



New York City  
Department of Health and Mental Hygiene  
City wide Immunization Registry

# CIR HL7 QBP Full Guide

March 6, 2021

## CIR Interoperability Resources

<b>PURPOSE:</b>	Provide CIR Interoperability resources to our Data Exchange Partners	
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>	
<b>CIR Meaningful Use Website Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/cir-meaningful-use-checklist.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/cir-meaningful-use-checklist.pdf</a>	
<b>CIR Immunization Program Website</b>	<a href="https://www1.nyc.gov/site/doh/providers/reporting-and-services/citywide-immunization-registry-cir.page">https://www1.nyc.gov/site/doh/providers/reporting-and-services/citywide-immunization-registry-cir.page</a>	
<b>Contact Information</b>		
		<b>Contact Type</b>
CIR INTEROPERBILY TEAM	<a href="mailto:CIR_INTEROP@HEALTH.NYC.GOV">CIR_INTEROP@HEALTH.NYC.GOV</a>	This inbox is used by the CIR Interopability Team for HL7 communications, regarding upcoming disruptions to the CIR Web Service or new enhancements or requirements.
		Please email to request testing, connection setup, communicate interface errors
CIR Immunization Program Website	<a href="https://www1.nyc.gov/site/doh/providers/reporting-and-services/citywide-immunization-registry-cir.page">https://www1.nyc.gov/site/doh/providers/reporting-and-services/citywide-immunization-registry-cir.page</a>	This page will provide information and the ability to register an immunizing facility for a CIR Facility Code. In addition, various forms including the Confidentiality Form required for exchanging immunization data with the CIR.
CIR MEANINGFUL USE TEAM	<a href="mailto:MUTRACKING@HEALTH.NYC.GOV">MUTRACKING@HEALTH.NYC.GOV</a>	This inbox is used for Meaningful Use communications. Any Eligible Hospital or Eligible Provider(s) registered for Meaningful Use Immunization Registry Reporting Measure
		Please email in response to a Meaningful Use communication or to request Meaningful Use information.

Kick Off Call Agenda	
Review any outstanding VXU requirements and existing failures or data quality issues for the Interface	
Start by discussing Bidirectional Demo requirements	
How to prepare the Test Patients for the Demo	
How to display the immunization data for the Test Patients	
LOINC Code for the History, Recommendations and Forecasting	
Invalid Dose Codes for Historical Invalid Immunizations	

## CIR HL7 QBP TEST REQUIREMENTS

<b>PURPOSE:</b>	<p>The CIR QBP Full Guide is meant to serve as a supplemental resource to the CIR Implementation Guide (IG) for querying the CIR (compliant with Meaningful Use Stage 3 and the ONC 2015 Edition Certification Testing of HealthIT modules).</p> <p>All test requirements must be met before querying in Production.</p> <p>The test plan outlined includes specific Query and Response test cases that will demonstrate the ability to (1) create well-formed queries, (2) accept the query response messages for three distinct outcomes, and (3) display an evaluated immunization history and recommendations (i.e., provide clinical decision support) in the EHR.</p> <p>The subsequent tabs included in this document will follow the sequence listed below in the "CIR HL7 QBP TEST REQUIREMENT CRITERIA" column.</p>	
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>	
<b>CIR UAT Endpoint URL:</b>	<a href="https://immunize.nyc/hl7-service-uat/services/CirService">https://immunize.nyc/hl7-service-uat/services/CirService</a>	
<b>CIR HL7 QBP TEST REQUIREMENT CRITERIA</b>	<b>QBP Test Criteria Description</b>	<b>CIR IG Reference Page</b>
<a href="#">(A) Conduct CIR Bi-directional demonstration</a>	After all testing is completed and the CIR Interoperability Team approve the QBP Interface for Production, the hospital/facility/provider and EHR Vendor will perform a live demonstration all the previously listed criteria.	
<a href="#">(B) Test Patients for CIR Bi-directional Demo</a>	The CIR Test Patients are for demonstration purposes only.	
<a href="#">(C) Display CIR Immunization Data and Recommendations</a>	Ability to incorporate best practices for displaying CIR immunization data and recommendations	
<a href="#">(D) RSP OBX Loinc Codes</a>	All immunization history and recommendation details are communicated via LOINC	92-94; 112
<a href="#">(E) Invalid Dose Codes</a>	All OBX-5 values for Dose Validity Reasons	92
<a href="#">(1) Create well formed queries - Z34 Profile</a>	Ability to create query messages based on Immunization Messaging Standard Profile (Z34 Profile) and specific CIR test data.	13; 58-67
<a href="#">(1a) Create well formed queries - Z44 Profile</a>	Ability to create query messages based on Immunization Messaging Standard Profile (Z44 Profile) and specific CIR test data.	13; 58-68
<b>(2) Accept the query response (RSP) messages for the following outcomes:</b>		75
<a href="#">(a) Matching patient found (one match)</a>	Ability to receive an RSP and display evaluated immunization history for the patient found	126-132
<a href="#">(a-err) Matching patient found (one match) - contains errors</a>	Ability to receive an RSP and display evaluated immunization history for the patient found when message contains errors	126-132
<a href="#">(b) No match found - Z33 Profile</a>	Ability to receive RSP and display no patients found outcome	133
<a href="#">(b-err) No match found - contains errors - Z33 Profile</a>	Ability to receive RSP and display no patients found outcome when message contains errors	133
<a href="#">(c) Too many patients found - Z33 Profile</a>	Ability to receive RSP and display too many patients found outcome	134
<a href="#">(c-err) Too many patients found - contains errors - Z33 Profile</a>	Ability to receive RSP and display too many patients found outcome when message contains errors	134
<a href="#">(3) Display immunization recommendations</a>	Ability to display immunization recommendations in the EHR based on patient's evaluated immunization history from the CIR (i.e., provide clinical decision support)	76-94
<b>Helpful CIR References:</b>		
<a href="#">Common QBP Failures</a>		
Sample QBP / RSP Messages		125-137

**CIR HL7 QBP TEST CRITERIA: (5) Citywide Immunization Registry Bi-Directional Interface Demonstration**

**Scope:** For a Hospital/Facility to go into Production with their Bi-Directional Interface, a demonstration is required. After the CIR approves the Bi-Directional Interface for production, the Hospital/Facility/EHR Vendor will schedule a live demonstration for all the listed requirements with the CIR Informatic Analysts to review.

**1. New Patient Scenario for Single Match Found**

The EHR should demonstrate the ability to query a new test patient with no immunizations documented within the EHR for that patient.

**Demonstrate with test patient Darateen Test, there should be no immunizations documented within the EMR.** **Please provide your answer below**

1.1. Demonstrate the how to perform a query within the EMR (Automatic vs Manual)

Question 1.	How are queries in the EHR Triggered?	Automatic: A query is triggered on the backend by an end-users workflow event	Y/N
		Manual: A query is triggered by the end-user clicking a button for the query	Y/N

1.2. Displaying **Darateen Test's** historical immunization record returned by the CIR in the EHR

1.3. Show where and how the patient's immunization history is displayed in the EHR for Darateen Test,

Question 2.	Can the entire CIR immunization history be added to the EHR record by selecting all?	Y/N
Question 3.	Can the end-user add one Vaccine Group at a time? For example, all the Hep B dose can be added with 1 click	Y/N
Question 4.	Can each individual Vaccine is added 1 at a time?	Y/N

Any additional notes on how the CIR Immunization History is added to the EHR Patient record:

**2. Existing Patient Scenario for Single Match Found**

The EHR should demonstrate the ability to query an existing patient to the facility or hospital with immunizations documented in the EHR that are not reported to the CIR; also demonstrate the ability to reconcile the EHR immunization record with the CIR immunization record.

**Demonstrate with test patient BartKid Test, there should be 1 Hep B documented on 11/17/2011 and MMR documented on 12/02/2012 within the EMR, not reported to the CIR.** **Please provide your answer below**

2.1. Display the existing immunizations that are documented in EHR

2.2. Query **BartKid Test**

2.3. Demonstrate how the immunization data shows for both the EHR record and the CIR record in the EHR

Question 1.	Can the end-users see both immunization records (immunization existing in the EHR and the immunizations return by the CIR) in the EHR on one screen?	Y/N
Question 2.	Can the end-user understand what immunizations were returned by the CIR?	Y/N
Question 3.	Can the end-user report immunizations missing in the CIR immunization record by retriggering manually?	Y/N

Any additional notes on how the EHR immunization History reconciliation process:

**3. Single Match Found with Errors**

The EHR should demonstrate the ability to query a patient with invalid historical doses and display the historical immunizations that were evaluated by the CIR as invalid based on the patient's age and immunization history;

**Please Note: If the QBP contained Non-Fatal Errors, MSA-1 value of AE, and the patient exists the CIR will still match and return patient immunization history, forecasting and recommendations.**

**Demonstrate with test patient BabyHuey Test, with the address ONE FIRST STREET APARTMENT WITH REALLY LONG ADDRESS FOR ERROR within the EMR.** **Please provide your answer below**

3.1. Query **BabyHuey Test**

3.2. Demonstrate how the immunization data shows in the EHR for **BabyHuey Test** immunization history in the CIR

Question 1.	Does the EHR display the CIR's immunization history for BabyHuey Test?	Y/N
Question 2.	Does the EHR show the error message from the CIR?	Y/N

Any additional notes on how the EHR handles CIR RSP errors?

**4. Single Match Found with Invalid Historical Doses**

The EHR should demonstrate the ability to query a patient with invalid historical doses and display the historical immunizations that were evaluated by the CIR as invalid based on the patient's age and immunization history

**Please Note: An Invalid Dose is a historical immunization event that was evaluated by the CIR to have a dose validity of invalid based on the patient's age and immunization history. Invalid doses should not be counted towards the patient's immunization schedule. For Invalid Dose LOINC CODES and reasons reference tab RSP OBX LOINC CODES and Invalid Dose Codes.**

**Demonstrate with test patient Test Shots, there should be no immunizations documented within the EMR.** **Please provide your answer below**

4.1. Query **Test Shots**

4.2. Demonstrate how the immunization history returned from the CIR shows in the EHR

Question 1.	Does the EHR display the CIR's immunization history for Test Shots?	Y/N
-------------	---	-----

Question 2.	Are the invalid doses being displayed in the immunization history returned from the CIR?	Y/N
Question 3.	Are the invalid doses flag or dose validity showing as No or Not Valid?	Y/N
Question 4.	Are the invalid doses reasons showing?	Y/N
Any additional notes on how the EHR displays invalid doses?		
<b>5. Single Match Found with Immunization Forecasting</b>		
The EHR should demonstrate the ability to query a patient with immunization forecasting		
<b>Demonstrate with test patient Test Shots, there should be no immunizations documented within the EMR.</b>		<b>Please provide your answer below</b>
5.1. Display forecasting for next doses with Test Shots		
Question 1.	Does the EHR use the CIR's immunization forecasting?	Y/N
Question 2.	Can the EHR use an internal module to display immunization forecasting for next doses?	Y/N
Question 3.	Does the EHR display immunization forecasting for next doses that are overdue as DUE NOW or a date in the past ?	Y/N
Any additional notes on how the EHR displays immunization forecasting?		
<b>6. Single Match Found with Immunization Recommendations</b>		
The EHR should demonstrate the ability to query a patient with immunization forecasting		
<b>Demonstrate with test patient Test Shots, there should be no immunizations documented within the EMR.</b>		<b>Please provide your answer below</b>
6.1. Display immunization recommendations with Test Shots		
Question 1.	Does the EHR display the CIR recommendations?	Y/N
Question 2.	Can the EHR use an internal module to display recommendations?	Y/N
Any additional notes on how the CIR Immunization Recommendation is added to the EHR Patient record:		
<b>7. Too Many Found</b>		
The EHR should demonstrate the ability to query a patient where multiple patients are found due to similar demographic data elements. The CIR will return a Z33 in MSH-21 and if no error a TM in QAK-2.		
<b>Please note: Best practice for end-users to use their Online Registry account to query patient if too many patient found.</b>		
<b>Demonstrate with test patient Too Many Test.</b>		<b>Please provide your answer below</b>
7.1. Query Too Many Test		
Question 1.	Does the EHR display a message indicating there was no single CIR match found?	Y/N
Question 2.	Is there a way to re-query in the EHR with additional demographics?	Y/N
Any additional notes on how the CIR Immunization Too Many Found matches in the EHR Patient record:		
<b>8. No Patient Found</b>		
Using a test patient that does not exist in the CIR, send a query and display what the end user's see if the CIR returns a MSH-21 value of Z33		
<b>Please note: Best practice for end-users to use their Online Registry account to query patient</b>		
<b>Demonstrate with test patient that was created in the EHR and does not exist in the CIR</b>		<b>Please provide your answer below</b>
<b>8.1 Query the EHR's Test Patient</b>		
Question 1.	Does the EHR display a message indicating there was no CIR match found?	Y/N
Question 2.	Is there a way to re-query in the EHR with additional demographic?	Y/N
Any additional notes on how the CIR Immunization Forecasting and Recommendation is added to the EHR Patient record:		

**CIR HL7 QBP TEST CRITERIA: (5a) Citywide Immunization Registry Bidirectional Interface Demonstration**

**Scope:**

The following test patients are intended for use during the CIR bidirectional interface demonstration. All the test patients contain invalid dose and doses that are currently due.

#	Test Case Criteria	CIR PATIENT ID	First Name	Last Name	DOB	Gender	Middle Name	Maiden Name	House No	Street	Notes
1	<a href="#">(2a) Matching Patient Found</a>	788564114	DARATEEN	TEST	9/3/2002	Female	12YRTO18YR	MORGENTEST	18	TEENAGER PLACE	End-user should see vaccine history, immunization recommendations (vaccines forecasted), and a message about invalid vaccine shot
	<a href="#">(3) Immunization Recommendations Displayed</a>										
2	<a href="#">(2a) Matching Patient Found</a>	788564111	BARTKID	TEST	11/17/2011	Male	6YRTO11YR	SIMPSONTEST		ELEVEN 11TH ROAD	End-user should see vaccine history, immunization recommendations, and a message about invalid vaccine shot
	<a href="#">(3) Immunization Recommendations Displayed</a>										
3	<a href="#">(2a) Matching Patient Found</a>	788564096	BABYHUEY	TEST	1/7/2018	Male	TWOSEXMTS	HUEYMOTHER		ONE FIRST STREET APARTMENT WITH REALLY LONG ADDRESS FOR ERROR	End-user should see vaccine history, immunization recommendations, and a message about invalid vaccine shot
	<a href="#">(3) Immunization Recommendations Displayed</a>										
4	<a href="#">(2a) Matching Patient Found - Invalid Shots</a>	788573862	TEST	SHOTS	2/3/2018	Female	INVALID	INVALIDSHOTS	100	JUST CT	End-user should see a message about invalid vaccine shots (INVALID SHOTS ONLY)
	<a href="#">(3) Immunization Recommendations Displayed - Invalid Shots</a>										
5	<a href="#">(2c) Too many patients found</a>		Too Many	TEST	1/1/2020	Female					End-user should see a message like "No exact match found"
6	<a href="#">2b No patient found</a>		Facility/Hospital Street Name	EHRName	EHRVendor create DOB	EHRVendor create Gender					End-user should see a message like "No exact match found"

**CIR HL7 QBP TEST CRITERIA: (4) Best Practices for Displaying Citywide Immunization Registry Immunization Data and Recommendations**

<b>Scope:</b>	Provide guidance on best practices for an EHR Vendor to display CIR immunization data in a meaningful way to their end users.
<b>AIRA IIS-EHR Providing and Displaying Immunization Data Presentation:</b>	<a href="https://repository.immregistries.org/files/resources/5835add987979/track_c_iis-ehr_partnership_providing_and_displaying_immunizations_and_clinical_decision_support_i.pdf">https://repository.immregistries.org/files/resources/5835add987979/track_c_iis-ehr_partnership_providing_and_displaying_immunizations_and_clinical_decision_support_i.pdf</a>

**1. Showing Patient History:** A patient in the EHR with an existing CIR Immunization record. Please note if a RSP message has a QAK of AE and a PID, the CIR has found a single match and returned history, forecasting and recommendations.

1.1. Provide the ability for end users to view the CIR Immunization history and any documented history in the EHR. Viewing the full patient immunization history (from EHR and CIR) on one screen provides the end user with a full history so the end user can review and add what is necessary to ensure the patient has a full immunization history documented in the EHR.

1.2 This includes displaying invalid doses with the evaluation reason provided by the CIR. These doses should stand out to the end-user for review. To understand all the invalid dose evaluation reason please review the Invalid Dose Code tab. Provide a way for end users to view the CIR Immunization history and any documented history in the EHR

**2. Patient Immunization Record Reconciliation:** Provide the ability for end users to update the patient's immunization record with the CIR immunization data. It is important to note the CIR only returns the history and recommendations based on the CIR history and patient's age. If there are immunizations missing from the patient's CIR immunization record the recommendations will not be accurate. So ensure any missing immunizations are reported to the CIR before querying for patient's forecasting and recommendations.

**3. Display forecasting and recommendations:** Provide the ability for the end users to view patient's immunization forecasting and recommendations in a clear and concise manner in order to provide an accurate immunization administration recommendations.

Below is an example from the CIR Online Registry of a full immunization and recommendations

Immunization History						
Event	1	2	3	4	5	Next Due
<b>Influenza</b> 1 Event/s	02/19/2018 Influenza-IV4 IM, Presrv-free(6-35mos) 15m 3w					DUE NOW INFLUENZA
<b>HepB</b> 5 Event/s	11/01/2016 Hep B Peds <20 yrs Dw 6d	11/11/2016 Hep B Peds <20 yrs 2w 2d	12/15/2016 Hep B Peds <20 yrs 7w 1d	12/25/2016 Hep B Peds <20 yrs 5w 4d	05/01/2017 Hep B Peds <20 yrs 6m Dw	Completed Vaccine Series
<b>Rotavirus</b> 1 Event/s	06/07/2017 Rotavirus RV1 (Rotarix, 2 dose) 7m 1w					Not recommended after 8 months.
<b>DTP</b> 4 Event/s	11/01/2016 DTaP-IPV (Kinrix, Quadacel) Dw 6d	02/22/2017 DTaP-IPV (Kinrix, Quadacel) 17w 0d	04/01/2017 DTaP 22w 3d	05/01/2017 DTaP-IPV (Kinrix, Quadacel) 6m 0w		DUE NOW DTAP
<b>Hib</b> 2 Event/s	04/01/2017 Hib-PRP-T (ActHib, Hiberix) 22w 3d	04/11/2017 Hib-PRP-T (ActHib, Hiberix) 23w 6d				DUE NOW HIB-PRP-T (ACTHIB, HIBERIX)
<b>Pediatric Pneumococcal (PCV &amp; PPSV)</b> 0 Event/s						DUE NOW PNEUM CONJ (PCV13)
<b>Polio</b> 4 Event/s	11/01/2016 DTaP-IPV (Kinrix, Quadacel) Dw 6d	02/02/2017 IPV 14w 1d	02/22/2017 DTaP-IPV (Kinrix, Quadacel) 17w 0d	05/01/2017 DTaP-IPV (Kinrix, Quadacel) 6m 0w		DUE NOW IPV
<b>MMR</b> 1 Event/s	02/19/2018 MMR 15m 3w					DUE ON 10/26/2020 MMR
<b>Varicella</b> 2 Event/s	02/01/2017 Varicella 14w 0d	02/01/2017 Disease/Immunity Reported				Completed Vaccine Series
<b>HepA</b> 0 Event/s						DUE NOW HEPA PED/ADOL 2-DOSE
<b>Meningococcal (MenACWY)</b> 0 Event/s						Recommended for high risk groups, otherwise Due on 10/26/2027 MenACWY Conjugate
<b>Human Papillomavirus</b> 0 Event/s						DUE ON 10/26/2027 HUMAN PAPILLOMAVIRUS (HPV9-GARDASIL 9)
<b>Adult Pneumococcal (PCV &amp; PPSV)</b> 0 Event/s						Not recommended
<b>H1N1 Influenza</b> 0 Event/s						No longer recommended
Other Vaccines						
<b>Other</b> 5 Event/s	01/01/2017 RIG 9w 4d	01/11/2017 RIG 11w 0d	03/01/2017 Japanese Encephalitis, IM 18w 0d	03/11/2017 Japanese Encephalitis, IM 19w 3d	05/01/2017 Yellow Fever 6m Dw	

**4. Display message in EHR to end user to communicate No Matches Found, Too Many Matches and Failures.** Provide an auto generated message in the EHR based to communicate to end users if the query resulted in the following No Matches, Too Many Matches Found and Failure. Please note for all three of these criterias there will be no PID segment present.

4.1 Display message to end user for patients with No Matches Found. The EHR should auto generated message like **'No exact match found'** in the EHR based to communicate to end users the query resulted in No Matches Found result.

4.2 Display message to end user for patients with Too Many Matches Found. When EHR receives a The EHR should auto generate message like **'No exact match found'** in the EHR based to communicate to end users if the query resulted in a No Matches Found or Too Many Matches Found.

4.3 Display message to end user when a query fails. The EHR should generate a message of "Patient lookup could not be performed at this time. Please try again later". In some organization they also include "If this issue persists please open a ticket with your IT administrator"



**CIR HL7 QBP TEST CRITERIA : RSP OBX LOINC CODES**

<b>Scope:</b>	When mapping CIR RSP immunization information, use the following LOINC Codes to convey the evaluated immunization history, forecasting, and recommendations.				
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>				
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	92-94; 112				
RSP Scope	OBX-3 Concept Code	HL7 Description	Communication Context	OBX-5 Value	HL7 Example
History	38890-0	Component Vaccine Type	Communicates historically administered vaccine doses	CVX Code Administered	OBX 1 CE 38890-0^Component Vaccine Type^LN 1 08^Hep B, adolescent or pediatric^CVX     F
History	59781-5	Dose validity	Communicates historically administered vaccine dose validity as invalid based on the patient's age and immunization history in the CIR.	N	OBX 2 ID 59781-5^Dose Validity^LN 1 N     F
History	30982-3	Reason applied by forecast logic to project this vaccine	Communicates the reason for the historically administered vaccine dose was evaluated as invalid by the CIR.	NYCDOH INV SHOT Codes	OBX 3 CE 30982-3^Reason applied by forecast logic to project this vaccine^LN 1 1005^This immunization event occurred prior to the recommended age or recommended interval for this dose.^NYCDOHINVSHOTCODES     F
Recommendations	59783-1	Vaccine Group Recommendation Status / Vaccine Group Not Recommended and Why	Communicates Vaccine Group Not Recommended	Vaccine Name^Not recommended	OBX 1 ST 59783-1^Vaccine Group Recommendation Status^NYCDOHVCGPST 1 Adult Pneumococcal (PCV \T\ PPSV)^Not recommended^NYCDOHVCGPST     F   20170417142640
			Communicates Vaccine Group Conditionally Recommended	Vaccine Name^Recommended for	OBX 1 ST 59783-1^Vaccine Group Recommendation Status^NYCDOHVCGPST 1 Pediatric Pneumococcal (PCV \T\ PPSV)^Recommended for high risk groups^NYCDOHVCGPST     F   20180125155157
			Communicates Completed Vaccine Group	Vaccine Name^Completed Vaccine Series	OBX 1 ST 59783-1^Vaccine Group Recommendation Status^NYCDOHVCGPST 1 Rotavirus^Completed Vaccine Series^NYCDOHVCGPST     F   20180125155157
Recommendations*	30999-1	Vaccine Group Recommendation Status / Vaccine Group Not Recommended and Why	Communicates Vaccine Group Not Recommended	Vaccine Name^Not recommended	OBX 1 ST 30999-1^Vaccine Group Recommendation Status^NYCDOHVCGPST 1 Adult Pneumococcal (PCV \T\ PPSV)^Not recommended^NYCDOHVCGPST     F   20170417142640
			Communicates Vaccine Group Conditionally Recommended	Vaccine Name^Recommended for	OBX 1 ST 30999-1^Vaccine Group Recommendation Status^NYCDOHVCGPST 1 Pediatric Pneumococcal (PCV \T\ PPSV)^Recommended for high risk groups^NYCDOHVCGPST     F   20180125155157
			Communicates Completed Vaccine Group	Vaccine Name^Completed Vaccine Series	OBX 1 ST 30999-1^Vaccine Group Recommendation Status^NYCDOHVCGPST 1 Rotavirus^Completed Vaccine Series^NYCDOHVCGPST     F   20180125155157
Forecast Recommendation	59779-9	Immunization Schedule used	Communicates Vaccine Schedule Used	VXC16^ACIP Schedule^CDCPHINVS	
Forecast Recommendation	30979-9	Vaccine Due Next	Communicates the Recommended Vaccine	CVX Code of Recommended Vaccine	OBX 1 CE 30979-9^Vaccine due next^LN 1 115^Tdap^CVX     F   20180125155157
Forecast Recommendation	30980-7	Date vaccine due	Communicates the Recommended Vaccine Due Date	DUE DATE in YYYYMMDD format	OBX 2 DT 30980-7^Date vaccine due^LN 1 20121014     F   20180125155157

\*To map the vaccine groups, please refer to list below of distinct OBX-5.1 values the CIR returns:

Vaccine Group Name (OBX-5.1 value in RSP, where OBX-3.1 = 30999-1)	Use these CVX codes to map to the appropriate vaccine group
Adult Pneumococcal (PCV \T\ PPSV)	133
DTP	20
HepA	85
HepB	45
Hib	17
Human Papillomavirus	165
Influenza	88
Meningococcal (MenACWY)	147
MMR	3
Pediatric Pneumococcal (PCV \T\ PPSV)	133
Polio	10
Rotavirus	116
Varicella	21
H1N1 Influenza	(ignore)
Other	(many)

**CIR HL7 QBP TEST CRITERIA: Invalid Dose Codes**

<b>Scope:</b>		When the CIR evaluates an immunization event, the dose may be invalid for many reasons. It is important to incorporate the invalid dose reasons so the end users can make the best decisions. The CIR will always communicate an OBX-3 value of 30989-3 and OBX-5 will communicate the reason the dose was evaluated as invalid. Use the following codes returned by the CIR to convey the reason for an invalid dose determination for an immunization event, when an OBX-3 is valued with 30982-3.
<b>OBX-3 Value</b>	<b>OBX-5 Value</b>	<b>CIR Invalid Dose Reasons</b>
30982-3	1001	The age of this patient was below the recommended minimum age of the vaccine.
	1002	This immunization event occurred prior to the recommended age or recommended interval for this dose.
	1003	
	1004	
	1005	
	1006	The current immunization schedule does not support this vaccine, series and dose number combination.
	1007	The age of this patient exceeds the max age of the series based on the curr immunization schedule.
	1008	The system only evaluates events which were administered when the patient was under 8 years old.
	1009	This immunization event was an extra dose since it occurred after this series was completed.
	1010	The system was unable to produce a recommendation based on the immunization history of this patient.
	1020	DTaP-Hib not accepted unless final dose in series, and other rules are followed.
	1021	Event rejected, Tdap previously accepted.
	1022	This vaccine is licensed for a single dose only.
	1024	The imm. event occurred less than the minimum days after the administration of another vaccine.
	1025	Extra Dose. Contains no needed antigens.
	1088	This patient was below the minimum age for this dose.
1092	Proof of immunity.	
1105	Disease documented.	

**QBP Message:**

MSH|^~\&|EPICv1.8|9999Q99|NYCDOHMH-CIR|NYCDOHMH-CIR|20181001083105-0400||QBP^Q11^QBP\_Q11|QT-MatchSuccessful-01|E|2.5.1|||ER|AL|||Z34^CDCPHINVS||7777K01

QPD|Z34^Request Immunization History^HL70471|QT-MatchSuccessful-02||TEST-PATIENT^MATT^THOMAS^^^L||20140615|M|305 BIG APPLE BLVD^7C^NY^NY^12345-2058^US^^^59|RCP||10^RD HL70126|R|

**CIR ACK:**

The following CIR ACK communicates that message failed in MSA-1 and QAK-2 have value of **AR**. The ERR-2 communicates that location is MSH 11-1 and ERR-3/ERR-8 communicates the Processing ID has a value that is unsupported.

MSH|^~\&|CIR HL7 Web Service 2.17 (POSTGRES MIGRATION-PRODUCTION: 2018/08/23)|NYC DOHMH|SCM|1320Y99|20181105103444-

MSA|AR|138003310|

ERR||MSH^1^11^1^1|202^Unsupported processing ID^HL70357|E|UnsupportedProcessingId^^HL70357|||Processing\_Id: UnsupportedProcessingId|

ERR||MSH^1^11^1^1|101^Required field missing^HL70357|E|RequiredField^^HL70357|||Processing\_Id: RequiredField|

QAK|5|AR|

QPD|Z34^Request Immunization History^HL70471|QT-MatchSuccessful-02||TEST-PATIENT^MATT^THOMAS^^^L||20140615|M|305 BIG APPLE BLVD^7C^NY^NY^12345-2058^US^^^59|

**CIR HL7 QBP TEST CRITERIA: (1a) WELL FORMED QUERY - Z44 Profile**

<b>Scope:</b>	Create query messages based on Immunization Messaging Standard (Z44 Profile) and specific CIR test data
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	58 - 67; 125

**Message Header Segment (MSH) in a QBP**

SEQ	Element Name	CDC IG Usage	CIR IG Usage	CIR Element Data Reference	CIR HL7 notes	Valid	CIR HL7 Example:
MSH-1	Field Separator	R	R	MSH		MSH	<b>MSH ^~\&amp; EPICv1.8 9999Q99 NYCDOHMH-CIR NYCDOHMH-CIR 20181001083105-0400  QBP^Q11^QBP_Q11 QT-MatchSuccessful-01 T 2.5.1   ER AL   Z44^CDCPHINVS  7777K01</b>
MSH-2	Encoding Characters	R	R	^~\&		^~\&	
MSH-3	Sending Application	RE	RE	EHR/Interface Application Name		SENDApp	
MSH-4	Sending Facility	RE	R	CIR Facility Code		9999Q99	
MSH-5	Receiving Application	RE	RE (I)	NYCDOHMH-CIR		NYCDOHMH-CIR	
MSH-6	Receiving Facility	RE	RE	NYCDOHMH-CIR		NYCDOHMH-CIR	
MSH-7	Date/Time Of Message	R	R	DATETIME-TIMEZONE		20181001083105-0400	
MSH-8	Security	O	I				
MSH-9	Message Type	R	R	QBP^Q11^QBP_Q11		QBP^Q11^QBP_Q11	
MSH-10	Message Control ID	R	R	Unique Message Control ID		QT-MatchSuccessful-01	
MSH-11	Processing ID	R	R	Processing ID based on Production or UAT		T	
MSH-12	Version ID	R	R	2.5.1		2.5.1	
MSH-15	Accept Acknowledgement Type	RE	RE				
MSH-16	Application Acknowledgment Type	RE	RE				
MSH-21	Message Profile Identifier			Z44^CDCPHINVS		Z44^CDCPHINVS	
MSH-22	Sending Responsible Organization	RE	O	CIR Facility Code of the query initiator		7777K01	

**Query Parameter Definition Segment (QPD) in a QBP**

SEQ	Element Name	CDC IG Usage	CIR IG	CIR Element Data Reference	CIR HL7 notes	Valid	CIR HL7 Example:
QPD-1	Message Query Name	R	R	Query Profile ID	If there is a match, the CIR WS will always return Z42 Profile data regardless of the Query Profile ID in sender's QBP	Z44^Request Immunization History^HL70471	<b>QPD Z34^Request Immunization History^HL70471 QT-MatchSuccessful-02  TEST-PATIENT^MATT^THOMAS^L  20140615 M 305 BIG APPLE BLVD^7C^NY^NY^12345-2058^US^59 </b>
QPD-2	Query Tag	R	R	Unique Query ID from Senders System		QT-MatchSuccessful-02	
QPD-3	Patient List	RE	RE	Patient IDs	Patient MR, LR, MA or MC		
QPD-4	Patient Name	RE	R	Patient Last Name, Middle Name and First Name	This field has to be an <u>exact match</u> for each name element.	TEST-PATIENT^MATT^THOMAS^L	
QPD-5	Patient Mother Maiden Name	RE	RE	Patient Mother's Maiden Name			
QPD-6	Patient Date of Birth	RE	R	Date of Birth in YYYYMMDD format		20140615	
QPD-7	Patient Sex	RE	R	Administrative Sex		M	
QPD-8	Patient Address	RE	RE		Including patient's address in the query will improve matching rates		
QPD-9	Patient Home Phone	RE	RE				
QPD-10	Patient Multiple Birth Indicator	RE	RE				
QPD-11	Patient Birth Order	RE	RE				

**Response Control Parameter (RCP) in a QBP**

SEQ	Element Name	CDC IG Usage	CIR IG	CIR Element Data Reference	CIR HL7 notes	Valid	CIR HL7 Example:
<b>Required for a successful query but can be empty</b>							
RCP-1	Query Priority	O	O			I	<b>RCP  10^RD HL70126 R </b>
RCP-2	Quantity Limited Request	O	O			10	
RCP-3	Response Modality	O	O			RD	
RCP-4	Execution and Delivery Time	O	I			R	

**WELL FORMED CIR HL7 QBP MESSAGE EXAMPLE**

```
MSH|^~\&|EPICv1.8|9999Q99|NYCDOHMH-CIR|NYCDOHMH-CIR|20181001083105-0400||QBP^Q11^QBP_Q11|QT-MatchSuccessful-01|T|2.5.1|||ER|AL|||Z44^CDCPHINVS||7777K01
QPD|Z44^Request Immunization History^HL70471|QT-MatchSuccessful-02||TEST-PATIENT^MATT^THOMAS^L||20140615|M|305 BIG APPLE BLVD^7C^NY^NY^12345-2058^US^59|
RCP||10^RD HL70126|R|
```

**CIR HL7 QBP TEST CRITERIA: (1) WELL FORMED QUERY - Z34 Profile**

<b>Scope:</b>	Create query messages based on Immunization Messaging Standard (Z34 Profile) and specific CIR test data
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	58 - 67; 125

**Message Header Segment (MSH) in a QBP**

SEQ	Element Name	CDC IG Usage	CIR IG Usage	CIR Element Data Reference	CIR HL7 notes	Valid	CIR HL7 Example:
MSH-1	Field Separator	R	R	MSH		MSH	MSH ^~\&; EPICv1.8 9999Q99 NYCDOHMH-CIR NYCDOHMH-CIR 20181001083105-0400  QBP^Q11^QBP_Q11 QT-MatchSuccessful-01 T 2.5.1   ER AL   Z34^CDCPHINVS  7777K01
MSH-2	Encoding Characters	R	R	^~\&;		^~\&;	
MSH-3	Sending Application	RE	RE	EHR/Interface Application Name		SENDApp	
MSH-4	Sending Facility	RE	R	CIR Facility Code		9999Q99	
MSH-5	Receiving Application	RE	RE (I)	NYCDOHMH-CIR		NYCDOHMH-CIR	
MSH-6	Receiving Facility	RE	RE	NYCDOHMH-CIR		NYCDOHMH-CIR	
MSH-7	Date/Time Of Message	R	R	DATETIME-TIMEZONE		20181001083105-0400	
MSH-8	Security	O	I				
MSH-9	Message Type	R	R	QBP^Q11^QBP_Q11		QBP^Q11^QBP_Q11	
MSH-10	Message Control ID	R	R	Unique Message Control ID		QT-MatchSuccessful-01	
MSH-11	Processing ID	R	R	Processing ID based on Production or UAT		T	
MSH-12	Version ID	R	R	2.5.1		2.5.1	
MSH-15	Accept Acknowledgement Type	RE	RE				
MSH-16	Application Acknowledgment Type	RE	RE				
MSH-21	Message Profile Identifier					Z34^CDCPHINVS	
MSH-22	Sending Responsible Organization	RE	O	CIR Facility Code of the query initiator		7777K01	

**Query Parameter Definition Segment (QPD) in a QBP**

SEQ	Element Name	CDC IG Usage	CIR IG Usage	CIR Element Data Reference	CIR HL7 notes	Valid	CIR HL7 Example:
QPD-1	Message Query Name	R	R	Query Profile ID		Z34^Request Immunization History^HL70471	QPD Z34^Request Immunization History^HL70471 QT-MatchSuccessful-02  TEST-PATIENT^MATT^THOMAS^L  20140615 M 305 BIG APPLE BLVD^7C^NY^NY^12345-2058^US^59
QPD-2	Query Tag	R	R	Unique Query ID from Senders System		QT-MatchSuccessful-02	
QPD-3	Patient List	RE	RE	Patient IDs	Patient MR, LR, MA or MC		
QPD-4	Patient Name	RE	R	Patient Last Name, Middle Name and First Name	This field has to be an exact match for each name element.	TEST-PATIENT^MATT^THOMAS^L	
QPD-5	Patient Mother Maiden Name	RE	RE	Patient Mother's Maiden Name			
QPD-6	Patient Date of Birth	RE	R	Date of Birth in YYYYMMDD format		20140615	
QPD-7	Patient Sex	RE	R	Administrative Sex		M	
QPD-8	Patient Address	RE	RE		Including patient's address in the query will improve matching rates		
QPD-9	Patient Home Phone	RE	RE				
QPD-10	Patient Multiple Birth Indicator	RE	RE				
QPD-11	Patient Birth Order	RE	RE				

**Response Control Parameter (RCP) in a QBP**

SEQ	Element Name	CDC IG Usage	CIR IG Usage	CIR Element Data Reference	CIR HL7 notes	Valid	CIR HL7 Example:
quired for a successful query but can be empty							
RCP-1	Query Priority	O	O			I	RCP  10^RD HL70126 R
RCP-2	Quantity Limited Request	O	O			10	
RCP-3	Response Modality	O	O			RD	
RCP-4	Execution and Delivery Time	O	I			R	

**WELL FORMED CIR HL7 QBP MESSAGE EXAMPLE**

MSH|^~\&;|EPICv1.8|9999Q99|NYCDOHMH-CIR|NYCDOHMH-CIR|20181001083105-0400||QBP^Q11^QBP\_Q11|QT-MatchSuccessful-01|T|2.5.1|||ER|AL|||Z34^CDCPHINVS|9009X01  
 QPD|Z34^Request Immunization History^HL70471|QT-MatchSuccessful-02||TEST-PATIENT^MATT^THOMAS^L||20140615|M|305 BIG APPLE BLVD^7C^NY^NY^12345-2058^US^59|  
 RCP||10^RD HL70126|R|

## CIR HL7 QBP TEST CRITERIA: (2a) Accept RSP for matching patient found

<b>Scope:</b>		Receive RSP (Z42 Profile) and display matching patient found and their evaluated immunization history from the CIR	
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>		<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>	
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>		126-131	
<b>Test Patients for this criteria:</b>		<a href="#">Test Patient #1-4</a>	
CIR RSP Structure			
Segment	CIR Segment Data Reference	CIR HL7 notes	CIR HL7 Example:
MSH		The first 4 segments of an RSP will communicate the status of the QBP message, the status of the Query and the original QBP Segment requested.	MSH ^~\& CIR HL7 Web Service 2.15 (POSTGRES MIGRATION-PRODUCTION: 2018/08/08) NYC DOHMH LITA-TEST 9999Q99 20181001104403-0400  RSP^K11^RSP_K11 20181001104403-0400CIR-WS T 2.5.1  NE NE    Z32^CDCPHINVS
MSA		Like a VXU ACK, the MSA Segment will communicate message status and Message Control ID	MSA AA QT-MatchSuccessful-01
QAK	If QBP has no error the QAK will communicate Query Tab ID and Status of match	If the message has no errors and a single match was found the QAK-2 will always be valued with OK	QAK QT-MatchSuccessful-02 OK
QPD		The CIR RSP repeats QPD fields of the Sender's original QPD.	QPD Z34^Request Immunization History^HL70471 QT-MatchSuccessful-02  TEST-PATIENT^MATT^THOMAS^^^^L  20140615 M
PID	Patient Information if matched in CIR DatabaseOnly if the CIR Web Service finds a Single Patient Match will the CIR RSP contain a PID Segment containing only the folloing CIR Patient Information: the patients name, date of birth, and sex;		PID   786293987^^^^LR  TEST-PATIENT^MATTHEW^THOMAS^^^^L  20140615 M
]	<b>End Patient Identifier</b>	If the patient is found and has immunization history, after the PID segment it will always be followed by a group of triplets (1 ORC, 1 RXA and	
Please note the CIR Web Service can find a Single Patient Match that does not contain Immunization History.			
ORC		If the patient has immunization history the first <b>ORC-3 field is valued with the CIR Immunization ID</b> and <b>ORC-12 will be valued with the Ordering Physician</b> , if successfully reporting in ORC-12, or the default provider for that CIR Facility.	ORC RE  91010812^NYC-CIR      ^JONES^LISA
RXA		Similar to a VXU messgae, The <b>RXA-3</b> and <b>RXA-4</b> will be valued with the Immunization Administration Date. <b>RXA-5</b> will be valued with the <b>CVX code</b> . If the CIR received the following fields in the VXU, it will also be valued in the RSP: <b>RXA-15 will be valued with the Lot #</b> , <b>RXA-16 will be valued</b> , <b>RXA-17 will be valued with the MVX code</b> .	RXA 0 1 20140615 20140615 08^Hep B, adolescent or pediatric^CVX 999      1413301 20150630 NOV^Novartis Pharmaceutical Corporation (includes Celltech Medeva Vaccines and Evans Medical Limited)^MVX
OBX		If the vaccine only has 1 component, meaning it is <u>not</u> a combo vaccine it will only have one OBX-3 with 38890-0. OBX-5 will contain the CVX code	OBX 1 CE 38890-0^Component Vaccine Type^LN 1 08^Hep B, adolescent or pediatric^CVX     F
ORC		The second <b>ORC-3 field is valued with the CIR Immunization ID</b> and <b>ORC-12 will be valued with the Ordering Physician</b> , if successfully reporting in ORC-12, or the default provider for that CIR Facility.	ORC RE  91010814^NYC-CIR      ^STERN^DOCTOR
RXA		Similar to a VXU messgae, The <b>RXA-3</b> and <b>RXA-4</b> will be valued with the Immunization Administration Date. <b>RXA-5</b> will be valued with the <b>CVX code</b> . This immunization was <u>not</u> reported with either Lot # or Expiration date.	RXA 0 1 20140815 20140815 50^DTaP-Hib^CVX 999

[ {	<b>Begin Observation Group</b>	This a combination vaccine containing DTaP and Hib. So there should be two <b>OBX-3 value of 38890-0</b> ; each with an <b>OBX-5</b> value of the <b>CVX code</b> for the specified vaccine	OBX 1 CE 38890-0^Component Vaccine Type^LN 1 20^DTaP^CVX     F
OBX			OBX 2 CE 38890-0^Component Vaccine Type^LN 2 48^Hib (PRP-T)^CVX     F
		<b>OBX-3 value of 59781-5</b> means that one or all of the vaccine contain an invalid dose based on the immunization schedule and <b>OBX-5</b> will always be valued with <b>N</b>	OBX 3 ID 59781-5^Dose Validity^LN 2 N     F
		After an invalid doses, the next OBX-3 contains <b>30982-3</b> and <b>OBX-5</b> will be valued with the error code followed by the reason the dose was marked invalid.	OBX 4 CE 30982-3^Reason applied by forecast logic to project this vaccine^LN 2 1020^DTaP-Hib not accepted unless final dose in series, and other rules are followed.^NYCDOHINVSHTOCODES     F
		<b>OBX-3 value of 59779-9</b> to communicate the schedule used to evaluate the historical vaccine.	OBX 5 CE 59779-9^Immunization Schedule used^LN 2 VXC16^ACIP^CDCPHINVS     F
ORC		The third <b>ORC-3 field is valued with the CIR Immunization ID</b> and <b>ORC-12 will be valued with the Ordering Physician</b> , if successfully reporting in ORC-12, or the default provider for that CIR Facility.	ORC RE  224875740^NYC-CIR       ^GOOD^DOCTO+E25:E26R
RXA		Similar to a VXU message, <b>RXA-3</b> and <b>RXA-4</b> will be valued with the Immunization Administration Date. <b>RXA-5</b> will be valued with the <b>CVX code</b> . This immunization was <u>not</u> reported with either Lot # or Expiration date. The CIR received the following fields in the VXU, so it is valued in the RSP: <b>RXA-15 will be valued with the Lot #, RXA-16 will be valued, RXA-17 will be valued with the MVX code.</b>	RXA 0 1 20180629 20180629 110^DTaP/HepB/IPV(Pediarix)^CVX 999       33PA4 20200424 SKB^GlaxoSmithKline^MVX
[ {	<b>Begin Observation Group</b>	This a combination vaccine containing three components Hep B, IPV and DTaP. So there should be three OBX-3 value of 38890-0; each with an OBX-5 value of the CVX code for the specified vaccine	OBX 1 CE 38890-0^Component Vaccine Type^LN 1 08^Hep B, adolescent or pediatric^CVX     F
OBX			OBX 2 CE 38890-0^Component Vaccine Type^LN 2 10^IPV^CVX     F
			OBX 3 CE 38890-0^Component Vaccine Type^LN 3 106^DTaP, 5 pertussis antigen^CVX     F

## CIR HL7 QBP TEST CRITERIA: (2a) Accept RSP for matching patient found

<b>Scope:</b>	Receive RSP (Z42 Profile) and display matching patient found and their evaluated immunization history from the CIR, with errors		
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>		
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	126-131		
<b>Test Patients for this criteria:</b>	<a href="#">Test Patient #1-4</a>		
CIR RSP Structure			
Please note the CIR Web Service will return a single patient even if the message contains non-fatal errors. If the patient is found the CIR will send the PID segment.			
Segment	CIR Segment Data Reference	CIR HL7 notes	CIR HL7 Example:
MSH		The first 4 segments of an RSP will communicate the status of the QBP message, the status of the Query and the original QBP Segment requested.	MSH ^~\& CIR HL7 Web Service 2.15 (POSTGRES MIGRATION-PRODUCTION: 2018/08/08) NYC DOHMH LITA-TEST 9999Q99 20181001104403-0400  RSP^K11^RSP_K11 20181001104403-0400CIR-WS T 2.5.1   NE NE   Z32^CDCPHINVS
MSA		Like a VXU ACK, the MSA Segment will communicate message status and Message Control ID	MSA AE QT-MatchSuccessful-01
ERR	If there are any errors non-fatal and fatal, an ERR segment will appear for each error to communicate the details of the error.	<p><b>ERR-2</b> will communicate the <b>Segment Name</b>, <b>Segment Sequence</b>, <b>Field Position</b>, <b>Field Repetition</b>, and <b>Component Number</b>.</p> <p><b>ERR-3</b> will communicate the <b>Error Code</b> and <b>description</b></p> <p><b>ERR-4</b> will communicate <b>severity level</b>. If ERR-4 is valued with W for Warning due to a non-fatal error and if valued with an E, for an Error due to a fatal in the message.</p> <p><b>ERR-8</b> will communicate a human-readable description of the error, the CIR HL7 Web Service will value this field with <b>segment name and field containing the error</b> followed by a <b>short description of the error</b>.</p>	ERR  QPD^1^8^1^2 102^Data type error^HL70357 W ValueExceedMaxLen^HL70357  Patient_Address_Apt: ValueExceedMaxLen
QAK	If QBP has no error the QAK will communicate Query Tab ID and Status of match.	If there are errors in the message and no patient is found QAK-2 will be valued with an <b>AE if a non-fatal error occurred or AR is a fatal error, depending are the error</b> .	QAK QT216987 AE
QPD	The CIR RSP will echo QPD fields of the Sender's original QPD.	ERR  QPD^1^8^1^2 is highlighted	QPD Z34^Request Immunization History^HL70471 QT-MatchSuccessful-02  TEST-PATIENT^MATT^THOMAS^^^L  20140615 M 1000 HAPPY LOOP^SWELL BUILDING^NEW YORK^NY^10035^US^^^60 ^HOME^PH^^^777^7777777~^NET^Internet^patientemailaddr@gmail.com
PID	Patient Information if matched in CIR Database	Only if the CIR Web Service finds a Single Patient Match will the CIR RSP contain a PID Segment containing only the following CIR Patient Information: the patient's name, date of birth, and sex; additional information is not allowed to be returned.	PID   786293987^^^LR  TEST-PATIENT^MATTHEW^THOMAS^^^L  20140615 M
If the patient is found and has immunization history, after the PID segment it will always be followed by a group of triplets (1 ORC, 1 RXA and minimum of 2 OBX segments) for each administered vaccine listed first date to last.			
{	<b>Begin Order Group</b>	Please note the CIR Web Service can find a Single Patient Match that does not contain Immunization History. In addition to the first 5 Segments that are required for a Single Match Patient, the 1st ORC Segment will contain only the forecasting and recommendations.	
ORC		If the patient has immunization history the first <b>ORC-3 field is valued with the CIR Immunization ID</b> and <b>ORC-12 will be valued with the Ordering Physician</b> , if successfully reporting in ORC-12, or the default provider for that CIR Facility.	ORC RE  91010812^NYC-CIR   ^^^L ^JONES^LISA



RXA		Similar to a VXU message, The <b>RXA-3</b> and <b>RXA-4</b> will be valued with the Immunization Administration Date. <b>RXA-5</b> will be valued with the <b>CVX code</b> . If the CIR received the following fields in the VXU, it will also be valued in the RSP: <b>RXA-15 will be valued with the Lot #, RXA-16 will be valued, RXA-17 will be valued with the MVX code.</b>	RXA 0 1 20140615 20140615 08^Hep B, adolescent or pediatric^CVX 999     1413301 20150630 NOV^Novartis Pharmaceutical Corporation (includes Celltech Medeva Vaccines and Evans Medical Limited)^MVX
OBX		If the vaccine only has 1 component, meaning it is <u>not</u> a combo vaccine it will only have one OBX-3 with 38890-0. OBX-5 will contain the CVX code	OBX 1 CE 38890-0^Component Vaccine Type^LN 1 08^Hep B, adolescent or pediatric^CVX     F
ORC		The second <b>ORC-3 field is valued with the CIR Immunization ID</b> and <b>ORC-12 will be valued with the Ordering Physician</b> , if successfully reporting in ORC-12, or the default provider for that CIR Facility.	ORC RE  91010814^NYC-CIR     ^STERN^DOCTOR
RXA		Similar to a VXU message, The <b>RXA-3</b> and <b>RXA-4</b> will be valued with the Immunization Administration Date. <b>RXA-5</b> will be valued with the <b>CVX code</b> . This immunization was <u>not</u> reported with either Lot # or Expiration date.	RXA 0 1 20140815 20140815 50^DTaP-Hib^CVX 999
{	<b>Begin Observation Group</b>	This a combination vaccine containing DTaP and Hib. So there should be two <b>OBX-3 value of 38890-0</b> ; each with an <b>OBX-5</b> value of the <b>CVX code</b> for the specified vaccine	OBX 1 CE 38890-0^Component Vaccine Type^LN 1 20^DTaP^CVX     F
OBX			OBX 2 CE 38890-0^Component Vaccine Type^LN 2 48^Hib (PRP-T)^CVX     F
		<b>OBX-3 value of 59781-5</b> means that one or all of the vaccine contain an invalid dose based on the immunization schedule and <b>OBX-5</b> will always be valued with <b>N</b>	OBX 3 ID 59781-5^Dose Validity^LN 2 N     F
		After an invalid doses, the next OBX-3 contains <b>30982-3</b> and <b>OBX-5</b> will be valued with the error code followed by the reason the dose was marked invalid.	OBX 4 CE 30982-3^Reason applied by forecast logic to project this vaccine^LN 2 1020^DTaP-Hib not accepted unless final dose in series, and other rules are followed.^NYCDOHINVSHTOCODES     F
		Any invalid doses are ended with <b>OBX-3 value of 59779-9</b> to communicate the schedule used to evaluate the historical vaccine.	OBX 5 CE 59779-9^Immunization Schedule used^LN 2 VXC16^ACIP^CDCPHINVS     F
ORC		The third <b>ORC-3 field is valued with the CIR Immunization ID</b> and <b>ORC-12 will be valued with the Ordering Physician</b> , if successfully reporting in ORC-12, or the default provider for that CIR Facility.	ORC RE  224875740^NYC-CIR     ^GOOD^DOCTOR
RXA		Similar to a VXU message, <b>RXA-3</b> and <b>RXA-4</b> will be valued with the Immunization Administration Date. <b>RXA-5</b> will be valued with the <b>CVX code</b> . This immunization was <u>not</u> reported with either Lot # or Expiration date. The CIR received the following fields in the VXU, so it is valued in the RSP: <b>RXA-15 will be valued with the Lot #, RXA-16 will be valued, RXA-17 will be valued with the MVX code.</b>	RXA 0 1 20180629 20180629 110^DTaP/HepB/IPV(Pediarix)^CVX 999     33PA4 20200424 SKB^GlaxoSmithKline^MVX
{	<b>Begin Observation Group</b>	This a combination vaccine containing three components Hep B, IPV and DTaP. So there should be three OBX-3 value of 38890-0; each with an OBX-5 value of the CVX code for the specified vaccine	OBX 1 CE 38890-0^Component Vaccine Type^LN 1 08^Hep B, adolescent or pediatric^CVX     F
OBX			OBX 2 CE 38890-0^Component Vaccine Type^LN 2 10^IPV^CVX     F
			OBX 3 CE 38890-0^Component Vaccine Type^LN 3 106^DTaP, 5 pertussis antigen^CVX     F

**CIR HL7 QBP TEST CRITERIA: (2b) Accept RSP for no matching patient found**

<b>Scope:</b>	Receive RSP (Z42 Profile) and display no patient found outcome
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	133
<b>Test Patients for this criteria:</b>	134
<b>Test Patient for QBP Test Criteria (2b):</b>	<a href="#">Test Patient #6</a>

**CIR RSP Structure**

SEGMENT	CIR Segment Data Reference	CIR HL7 notes	CIR HL7 Example:
<b>MSH</b>		<b>The first 4 segments of an RSP will communicate the status of the QBP message, the status of the Query and the original QBP Segment requested.</b>	MSH ^~\& CIR HL7 Web Service 1.81 NYC DOHMH EHR Name 8000N70 20191209121149-0500  RSP^K11^RSP_K11 20191209121149-0500CIR-WS T 2.5.1   NE NE   Z33^CDCPHINVS
<b>MSA</b>	Like a VXU ACK, the MSA Segment will communicate <b>message status</b> and <b>Message Control ID</b>		MSA AA 723020802738590
<b>QAK</b>	If QBP has no error the QAK will communicate Query Tab ID and Status of match.	If there are no errors in the message and no patient is found QAK-2 will be valued with <b>NF</b>	QAK QT216987 NF
<b>QPD</b>	The CIR RSP will echo QPD fields of the Sender's original QPD.		QPD Z34^Request Immunization History^HL70471 QT216987  TESTURO^NOTHERE^^^^^L  20

**CIR HL7 QBP TEST CRITERIA: (2b-err) Accept RSP for no matching patient found with errors**

<b>Scope:</b>	Receive RSP (Z42 Profile) and display no patient found outcome, with errors
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	132
<b>Test Patient for QBP Test Criteria (2b-err):</b>	<a href="#">Test Patient #6</a>

**CIR RSP Structure**

**Please note: a patient can still be matched if the message has non-fatal errors AE**

SEGMENT	CIR Segment Data Reference	CIR HL7 notes	CIR HL7 Example:
<b>MSH</b>		The first 4 segments of an RSP will communicate the status of the QBP message, the status of the Query and the original QBP Segment requested.	MSH ^~\& CIR HL7 Web Service 1.81 NYC DOHMH Patients First 1.1 8000N70 20121207152412-0500  RSP^K11^RSP_K11 20121207152412-0500CIR-WS T 2.5.1   NE NE   Z33^CDCPHINVS
<b>MSA</b>	Like a VXU ACK, the MSA Segment will communicate <b>message status</b> and <b>Message Control ID</b>		MSA  <b>AE</b>  723020802738590
<b>ERR</b>	If there are any errors non-fatal and fatal, an ERR segment will appear for each error to communicate the details of the error.	<b>ERR-2</b> will communicate the <b>Segment Name, Segment Sequence, Field Position, Field Repetition, and Component Number</b> <b>ERR-3</b> will communicate the <b>Error Code</b> and <b>description</b>	ERR   <b>QPD^1^8^1^2</b>  102^Data type error^HL70357  <b>W</b>  ValueExceedMaxLen^^HL70357    <b>Patient_Address_Apt: ValueExceedMaxLen</b>
<b>QAK</b>	If QBP has no error the QAK will communicate Query Tab ID and Status of match.	If there are errors in the message and no patient is found QAK-2 will be valued with <b>an AE if a non-fatal error occurred or AR is a fatal error, depending are the error.</b>	QAK QT216987  <b>AE</b>
<b>QPD</b>	The CIR RSP will echo QPD fields of the Sender's original QPD.	ERR   <b>QPD^1^8^1^2</b> is highlighted	QPD Z34^Request Immunization History^HL70471 QT216987  TESTURO^NOTHERE^^^L  20190101 F 1000 HAPPY LOOP^ <b>SWELL BUILDING</b> ^NEW YORK^NY^10035^US^^60 ^HOME^PH^^777^7777777~^NET^Internet^patientemailaddr@gmail.com

**CIR HL7 QBP TEST CRITERIA: (2c) Accept RSP for too many patients found**

<b>Scope:</b>	Receive RSP (Z42 Profile) and display too many patients found outcome
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	132
<b>Test Patient for QBP Test Criteria (2c):</b>	<a href="#">Test Patient #5</a>

**CIR RSP Structure**

SEGMENT	CIR Segment Data Reference	CIR HL7 notes	CIR HL7 Example:
MSH		The first 4 segments of an RSP will communicate the status of the QBP message, the status of the Query and the original QBP Segment requested.	MSH ^~\& CIR HL7 Web Service 1.81 NYC DOHMH Patients First 1.1 8000N70 20121207152412-0500  RSP^K11^RSP_K11 20121207152412-0500CIR-WS T 2.5.1   NE NE   Z33^CDCPHINVS
MSA		Like a VXU ACK, the MSA Segment will communicate message status and Message Control ID	MSA AA 723020802738590
QAK		If QBP has no error the QAK will communicate Query Tag ID and Status of match. If there are no errors in the message QAK-2 will be valued with TM	QAK QT216987 TM
QPD		The CIR RSP will echo QPD fields of the Sender's original QPD.	QPD Z34^Request Immunization History^HL70471 QT216987  TEST^FEMALE^^^^L  20090101 F

**CIR HL7 QBP TEST CRITERIA: (2c) Accept RSP for too many patients found with errors**

<b>Scope:</b>	Receive RSP (Z42 Profile) and display too many patients found outcome, with errors
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	134
<b>Test Patient for QBP Test Criteria (2c-err):</b>	<a href="#">Test Patient #5</a>

**CIR RSP Structure**

SEGMENT	CIR Segment Data Reference	CIR HL7 notes	CIR HL7 Example:
MSH		The first 4 segments of an RSP will communicate the status of the QBP message, the status of the Query and the original QBP Segment requested.	MSH ^~\& CIR HL7 Web Service 1.81 NYC DOHMH Patients First 1.1 8000N70 20121207152412-0500  RSP^K11^RSP_K11 20121207152412-0500CIR-WS T 2.5.1   NE NE   Z33^CDCPHINVS
MSA		Like a VXU ACK, the MSA Segment will communicate <b>message status</b> and <b>Message Control ID</b>	MSA AE 723020802738590
QAK		If QBP has no error the QAK will communicate <b>Query Tag ID</b> and Status of match. If there are no errors in the message QAK-2 will be valued with <b>TM</b>	QAK QT216987 AE
ERR		<p><b>ERR-2</b> will communicate the <b>Segment Name</b>, <b>Segment Sequence</b>, <b>Field Position</b>, <b>Field Repetition</b>, and <b>Component Number</b></p> <p><b>ERR-3</b> will communicate the <b>Error Code</b> and <b>description</b></p> <p><b>ERR-4</b> will communicate <b>severity level</b>. If ERR-4 is valued with W for Warning due to a non-fatal error and if valued with an E, for an Error due to a fatal in the message.</p> <p><b>ERR-8</b> will communicate a human-readable description of the error, the CIR HL7 Web Service will value this field with <b>segment name and field containing the error</b> followed by a <b>short description of the error</b>.</p>	ERR  QPD^1^3^1^5 103^Table value not found^HL70357 W TableValueNotFound^^HL70357  Identifier_Type: TableValueNotFound
QPD	The CIR RSP will echo QPD fields of the Sender's original QPD.	ERR  QPD^1^3^1^5 is highlighted. PI is not a valid CIR Patient Identifier type.	QPD Z34^Request Immunization History^HL70471 QT216987 10535646^^^PI~10535646^^^MR TEST^FEMALE^^^L  20090101 F

### CIR HL7 QBP TEST CRITERIA: (3) Display immunization recommendations

<b>Scope:</b>	Receive RSP (Z42 Profile) and display immunization recommendations in the EHR based on patient's evaluated immunization history from the CIR (i.e., provide clinical decision support)
<b>CIR Implementation Guide 2.5.1 Reference Link:</b>	<a href="https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf">https://www1.nyc.gov/assets/doh/downloads/pdf/cir/hl7-web-service-integration-guide251.pdf</a>
<b>CIR Implementation Guide 2.5.1 Reference Page:</b>	133
<b>Test Patient for QBP Test Criteria (3):</b>	<a href="#">Test Patients # 1- 4</a>

#### CIR RSP Structure

SEGMENT	CIR Segment Data Reference	CIR HL7 notes	CIR HL7 Example:
}}	<i>End History Order Group</i>		After the last OBX Segment for the patient's immunization history, the next sequence of triplets (1 ORC segment/1 RXAsegment /3 OBX segments) are for recommended vaccine doses.
ORC		All <b>ORC-3 field is valued with Name of the Vaccine Group recommended</b> . Unlike the immunization history order group that is the last ORC field populated.	ORC RE  Influenza^NYC-CIR
RXA		Similar to a VXU message, The <b>RXA-3</b> and <b>RXA-4</b> will be valued with the date the immunization should be administered. <b>RXA-5</b> will be valued with <b>998^No vaccine</b>	RXA 0 1 20170417142640 20170417142640 998^No vaccine administered^CVX 999
OBX		The first of the 3 OBX segments for every recommendation OBX-3 valued with <b>30979-9^Vaccine due next^LN</b> to communicate the vaccine that is due next and <b>OBX-5 valued with the CVX for the vaccine due next</b>	OBX 1 CE 30979-9^Vaccine due next^LN 1 88^influenza, NOS^CVX     F   20170417142640
OBX		The Second OBX, OBX-3 valued with <b>30980-7^Date vaccine due^LN</b> to communicate the date for the vaccine that is due next and <b>OBX-5 valued with the date in the following format YYYYMMDD</b>	OBX 2 DT 30980-7^Date vaccine due^LN 1 20160801     F   20170417142640
OBX		The third and last of each recommendation ends with <b>OBX-3 value of 59779-9</b> and <b>OBX-5 value of VXC16^ACIP Schedule</b> to communicate the schedule used to evaluate the historical vaccine.	OBX 3 CE 59779-9^Immunization Schedule used^LN 1 VXC16^ACIP Schedule^CDCPHINVS     F   20170417142640
ORC		All <b>ORC-3 field is valued with Name of the Vaccine Group recommended</b> . Unlike the immunization history order	ORC RE  HepA^NYC-CIR
RXA		Similar to a VXU message, The <b>RXA-3</b> and <b>RXA-4</b> will be valued with the date the immunization should be	RXA 0 1 20170417142640 20170417142640 998^No vaccine administered^CVX 999
OBX		The first of the 3 OBX segments for every recommendation OBX-3 valued with <b>30979-9^Vaccine due next^LN</b> to	OBX 1 CE 30979-9^Vaccine due next^LN 1 83^Hep A, ped/adol, 2 dose^CVX     F   20170417142640
OBX		The Second OBX, OBX-3 valued with <b>30980-7^Date vaccine due^LN</b> to communicate the date for the vaccine that is due next and <b>OBX-5 valued with the date in the following</b>	OBX 2 DT 30980-7^Date vaccine due^LN 1 20150615     F   20181001104403
OBX		The third and last of each recommendation ends with <b>OBX-3 value of 59779-9</b> and <b>OBX-5 value of VXC16^ACIP Schedule</b>	OBX 3 CE 59779-9^Immunization Schedule used^LN 1 VXC16^ACIP Schedule^CDCPHINVS     F   20170417142640
ORC		All <b>ORC-3 field is valued with Name of the Vaccine Group recommended</b> . Unlike the immunization history order	ORC RE  Meningococcal (MenACWY)^NYC-CIR

RXA		Similar to a VXU message, The <b>RXA-3</b> and <b>RXA-4</b> will be valued with the date the immunization should be administered. <b>RXA-5</b> will be valued with <b>998^No vaccine administered^CVX</b> .	RXA 0 1 20181001104403 20181001104403 998^No vaccine administered^CVX 999
OBX		The first of the 3 OBX segments for every recommendation OBX-3 valued with <b>30979-9^Vaccine due next^LN</b> to communicate the vaccine that is due next and <b>OBX-5</b>	OBX 1 CE 30979-9^Vaccine due next^LN 1 147^MenACWY Conjugate NOS^CVX     F   20181001104403
OBX		The Second OBX, OBX-3 valued with <b>30980-7^Date vaccine due^LN</b> to communicate the date for the vaccine that is	OBX 2 DT 30980-7^Date vaccine due^LN 1 20250615     F   20181001104403
OBX		The third and last of each recommendation ends with <b>OBX-3 value of 59779-9</b> and <b>OBX-5 value of VXC16^ACIP</b>	OBX 3 CE 59779-9^Immunization Schedule used^LN 1 VXC16^ACIP Schedule^CDCPHINVS     F   20170417142640
Please note that there are also vaccines that are <u>not</u> recommended. They will have an OBX-3 value of <b>30999-1^Vaccine Group Recommendation Status^NYCDOHVCGPST</b> . This triplet will only contain (1 ORC segment, 1 RXA segment and 2 OBX segments)			
ORC		All <b>ORC-3 field is valued with Name of the Vaccine Group recommended</b> . Unlike the immunization history order	ORC RE  Adult Pneumococcal (PCV \T\ PPSV)^NYC-CIR
RXA		Similar to a VXU message, The <b>RXA-3</b> and <b>RXA-4</b> will be valued with the date of the immunization evaluation. <b>RXA-</b>	RXA 0 1 20170417142640 20170417142640 998^No vaccine administered^CVX 999
OBX		The first of the 3 OBX segments for every recommendation OBX-3 valued with <b>30999-1^Vaccine Group</b>	OBX 1 ST 30999-1^Vaccine Group Recommendation Status^NYCDOHVCGPST 1 Adult Pneumococcal (PCV \T\ PPSV)^Not recommended^NYCDOHVCGPST     F   20170417142640
OBX		The last OBX of each vaccine not recommended ends with <b>OBX-3 value of 59779-9</b> and <b>OBX-5 value of VXC16^ACIP</b>	OBX 3 CE 59779-9^Immunization Schedule used^LN 1 VXC16^ACIP Schedule^CDCPHINVS     F   20170417142640