaccharide (non-US)	192	-
Meningococcal polysaccharide, MPSV4	32	90733
Mumps	07	90704
Novel Influenza-H1N1-09	127	90668
Novel Influenza-H1N1-09, all formulations	128	90663
Novel Influenza-H1N1-09, nasal	125	90664
Novel influenza-H1N1-09, p-free	126	90666
OPV, bivalent (non-US)	178	-
OPV, trivalent (US)	02	90712
PCV10 (non-US)	177	-
Plague	23	90727
PCV7, Pneumococcal conjugate	100	90669
Rabies, intradermal injection	40	90676
Rabies, intramuscular [retired code]	18	-
Rotavirus, tetravalent	74	-
RSV-IGIV	71	90379

Rubella	06	90706
Rubella-Mumps	38	-
Td, Adult, not adsorbed	138	-
Tetanus toxoid, adsorbed	35	90703
Tetanus toxoid, not absorbed	142	-
Tick-borne encephalitis (non-US)	77	-
Typhoid, parenteral, H-P	41	90692
Typhoid, parenteral, AKD (U.S. military)	53	90693
Typhoid conjugate (non-US)	190	-
Zoster, Zostavax	121	90736

Non-Specific Formulations

Below is a table of codes that should rarely 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 IMR forecaster to predict the next scheduled immunization correctly.

Immunization Name	CVX Code	CPT Code
Adenovirus, unspecified formulation	82	-
COVID-19, unspecified	213	-
COVID-19 Non-US, unspecified	500	-
DTaP, unspecified formulation	107	-
Ebola, unspecified	214	-
Hep A, pediatric, unspecified formulation	31	-
Hep A, unspecified formulation	85	90730
Hep B, unspecified formulation	45	90731
Hib, unspecified formulation	17	90737
HPV, unspecified formulation	137	-
IG, unspecified formulation	14	90741
Influenza, unspecified formulation	88	90724
Influenza nasal, unspecified formulation	151	-
Influenza, Southern Hemisphere, unspecified formulation	194	-
Japanese Encephalitis, unspecified formulation	129	-
Meningococcal, unspecified formulation	108	-
Meningococcal B, unspecified formulation	164	-
Meningococcal MCV4, unspecified formulation	147	-
OPV, unspecified formulation	182	-
OPV, monovalent, unspecified formulation (non-US)	179	-
Pneumococcal, unspecified formulation	109	-
Pneumococcal Conjugate, unspecified formulation	152	-
Polio, unspecified formulation	89	-
Rabies, unspecified formulation	90	90726
Rotavirus, unspecified formulation	122	-
RSV, unspecified formulation (vaccine or MAB)	304	-
Respiratory syncytial virus (RSV) vaccine, unspecified	314	-
RSV monoclonal antibody (MAB), unspecified	315	-
Td(adult), unspecified formulation	139	-

Td, adsorbed, preservative free, adult use, Lf unspecified	196	-
Tetanus toxoid, unspecified formulation	112	-
Tick-borne encephalitis, unspecified	222	-
Typhoid, unspecified formulation	91	-
Yellow Fever, unspecified formulation	184	-
Zoster, unspecified formulation	188	-

Other Gold Standard Immunization Best Practices

Below reflects additional fields that are extremely helpful in vaccine ordering, reminder/recall, adverse reactions, and running IMR reports.

Entering VFC Eligibility

VFC Eligibility is a recommended field for HL7 for patients **under the age of 19** when entering in **current** immunizations. VFC Eligibility will correctly identify an immunization as publicly supplied or privately purchased. These statistics help the Immunization Program determine how much supply is needed to immunize the under 19 population.

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

VFC Code	VFC Status
V01	Not VFC Eligible
V02	VFC Eligible - Medicaid/Medicaid Managed Care
V03	VFC Eligible - Uninsured
V04	VFC Eligible – American Indian/Alaskan Native
V05	VFC Eligible – Federally Qualified Health Center/Underinsured
V07 *	SCHIP (not VFC eligible)

*NOTE: V07 is only accepted for backward compatibility

Entering Immunization Lot Number and Expiration Date

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. These fields are 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.

Manufacturers Name	MVX Code
Abbott Laboratories	AB
Adams Laboratories, Inc.	AD
Alpha Therapeutic Corporation	ALP
AstraZeneca	ASZ

Barr Laboratories	BRR
Bavarian Nordic A/S	BN
Baxter Healthcare Corporation	BAH
Bharat Biotech International Limited (Non-US COVID-19 Manufacturer-WHO Authorized)	BBI
Berna Products Corporation	BPC
Biotest Pharmaceuticals Corporation	BTP
bioCSL	CSL
CanSino Biologics, Inc (Non-US COVID-19 Manufacturer-WHO Authorized)	CAN
Crucell	CRU
Dynaport	DYN
Dynavax, Inc.	DVX
DynPort Vaccine Company, LLC	DVC
Emergent BioSolutions	MIP
GeoVax Labs, Inc.	GEO
GlaxoSmithKline	SKB
Greer Laboratories, Inc.	GRE
Grifols	GRF
ID Biomedical	IDB
Immuno-U.S., Inc.	IUS
Intercell Biomedical	INT
Janssen	JSN
Johnson and Johnson	JNJ
Kedrian Biopharma	KED
Korea Green Cross Corporation	KGC
Massachusetts Biologic Laboratories	MBL
MCM Vaccine Company	MCM
Medicago, Inc (Non-US COVID-19 Vaccine Manufacturer - ACIP recognized)	MDO
MedImmune, Inc. (AstraZeneca)	MED
Merck & Co., Inc.	MSD
Moderna US, Inc.	MOD
MSP Vaccine Company (partnership Merck and Sanofi Pasteur)	MSP
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
Emergent Travel Health, Inc (formerly PaxVax)	PAX
Pfizer, Inc	PFR
Protein Sciences	PSC
Sanofi Pasteur	PMC
Sclavo, Inc.	SCL
Seqirus	SEQ
Sinovac (Non-US COVID-19 Vaccine Manufacturer - WHO Authorized)	SNV

Sinopharm-Biotech (Non-US COVID-19 Vaccine Manufacturer - WHO Authorized)	SPH
Talecris Biotherapeutics	TAL
The Research Foundation for Microbial Diseases of Osaka University (BIKEN)	JPN
TEVA Pharmaceuticals USA	TVA
United States Army Medical Research and Material Command	USA
Unknown manufacturer	UNK
Valneva	VAL
VBI Vaccines, Inc	VBI
Vetter Pharma Fertigung GmbH & Co. KG	VET
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.

Administration Route	Accepted Route Code
Intradermal	ID
Intramuscular	IM
Intranasal	NS
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.

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

*NOTE: For intranasal and oral vaccines, there is no valid site code and this field should be left blank if an immunization is administered via either of these two routes.

Identifying Immunizations as Current vs Historical

It is important to accurately identify immunizations as current or administered versus historical. If an immunization is selected as administered or current in the EHR, the code 00 will come over in the administration notes field in the HL7 message. This identifies the immunization as administered and all vaccine information will be stored (Admin Date, CVX, Lot, MVX, Route, Site, Exp Date). If an immunization is selected as historical in the EHR, the code 01 will come over in the administration notes field in the HL7 message. This identifies the immunization as historical and information stored for that immunization will only include Date of Administration, CVX Code and Lot Number.

Sending All Immunizations Entered

If a patient is new to the practice, immunizations given elsewhere should be entered – because the full immunization history is important for determining which immunizations to administer. These are important to the Immunization Registry as well.

When sending immunization data, it is important to ensure that all immunizations entered into the EHR are going to be sent via HL7. Though not all systems may have this capability, when sending real-time data, this means sending both the immunizations **administered** today AND the immunizations **entered** today that were given in the past. If able, please be sure all immunizations entered into the system today are sent, not just those you administered.