

Immunization Patient Resources with Integrated Technology (ImmPRINT)

HL7 V 2.5.1 Master Guide

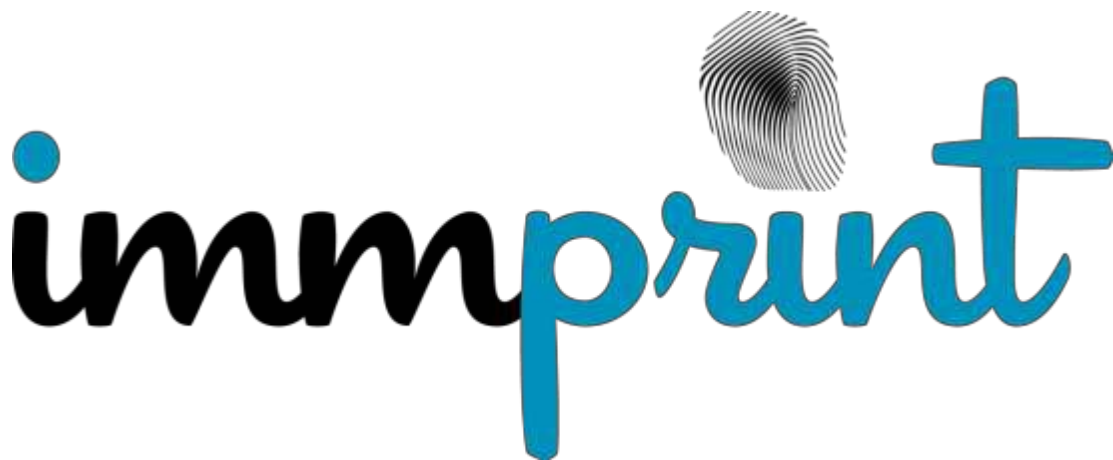


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Purpose

The purpose of this document is to provide electronic health record (EHR) guidelines to build an interface between Alabama Immunization Information System (AL-IIS) called ImmPRINT and health level 7 (HL7) healthcare providers EHR.

Introduction

ImmPRINT supports CDC's National Center for Immunization and Respiratory Diseases (NCRID) goal to use HL7 for immunization data. This document contains additional requirements for implementing immunization messaging using HL7 version 2.5.1. This document supplements CDC'S HL7 Version 2.5.1: Implementation Guide for Immunization Messaging.

<https://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html>

For more HL7 information, see <http://www.hl7.org>.

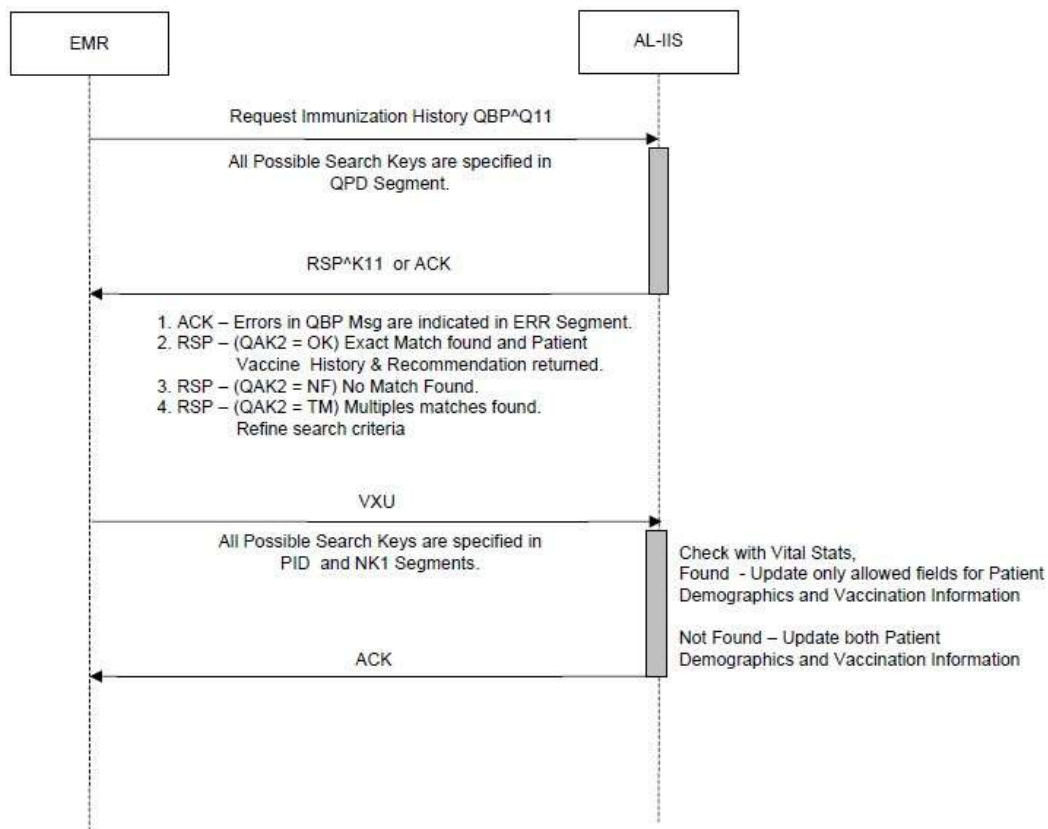
Alabama Immunization Registry Law

According to the Code of Alabama, §22-11B1-4, the Alabama Department of Public Health (ADPH) is authorized to create and maintain Alabama's Immunization Registry. ImmPRINT in turn authorizes users to enter, query, and update immunization records for patients of all ages.

Message Transmission

ImmPRINT accepts Real time unsolicited updates (VXU) and Real time Bi-directional (QBP) HL7 (V 2.5.1) messages.

Real Time Message Processing (HL7 V 2.5.1) Flow Chart



Guidelines for HL7 V 2.5.1 Implementation:

- Send a VXU to ImmPRINT,
 - Initially send all patients historical doses in VXU.
 - When a vaccine is administered, send a VXU real time.
- Retrieve Historical Doses from ImmPRINT.
 - Send VXU to update ImmPRINT for doses not reported.
 - Send QBP to receive the latest vaccination history in a RSP message.
- Print Certificate of Immunization (COI)
 - Send VXU to update ImmPRINT for doses not reported.

Unsolicited Vaccination Record Update (VXU):

When a VXU^V04 message type is sent to ImmPRINT with no RXA segment, a check is done to verify if the patient exists in ImmPRINT. If the patient already exists in ImmPRINT, the demographic update will occur.

Example:

```
MSH|^~\&|1111|222|AL-IIS|AL-IIS|201302111401-0600|12345AB-CDA2-RRDF-66BF
Z999XZXZWXYZA|VXU^V04^VXU_V04|1039874483.444788|P|2.5.1|||ER|AL|USA|||Z22^CDCP
HINVS
PID|1||90524^^^Vestavia Pediatrics^MR||COOK^REBECCA^LEIGH^^^L||20061125|F||2106-
3^White^CDCREC|2000 Rive View
Dr^^Birmingham^AL^33333^USA^L||^PRN^PH^^^205^6001111||ENG^ENGLISH^HL70296|||21
86-5^not Hispanic or Latino^CDCREC||Y|1|||N
PD1|||CHU RO^CHU^RONNIE
NK1|1|COPELAND^JUDY^^^L|SPO^Spouse^HL70063|1314 MAYTON
AVE^^DEMOPOLIS^AL^36732^USA^H|^PRN^PH^^1^334^2897028|||
PV1|1|I|MICU^ICU5^1^BWH|U||CHU RO^CHU^RONNIE||MED|||CHU
RO^CHU^RONNIE||V01|||BW||IN||201302111209-0600|||CHU RO^CHU^RONNIE
ORC|RE|416944|444788|||201302111256|HSK2053^HEATHER^S||1599958^CHU^RONNIE|||
RXA|0|1|201302111355|201302111355|33^pneumococcal polysaccharide
PPV23^CVX|25|ug/mL^MicroGrams Per MilliLiter ^UCUM||00^New immunization
record^NIP001|VIRGINIA F MORR^MORRISON^VIRGINIA^F|^ICU5^1^109^^^105
Highway 80 East^^Demopolis^AL^36732^^^USA|||H014653|20140419|MSD^Merck and Co.,
Inc.^MVX|||A
RXR|C28161^Intramuscular^NCIT|LD^Left Arm^HL70163
```

Query by Parameter (QBP– QBP^Q11)

Example of Z34 query profile (Request Complete Immunization History):

```
MSH|^~\&|1300|220|ImmPRINT|ImmPRINT|20091130000000|27FD4841-EED9-42CD-9A5A-
61751864049D|QBP^Q11^QBP_Q11|793543|P|2.5.1|||NE|||Z34^CDCPHINVS
QPD|Z34^Request Immunization
History^CDCPHINVS|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^L|Que^Suzy^^^
M|20050512|M|10 East MainSt^^Myfaircity^GA^^^L
RCPI|I5^RD&records&HL70126|R^real-time^HL70394
```

Example of Z44 query profile (Request Evaluated Immunization History and Forecast):

```
MSH|^~\&|1300|220|AL-IIS|AL-IIS|20140515001020|27FD4841-EED9-42CD-9A5A
61751864049D|QBP^Q11^QBP_Q11|793544|P|2.5.1|||ER|AL||||Z44^CDCPHI
NVS QPD|Z44^Request Evaluated History and
Forecast^CDCPHINVS|37374860|123456^^^MYEHR^MR|Child^Bobbie^Q^^
^^L|Que^Suzy^^^^^M|2005 0512|M|10 East Main St^^Myfaircity^GA^^L
RCP|I|5^RD&records&HL70126|R^real-time
```

Note: EHRs are asked to send Request Messages for one patient at a time. ImmPRINT does not send the list of multiple matches found. ACK indicating “Patient Not Found” and “Refine Search Criteria” or “Multiple Matches Found” will be returned. When a patient has been uniquely identified (there is only one “high confidential match” to the query), the response to the query is an RSP which is generated and sent back to the querying organization. The EHR will receive a real-time ACK message to indicate that the message has been successfully processed.

Patient Search Key Combinations for VXU and QBP

- ImmPRINT ID Patient Registry ID
- Site ID, Local Chart Number, First Name, Last Name, Date of Birth
- First Name, Last Name, Date of Birth
- First Name, Last Name, Date of Birth, SSN
- First Name, Last Name, Date of Birth, SSN, Address, City

Note: Above are the initial query data element combinations that will be used as exact matches to locate patients within the registry. Entering the patient’s EHR chart numbers into the registry will improve the performance of the messaging process. Additional search queries may be added in the future as identified.

Response (RSP) Acknowledgements – Segment pattern response (RSP^K11) ImmPRINT returns an immunization history to a requester for a specific patient in response to a request for immunization history. ImmPRINT sends the RSP response message (using RSP^K11^RSP_K11 trigger).

- “Error in query message”. ImmPRINT acknowledges an error in the query.
- “Multiple matches found”. ImmPRINT acknowledges and the user must refine the search criteria. ImmPRINT will not send low confidence matches.
- “No match found”. ImmPRINT will acknowledge no patient was found.
- “Exact match found”. ImmPRINT will send immunization history when exactly one high-confidence match is found.
- “Record is unavailable”. Record is unavailable will be sent as a response message for deceased patients. Providers should not alter the records. Deceased patients are identified by the death certificates only.

Example of Z33 response profile (Multiple Match Found)

MSH|^~\&|ImmPRINT|ImmPRINT|1166|1677|20130002||RSP^K11^RSP_K11|201302110955
2.5.1||NE|NE||||Z33^CDCPHINVS MSA|AA|2013021109552567655480
QAK|209653|TM|z34^Request Immunization History^CDCPHINVS QPD|Z34^Request
Immunization
History^CDCPHINVS|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy^^^^
M|20050512|M|10 East MainSt^^Myfaircity^GA^^L

Note: TM in the QAK segment indicates that multiple matches were found for the query criteria provided.

Example of Z33 response profile (No Match Found)

MSH|^~\&|ImmPRINT|ImmPRINT|1166|1677|20130002||RSP^K11^RSP_K11|201302110955|P|
2.5.1||NE|NE||||Z33^CDCPHINVS MSA|AA|2013021109552567655480
QAK|209653|NF|z34^Request Immunization History^CDCPHINVS QPD|Z34^Request
Immunization
History^CDCPHINVS|37374859|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy^^^^
M|20050512|M|10 East MainSt^^Myfaircity^GA^^L

Note: NF in the QAK segment indicates that no match was found for the query criteria provided.

Example of Z32 response profile (Return Complete Immunization History)

MSH|^~\&|ImmPRINT|ImmPRINT|1166|1677|20130002||RSP^K11^RSP_K11|201302110955|P|2.
5.1||NE|AL||||z32^CDCPHINVS MSA|AA|2013021109552567655480
QAK|20130211095525|OK|z34^Request Immunization History^CDCPHINVS QPD||Z34^Request
Immunization
History^HL70471||20120123000000||2008387^^^1677^MR||Nettles^Jo|F|20130211095525
PID||2008387^^^MR~14179935^^^SR||NETTLES^JO||20120123|F
RXA|0|1|20120613|20120613|47^HIB (HBOC)^CVX| RXA|0|1|20120404|20120404|17^HIB,
UNSPECIFIED FORMULATION^CVX| RXA|0|1|20120123|20120123|45^HEP B, UNSPECIFIED
FORMULATION^CVX| RXA|0|1|20120404|20120404|110^DTAP-HEP B-IPV^CVX|
RXA|0|1|20120404|20120404|116^ROTA VIRUS, PENTA VALENT^CVX|
RXA|0|1|20120613|20120613|133^PNEUMOCOCCAL CONJUGATE PCV 13^CVX|

Example of Z42 response profile (Return Evaluated History and Forecast):

MSH|^~\&|AL-IIS|AL-IIS|1166|1677|20160302123456-
0600||RSP^K11^RSP_K11|201603020955|P|2.5.1||NE|NE||||Z42^CDCPHINVS
MSA|AA|2016030209552567655480 QAK|20160302095525|OK|Z44^Request Evaluated History and
Forecast^CDCPHINVS QPD|Z44^Request Evaluated History and
Forecast^CDCPHINVS|201603021234|123456^^^MYEHR^MR|Child^Bobbie^Q^^^^L|Que^Suzy
^^^^M|20050512|M|10 East MainSt^^Myfaircity^GA^^L
PID|1||123456^^^1677^MR||Child^Bobbie^Q^^^^L||20050512|F
ORC|RE||20160302^AL-IIS|
RXA|0|1|20150720|20150720|83^HEP A, PED/ADOL, 2
DOSE^CVX|999||01^Historical^NIP001|||||||CP|A|
OBX|1|CE|30956-7^vaccine type^LN|1|83^HEP A, PED/ADOL, 2 DOSE^CVX|||||F|

OBX|2|NM|30973-2^Dose number in series^LN|1|1|NA^NA^HL70353||||F|
 OBX|3|ID|59781-5^Dose Validity^LN|1|Y||||F|
 ORC|RE||20160302^AL-IIS|
 RXA|0|1|20140826|20140826|08^HEP B, ADOLESCENT OR
 PEDIATRIC^CVX|999||01^Historical^NIP001||||||CP|A|
 OBX|1|CE|30956-7^vaccine type^LN|1|08^HEP B, ADOLESCENT OR PEDIATRIC^CVX||||F|
 OBX|2|NM|30973-2^Dose number in series^LN|1|1|NA^NA^HL70353||||F|
 OBX|3|ID|59781-5^Dose Validity^LN|1|Y||||F| ORC|RE||9999^AL-IIS|
 RXA|0|1|20160302|20160302|998^No vaccine administered^CVX|999|||||||NA|A|
 OBX|1|CE|30979-9^Vaccine due next^LN|1|107^DTAP UNSPECIFIED
 FORMULATION^CVX||||F||20160302|
 OBX|2|DT|30980-7^Date vaccine due^LN|1|20100816||||F||20160302|
 OBX|3|NM|30973-2^Vaccine due next dose number^LN|1|1|NA^NA^HL70353||||F||20160302|
 OBX|4|CE|59783-1^Status in immunization series^LN|1|LA13423-1^Overdue^LN||||F|
 OBX|5|CE|59779-9^Immunization Schedule
 Used^LN|1|VXC16^ACIP^CDCPHINVS||||F||20160302|
 OBX|6|CE|30979-9^Vaccine due next^LN|2|45^HEP B, UNSPECIFIED
 FORMULATION^CVX||||F||20160302|
 OBX|7|DT|30980-7^Date vaccine due^LN|2|20140923||||F||20160302|
 OBX|8|NM|30973-2^Vaccine due next dose number^LN|2|2|NA^NA^HL70353||||F||20160302|
 OBX|9|CE|59783-1^Status in immunization series^LN|2|LA13423-1^Overdue^LN||||F|
 OBX|10|CE|59779-9^Immunization Schedule
 Used^LN|2|VXC16^ACIP^CDCPHINVS||||F||20160302|
 OBX|11|CE|30979-9^Vaccine due next^LN|3|31^HEP A, PEDIATRIC, UNSPECIFIED
 FORMULATION^CVX||||F||20160302|
 OBX|12|DT|30980-7^Date vaccine due^LN|3|20160120||||F||20160302|
 OBX|13|NM|30973-2^Vaccine due next dose number^LN|3|2|NA^NA^HL70353||||F||20160302|
 OBX|14|CE|59783-1^Status in immunization series^LN|3|LA13423-1^Overdue^LN||||F|
 OBX|15|CE|59779-9^Immunization Schedule
 Used^LN|3|VXC16^ACIP^CDCPHINVS||||F||20160302|

Acknowledgment Messages (ACK)

Example 1:

ACK for a VXU – successfully processed message:

MSH|^~\&|ImmPRINT|ImmPRINT|1111|22|20110008||ACK|201108291201|P||||NE|NE
 MSA|AA|73477|Message Successfully Processed.

Example 2:

ACK for a VXU – with data errors:

MSH|^~\&|ImmPRINT|ImmPRINT|1111|22|20110008||ACK|201108291201|P||||NE|NE
 MSA|AE|73477| Patient SSN is Invalid.

Example 3:

ACK for Errors on Message Validation

MSH|^~\&|ImmPRINT|ImmPRINT|1111|22|20110008||ACK|201108291201|P||||NE|NE
 MSA|AR|19970522MA53|
 ERR||PID^5|101^required field missing^HL70357|E
 ERR||RXA|100^required segment missing^HL70357|E

Example 4:

ACK for Errors on Message Validation (for 2.3.1 only - backward compatibility)

MSH|^~\&|ImmPRINT|ImmPRINT|1111|22|20110008||ACK|20110829|201|P||||NE|NE

MSA|AE|19970522|MA53|Message Rejection

ERR|MSH^1^3^1006&Required field missing&Symphonia

Validation&&MSH/SendingApplication~MSH^1^4^1006&Required field missing&Symphonia

Validation&&MSH/SendingFacility

HL7 Message Segments

Table fields highlighted in green are required, yellow are required but may be empty, purple are conditional.

Usage: R = Required, RE = Required/Empty, O = Optional, HR = Highly Recommended, X = Not Supported, C(R/O) = Conditional (Required/Optional), C (RE/O) = Conditional (Required Empty/Optional)

Message Header Segment (MSH)

MSH is used to define the intent, source, destination, and some specifics of the syntax of a message

MSH-3: Contact ImmPRINT to get the ID's for MSH3. Eg. 1010

MSH-4: Contact ImmPRINT to get the SITE_ID's for MSH4. Eg.579

MSH-5: Use "ImmPRINT".

MSH-6: Use "ImmPRINT".

MSH-8: This is a required field. Contact ImmPRINT to get unique GUID for Security.

Note: Please follow the same rules as MSH for FHS and BHS.

MSH (Required Segment)					
HL7 Field	Element Name	Data Type	ImmPRINT Usage	Description/Comment	Code Set
MSH - 1	Field Separator	ST	R	The character to be used as the field separator for the rest of the message.	
MSH - 2	Encoding Characters	ST	R	Four characters in the following order: Component separators, repetition separator, escape character, and subcomponent separator. The values are ^~\&	
MSH - 3	Sending Application	HD	R	Instance name of the EHR product where the data originated	
MSH - 4	Sending Facility	HD	R	ImmPRINT assigned value indicating the facility sending the message	
MSH - 5	Receiving Application	HD	R	Always use ImmPRINT or AL-IIS	
MSH - 6	Receiving Facility	HD	R	Always use ImmPRINT or AL-IIS	

MSH - 7	Date/Time Of Message	TS	R	Date and time when message was created or transmitted.	
MSH - 8	Security	ST	R	This is a required field. Contact ImmPRINT to get unique GUID for Security.	
MSH - 9	Message Type	MSG	R		
MSH - 10	Message Control ID	ST	R	Common reference identifier for a message between the sender and receiver which identifies the message.	
MSH - 11	Processing ID	PT	R		
MSH - 12	Version ID	VID	R	HL7 Version	
MSH - 13	Sequence Number	NM	O		
MSH - 14	Continuation Pointer	ST	O		
MSH - 15	Accept Acknowledgement Type	ID	R		
MSH - 16	Application Acknowledgment Type	ID	R		
MSH - 17	Country Code	ID	O		
MSH - 18	Character Set	ID	O		
MSH - 19	Principal Language of Message	CE	O		
MSH - 20	Alternate Character Set Handling Scheme	ID	O		
MSH - 21	Message Profile Identifier	EI	R		

Example:

```
MSH|^~\&|1111|222|AL-IIS|AL-IIS|201302111401-0600|12345AB-CDA2-RRDF-66BF
Z999XZXZWXYZA|VXU^V04^VXU_V04|1039874483.444788|P|2.5.1|||ER|AL|USA|||Z22^CDCPHINVS
```

Patient Identifier Segment (PID)

PID is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information.

PID-3: It is repetitive field. Sub-components 1 (ID) and 5 (Identifier Type Code) are required. Patient Identification number is specified in Sub-component 1 (ID) and Identifier Type Code can be SR – State ImmPRINT ID, MR- Medical Record Number, SS- Social Security. All other ID's will be ignored.

PID-5: Last name and First name are required in the first two components. First or Last Name with less than 2 Characters will result in Message rejection.

PID-7: DOB is specified as follows – YYYYMMDD

PID-11: Address is required. Incomplete address and State Abbreviation with more than 2 Characters will result in Message rejection.

PID-13: Home Phone Number. ImmPRINT accepts only PRN and WPN values in component 2. ImmPRINT will use the 6th 7th 8th and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, ImmPRINT will assume that the phone number is specified in the first component.

PID-19: “-“symbols are not allowed. SSN more than 9 Characters will result in Message rejection

PID (Required Segment)					
HL7 Field	Element Name	Data	ImmPRINT Usage	Description/ Comment	Code Set
PID-1	Set ID - PID	SI	R		
PID-2	Patient ID	CX	X		
PID-3	Patient Identifier List	CX	R	Provider identification number for Patient.	
PID-4	Alternate Patient ID	CX	X	Insurance Policy ID for HEDIS Reports	
PID-5	Patient Name	XPN	R	Last name and First name are required in the first two components. First or Last Name with less than 2 Characters will result in Message rejection.	
PID-6	Mother's Maiden Name	XPN	RE		
PID-7	Date of Birth	TS	R	Format is specified as – YYYYMMDD	
PID-8	Administrative Sex	IS	R	M or F only	
PID-9	Patient Alias	XPN	X		
PID-10	Race	CE	RE	This field refers to the patient's race. ImmPRINT will process the first Race in the list of repeating Races; all others will be ignored.	CDCREC
PID-11	Patient Address	XAD	R	Entire address should be concatenated into one line: street, city, state, zip code.	
PID-12	County Code	IS	X	County belongs in address field	
PID-13	Phone Number – Home	XTN	RE		
PID-14	Phone Number – Business	XTN	O		
PID-15	Primary Language	CE	O		HL70296

PID-16	Marital Status	CE	O		
PID-17	Religion	CE	O		
PID-18	Patient Account Number	CX	O		
PID-19	SSN Number - Patient	ST	RE		
PID-20	Driver's License Number – Patient	DLN	X		
PID-21	Mother's Identifier	CX	X		
PID-22	Ethnicity	CE	RE		C DCREC Unknown is not accepted
PID-23	Birth Place	ST	O		
PID-24	Multiple Birth Indicator	ID	RE	This field indicates whether the patient was part of a multiple birth	HL7 0136
PID-25	Birth Order	NM	C(RE/O)	When a patient was part of a multiple birth, a value (number) indicating the patient's birth order is entered.	
PID-26	Citizenship	CE	O		
PID-27	Veterans Military Status	CE	O		
PID-28	Nationality	CE	O		
PID-29	Patient Death Date and Time	TS	X	ImmPRINT receives death certificates	
PID-30	Patient Death Indicator	ID	X		
PID-31	Identity Unknown Indicator	ID	O		
PID-32	Identity Reliability Code	IS	O		
PID-33	Last Update Date/Time	TS	O		
PID-34	Last Update Facility	HD	O		
PID-35	Species Code	CE	O		
PID-36	Breed Code	CE	O		
PID-37	Strain	ST	O		
PID-38	Production Class Code	CE	O		
PID-39	Tribal Citizenship	CWE	O		

Example: PID 1 90524^^^Vestavia Pediatrics^MR COOK^REBECCA^LEIGH^^^L 20061125 F 2106-3^White^CDCREC 2000 Rive View Dr^^Birmingham^AL^33333^USA^L ^PRN^PH^^^205^6001111 ENG^ENGLISH^HL70296 2186-5^not Hispanic or Latino^CDCREC Y 1 N	
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PD1 - Patient Demographic Segment

Patient Additional Demographic segment contains demographic information that is more likely to change about the patient.

PD1 (Optional Segment)					
HL7 Field	Element Name	Data Type	ImmPRINT Usage	Description/Comment	Code Set
PD1-1	Living Dependency	IS	O		
PD1-2	Living Arrangement	IS	O		
PD1-3	Patient Primary Facility	XON	O		
PD1-4	Patient Primary Care Provider name & ID No.	XCN	X		
PD1-5	Student Indicator	IS	O		
PD1-6	Handicap	IS	O		
PD1-7	Living Will Code	IS	O		
PD1-8	Organ Donor Code	IS	O		
PD1-9	Separate Bill	ID	O		
PD1-10	Duplicate Patient	CX	O		
PD1-11	Publicity Code	CE	O		
PD1-12	Protection Indicator	ID	O		
PD1-13	Protection Indicator Effective Date	DT	O		
PD1-14	Place of Worship	XON	O		
PD1-15	Advance Directive Code	CE	O		
PD1-16	Immunization Registry Status	IS	RE		HL70441
PD1-17	Immunization Registry Status Effective Date	DT	C(RE/X)	If the Immunization Registry status is MOGE then the effective date can be sent	
PD1-18	Publicity Code Effective Date	DT	O		
PD1-19	Military Branch	IS	O		
PD1-20	Military Rank/Grade	IS	O		
PD1-21	Military Status	IS	O		

NK1- Next of Kin/Associated Parties Segment

Next of Kin/Associated Parties segment contains information about the patient's next of kin and other associated or related parties.

NK1(Optional Segment)					
HL7 Field	Element Name	Data Type	ImmPRINT Usage	Description/Comment	Code Set
NK1-1	Set ID - NK1	SI	R	This field contains the number that identifies this transaction.	
NK1-2	Name	XPN	R	This field contains the name of the next of kin or associated party. Only Mother's and Father's info will be updated in ImmPRINT.	HL70200 - Name Type for valid values
NK1-3	Relationship	CE	R	This field contains the personal relationship that the next of kin/associated party has to the patient.	HL70063
NK1-4	Address	XAD	RE	ImmPRINT does not capture this info.	
NK1-5	Phone Number	XTN	RE	ImmPRINT does not capture this info.	
NK1-6	Business Phone Number	XTN	O		
NK1-7	Contact Role	CE	O		
NK1-8	Start Date	DT	O		
NK1-9	End Date	DT	O		
NK1-10	Next of Kin / Associated	ST	O		
NK1-11	Next of Kin / Associated Parties Job	JCC	O		
NK1-12	Next of Kin / Associated Parties Employee	CX	O		
NK1-13	Organization Name - NK1	XON	O		
NK1-14	Marital Status	CE	O		
NK1-15	Administrative Sex	IS	O	M or F only	
NK1-16	Date/Time of Birth	TS	O		
NK1-17	Living Dependency	IS	O		
NK1-18	Ambulatory Status	IS	O		
NK1-19	Citizenship	CE	O		
NK1-20	Primary Language	CE	O		
NK1-21	Living Arrangement	IS	O		

NK1-22	Publicity Code	CE	O		
NK1-23	Protection Indicator	ID	O		
NK1-24	Student Indicator	IS	O		
NK1-25	Religion	CE	O		
NK1-26	Mother's Maiden Name	XPN	O		
NK1-27	Nationality	CE	O		
NK1-28	Ethnic Group	CE	O		
NK1-29	Contact Reason	CE	O		
NK1-30	Contact Person's Name	XPN	O		
NK1-31	Contact Person's Telephone Number	XPN	O		
NK1-32	Contact Person's Address	XAD	O		
NK1-33	Next of Kin/Associated	CX	O		
NK1-34	Job Status	IS	O		
NK1-35	Race	CE	O		
NK1-36	Handicap	IS	O		
NK1-37	Contact Person Social Security Number	ST	O		
NK1-38	Next of Kin Birth Place	ST	O		
NK1-39	VIP Indicator	IS	O		
Example: NK1 1 Cok^Jan^^^^L MTH^Mother^HL70063 2000 Rive View Dr ^^Birmingham^AL^33333^^L ^PRN^PH^^205^600111 S F 19590510					

Order Request Segment (ORC)

Common Order Segment is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, with a unique value in field ORC-3 (Filler Order Number) for that RXA, based on the HL7 2.5.1 standard.

ORC-12: Use 1st component for NPI number, components 2 – 7 to record the name & designation and “**NPI**” in the 13th component. Encountered doses with no NPI numbers will result in dose rejection. For historical doses it can be null.

ORC (Required Segment)					
Each RXA needs to be preceded by ORC Segment					
HL7 Field	Element Name	Data Type	ImmPRINT Usage	Description/Comment	Code Set
ORC-1	Order Control	ID	R		
ORC-2	Placer Order Number	EI	RE		
ORC-3	Filler Order Number	EI	R		
ORC-4	Placer Group Number	EI	O		
ORC-5	Order Status	ID	O		
ORC-6	Response Flag	ID	O		
ORC-7	Quantity/Timing	TQ	X		
ORC-8	Parent	EIP	O		
ORC-9	Date/Time of Transaction	TS	O		
ORC-10	Entered By	XCN	RE		
ORC-11	Verified By	XCN	O		
ORC-12	Ordering Provider	XCN	C(RE/O)	Must be MD, CRNP, and PA, no PharmD allowed. Use 1 st component for NPI number, components 2 – 7 to record the name & designation and “NPI” in the 13 th component. Encountered doses with no NPI numbers will result in dose rejection. For historical doses it can be null.	
ORC-13	Enterer's Location	PL	O		
ORC-14	Call Back Phone Number	XTN	O		
ORC-15	Order Effective Date/Time	TS	O		
ORC-16	Order Control Code Reason	CE	O		
ORC-17	Entering Organization	CE	RE		
ORC-18	Entering Device	CE	O		
ORC-19	Action By	XCN	O		
ORC-20	Advanced Beneficiary Notice Code	CE	O		
ORC-21	Ordering Facility Name	XON	O		
ORC-22	Ordering Facility Address	XAD	O		
ORC-23	Ordering Facility Phone Number	XTN	O		
ORC-24	Ordering Provider Address	XAD	O		
ORC-25	Order Status Modifier	CWE	O		

ORC-26	Advanced Beneficiary Notice Override Reason	CWE	O		
ORC-27	Filler's Expected Availability Date/Time	TS	O		
ORC-28	Confidentiality Code	CWE	O		
ORC-29	Order Type	CWE	O		
ORC-30	Enterer Authorization Mode	CNE	O		
ORC-31	Parent Universal Service identifier	CWE	O		

Example:

ORC|RE|416944|444788|||||1000^test^test^test^^^^^The Childrens Hospit||1111111111^Test^Judy^T^^^^^^^^^NPI||||100^Test Medical Group|||TEST Medical Group

Pharmacy/Treatment Administration Segment (RXA)

RXA segment carries pharmacy administration data. This segment is a child of an ORC segment, which a repeating segment in the VXU messages. Because ORC are allowed to repeat, an unlimited number of vaccinations may be included in a message.

RXA-3: Date the vaccine was given. ImmPRINT does not utilize any time component.

RXA-5: For CVX Codes 1 to 9, key it with a prefix 0. Eg. CVX Code for MMR is “03” and not just “3”.

RXA-11: For encountered doses, send Site ID (same as MSH4) in RXA 11-4.

For Historical doses, it will be null.

RXA-15: The maximum length for Lot numbers is 10.

RXA-17: ImmPRINT does not support repetition of this field.

Note: Don't use '&' symbol in RXA/SubstanceManufacturerName/Text as it is a HL7 encoding character. Each RXA must be preceded by an ORC segment.

RXA (Required Segment)					
Each RXA needs to be associated with an ORC Segment					
HL7 Field	Element Name	Data Type	ImmPRINT Usage	Description/Comment	Code Set
RXA-1	Give Sub-ID Counter	NM	R		
RXA-2	Administration Sub-ID Counter	NM	R		
RXA-3	Date/Time Start of Administration	TS	R	Date the vaccine was given. ImmPRINT does not utilize any time component	
RXA-4	Date/Time End of Administration	TS	O		

RXA-5	Administered Code	CE	R	For CVX Codes 1 to 9, key it with a prefix 0. Eg. CVX Code for MMR is “03” and not just “3”. Do not use “Unspecified” CVX codes for administered vaccinations (RXA-9 = 00).	CVX
RXA-6	Administered Amount	NM	R	Dose size, numeric volume	
RXA-7	Administered Units	CE	C(R/O)	Is required if RXA-6 is present	UCUM
RXA-8	Administered Dosage Form	CE	O		
RXA-9	Administration Notes	CE	R	ImmPRINT uses the first component of this field to indicate the source of information for this immunization record or, more generically, whether the immunization being reported has just been administered (new) or came from other records (historical).	NIP001
RXA-10	Administering Provider	XCN	C(RE/O)	Pharmacists only. ImmPRINT does not accept administering provider in RXA	
RXA-11	Administered - at Location	LA-2	C(RE/O)	For encountered doses, send Site ID (same as MSH4) in RXA 11-4. For Historical doses, it will be null.	
RXA-12	Administered Per (Time Unit)	ST	O		
RXA-13	Administered Strength	NM	O		
RXA-14	Administered Strength Units	CE	O		
RXA-15	Substance Lot Number	ST	C(R/O)	Required for administered vaccinations (RXA-9 = 00) or encountered shots. The maximum length for Lot numbers is 10. Multiple Lot numbers must be separated by component separator.	
RXA-16	Substance Expiration	TS	C(RE/O)	Required for encountered shots	
RXA-17	Substance Manufacturer Name	CE	C(R/O)	Required for encountered shots. ImmPRINT does not support repetition of this field. Note: Don't use '&' symbol in RXA/SubstanceManufacturerName/Text as it is a HL7 encoding character.	MVX
RXA-18	Substance/Treatment Refusal Reason	CE	C(R/O)	If this field is populated then RXA20 is 'RE'	NIP002

RXA-19	Indication	CE	O		
RXA-20	Completion Status	ID	RE		HL70322
RXA-21	Action Code - RXA	ID	RE	This field provides a method of communicating whether a vaccination is new (code A) or correcting vaccination information previously transmitted to ImmPRINT, either by updating incorrect or missing information (code U) or by deleting the vaccination altogether (code D).	HL70323
RXA-22	System Entry Date/Time	TS	O		
RXA-23	Administered Drug Strength Volume	NM	O		
RXA-24	Administered Drug Strength Volume Units	CWE	O		
RXA-25	Administered Barcode Identifier	CWE	O		
RXA-26	Pharmacy Order Type	ID	O		
<p>Example: RXA 0 1 201302111355 201302111355 33^pneumococcal polysaccharide PPV23^HL70292 25 ug/mL^MicroGrams Per MilliLiter^UCUM 00^New immunization record^NIP001 VIRGINIA F MORR^MORRISON^VIRGINIA^F^ICU5^1^109^^^^105 Highway 80 East^^Demopolis^AL^36732^^^USA H014653 20140419 MSD^Merck and Co., Inc.^MVX A</p>					

RXR – Pharmacy/Treatment Route Segment

The Pharmacy/Treatment Route segment contains the alternative combination of route, site, administration device, and administration method that are prescribed as they apply to a particular order.

RXR (Conditional)					
HL7 Field	Element Name	Data Type	ImmPRINT Usage	Description/Comment	Code Set
RXR-1	Route	CE	R		NCIT
RXR-2	Administration Site	CWE	RE		HL70163
RXR-3	Administration Device	CE	O		
RXR-4	Administration Method	CWE	O		
RXR-5	Routing Instruction	CE	O		
RXR-6	Administration Site Modifier	CWE	O		

Example:
RXX|C28161^Intramuscular^NCIT|LD^Left Arm^HL70163

Observation Result Segment (OBX)

The Observation/Result segment has many uses. It carries observations about the object of its parent segment. In VXU, this segment is associated with the RXA or immunization record.

The basic format is a question (OBX-3) and an answer (OBX-5). The data type for the answer/value in OBX-5 is indicated in OBX-2. If multiple OBX segments are needed to communicate a concept, these are grouped by having a common value in the Observation Sub-ID (OBX-4).

Note: ImmPRINT accepts only one reaction per vaccine. If there are many reactions only the first one will be considered.

OBX (Optional Segment)					
HL7 Field	Element Name	Data Type	ImmPRINT Usage	Description/Comment	Code Set
OBX-1	Set ID – OBX	SI	R		
OBX-2	Value Type	ID	R	Data type for value in OBX-5	
OBX-3	Observation Identifier	CE	R	Adverse Reaction, VIS, and VFC eligibility. This indicates what this observation refers to. It poses the question that is answered by OBX-5.	NIP003
OBX-4	Observation Sub-ID	ST	R		
OBX-5	Observation Value	Varies	R	This answers the question posed by OBX-3.	Varies
OBX-6	Units	CE	C(R/O)	If OBX-2(Value Type) is valued “NM” or “SN”.	UCUM/HL70 353
OBX-7	References Range	ST	O		
OBX-8	Abnormal Flags	IS	O		
OBX-9	Probability	NM	O		
OBX-10	Nature of Abnormal Test	ID	O		
OBX-11	Observation Result Status	ID	R		
OBX-12	Effective Date of Reference Range Values	TS	O		
OBX-13	User Defined Access Checks	ST	O		
OBX-14	Date/Time of the Observation	TS	RE		
OBX-15	Producer's Reference	CE	O		
OBX-16	Responsible Observer	XCN	O		
OBX-17	Observation Method	CE	X	ImmPRINT does not capture this information. VFC eligibility is captured by OBX-3 and OBX-5.	CDCPHINVS
OBX-18	Equipment Instance Identifier	EI	O		

OBX-19	Date/Time of the Analysis	TS	O		
OBX-20	Reserved for harmonization with V2.6		X		
OBX-21	Reserved for harmonization with V2.6		X		
OBX-22	Reserved for harmonization with V2.6		X		
OBX-23	Performing Organization Name	XON	O		
OBX-24	Performing Organization Address	XAD	O		
OBX-25	Performing Organization Medical Director	XCN	O		

Example:

Vaccine Program Eligibility (Use for VFC eligibility)

OBX|1|CE|64994-7^Vaccine funding program eligibility category^LN|1|V01^Not VFC eligible^HL70064|||||F|||20170629|||VXC40^Eligibility captured at the immunization level^CDCPHINVS|||||

VIS

OBX |1|CE|30956-7^vaccine type^LN|1|08^Hepatitis B^CVX|||||F|
 OBX |2|TS|29768-9^VIS Publication Date^LN|1|20120202|||||F|||20140528 OBX
 |3|TS|29769-7^VIS Presentation Date^LN|1|20140528|||||F|||20140528 **Adverse**

Reaction

OBX|4|CE|31044-1^Reaction^LN|1|60728008^Abdominal swelling^CD:707278|||||F|||20130531

Disease with Presumed Immunity

OBX|1|CE|59784-9^Disease with presumed immunity^LN|1|76902006|||||F

Error Messages and Possible Solutions

Error Type	Code	Description	Cause and Possible Solution
Warning	5000	Vaccine accepted but is not within acceptable age	
Security Errors	20200	Security credentials are Invalid and Access Denied	
System Errors	20401	Fatal Error	Please Contact ImmPRINT Support: ImmPRINT@adph.state.al.us
	20402	Database Server is Down. Please try again later	
	20403	Fatal Error - No running communication point is configured to process this request.	
Technical Error	20301	Message Validation Failed	Check the ACK Message and ERR Segment to find Validation Errors. Example: Field value not found in validation table, Field too long, Required field missing etc.

Data Errors	20302	Patient Name is Invalid	Check the Patient's Name specified in PID 5
	20303	Patient DOB is Invalid	Check the Patient's Date of Birth specified in PID 7 - Date Time of Birth.
	20319	Patient SSN is Invalid	Check the SSN specified in PID 19 - SSN Number – Patient
	20305	Mother DOB is Invalid	Check the Mother's Date of Birth specified in NK1 16 - Date Time of Birth
	20306	Father DOB is Invalid	Check the Father's Date of Birth specified in NK1 16 - Date Time of Birth
	20307	Vaccine(CVX Code) does not exist in AL-IIS	Check the CVX Code specified in RXA 5 - Administered Code/Identifier
	20308	Vaccination Date is Invalid	Check the Vaccination Date specified in RXA 3 - Date/Time Start of Administration/Time
	20309	Vaccination Date cannot be greater than Current Date	Check the Vaccination Date specified in RXA 3 – DateTimeStartOfAdministration.
	20310	Vaccination Date cannot be less than DOB	Check the Vaccination Date specified in RXA 3 – DateTimeStartOfAdministration.
	20312	CVX Code is Invalid	Check the CVX Code specified in RXA 5 - Administered Code/Identifier
	20313	NPI number is missing	NPI number is missing in ORC 12 - OrderingProvider/Identifier
	20314	NPI number is Invalid	Check the NPI specified in ORC 12 - OrderingProvider/Identifier
	20315	MVX Code is missing	MVX Code is missing in RXA 17.
	20318	LOT number is missing	Lot Number is missing in RXA 15 and Substance Expiration date is missing in RXA 16
	20320	Inactive Vaccine	Vaccine was inactive during the vaccination date.
	20323	CVX/MVX/Brand Mismatch	Check mapping product names to CVX and MVX codes.
	20311	CVX code is missing	If RXA-5.1 is null and RXA-5.3 has CVX.
	20326	NDC Code is Invalid	If RXA-5.1 is null and RXA-5.3 has NDC.
	20327	CVX/NDC Mismatch	Check CVX codes and NDC mapping.
	20328	CVX/NDC Code Missing	If RXA-5.3 has neither CVX nor NDC.
20329	CVX/MVX Mismatch	Check CVX and MVX code mapping	
QBP Errors	20304	Patient Registry ID and Demographics does not match with Data in the Registry	If unsure of Patient Registry ID search by First Name, Last Name, Date of Birth, SSN, Address, City
	20101	No Match Found. Refine Search Criteria	ImmPRINT will acknowledge if no patient was found
	20102	Multiple Matches Found. Refine Search Criteria	User must refine the search criteria. ImmPRINT will not send low confidence matches.
	20104	The patient record is unavailable	Record is unavailable will be sent as a response message for deceased patients

Technical Support Contact

immprint@adph.state.al.us

1-800-469-4599

<http://www.alabamapublichealth.gov/immunization/immprint.html>

APPENDIX: ImmPRINT Certificate of Immunization (COI)

ImmPRINT allows sites to access and print COIs from within the EHR by passing necessary parameters. Vendors need to contact ImmPRINT for Login Id and Password. This will allow providers to print ADPH approved COIs from their EHR.

Steps:

1. After you receive credentials, go to
<https://siis.state.al.us/ImmPRINTWebServices/ImmPRINTWS.aspx>
2. Submit the following information as parameters in query string:
 - Loginid
 - Password
 - Firstname
 - Lastname
 - chartnbr
 - dob
 - MSH3
 - MSH4
 - page (Use COI as the value for the parameter “page”)