The Citywide Immunization Registry (CIR) HL7 Onboarding Guide

Please review this HL7 onboarding checklist if your organization:

- Administers vaccines within New York City’s five boroughs
- And/or would like to query patient immunization histories within our jurisdiction
- Or participates in the COVID Vaccine program, VFC program, and/or Promoting Interoperability EHR Incentivized programs for the immunization registry public health measure
- Or is already connected with the CIR but switching EHR vendors

For additional technical guidance, please refer to the CIR HL7 Web Service Implementation Guide (IG) v 1.5.

1. CIR FACILITY CODE REGISTRATION

Is your facility or facilities registered with the CIR?

YES – please list the CIR facility code, facility name, address and primary provider. Add more rows if needed. This helps the CIR keep your facility information up to date.

<table>
<thead>
<tr>
<th>CIR Administering Facility Code</th>
<th>Administering Facility Name - Address</th>
<th>Default Providers: Provider Name MD - License Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NO – Go to the online registration page to register your facility(ies) for the first time or to update an existing registration if your facility has not reported to the CIR in over a year. You will need the National Provider Identifier (NPI) number and NYS medical license number of the provider-in-charge to complete the registration. After completing registration, you should receive two automated emails, one with the registration confirmation, and the second with the CIR facility code. Please add your email address as a contact in the registration application so that you may receive these automated emails.

2. CONFIDENTIALITY FORM

Prior to exchanging data with the CIR, a completed confidentiality form is required. Please email your assigned CIR Interoperability specialist and/or cirInterop@health.nyc.gov a signed copy.

<table>
<thead>
<tr>
<th>Submitted (Yes, No, Not applicable)</th>
<th>Confidentiality forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every facility is required to complete a copy of the CIR’s Health Care Provider Confidentiality Statement (PDF).</td>
<td></td>
</tr>
<tr>
<td>If your EHR has not worked with CIR before, EHR Vendor is required to sign a copy of the CIR’s Vendor Confidentiality Statement (PDF).</td>
<td></td>
</tr>
</tbody>
</table>
3. **ONBOARDING QUESTIONS**

These onboarding questions give us a complete picture about your organization’(s) reasons to connect with the CIR. If your practice already uses an EHR that has already been onboarded with the CIR, the EHR vendor questions may be skipped.

<table>
<thead>
<tr>
<th>Answer</th>
<th>Facility Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Does your practice administer immunizations?</td>
</tr>
<tr>
<td></td>
<td>Does your practice participate in the COVID vaccine program?</td>
</tr>
<tr>
<td></td>
<td>Does your practice participate in the Vaccines for Children program?</td>
</tr>
<tr>
<td></td>
<td>Does your practice see adults only (19+)?</td>
</tr>
<tr>
<td></td>
<td>Does your practice see children only?</td>
</tr>
<tr>
<td></td>
<td>Does your practice see both adults and children?</td>
</tr>
<tr>
<td>2.</td>
<td>Is your practice interested in submitting vaccinations only or also query patient immunization history (bidirectionality)? Or query only?</td>
</tr>
<tr>
<td>3.</td>
<td>Will you be attesting to the Immunization Registry Reporting Measure for any Medicaid or Medicare Incentivized Programs (MU)?</td>
</tr>
<tr>
<td>4.</td>
<td>If participating in MU, are you registered in the Meaningful Use Public Health Reporting (MURPH) system?</td>
</tr>
<tr>
<td>5.</td>
<td>Approximately how many immunizations and or query requests will come through this interface monthly? Is there interest in querying in batches for all your patients or members?</td>
</tr>
<tr>
<td>6.</td>
<td>If your practice administers adult vaccines, do you collect adult patient consent for sharing data with the CIR?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Answer</th>
<th>EHR/Interface Vendor Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>How many NYC clients will you be connecting to the CIR? (For a new EHR vendor to the CIR)</td>
</tr>
<tr>
<td>2.</td>
<td>Can sending dose-level VFC funding eligibility information to us through this interface? (OBX-3 ‘64994-7’ and OBX-5 ‘V02-Medicaid’)</td>
</tr>
<tr>
<td>3.</td>
<td>Can your EHR also report the vaccine funding source? Able to report publicly funded vaccines versus privately funded vaccines? (VXC50 and PHC70)</td>
</tr>
<tr>
<td>4.</td>
<td>Can your EHR send NDC codes with CVX codes for newly administered vaccines? Can your EMR send more than one vaccine code identifier?</td>
</tr>
<tr>
<td>5.</td>
<td>Do you have interfaces with other immunization registries? For example, NYSIIS.</td>
</tr>
<tr>
<td></td>
<td>a. If so, please list other registries:</td>
</tr>
<tr>
<td>6.</td>
<td>Does the EHR have bidirectional functionality?</td>
</tr>
<tr>
<td></td>
<td>a. If so, can your EHR also provide decision support and recommendations or only display immunization history?</td>
</tr>
<tr>
<td>7.</td>
<td>Will this interface be directly between your EHR and CIR or will the data go through an intermediary system or 3rd party interface engine product like Ensemble, MIRTH, Qvera?</td>
</tr>
<tr>
<td>8.</td>
<td>Will the interface consume ACKs sent in CIR response messages?</td>
</tr>
<tr>
<td></td>
<td>a. If so, can you and or the end user review the ACK messages with errors and/or failures?</td>
</tr>
<tr>
<td>9.</td>
<td>If you make any changes at the vendor-level, can you push changes out to all clients at once? Are there functionalities that need to be enabled for the client? (Adult patient consent, invalid doses, CVX codes/NDC codes, value mapping tables). If not, you must test for each client.</td>
</tr>
<tr>
<td>10.</td>
<td>Can the EHR delete and resubmit HL7 VXU messages?</td>
</tr>
<tr>
<td>11.</td>
<td>Is the EHR able to send historical immunizations with IIS ID in RXA-11.4 (administering location)?</td>
</tr>
<tr>
<td>12.</td>
<td>Is your EHR 2015 ONC Certified?</td>
</tr>
<tr>
<td>13.</td>
<td>Does your EHR support clients participating in MU 3 - promoting interoperability programs?</td>
</tr>
<tr>
<td>14.</td>
<td>Does your EHR use the latest TLS 1.2 encryption protocol?</td>
</tr>
<tr>
<td>15.</td>
<td>Is data transmitted in real-time or in daily batch?</td>
</tr>
<tr>
<td>16.</td>
<td>If reporting, does your system collect adult protection indicator?</td>
</tr>
</tbody>
</table>
4. KICK-OFF CALL

Contacts

CIR would like to help support you and your organization in this immunization onboarding project. Please fill this out during the kick-off call to set-up communication workflow, schedule meetings, and deadlines. This time is also used to review testing requirements and sharing credentials.

<table>
<thead>
<tr>
<th>Role</th>
<th>Organization</th>
<th>Name</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director/Facility Manager</td>
<td>Facility Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHR Project Manager</td>
<td>EHR Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHR Interface Engineer</td>
<td>EHR Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assigned CIR Informatics Analyst</td>
<td>DOHMH CIR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIR Interop Team</td>
<td>DOHMH CIR</td>
<td></td>
<td><a href="mailto:cir_interop@health.nyc.gov">cir_interop@health.nyc.gov</a></td>
</tr>
<tr>
<td>CIR Interop Team Lead</td>
<td>DOHMH CIR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interface Set-up

Use the kick-off call to discuss with the EHR vendor technical liaison or interface analyst how the HL7 connection will be. This is crucial to ensure proper guidance for the interface testing as the CIR has (2) Interface setups the CIR offers.

1. **Point-to-Point Interface** - A point-to-point or one-to-one interface is setup for each facility code and will have its own credentials. If an organization has multiple locations, each will have its own credentials and reporting for 1 location only. For the point-to-point interface, the facility code associated with the credentials will be defaulted in the following fields: MSH-4.1 and RXA-11.4.

   MSH-4.1 (Sending facility) ≠ RXA-11.4 (Administering facility)

2. **HUB Interface Model** - A hub interface, also known as a one-to-many interface, or parent/child model, is setup with one set of credentials. The value of the HUB ID or Parent facility should be defaulted for MSH-4.1 for all messages regardless of administering location. While the MSH-4 value should remain the same, the hub interface is configured by the EHR Vendor/Interface Engineer to send the respective facility code in the RXA-11.4 field for the facility that is reporting the immunization information.

   MSH-4.1 (Sending facility) ≠ RXA-11.4 (Administering facility)

Web Service URLs

<table>
<thead>
<tr>
<th>CIR UAT End Point URL:</th>
<th><a href="https://immunize.nyc/hl7-service-uat/services/CirService">https://immunize.nyc/hl7-service-uat/services/CirService</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>CIR UAT WSDL:</td>
<td><a href="https://immunize.nyc/hl7-service-uat/services/CirService?wsdl">https://immunize.nyc/hl7-service-uat/services/CirService?wsdl</a></td>
</tr>
<tr>
<td>CIR PROD End Point URL:</td>
<td><a href="https://immunize.nyc/hl7-service-prod/services/CirService">https://immunize.nyc/hl7-service-prod/services/CirService</a></td>
</tr>
<tr>
<td>CIR PROD WSDL:</td>
<td><a href="https://immunize.nyc/hl7-service-prod/services/CirService?wsdl">https://immunize.nyc/hl7-service-prod/services/CirService?wsdl</a></td>
</tr>
</tbody>
</table>
5. VXU TESTING

Once signed confidentiality forms are provided, CIR may share test credentials with the facility or EHR interface analyst to begin testing. Credentials comprise of a username, CIR sending facility code, password and sometimes an identity key.

1. The CIR requires test messages with required data elements to be submitted to our testing environment. The CIR interoperability specialist will review the test data and review for data completeness and quality.
2. We also require submitting live production data to our test environment (at least a day’s worth of immunization data or data for 10 patients).

Please note that CIR production credentials are exchanged once onboard testing is approved by the CIR Interoperability Team.

6. DATA SUBMISSION (VXU) REQUIREMENTS

Please review our required and strongly recommended data requirements for immunization submissions with your EHR and/or interface analyst. For COVID only data submission checklist, click here.

Request training with EHR vendor and establish a data entry workflow with your staff.

Testing scope depends on your organization’s patient population type, practice setting, and participation in different programs.

2. Vaccine for children (VFC) program
3. Promoting interoperability EHR incentivized programs (MU 3, MIPPS)
4. Vaccine for adults (VFA) program

<table>
<thead>
<tr>
<th>HL7 Field</th>
<th>HL7 Data Element</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required Data Elements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSH-4.1</td>
<td>CIR Facility Code (HL7 Interface ID)</td>
<td>All</td>
</tr>
<tr>
<td>PID-5</td>
<td>Patient Name: First Name, Middle Name (optional) and Last Name</td>
<td>All</td>
</tr>
<tr>
<td>PID-7</td>
<td>Patient Date of Birth</td>
<td>All</td>
</tr>
<tr>
<td>PID-8</td>
<td>Patient Administrative Sex</td>
<td>All</td>
</tr>
<tr>
<td>PID-10</td>
<td>Patient Race</td>
<td>All</td>
</tr>
<tr>
<td>PID-11</td>
<td>Patient Address</td>
<td>All</td>
</tr>
<tr>
<td>PID-13</td>
<td>Phone Number</td>
<td>All</td>
</tr>
<tr>
<td>PID-22</td>
<td>Patient Ethnicity</td>
<td>All</td>
</tr>
<tr>
<td>PD1-12</td>
<td>Patient Protection Indicator</td>
<td>Adult (except COVID)</td>
</tr>
<tr>
<td>PD1-13</td>
<td>Patient Protection Indicator Date</td>
<td>Adult (except COVID)</td>
</tr>
<tr>
<td>RXA-3</td>
<td>Vaccine Administration Date</td>
<td>All</td>
</tr>
<tr>
<td>RXA-6&amp;7</td>
<td>Vaccine Administered Amount and Unit</td>
<td>All</td>
</tr>
<tr>
<td>RXA-11.4.1</td>
<td>CIR Facility Code (Administering Location)</td>
<td>All</td>
</tr>
<tr>
<td>RXA-15</td>
<td>Vaccine Lot Number: unit of sale</td>
<td>All</td>
</tr>
<tr>
<td>RXA-16</td>
<td>Vaccine Expiration Date</td>
<td>All</td>
</tr>
<tr>
<td>RXA-17</td>
<td>Vaccine Manufacturer: MVX code</td>
<td>All</td>
</tr>
<tr>
<td>RXR-1</td>
<td>Vaccine Route of Administration</td>
<td>All</td>
</tr>
<tr>
<td>RXR-2</td>
<td>Vaccine Administration Site (on the body)</td>
<td>All</td>
</tr>
<tr>
<td>OBX-3 and OBX5</td>
<td>Vaccine funding source</td>
<td>All</td>
</tr>
<tr>
<td>ORC-12.1 &amp; 12.3</td>
<td>Ordering provider NYS license number or NPI number</td>
<td>COVID and strongly recommended for all others</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>RXA-5</td>
<td>Both Vaccine CVX code and NDC code (CVX RXA-5.1-3 NDC RXA-5.4-6)</td>
<td>MU 3, COVID</td>
</tr>
<tr>
<td>NK1-2&amp;3</td>
<td>Next of Kin (name and phone # of kin and relationship)</td>
<td>VFC, Pediatric vaccinations</td>
</tr>
<tr>
<td>OBX-3 and OBX5</td>
<td>Vaccine program eligibility</td>
<td>VFC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Recommended Data Elements</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH-22</td>
</tr>
<tr>
<td>PID-3.4</td>
</tr>
<tr>
<td>PID-6</td>
</tr>
<tr>
<td>OBX-3 and OBX5</td>
</tr>
<tr>
<td>OBX-3 and OBX5</td>
</tr>
<tr>
<td>OBX-3 and OBX5</td>
</tr>
</tbody>
</table>

### Required Data fields

#### Patient Administrative Sex PID-8

This field contains the patient’s sex. This is a required field.

The CIR HL7 Web Service accepts the values specified in User-defined Table 0001 for Administrative Sex. If PID-8 is not valued or contains an unsupported value, the CIR HL7 Web Service will report a fatal error.

The CIR HL7 Web Service no longer utilizes a name to gender (sex) mapping process to identify the sex if a VXU message is received with a PID-8 value of “U.”

Supported values for Administrative Sex are listed here for convenience.

Per the CDC’s 2.5.1 IG, “O” (Other) is no longer an HL7 suggested value for Administrative Sex and, therefore, is not supported by the CIR HL7 Web Service in 2.5.1 messages.

#### User-defined Table 0001 - Administrative Sex

<table>
<thead>
<tr>
<th>Preferred Value</th>
<th>Alternative Value</th>
<th>Description</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>F</td>
<td>Female</td>
<td>Person reports that she is female</td>
</tr>
<tr>
<td>M</td>
<td>M</td>
<td>Male</td>
<td>Person reports that he is male</td>
</tr>
<tr>
<td>U</td>
<td>U</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>D</td>
<td>UND</td>
<td>Undetermined / Undifferentiated</td>
<td>No assertion is made about the gender of the person</td>
</tr>
<tr>
<td>N</td>
<td>NFNΜ</td>
<td>Neither Female nor Male</td>
<td>Person reports as neither female nor male</td>
</tr>
<tr>
<td>P</td>
<td>PNTA</td>
<td>Prefer Not to Answer</td>
<td>Person prefers not to answer</td>
</tr>
<tr>
<td>O</td>
<td>OTH</td>
<td>Other</td>
<td>Person reports as other</td>
</tr>
<tr>
<td>A</td>
<td>NA</td>
<td>Not Asked</td>
<td>Person was not asked about administrative sex</td>
</tr>
</tbody>
</table>
Race PID-10

This field refers to the patient’s race. The CIR supports all the governmentally assigned numeric Race code values listed in Table 0005 in the CDC IG. Additionally, CIR supports two CIR assigned codes for “Two or More Races” and “Prefer Not to Answer.” All other values will be ignored and the VXU message processed as if PID-10 was not valued. If PID-10 is not populated, the CIR HL7 Web Service will store value of “Not Indicated” for race and return a non-fatal error.

If reporting a patient of two or more races, report using value of “TOMR.” If multiple values for race are sent, the CIR HL7 Web Service will process the first Race in the list of repeating Races; all others will be ignored.

Supported values for race are listed below for convenience.

Race and ethnicity are important demographic data to collect to track equity of COVID vaccine distribution among different groups in NYC. Please read below the NYC DOHMH Health Advisory.


<table>
<thead>
<tr>
<th>US Race Codes</th>
<th>Description (Please use HL70005 or CDCREC as the coding system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1002-5</td>
<td>American Indian or Alaska Native</td>
</tr>
<tr>
<td>2028-9</td>
<td>Asian</td>
</tr>
<tr>
<td>2076-8</td>
<td>Native Hawaiian or Other Pacific Islander</td>
</tr>
<tr>
<td>2054-5</td>
<td>Black or African-American</td>
</tr>
<tr>
<td>2106-3</td>
<td>White</td>
</tr>
<tr>
<td>2131-1</td>
<td>Other Race</td>
</tr>
<tr>
<td>&lt;empty field&gt;</td>
<td>CIR will store as “Not Indicated” and return non-fatal error</td>
</tr>
<tr>
<td>ASKU</td>
<td>Asked but No Answer</td>
</tr>
<tr>
<td>UNK</td>
<td>Unknown / Undetermined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CIR Race Codes*</th>
<th>Description (Please use CIR as the coding system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOMR</td>
<td>Two or More Races</td>
</tr>
<tr>
<td>PNTA</td>
<td>Prefer Not to Answer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CDC Race Code*</th>
<th>Description (Please use CDCREC as the coding system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHC1175</td>
<td>Refused to Answer</td>
</tr>
</tbody>
</table>

If sending an HL7 or CDC code for Race, use “HL70005” or “CDCREC” for the corresponding code system. If sending a CIR code for race, use “CIR” for the corresponding code system.

Example:

<table>
<thead>
<tr>
<th></th>
<th>Race Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOMR</td>
<td>Two or More Races CIR</td>
</tr>
<tr>
<td>PNTA</td>
<td>Prefer Not to Answer CIR</td>
</tr>
<tr>
<td>PHC1175</td>
<td>Refused to Answer CDCREC</td>
</tr>
</tbody>
</table>

The CIR HL7 Web Service does not support NIP alpha race codes.

If both alpha and numeric codes are sent, per the CDC IG, the second triplet of the CE data type for race should be used for the above governmentally assigned numeric codes (####-#) as the first triplet is reserved for use (backward compatibility) of NIP alpha race codes.

Example:
Ethnic Group PID-22

This field further defines the patient’s ancestry. The CIR HL7 Web Service supports the following ethnicity codes:

- N^Not Hispanic or Latino^HL70189
- H^Hispanic or Latino^HL70189
- U^Unknown^HL70189
- 2186-5^Not Hispanic or Latino^CDCREC
- 2135-2^Hispanic or Latino^CDCREC
- PNTA^Prefer Not to Answer^CIR
- PHC1367^Refused^CDCREC

Other values will be disregarded and a non-fatal error reported. The CIR HL7 Web Service will process the first Ethnicity code (i.e., PID-22.1) and will ignore any additional/alternate ethnicity code (PID-22.4).

If PID-22 is left blank, the CIR HL7 Web Service will return a non-fatal error.

Protection Indicator

Adult vaccinations (except for COVID-19) require consent from the patient to report to the Citywide Immunization Registry (CIR). PD1-12 requires the values below. PD1-13 is the date consent was obtained. Consent can be collected at time of patient registration or at time of vaccine administration.

<table>
<thead>
<tr>
<th>HL7 Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Do not protect. Share with registry.</td>
</tr>
<tr>
<td>Y</td>
<td>Yes protect. Do not share with registry.</td>
</tr>
<tr>
<td>-blank-</td>
<td>CIR will consider this as an N. Do not protect. Share with registry.</td>
</tr>
</tbody>
</table>

Sample HL7 segment:

PD1|||||||||||^N|20210115|||A|20201115|20201115

Phone Numbers PID-13

Phone numbers are important for both patient matching and use of CIR tools like reminder/recall. The CIR supports a single current home phone, personal cellular phone number, and personal email address per patient. The CIR accepts all of the following values for reporting patient (PiD segment) and next of kin (NK1 segment) phone numbers.
Administering Location RXA-11.4

This field is used to report the facility that administered or recorded the immunization. Although this field has a usage of RE (required, but may be empty) by the CDC IG, the CIR requires this field.

A CIR issued facility code is required in RXA-11.4.1 when reporting new or historical immunizations. Failure to provide a valid CIR-issued facility code will result in a fatal error.

For a new immunization, the CIR-issued facility code of the facility at which the immunization was administered must be in RXA-11.4.1, the first position (i.e., the Namespace ID position) of the fourth component (i.e., the Facility HD component) of this field.

For a historical immunization, the HL7 data exchange partner must provide their CIR-issued facility code in RXA-11.4.1 (as described above), indicating the location recording the historical immunization.

When reporting observations, such as history of disease as evidence of immunity or serological evidence of immunity, the HL7 data exchange partner must also provide their CIR-issued facility code in RXA-11.4.1 (as described above), indicating the location recording the observation.

Example HL7:

```
RXA|0|1|20210101||207^COVID-19, mRNA, LNP-S, PF, 100 mcg/ 0.5 mL dose^CVX^COVID-19, mRNA, LNP-S, PF, 100mcg/ 0.5 mL dose^NDC|0.5|ml^MilliLiter [SI Volume Units]^UCUM||01^Historical Record
Unspecified^NP001||^^^9009X01| | | | |MOD^Moderna^MVX|||CP|A
```

Vaccine Route of Administration RXR-1

May submit either NCIT or HL7-0162 for route of administrations. If a VXU message is received where the RXR-1.1 is empty, the HL7 Web Service SHALL ignore the field. If RXR-1.3 (code system) is blank, ignore the RXR-1 segment and return a non-fatal error segment.
### Vaccine Administration Site RXR-2

If a VXU message is received where the RXR-2.1 is empty, the HL7 Web Service SHALL ignore the field. If RXR-2.3 (code system) is blank, ignore the RXR-2 segment and return a non-fatal error segment.

<table>
<thead>
<tr>
<th>HL7 0163</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT</td>
<td>Left Thigh</td>
</tr>
<tr>
<td>LA</td>
<td>Left Arm</td>
</tr>
<tr>
<td>LD</td>
<td>Left Deltoid</td>
</tr>
<tr>
<td>LG</td>
<td>Left Gluteus Medius</td>
</tr>
<tr>
<td>LVL</td>
<td>Left Vastus Lateralis</td>
</tr>
<tr>
<td>LLFA</td>
<td>Left Lower Forearm</td>
</tr>
<tr>
<td>RA</td>
<td>Right Arm</td>
</tr>
<tr>
<td>RT</td>
<td>Right Thigh</td>
</tr>
<tr>
<td>RVL</td>
<td>Right Vastus Lateralis</td>
</tr>
<tr>
<td>RG</td>
<td>Right Gluteus Medius</td>
</tr>
<tr>
<td>RD</td>
<td>Right Deltoid</td>
</tr>
<tr>
<td>RLFA</td>
<td>Right Lower Forearm</td>
</tr>
</tbody>
</table>

### Vaccine Funding Source

When an OBX is sent to convey the vaccine funding source, OBX-5.1 should contain one of the following codes from the PHVS Immunization Funding Source (IIS) value set. COVID vaccines should be documented as publicly funded for now.

<table>
<thead>
<tr>
<th>Code</th>
<th>Label</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHC70</td>
<td>Private</td>
<td>vaccine stock used was privately funded</td>
</tr>
<tr>
<td>VXC50</td>
<td>Public</td>
<td>vaccine stock used was publicly funded</td>
</tr>
</tbody>
</table>

If OBX-5.1 contains an invalid code or one not supported by the CIR, a TableValueNotFound non-fatal error will be reported and the observation within the OBX will be ignored.
Ordering Provider
The Identifier Type Code (ORC-12.13) should be valued with “LN” when sending the provider’s license number and “NPI” when sending the provider’s NPI number; these are the HL7 suggested values from user-defined table 0203 (Identifier Type).

User-defined Table 0203 - Identifier Type

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>LN</td>
<td>License Number</td>
<td>Used in ORC-12</td>
</tr>
<tr>
<td>NPI</td>
<td>National Provider Identifier</td>
<td>Used in ORC-12</td>
</tr>
</tbody>
</table>

NDC codes for newly administered vaccinations RXA-5
The CIR accepts NDC11 codes for newly administered immunizations in RXA-5.4: Alternate Identifier, RXA-5.5: Alternate Text, and RXA-5.6: Alternate Coding System. However, please note that CVX codes will still be required for all immunizations in RXA-5.1: Administered Code ID, RXA-5.2: Administered Code Text, and RXA-5.3: Administered Coding System.

CIR IG reference: There is no guidance in the current CIR IG regarding NDC codes. For NDC11 mappings with CVX code, please see the CDC’s crosswalk

See HL7 Example:
RXA|0|1|20180301|20180301|140^INFLUENZA (IM) PRESERVATIVE FREE^CVX^49281-417-88^INFLUENZA (IM) PRESERVATIVE FREE^NDC|0.5|mL|100^New Imm record^NIP001~|7736^Provider^Vaccine^^|^^^^9999I19^^^^^MAIN INPATIENT|||U1839AB|PMC^Sanofi Pasteur^MVX|||CP|A|20180301102822-0500

Next of Kin NK1-2 and NK1-3
The CIR HL7 Web Service will support the relationship types (from User-defined Table 0063; no other HL7 relationship types will be accepted. If a relationship type other than the accepted types is provided, or if the relationship type is not valued, a non-fatal error will be reported, and the NK1-3 field will be valued as “OTH (Other).” Relationship type for self, “SEL”, will be ignored.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRO</td>
<td>Brother</td>
</tr>
<tr>
<td>CGV</td>
<td>Care giver</td>
</tr>
<tr>
<td>CHD</td>
<td>Child</td>
</tr>
<tr>
<td>FCH</td>
<td>Foster child</td>
</tr>
<tr>
<td>FTH</td>
<td>Father</td>
</tr>
<tr>
<td>GRD</td>
<td>Guardian</td>
</tr>
<tr>
<td>GRP</td>
<td>Grandparent</td>
</tr>
<tr>
<td>MTH</td>
<td>Mother</td>
</tr>
<tr>
<td>OTH</td>
<td>Other</td>
</tr>
<tr>
<td>PAR</td>
<td>Parent</td>
</tr>
<tr>
<td>SCH</td>
<td>Stepchild</td>
</tr>
<tr>
<td>SIB</td>
<td>Sibling</td>
</tr>
<tr>
<td>SIS</td>
<td>Sister</td>
</tr>
<tr>
<td>SPO</td>
<td>Spouse</td>
</tr>
</tbody>
</table>
Vaccine Program Eligibility OBX-3 and OBX-5

For VFC Program participants, the VFC Eligibility must be reported for every newly administered immunization event for patients 18 and under to convey immunization-level vaccine funding program eligibility. OBX-3.1 should contain '64994-7' (e.g., VFC eligibility for the vaccine reported in RXA-5), OBX-5.1 should contain one of the HL7 Financial Class (VFC eligibility) codes that the CIR database supports.

<table>
<thead>
<tr>
<th>OBX-3 HL7 VALUE</th>
<th>DESCRIPTION</th>
<th>OBX-5 HL7 VALUE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>64994-7</td>
<td>Vaccine funding program eligibility category</td>
<td>V01</td>
<td>Not VFC eligible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V02</td>
<td>VFC eligible - Medicaid/Medicaid Managed Care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V03</td>
<td>VFC eligible - Uninsured</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V04</td>
<td>VFC eligible - American Indian/Alaskan Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V05</td>
<td>VFC eligible - Federally Qualified Health Center Patient</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V07</td>
<td>State specific eligibility code, use for “CHPLUS B” patients.</td>
</tr>
</tbody>
</table>

See HL7 Example:

```
OBX|2|CE|64994-7^VACCINE FUNDING PROGRAM ELIGIBILITY^LN|1|V02^VFC eligible-Medicaid^HL70064|||||F|||20191011|
```

Recommended Data fields

Responsible Sending Organization MSH-22

This field identifies the business organization that originated and is accountable for the content of the message. The HL7 data exchange partner should value MSH-22 with a Facility Code that was assigned by the NYC DOHMH. If the Facility Code is not valid, the CIR HL7 Web Service will ignore the field and return a non-fatal error. Sending Responsible Organization may also be captured in MSH-4.2.

Assigning Authority PID-3.4

If sending a Medical Record Number, CIR HL7 Data Exchange Partners should value assigning authority (PID-3.4) with a Facility Code assigned by the NYC DOHMH. Other values for assigning authority (e.g., grantee code) are not supported at this time and are considered invalid.

If a Medical Record Number is sent but PID-3.4 is empty or contains an invalid value, the CIR HL7 Web Service shall default assigning authority to the facility code associated with Sending Responsible Organization (MSH-22 or MSH-4.2).

If Sending Responsible Organization is invalid or not populated, the CIR HL7 Web Service will then default assigning authority to the Administering Facility (RXA-11.4) for the last administered vaccine.

The CIR HL7 Web Service does not support the full data set of identifiers; for example, Social Security Number (SS) and Birth Registry Number (BR) are currently not supported. Do not send a Social Security Number.

Mother’s Maiden Name PID-6

This field contains the family name under which the mother was born (i.e., before marriage). It is used to distinguish between patients with the same last name. The Last/Family Name (PID-6.1) and First/Given Name (PID-6.2) must each be 25 characters or less; otherwise it will be truncated and a non-fatal error reported.
name type (PID-6.7) should be “M” for Maiden. If a name type is not provided in PID-6.7 or the name type is other than “M”, the name in PID-6 will still be considered the maiden name of the patient’s mother and no error will be reported. Other PID-6 components, (e.g., Middle Name, Last Name Prefix, Suffix, Prefix, and Degree), if provided, will be ignored.

History of Disease as evidence of immunity OBX-3 and OBX-5
History of disease as evidence of immunity indicates that a person has been diagnosed with a particular disease. Below are the values the CIR accepts for history of disease as evidence of immunity:

<table>
<thead>
<tr>
<th>OBX-3 HL7 VALUE</th>
<th>DESCRIPTION</th>
<th>OBX-5 HL7 VALUE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>59784-9</td>
<td>History of Disease as Evidence of Immunity</td>
<td>38907003*History Of Varicella Infection</td>
<td>History of varicella infection</td>
</tr>
</tbody>
</table>

See HL7 Example:
RXA|0|1|20121011||998^No vaccine administered^CVX|999|||^8000N70|||||NA|A|
OBX|1|CE|59784-9^Disease with presumed immunity^LN|1|38907003^HISTORY OF VARICELLA INFECTION^SCT|||F|||20121201|

Serological evidence of immunity OBX-3 and OBX-5
Serological evidence of immunity indicates serology confirmed immunity to a particular disease. Below are the values the CIR accepts for serological evidence of immunity:

<table>
<thead>
<tr>
<th>OBX-3 HL7 VALUE</th>
<th>DESCRIPTION</th>
<th>OBX-5 HL7 VALUE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>75505-8</td>
<td>Serological Evidence of Immunity</td>
<td>278971009^Hepatitis A immune</td>
<td>Serology confirmed hepatitis A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>271511000^Hepatitis B immune</td>
<td>Serology confirmed hepatitis B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37111005^Measles immune</td>
<td>Serology confirmed measles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>371112003^Mumps immune</td>
<td>Serology confirmed mumps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>278968001^Rubella immune</td>
<td>Serology confirmed rubella</td>
</tr>
<tr>
<td></td>
<td></td>
<td>371113008^Varicella immune</td>
<td>Serology confirmed varicella</td>
</tr>
</tbody>
</table>

See HL7 Example:
RXA|0|1|20160223||998^no vaccine administered^CVX|999|||^8000N70|||||NA|A|
OBX|1|CE|75505-8^Disease with presumed immunity^LN|1|278968001^Serology confirmed rubella^SCT|||F|||20150315|

Data Submission Expectations
Please submit the following test messages based on your scope. Please provide the MSH-10 value, the HL7 message ID.

HL7 VXU EXAMPLES

Pediatric VFC eligible test submission
Submit an administered VFC publicly funded MMR vaccination for a 5-year-old girl without insurance, race “Other”, ethnicity prefer not to say, mother as next of kin and a historical account of DTAP. The patient has both a home phone and a cell phone.
COVID vaccination test submission

Submit an administered publicly funded Moderna COVID vaccination for a 55-year-old individual with undisclosed administrative sex, race “Declined to Specify”, ethnicity non-Hispanic. The patient has both a home phone and a cell phone.

Promoting Interoperability EHR Incentivized programs (MIPS) test submission

Submit a vaccination for a 78-year-old man receiving a publicly funded pneumococcal vaccine with a historical record of influenza vaccine, race Native Hawaiian or Other Pacific Islander and ethnicity declined to specify. Patient has a cell phone number.

Example:

COVID vaccination test submission

Promoting Interoperability EHR Incentivized programs (MIPS) test submission
Promoting Interoperability EHR incentivized program (MU 3) test submission
Submit a vaccination for a 5-year-old boy receiving an MMR publicly funded vaccine with serological evidence having had measles disease and a historical account of having had varicella disease. Boy has race Other and ethnicity declined to specify. Patient has both a cell phone and home phone number and has Medicaid. Father is the next of kin.

Example:

```
MSH|\&|Test EHR Application|CIR FAC CODE|NYC DOHMH|NYC DOHMH|20210116082240-0500||VXU^V04^VXU_V04|Message control id # 5|P|2.5.1||ER|AL|||Z22^CDCPHINVS | CIR FAC CODE
PID|1||C76273^^CIR FAC CODE|^MR||Test^Child^MU3^~^L|20160120|F||2131-1^Other Race^CDCREC|320 11th
Av^Brooklyn^NY|11220^USA^L||^PRN^PH^657^5558563^^PRN^CP^464^4085993|||PHC1367^Refused^CDCREC
PD1|1|1|1|1|1|1|1|1|1|1|1|1|11211506315^Smith^John^NPI
RXA|0|1|20210115|20210115|03^MMR^CVX|0.5|mL^MilliLiter^UCUM||0^New immunization record^NIP001||^CIR FAC CODE|||Z0860BB|20221115|MSD^Merck Sharp & Dohme Corp. ^MVX||CP|A
RXR|C28161^Intramuscular^NCIT|LA^Left Arm^HL70163
OBX|1|CE|30963-3^VACCINE FUNDING SOURCE^LN|1|VXC50^Publicly funded vaccine stock ^CDCPHINVS|||F||20210115||VXC40^Eligibility captured At the immunization LEVEL^CDCPHINVS
OBX|2|CE|64994-7^Vaccine funding program eligibility
category^LN|2^|V02^Medicaid^HL70064|||F||20210115||VXC40^Eligibility captured At the immunization LEVEL^CDCPHINVS
RXA|0|1|20210115|20210115|998^No vaccine administered^CVX|999||^CIR FAC CODE|||NA|A
OBX|1|CE|59784-9^Disease with presumed immunity^LN|1|38907003^HISTORY OF VARICELLA INFECTION^SCT|||F||20191201
RXA|0|1|20200315|998^no vaccine administered^CVX|999||^8000N70|||NA|A
OBX|1|CE|75505-8^Disease with presumed immunity^LN|1|371113008^Serology confirmed varicella^SCT|||F||20200315
```

No program participation
Submit a vaccination for a 21-year receiving an HPV privately funded vaccine with a historical record of influenza vaccine. Patient declined to specify race and is Hispanic. Patient has a cell phone number.

```
MSH|\&|Test EHR Application|CIR FAC CODE|NYC DOHMH|NYC DOHMH|20210116082240-0500||VXU^V04^VXU_V04|Message control id # 5|P|2.5.1||ER|AL|||Z22^CDCPHINVS | CIR FAC CODE
PID|1||C76273^^CIR FAC CODE|^MR||Test^Adult^HPV^~^L|20000120|F||PHC1175^Refused^CDCREC|320 11th
Av^Brooklyn^NY|11220^USA^L||^PRN^CP^646^4085993|||H^Hispanic or Latino^HL70189
PD1|1|1|1|1|1|1|1|1|1|1|1|1|1211506315^Smith^John^NPI
RXA|0|1|20210115|20210115|165^HPV Gardasil^CVX|0.5|mL^MilliLiter^UCUM||0^New immunization record^NIP001||^CIR FAC CODE|||Z0860BB|20221115|MSD^Merck Sharp & Dohme Corp. ^MVX||CP|A
RXR|C28161^Intramuscular^NCIT|LA^Left Arm^HL70163
OBX|1|CE|30963-3^VACCINE FUNDING SOURCE^LN|1|PHC70^Private vaccine stock ^CDCPHINVS|||F||20210115||PHC1175^Refused^CDCREC
OBX|1|CE|153235^||1|1|1|1|1|1|1|1|1|1211506315^Smith^John^NPI
RXA|0|1|20200315|20200315|88^Influenza NOS^CVX|0.5|mL^MilliLiter^UCUM||1^Historical record^NIP001||^CIR FAC CODE|||CP|A
```
7. QUERY IMMUNIZATION HISTORY AND FORECAST (QBP) TESTING

Query testing requirements are:

1. Query Demo
2. Populating MSH-22 with the CIR facility that is querying and not the sending facility if different from the querying facility.

Query Demo

All VXU reporting requirements usually are met first before moving to QBP testing if the new connection is bidirectional.

QBP testing consists of demonstrating your EHR interface screen and running different querying scenarios with CIR test patients. These test patients should be added to your EHR interface before the demonstration. Please review the QBP guide for further details.

Before the QBP call, please ensure to have access to your provider’s live interface if you will be testing with a client’s interface.

| 1. New Patient Scenario for Single Match Found |
| 2. Existing Patient Scenario for Single Match Found |
| 3. Single Match Found with Warning |
| 4. Single Match Found with Invalid Historical Doses |
| 5. Single Match Found with Immunization Forecasting |
| 6. Single Match Found with Immunization Recommendations |
| 7. Too Many Found |
| 8. No Patient Found |

Specific Querying Site MSH-22

To better support data quality issues and MU Stage 3 compliance, the CIR would like their data exchange partners to identify the facility code of the querying site (i.e., the “child” site that it querying under the “parent” or “hub” site, which is sent in MSH-4.1). To identify the querying site in a QBP message, the CIR facility code should be sent in MSH-22: Responsible Sending Organization.

See HL7 Example:

MSH|\^\&amp;|EHR-Name|8000N70||20180111051122-0400||QBP^Q11^QBP_Q11|ExistingPT_Qry_03|T|2.5.1||NE|AL||||9999Q99
QPD|234^Request Immunization History^HL70471|QT216987|777851651^^^^LR~MM54321M^^^^9999Q99^MR|LName^FName^ ^^^^L|20081015|F|
RCP||1^RD|R