



# New York City Citywide Immunization Registry HL7 Web Service

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## Project Team and Roles

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- Citywide Immunization Registry (CIR)
  - Made strategic decisions
  - Specified business rules
- Primary Care Information Project (PCIP)
  - Funded development of the CIR HL7 Web Service
  - Distributing EHR system to 1,000+ providers in NYC
- HLN Consulting, LLC (HLN)
  - Designed the HL7 Web Service
  - Implemented the HL7 Web Service
  - Tested the HL7 Web Service

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## Partners Integrating with the CIR HL7 Web Service

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- eClinical Works / PCIP
- Office Practicum / Various providers
- Epic / Institute for Urban Family Health

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## Completed Activities

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- ✓ Requirements
- ✓ Design Document
- ✓ Implementation
- ✓ System Testing
- ✓ Integration Guide

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## Next Steps

- EHR system vendors are integrating their systems with the HL7 Web Service
- Users of the EHR systems (providers) will test their systems
- CIR staff will review the quality of the submitted data
- CIR will authorize provider facilities to begin submitting production data via the HL7 Web Service

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## Notable Characteristics of the CIR HL7 Web Service

- Real-time Web Service
- VXU (reporting)
  - Strategically rejects or handles bad fields/segments without rejecting the entire message, when appropriate
  - Supports the RXA-21 "Add" and "Delete" Action Codes but not the "Update" Action Code
- VXQ (querying)
  - Can respond with VXR messages (single matching patient)
  - By design, does not respond with VXX messages (multiple matching patients)
  - Includes clinical decision support (evaluations and recommendations)
- Responds with detailed description of errors

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## Lessons Learned

- If business logic is not encapsulated in a reusable middle tier, then significant effort is required to define, implement, and test business logic
- Constructing and verifying test messages is time consuming and requires tools
- A clear, detailed integration guide is a large but worthwhile investment

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## CIR HL7 Web Service Integration Guide (page 30)

Segment / Field Reference	Segment / Field Name	Usage Notes	Lookup Table	Field Status	In VXR Message
PID-5	Patient Name	The CIR HL7 Web Service will process the first Patient name in the list of repeating names; all others will be ignored. The First Name, Last Name, and Middle Name must each be 25 characters or less; otherwise it will be truncated. Name Type is not required and if provided will be ignored.		Required	Yes
PID-6	Mothers Maiden Name	The Mothers Maiden Name can not exceed 25 characters; otherwise it will be truncated.		Optional	No
PID-7	Date of Birth	The date must be in the YYYYMMDD format; otherwise it will be considered a fatal error. The time component of the data will be ignored if it is provided. Additional date of birth date validation rules include: <ul style="list-style-type: none"> <li>• The Patient's DOB must be on or before the current date.</li> <li>• The Patient DOB field must be greater than Mother's DOB.</li> <li>• The Immunization Date field must be greater or equal to the Patient's DOB.</li> <li>• The Patient DOB field and the Immunization Date field must each be less than 120 years old.</li> <li>• The Patient DOB field must be at least 10 years after the Mother's DOB.</li> </ul>		Required	Yes
PID-8	Sex	See the Sex table in the <i>Standard Code Sets - Supported</i> section of this document for valid HL7 values supported by the CIR database.	0001	Required	Yes
PID-9	Patient Alias	The CIR HL7 Web Service will process the first Patient Alias in the list of repeating names; all others will be ignored. The First Name, Last Name must each be 25 characters or less; otherwise it will be truncated.		Optional	No

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## Sample VXU Message

```

MSH|^~\&|PATIENTS1ST1.1|8000N70|||20070924
153834||VXU^V04|2007092415383484368|P|2.3.1|
||AL|
PID||BB77733B^^^^MA~73487523^^^^MR||Fe
rnandez^William^^^ ||20010402175607|M|^B
ILL^^^^^A|1|||KL^KL111^HL70296|||N^N
OT HISPANIC OR LATINO|11116|N|
NK1||Fernandez^MARYJO^|MTH^MOTHER^HL700
63|^^^^^^|^^^^^^|19xx1115|
PV1|||||||V02
RXA||20020607||08^HEP B, ADOLESCENT OR PED
IATRIC ^CVX|||02|9412390^SMITH^BOB^L^^^
^^^^^OE| ^^^8119N70|||W2348796456|200
50425|XXX^MERCK^MVX|||A

```



## Actual ACK Response to the Sample VXU Message

```

MSH|^~\&|CIR HL7 Web Service 1.1|NYC DOHMH||8
000N70|20070924160039||ACK|20070924160039CIR-
WS |P|2.3.1||AL|
MSA|AA|2007092415383484368|MESSAGE ACCEPTED
;LR=43666648;(NON-
FATAL ERRORS: PID Race TableValueNotFound;PID L
anguage TableValueNotFound;NK1 Mother_DOB BadD
ateTime 1;RXA Vaccine_Lot_Manufacturer TableValue
NotFound 1)|
ERR|PID^^10.100000^103~PID^^15.100000^103~
NK1^1.000000^16.000000^102~RXA^1.000000^17.
000000^103|

```

## The Sample VXU Message Viewed with an HL7 Parser Tool

The screenshot displays the 'Edit Professional' application window. On the left, a tree view shows the message structure, with 'PID-3-2 Check Digit (ST)' selected. The main window shows the raw HL7 message text:

```
1 MSH|^~|^|PATIENTS1STL1||0000W701||20070924||53034||Y00^Y04|20070924||5303404350|P|2.3.1|||AL|
2 PID||00773333||NA-73407523||MR||Fernandez,William|||20010401195007|M|BILL|----A|1|||||RL111-|HL70256|||
3 NRI||Fernandez,MARYJO-|BIRTH-MOTHER-|HL70063|||-----|19xx1115|
4 PVI|||||19Y02
5 ROK|||20020607||00-HEP B, ADOLESCENT OR PEDIATRIC ^CY|||02|9412390-|SMITH-BOB-1|-----CEI|1119W701|||W2340756456
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```

A 'String Editor' dialog box is open over the message text, showing the value '00773333'. At the bottom, the 'Validator' pane shows an error: 'Invalid timestamp: '19xx1115'. Can't parse year: '19xx''.

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