



Integrated Public Health Solutions

LINKS HL7 Implementation Guide

Version 7.5

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Updated by LDH Immunization Program

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Louisiana HL7 Data Guide

Version 7.5



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Louisiana Immunization Network System (LINKS)

<https://lalinks.org/linksweb/>

Benefits of LINKS to the Provider

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

Overview of IWeb Software

IWeb is a population-based immunization registry that helps public health agencies and vaccine providers make informed decisions that improve the health of children and the entire community. IWeb is a web-based product which is used by public health officials, public health employees, and private providers by enabling:

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

Immunization Data Interface

The HL7 interface supports CDC standard immunization messages and is the recommended format for submitting immunization data to LINKS.

Providers should have at least 250 patients with immunizations in their EMR so that adequate technical and data quality testing can be completed prior to taking an electronic interface LIVE.

Providers need to submit a number of messages proportionate to their patient volume to the LINKS Test Environment that demonstrate proper HL7 grammar and good workflow before they can be considered for the move to Production.

Exchange (LaHIE) should follow the LaHIE's specifications and requirements. These providers may be able to proceed to production (LIVE) interface (NON-VFC) with one successful test data submission.

Providers are responsible for keeping their vaccination codes in their application current and ensure that staff is using the appropriate vaccinations in their EMR documentation to preserve LINKS data integrity during testing and on an ongoing basis. Provider must adhere to data requirements as described in Section 2.5.1.1

HL7

LINKS sends and receives HL7 immunization queries and updates. These messages conform to HL7 specification version 2.3.1/2.5.1 and the CDC's Implementation Guide for Immunization Transactions version 2.1 which can be found here:

<http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7guide.pdf>

LINKS HL7 Capabilities

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

Vaccination Update (VXU) Message (2.5.1)

```
MSH|^~\&|EHR Name|LA INTEROP TEST CLINIC^SIISCLIENT31682|LINKS||20260629120000||VXU^V04^VXU_V04|Test20260629-01|P|2.5.1|||AL|AL|USA|||Z22^CDCPHINVS
PID|1||Test2025017^^^MR||King^Arthur||20100510|M||W^WHITE^CDCREC|12 Round Table Ct^^New Orleans^LA^70117^USA^L|^PRN^PH^^^504^2121500~^NET^Internet^Excalibur@Camelot.com||S^SINGLE^Marital|B^BAPTIST|8044941|||2186-5^Not Hispanic or Latino^CDCREC||N|1
PD1|||LA INTEROP TEST CLINIC^SIISCLIENT31682|||A
NK1|1|King^Uther|GRD^Guardian^HL70063||^PRN^PH^^^504^2034682|
PV1||R|||V02
RXA|0|1|20250710|20250710|^Tdap^NDC^115^Tdap^CVX|0.5|mL||00^New immunization record^NIP001|Johnson|LA INTEROP TEST CLINIC^SIISCLIENT31682|||235d2||SKB^GlaxoSmithKline^MVX||CP|A|
RXR|IM^Intramuscular^HL70162|RA^Right Arm^HL70163
OBX|1|CE|30963-3^Vaccine purchased with^LN|1|VXC51|||F||20250710
OBX|2|CE|64994-7^Vaccine funding program eligibility category^LN|2|V02^VFC Eligible - Medicaid/Medicare^HL70064|||F||20250710||VXC40^Eligibility captured AT the immunization LEVEL^CDCPHINVS
OBX|3|CE|30956-7^vaccine TYPE^LN|3|115^Tdap^CVX|||F||20250710
OBX|4|TS|29769-7^DATE vaccine information statement presented^LN|3|20250710|||F
OBX|5|TS|29768-9^DATE vaccine information statement published^LN|3|20250710|||F
```

Acknowledgement (ACK) Message (2.5.1)

```
MSH|^~\&|LINKS^^|^EHR Name^^|LA INTEROP TEST CLINIC^SIISCLIENT31682^|20260629161542-0500||ACK^V04^ACK|7739521983.100139003|P|2.5.1||NE|NE|||Z23^CDCPHINVS||
MSA|AA|Test20260629-01|
ERR|||0^Message accepted^HL70357|I|||Patient Test2025017 "Arthur King" with 1 vaccination accepted into vaccination staging table|
```

Vaccination Query (QBP) Message (2.5.1)

```
MSH|^~\&|EHR Name|TEST FINDS A WAY^SIISCLIENT32183|LINKS||20260629120000||QBP^Q11^QBP_Q11|QBP20260629-03|P|2.5.1|||AL|AL|USA|EN
QPD|Z34^Request Immunization History|QBP20260629||King^Arthur||20100510|M|12 Round Table Ct^^New Orleans^LA^70117^USA^L|^PRN^PH^^^504^2121500~^NET^Internet^Excalibur@Camelot.com
RCP|I|1^RD
```

Query Acknowledgement (RSP) Message (2.5.1)

```
MSH|^~\&|LINKS^^|^EHR Name^^|TEST FINDS A WAY^SIISCLIENT32183^|20260629161812-0500||RSP^K11^RSP_K11|2023320148.100139149|P|2.5.1||NE|NE|||Z32^CDCPHINVS^^|
MSA|AA|QBP20260629-03|
QAK|QBP20260629|OK|
QPD||QBP20260629|^LAA|King^Arthur^L||20100510|M|12 Round Table Ct^^New Orleans^LA^70117^USA^L|^PRN^PH^^^504^2121500~^NET^Internet^Excalibur@Camelot.com|
PID|1||7608523^^LAA^SR~TEST2025017^^LAA||KING^ARTHUR^L||20100510|M||2106-3^White^CDCREC|12 ROUND TABLE CT^^NEW ORLEANS^LA^70117^USA^M^^ORLEANS||^PRN^PH^^^504^2121500~^NET^EXCALIBUR@CAMELOT.COM|||2186-5^not Hispanic or Latino^CDCREC||N|1||N|
PD1|||SR|||A|20260629|20260629|
NK1|1|KING^UTHER^L|GRD^Guardian^HL70063||^PRN^PH^^^504^2034682|
PV1||R|||V02|
ORC|RE||7608523.921.20250710^LAA^|
RXA|0|1|20250710|20250710|115^Tdap^CVX|0.5|mL^milliliters^UCUM||00^New immunization record^NIP001|^LAA INTEROP TEST CLINIC^LAA|||235D2|20270514|SKB^GlaxoSmithKline^MVX||CP|A|20260629161813|
RXR|C28161^Intramuscular^NCIT|RA^Right Arm^HL70163|
OBX|1|CE|30956-7^Vaccine Type^LN|1|115^Tdap^CVX|||F|
OBX|2|ID|59781-5^Dose Validity^LN|1|Y|||F|
OBX|3|TS|29768-9^VIS Publication Date^LN|2|20250710|||F|
OBX|4|TS|29769-7^VIS Presentation Date^LN|2|20250710|||F|
OBX|5|CE|64994-7^Vaccine funding program eligibility category^LN|3|V02^VFC eligible - Medicaid/Medicare Managed Care^HL70064|||F||20250710||VXC40^Eligibility captured at the immunization level^CDCPHINVS|
OBX|6|CE|30963-3^Vaccine purchased with^LN|3|Y^Publicly Supplied^CDCPHINVS|||F||20250710|
```

Submitting HL7 Data

HL7 message files may be submitted via HTTPS POST or SOAP. Please note that POST is preferred; troubleshooting assistance for SOAP is limited.

Request: When the sending application sends LINKS an HL7 message via an HTTPS POST command, it must have the following fields:

- USERID - Assigned by the LINKS administrator.
- PASSWORD - Assigned by the LINKS administrator.
- MESSAGEDATA - The HL7 message(s).

Response: LINKS always returns responses in HL7 format. Response configuration is based on the account's LINKS settings. The response configurations available are Always, Never, On Error (only for those messages are not accepted) or Determined by Message (Incoming request message indicates in the MSH segment whether to always, never or only on error).

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

- Authentication error = Username and password are incorrect or account does not have permission to accept HL7.
- Message parsing error = Incoming messages do not conform to HL7 standards
- Message content error = Incoming message is missing or incorrect information
- Message processing exception = Incoming message has an unexpected problem
- Message accepted = Data has been accepted and has been sent to deduplication
- Response to query = LINKS responds to query with query results

Historical Messages

If it is necessary for a provider to complete a patient's record by adding vaccines they received in the past, those records should be submitted manually to LINKS, *not* via HL7 interface. HL7 interface connections are set up specifically to receive current immunization data, thus some information may be missing from historical submissions that the HL7 interface requires.

VXU Message Requirements - Key

LINKS has three possible settings – Ignore, Warning, and Error - for various parts of VXU messages. This section will explain the three possible settings.

- **Ignore (✓)** = LINKS has no preference and will not react.
 - No ERR line will be generated, regardless if information is included or not.
 - LINKS may record the information if it is included correctly, depending on the field.
- **Warning (⚠)** = LINKS desires improvement to the data.
 - Fields/components set to Warning are orange rows in chart.
 - Information is usually still recorded.
 - ERR line with severity |W| will be generated in ACK Response message:

```
ERR||RXA^1^15^1|103^Table value not found^HL70357|W|||vaccination lot is unrecognized|
```

- **Error (✖)** = LINKS *requires* improvement to the data.
 - Fields/components set to Warning are red rows in chart.
 - Either the required segment or the entire message will be rejected and will *not* be recorded.
 - Providers in Production with a persistently high percentage of Error messages may be subject to review and a return to Test phase.
 - ERR line with severity |E| will be generated in ACK Response message:

```
ERR|||100^Segment sequence error^HL70357|E|||vaccination funding source is missing - Message Rejected|
```

VXU Message Requirements – Chart

Please [click here](#) to access file.

Resources

This immunization registry conforms to standards published by the CDC and the state of Louisiana standards. For the latest code sets and standards please see:

<http://www2a.cdc.gov/vaccines/iis/iisstandards/vaccines.asp?rpt=cvx>

<https://repository.immregistries.org/resource/hl7-version-2-5-1-implementation-guide-for-immunization-messaging-release-1-5-1/>