GRITS

Georgia Registry of Immunization Transactions and Services

HL7 - General Transfer Specification

Introduction

The Georgia Registry of Immunization Transactions and Services *(GRITS)* has made available an interactive user interface on the World Wide Web for authorized users to enter, query, and update client immunization records. The Web interface makes immunization registry information and functions available on desktops around the state. However, some immunization providers already store and process similar data in their own information systems, and may wish to keep using those systems while also participating in the statewide central repository. Others having billing needs and do not want to enter data into two disparate systems. GRITS allows providers to use the Health Level Seven (HL7) standard to exchange client and immunization information with the registry.

The Health Level Seven (HL7) Standard

The ANSI HL7 standard is widely used for data exchange in the health care industry. The full standard is quite lengthy, covering a variety of situations in patient care and healthcare finance, and no single application is likely to use all of its content. The CDC has worked with HL7 developers to create a set of messages that permit exchange of immunization data. This document, the *GRITS HL7 – General Transfer Specification*, covers the subset of HL7 used to exchange client and immunization records between the registry and outside systems.

- The basic unit transmitted in an HL7 implementation is the **message**.
- Messages are made up of several **segments**, each of which is one line of text.
- Segments are in turn made up of several **fields** separated by a delimiter character, "|".
- Each segment begins with a three-letter code identifying the segment type.

```
MSH|^~\&||PCHPD||GRITS|20040930||VXU^V04|test001|P|2.4|||ER
PID|||CHRT101^^^^PI^||SMITH^JOHN^J|DOE|20040901|M
PV1|1|R|||||||||||||||||||V02^19970903
RXA|0|999|20040903|20040903|08^Hep B, adolescent or pediatric^CVX^^^|0.5
```

Details for the structure of an HL7 message are explained throughout this document; the above example demonstrates the essentials of what a message looks like. Many fields are optional, and this example could have included more information.

- **MSH** – Message Header segment identifies the source or owner of the information being sent (GRITS-assigned short name: *PCHPD*), destination or receiver (*GRITS*), and some specifics of the syntax of the message (i.e. message type, HL7 version).
- **PID** – Patient Identification segment provides patient identification information such as the client's name (*JOHN F. SMITH*), birth date (September 1, 2004, *20040901*, YYYYMMDD format), and other identifying fields.
- **PV1 –** Patient Visit segment identifies the client's eligibility for State-Supplied Vaccine (*V02* indicates Medicaid).
- **RXA** – Pharmacy Administration segment carries immunization data for the client including the type of immunization (*Hep B, adolescent or pediatric*) and date of administration (September 3, 2004, *20040903*, YYYYMMDD format).

Scope of This Document

The General Transfer Specification (GTS) documented here supports automated exchange of data between the registry repository and outside systems, making client and immunization records available in both places while avoiding the need to enter data twice. The remainder of this document specifies how files of HL7 messages are constructed for registry purposes. It does not cover the methods used to transmit files between the registry central repository and outside systems. It covers only a small subset of the very extensive HL7 standard. Files of messages constructed from the guidelines in this document will fall within the HL7 standard, but there are a wide variety of other possible HL7 messages that are outside the scope of this document.

References

- See Version 2.4 of the Health Level 7 standard for a full description of all messages, segments, and fields. Information regarding HL7 is at www.hl7.org.

- The National Immunization Program within the Center for Disease Control (www.cdc.gov/nip) has published the Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the HL7 Protocol (Implementation Guide 2.1, September 2002) with the purpose of keeping the use of HL7 for immunization data as uniform as possible. This document is compliant with HL7's Version 2.4, and can be found at http://www.cdc.gov/nip/registry/hl7/hl7guide.pdf.

Message Segments: Field Specifications and Usage

HL7 Segment Structure

Each segment consists of several fields, separated by the field separator character, "|". The tables below that define how a segment is structured contain the following columns:

COLUMN	DESCRIPTION
SEQ	The ordinal position of the field in the segment. Since the registry does not use all possible fields in the HL7 standard, these are not always consecutive.
LEN	Maximum length of the field
DT	HL7 data type of the field. See below for definition of HL7 data types.
R/M	R means required by HL7, and M means mandatory for the registry. Blank indicates an optional field.
RP/#	Y means the field may be repeated any number of times, an integer gives the maximum number of repetitions, and a blank means no repetition is permitted. Most fields use no repetition.
TBL#	Number of the HL7 table giving valid values for the field.
ELEMENT NAME	HL7 name for the field.

HL7 data types. Each field has an HL7 data type. Appendix A of this document lists and defines the HL7 data types needed for the registry. The elemental data types Numeric (NM) and String (ST) consist of one value, while some data types, such as Extended Person Name (XPN) are composite.

Delimiter characters. Field values of composite data types consist of several components separated by the **component separator**, "^". When components are further divided into sub-components, these are separated by the **sub-component separator**, "&". Some fields are defined to permit repetitions separated by the **repetition character**, "~". When these special characters need to be included within text data, their special interpretations are prevented by preceding them with the **escape character**, "\".

```
MSH|^~\&| …..
XXX|field1|component1^component2^subcomponent3.1&subcomponent3.2^component4| …..
YYY|repetition1~repetition2| …..
ZZZ|data includes escaped \|\~ special characters| …..
```

In the example above, the Message Header (MSH) segment, as its definition requires, uses the field separator "|"immediately after the "MSH" code identifying the segment, and this establishes what character serves as the field separator throughout the message. The next field, the four characters "^~\&", establishes, in order, the component separator character, the repetition character, the escape character, and the sub-component separator character that will apply throughout the message. The hypothetical "XXX" segment includes field1 with no internal structure, but the next field has several components separated by "^", and the third of these is made up of two sub-components separated by "&". The hypothetical "YYY" segment's first field permits repetition, in this example the two values "repetition1" and "repetition2". The hypothetical "ZZZ" segment's field has a text value that includes the characters "|~", and these are escaped to prevent their normal structural interpretation.

In GRITS usage, sub-components, repetition, and text values requiring the escape character will be rare. Components within fields are common, since names and addresses are represented this way. HL7 permits use of other delimiters besides the recommended ones, and the delimiters used in each message are given in the Message Header segment. However, GRITS will always use the recommended delimiters when sending files and requires their use for files received. This is compliant with HL7's recommendations for delimiter characters.

Rules for Sending Systems

To construct HL7 messages, the following rules apply:
- Encode each segment in the order specified in the message format.
- Begin the segment with the 3-letter segment ID (for example MSH).
- Precede each field with the data field separator ("|").
- Use HL7 recommended encoding characters ("^~\&").
- Encode the data fields in the order given in the table defining segment structure.
- Encode the data field according to its HL7 data type format.

- Do not include any characters for fields not present in the segment. Since later fields in the segment are encoded by position, fields that are not present do not reduce the number of field separators ("|") in the segment. For example, when the second and third fields are not present, the field separators maintain the ordinal position of the fourth field: |field1|||field4.
- Data fields that are present but explicitly null are represented by empty double quotes "".
- Trailing separators may optionally be omitted. For example, |field1|field2||||| is equivalent to |field1|field2, when field3 and subsequent fields are not present.
- End each segment with the segment terminator (ALWAYS the carriage return character, ASCII hex 0D).

To receive HL7 messages, the following rules apply:
- Treat data segments that are expected but not present as if all data fields in the segment were not present.
- Require use of HL7 recommended Field Separator |, and Encoding characters ^~\& for encoding messages.
- Ignore any data segment that is included but not expected, rather than treating it as an error. The HL7 message types used by the registry may include many segments besides the ones in this document, and the registry ignores them. The registry will not send messages with segments not documented in this specification, but reserves the right to specify more segments at a later date. The rule to ignore unexpected segments facilitates this kind of change.
- Ignore data fields found but not expected within a segment.
- The message segments below are those needed to construct types of messages used by the registry. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since the registry does not use all the fields HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, the field separators maintain the ordinal position of the fourth field: |field1|||field4.

HL7 Message Types Used in Batch Transmissions

The registry uses messages of three types for batch transactions, one for sending client data without immunizations, one for sending immunizations, and one for acknowledging message received. The tables below show how a message of each type is constructed from several segments. Each segment is one line of text, ending with the carriage return character, so HL7 messages are entirely readable and printable, though they may appear somewhat cryptic due to the scarcity of white space. (The HL7 standard contains provisions for inclusion of binary data, but the registry will not use these features.)

Square brackets [ ] enclose optional segments, and curly braces { } enclose segments that may be repeated. Thus, a message of type ADT could be composed of just MSH, PID and PV1 segments. The message could contain zero to any number of NK1 segments. If a segment processed by the registry is present, it must appear in the correct order as listed below. The full HL7 standard allows additional segments within these message types, but they are unused by the registry. In order to remain compliant with HL7, their use is not an error, but the message recipient can ignore their content. The segments documented here are sufficient to support the principal registry functions of storing data about clients and immunizations.

ADT	Update Patient Information
MSH	Message Header
PID	Patient Identification
[*PD1]	Patient Additional Demographic
[{NK1}]	Next of Kin/Associated Parties
PV1	Patient Visit
[{**OBX}]	Observation/Result

* The PD1 segment is required to indicate the client registry status is Inactive, the PD1-16 field must be populated with I – Inactive or P – Permanently Inactive – Deceased,)

**The only OBX segment accepted in an ADT message is a Contraindication. (See OBX – Observation/Result Segment)

VXU	Unsolicited Vaccination Record Update
MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographic
[{NK1}]	Next of Kin/Associated Parties
PV1	Patient Visit
{RXA}	Pharmacy Administration
[RXR]	Pharmacy Route (Only one RXR per RXA segment)
*[{OBX}]	Observation/Result

*An OBX segment that contains a Reaction and/or VAERS event must be tied to a specific RXA segment (immunization event), and therefore, must be listed in a VXU message directly following the RXA segment. If the optional RXR segment is utilized, the OBX segment will follow the RXR segment. An OBX segment that contains a Contraindication is not tied to a specific RXA segment, so GRITS recommends grouping all Contraindications at the end of the VXU message. (See OBX – Observation/Result Segment)

ACK   General Acknowledgment
MSH   Message Header
MSA   Message Acknowledgment
[ERR]   Error

HL7 Batch Protocol

Each message type listed in the previous section can logically stand on its own, but HL7 is also compatible with various methods of online and batch transmission. HL7 provides special header and footer segments that are used when a number of messages are gathered into a batch for transmission as a file. These segments are not part of any message, but serve to bracket the messages defined above. The structure of a batch file is as follows.

If submitting an HL7 Version 2.4 file, the file header/trailer segments and the batch header/trailer segments are OPTIONAL. If submitting an HL7 Version 2.3.1 file, the file header/trailer segments and the batch header/trailer segments are REQUIRED.

FHS   (file header segment)
 { BHS (batch header segment)
  { [MSH (zero or more HL7 messages)
   ....
  ] }
 BTS   (batch trailer segment)
 }
FTS   (file trailer segment)

FHS – File Header Segment

The FHS segment is used to head a file (group of batches).

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	1	ST	R			File Field Separator
2	4	ST	R			File Encoding Characters
3	15	ST				File Sending Application
4	20	ST				File Sending Facility
6	20	ST				File Receiving Facility
7	26	TS				File Creation Date/Time
9	20	ST				File Name/ID
10	80	ST				File Header Comment
11	20	ST				File Control ID
12	20	ST				Reference File Control ID

Field Notes:
FHS-1 Same definition as corresponding field in MSH segment listed below.
FHS-2 Same definition as corresponding field in MSH segment listed below.
FHS-3 Same definition as corresponding field in MSH segment listed below.
FHS-4 Same definition as corresponding field in MSH segment listed below.
FHS-6 Same definition as corresponding field in MSH segment listed below.
FHS-7 Same definition as corresponding field in MSH segment listed below.
FHS-9 Name of the file as transmitted from the initiating system.
FHS-10 Free text, which may be included for convenience, but has no effect on processing.
FHS-11 This field is used to identify a particular file uniquely among all files sent from the sending facility identified in FHS-4.
FHS-12 Contains the value of FHS-11-file control ID when this file was originally transmitted. Not present if this file is being transmitted for the first time.

FTS - File Trailer Segment

The FTS segment defines the end of a file.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	10	NM	M			File Batch Count
2	80	ST				File Trailer Comment

Field Notes:
FTS-1   The number of batches contained in this file. GRITS normally sends one batch per file, and discourages sending multiple batches per file.
FTS-2   Free text, which may be included for convenience, but has no effect on processing.

BHS - Batch Header Segment

The BHS segment defines the start of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	1	ST	R			Batch Field Separator
2	4	ST	R			Batch Encoding Characters
3	15	ST				Batch Sending Application
4	20	ST				Batch Sending Facility
6	20	ST				Batch Receiving Facility
7	26	TS				Batch Creation Date/Time
10	80	ST				Batch Comment
11	20	ST				Batch Control ID
12	20	ST				Reference Batch Control ID

Field Notes:
BHS-1   Same definition as corresponding field in MSH segment listed below.
BHS-2   Same definition as corresponding field in MSH segment listed below.
BHS-3   Same definition as corresponding field in MSH segment listed below.
BHS-4   Same definition as corresponding field in MSH segment listed below.
BHS-6   Same definition as corresponding field in MSH segment listed below.
BHS-7   Same definition as corresponding field in MSH segment listed below.
BHS-10 Free text, which may be included for convenience, but has no effect on processing.
BHS-11 This field is used to uniquely identify a particular batch. It can be echoed back in *BHS-12-reference batch control ID* if an answering batch is needed. For GRITS purposes, the answering batch will contain ACK messages.
BHS-12 This field contains the value of *BHS-11-batch control ID* when this batch was originally transmitted. Not present if this batch is being sent for the first time. See definition for *BHS-11-batch control ID*.

BTS - Batch Trailer Segment

The BTS segment defines the end of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	10	ST	M			Batch Message Count
2	80	ST				Batch Comment

Field Notes:
BTS-1   This field contains the count of the individual messages contained within the batch.
BTS-2   Free text, which may be included for convenience, but has no effect on processing.

HL7 Control Segments

MSH – Message Header Segment

The MSH segment defines the intent, source, destination, and some specifics about the syntax of a message.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	1	ST	R			Field Separator
2	4	ST	R			Encoding Characters
3	180	EI				Sending Application
4	180	EI				Sending Facility
6	180	EI				Receiving Facility
7	26	TS				Date/Time Of Message
9	7	CM	R			Message Type
10	20	ST	R			Message Control ID
11	3	PT	R		0103	Processing ID
12	60	VID	R		0104	Version ID
15	2	ID			0155	Accept Acknowledgment Type

Field Notes:

MSH-1 Determines the separator between the segment ID and the first real field, *MSH-2-Encoding characters*. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. GRITS requires the HL7 recommended field separator of "|".

MSH-2 Determines the component separator, repetition separator, escape character, and sub-component separator in effect for the rest of this message. GRITS requires the HL7 recommended values of ^~\&, (ASCII 94, 126, 92, and 38, respectively).

MSH-3 Name of the sending application. When receiving, GRITS ignores this field. When sending, GRITS will use "GRITS". See MSH-4 and MSH-6 for the fields principally used to identify sender and receiver of the message.

MSH-4 Identifies the owner of the message information. When the provider organization owning the information is different than the organization transmitting the message, use the GRITS provider ID or short name of the provider organization that owns the information; otherwise, this field may be left blank. Contact the GRITS Help Desk for your appropriate Organization ID or short name.   If using only the Organization ID, include the ^ character before the ID. For messages sent by the registry, the Sending Facility will read "GRITS".

Field 4 example: |^1028|

MSH-6 Identifies the message receiver. Use **GRITS** when sending to GRITS. For messages sent by the registry, the Receiving Facility will be populated with the Provider Organization's short name. Contact the GRITS Help Desk for your appropriate Organization short name.

MSH-7 Date and time the message was created. Format is YYYYMMDD. GRITS ignores any time component.

MSH-9 Two components of this field create the HL7 message type (see Table 0076) and the HL7 triggering event (see Table 0003). Within HL7, the triggering event is considered to be the real-world circumstance causing the message to be sent. For GRITS purposes, this field should have the value ADT^A31 for a message conveying client information or the value VXU^V04 for a message conveying client and immunization information. For acknowledgement messages the value ACK is sufficient and the second component is omitted.

MSH-10 The message control ID is a string (which may be a number) uniquely identifying the message among all those ever sent by the sending system. It is assigned by the sending system and echoed back by GRITS in MSH-10 and MSA-2.

MSH-11 See Table 0103. The processing ID to be used in GRITS is **P** for Production processing.

MSH-12 See Table 0104. Use a value of **2.4** to indicate HL7 Version 2.4. For GRITS the version number that is present in the first MSH segment of the file will be the version assumed for the entire file. If no version number is present in the first MSH segment, the file will be rejected.

MSH-15 See Table 0155. Controls whether an acknowledgement is generated for the message sent. GRITS suggests a value of ER to ask that acknowledgements be sent only for messages that cannot be processed normally. GRITS will assume this value if the field is not present.

Example:
MSH|^~\&||PCHPD^1028||GRITS|20040930||VXU^V04|test001|P|2.4|||ER

MSA – Message Acknowledgment Segment

The MSA segment contains information sent by the registry to acknowledge an incoming message.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0008	Acknowledgment Code
2	20	ST	R			Message Control ID
3	80	ST				Text Message
4	15	NM				Expected sequence number
6	100	CE			0357	Error condition

Field Notes:

MSA-1   See Table 0008. GRITS generates **AR** – application rejection when a sender's message encounters informational or rejection errors during processing. **AA** - acknowledgment acceptance is generated when a sender's message has processed normally.

MSA-2   GRITS will echo the Message control ID sent by the sending system in MSH-10. This allows the sending system to associate each message with a response.

MSA-3   Text of an error message.

MSA-4   This optional numeric field is used in the sequence number protocol.

MSA-6   See Table 0357. Error Condition that further specifies an error identified in MSA-3.

Example:
MSA|AR|testfile001|MESSAGE REJECTED – INVALID MESSAGE TYPE SPECIFIED|0||100^Segment sequence error^HL70357^^^

ERR – Error Segment

The ERR segment is sent by the Registry to add error comments to acknowledgment messages. If a message was rejected for functional reasons, this segment will locate the error and describe it using locally established codes.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	80	CM	R	Y		Error Code and Location

Field Notes:

ERR-1   A composite field with four components.

^<sequence (NM)>^<field position (NM)>^<code identifying error (CE)>

The first component identifies the segment containing the error. The second component identifies the input file line number of the segment containing the error. The third component identifies, by ordinal number, the field containing the error. The fourth component identifies, by ordinal number, the field component containing the error (0 is used if not applicable). The remaining five components of the CE data type are not valued and their '^' separators are not generated. Note that error text is transmitted in field MSA-3.

Example: Below is an example of a MSH segment that contains an invalid message type in MSH-9 and the Error segment that is generated as a result.

MSH|^~\&||PCHPD^1028||GRITS|20040930||**BAD^V04**|test001|P|2.4|||ER

ERR|MSH^3^9^0

The above ERR segment identifies the MSH segment occurring on line 3 of the input file whose required 9th field (Message Type) contains an invalid value. No component is specified in this Error segment.

Patient Administration Message Segments

PID – Patient Identification Segment

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
2	20	CX				Patient ID (External ID)
3	20	CX	R	Y	0203	Patient ID (Internal ID)
5	48	XPN	R	Y		Patient Name
6	48	XPN		Y		Mother's Maiden Name
7	26	TS	M			Date/Time of Birth
8	1	IS			0001	Sex
10	80	CE		Y	0005	Race
11	106	XAD		Y		Patient Address *see Note*
19	16	ST				SSN Number – Patient
22	80	CE		Y	0189	Ethnic Group
24	1	ID			0136	Multiple Birth Indicator
25	2	NM				Birth Order
29	26	TS				Patient Death Date and Time

Field Notes:

PID-2   If available, use the client's GRITS client ID.

PID-3   See Table 0203. Use the sending system's Chart Number and/or other identifier if available. Sub-components 1 (ID) and 5 (identifier type code) are required. For messages sent by the registry, the Patient ID will contain the client's chart number (when available) and the GRITS client ID with the 'SR' (State Registry ID) identifier type.

PID-5   See Table 0200 and the XPN data type. Last name and first name are required in the first two components. *NOTE: If client does not have a first name,* NO FIRST NAME *must be entered.* GRITS does not support repetition of this field.

PID-6   See Table 0200 and the XPN data type. Use the mother's maiden last name and first name in the first two components. GRITS uses only last name and first name for client identification. If the Name Type Code component is included, use M-Maiden. A mother's legal name might also appear in the context of an NK1 segment.

PID-7   Provide the year, month, and day of birth (Format is YYYYMMDD). GRITS ignores any time component.

PID-8   See Table 0001. Use F, M, or U.

PID-10 See Table 0005. GRITS does not support repetition of this field.

PID-11 See the XAD data type. For Georgia addresses, place the county code in component 9. GRITS does not support repetition of this field. *Note: GRITS recommends that PID-11 Patient Address be left blank for clients with parent/guardians. The NK1 segment is used to transmit responsible person address information. If an address is included in PID-11, GRITS will create the client as a responsible person with the relationship code '18 –Self'.*

PID-13 See Table 0190, 0201 and the XTN data type. If component 2 – telecommunication use code is specified as 'PRN' (Table 0201), GRITS will store the 6th, 7th and 8th components (area code, phone number and extension). Otherwise, GRITS will assume that the phone number is specified in the first component in the following format: [NNN] **[(999)] 999-9999 [X99999]** [B99999] [C any text]. GRITS will only store the area code, phone number and extension - using the X value as the phone extension. GRITS does not support repetition of this field.

PID-19 NOTE: Social security number is used for identification purposes only, and is not displayed on screens or distributed to Provider Organizations. GRITS recommends specification of the social security number in PID-03. Support of PID-19 is for backward compatibility only.

PID-22 See Table 0189. GRITS does not support repetition of this field.

PID-23 Format the client's birthplace in three components: the two-character country code (see Table 0212), the two-character state or province code (within US or Canada only), and the five-character county code (Georgia only, see Table 0289). Omit trailing components that are unknown or inapplicable.

PID-24 Use Y to indicate that the client was born in a multiple birth.

PID-25 Relevant when client was born in a multiple birth. Use 1 for the first born, 2 for the second, etc. This field is useful in matching client data to existing records.

PID-29 The date of death, if client is deceased. Provide the year, month, and day of death (YYYYMMDD). GRITS ignores any time component.

Example:
PID|||111223333^^^^SS~CHRT101^^^^PI^||SMITH^JOHN^JO^JR^^^L^|DOE^JAIN^^^^^M^|
20040901|M||2106-3^WHITE^HL70005^^^|111 My Ave^Apt B^Atlanta^GA^30303^^H^^GA067^^
||^PRN^^jsmith@email.com^^555^4443333^4321^||||||||2186-5^not Hispanic or Latino^HL70189^^^||||||

PD1 – Patient Additional Demographic Segment

The PD1 carries patient additional demographic information that is likely to change. Since the PD1 segment is optional, if PD1 is not included in a VXU or ADT message, GRITS will assign new clients the following default values: Recall/Reminder notices (PD1-11) = Yes; Allow Sharing indicator = Yes; and, Active/Inactive indicator (PD1-16) = Active.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
11	80	CE			0215	Publicity Code
12	1	ID			0136	Protection Indicator
13	8	DT				Protection Indicator effective date
16	1	IS			0441	Immunization Registry Status
17	8	DT				Immunization registry status effective date
18	8	DT				Publicity code effective date

Field Notes:

PD1-11 See Table 0215. Indicates whether recall/reminder notices may be sent to a patient.

PD1-12 See Table 0136. Allow sharing indicator. Indicates whether or not consent has been given for record sharing with other organizations.

PD1-13 Effective date for Protection Indicator reported in PD1-12. Format is YYYYMMDD.

PD1-16 See Table 0441. Active/Inactive indicator. Identifies the registry status of the client.

PD1-17 Effective date for Registry Status reported in PD1-16. Format is YYYYMMDD.

PD1-18 Effective date for Publicity Code reported in PD1-11. Format is YYYYMMDD.

Example:
PD1|||||||||||02^Yes reminder/recall – any method^HL70215|Y|20040920|||A|20040920|20040920

NK1 – Next of Kin/Associated Parties Segment

The NK1 segment contains information about the patient's next of kin and other associated or related parties. This segment is allowed to repeat, providing information about multiple related parties.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	4	SI	R			Set ID - NK1
2	48	XPN		Y		Name
3	60	CE			0063	Relationship
4	106	XAD		Y		Address
5	40	XTN		Y		Phone Number

Field Notes:

NK1-1 The Set ID field numbers each NK1 segment if multiple NK1 segments are associated with a message. Use "1" for the first NK1, "2" for the second, and so forth. Although this field is required by HL7, GRITS will ignore its value, and there is no requirement that the record for the same responsible person keep the same sequence number across multiple messages, in the case that information from the same record is transmitted more than once.

NK1-2 See the XPN data type. Name of the responsible person who cares for the client. GRITS does not support repetition of this field.

NK1-3 See Table 0063. Relationship of the responsible person to the client. If a responsible person name, address, and/or telephone is present, but no relationship code is indicated, the relationship code will default to GRD 'Guardian.' A client may have multiple responsible persons with the same relationship code. Use the first three components of the CE data type. Example: |FTH^Father^HL70063^^^|

NK1-4 See the XAD data type. Responsible person's mailing address. For Georgia addresses, place the county code in component 9. GRITS does not support repetition of this field.

NK1-5 See Table 0190, 0201 and the XTN data type. Responsible person's phone number. If component 2 – telecommunication use code is specified as "PRN" (Table 0201), GRITS will store the 6th, 7th and 8th components (area code, phone number and extension). Otherwise, GRITS will assume that the phone number is specified in the first component in the following format: [NNN] **[(999)] 999-9999 [X99999]** [B99999] [C any text]. GRITS will only store the area code, phone number and extension - using the X value as the phone extension. GRITS does not support repetition of this field.

Example:
NK1|1|SMITH^JOHN^J^SR|FTH^Father^HL70063^^^|111 My Ave^Apt B^Atlanta^GA^54321^^H^^GA067^^
|^PRN^^jsmith@email.com^^555^4443333^4321^

PV1 – Patient Visit Segment

The PV1 segment is used to send visit-specific information. It carries the client's eligibility for State-Supplied Vaccine at the time the vaccine was administered.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
2	1	IS	R		0004	Patient Class
20	50	FC	M	Y	0064	Financial Class

Field Notes:

PV1-2   See Table 0004. HL7 recommends that registries use 'R' for recurring.

PV1-20 See Table 0064. Eligibility for State-Supplied vaccine. This field contains an eligibility code and effective date. An eligibility code is MANDATORY for new immunizations.   This field is repeatable to allow immunizations administered on different dates to have unique eligibility status.   Only 1 eligibility code will be stored on each immunization record. The effective date is not required, but it is recommended. If no eligibility effective date is present, the most recent immunization date will be used as the incoming effective date.

Client immunizations: January 15, 2003 – HepB; March 24, 2003 – HepB, DTaP, IPV, HIB; and June 3, 2003 – HepB, DTaP, IPV, HIB.

- GRITS recommends that the effective date be the date the earliest immunization was administered under a given eligibility status. In this example, all immunizations on or after January 15, 2003 will load with the V02 eligibility code.

  Example: PV1||R||||||||||||||||||V02^20030115

- The next example shows a client who changed eligibility on March 1, 2003. All immunizations between January 15, 2003 and February 28, 2003 will load with the V02 eligibility code. All Immunizations on or after March 1, 2003 will load with the V01 eligibility code.

  Example: PV1||R||||||||||||||||||V02^20030115~V01^20030301

- The next example shows a client whose only eligibility effective date is April 1, 2003 – after the date of several immunizations. All HISTORICAL immunizations administered prior to April 1, 2003 will be loaded with the V00 eligibility code 'Eligibility Not Determined/Unknown.'   All NEW immunizations administered prior to April 1, 2003 will be rejected for not having the mandatory eligibility code.

  Example: PV1||R||||||||||||||||||V01^20030401

- GRITS will send the current client eligibility as the first component of PV1-20. All subsequent repeatable components correspond to the client's immunizations.

Please note: If you wish to transmit multiple eligibilities for immunizations administered on the same day, for example Tdap and MCV4 as V01 and HPV as V05; and client eligibility is V01:

- Send the HPV immunization separately first with the V05 eligibility
- Send the other two immunizations to add the immunizations as V01 and to update the client eligibility in GRITS to V01

RXA – Pharmacy/Treatment Administration Segment

The RXA carries pharmacy administration data. It is a repeating segment and can record unlimited numbers of vaccinations. GRITS supports deduction of new immunizations from GRITS inventory as well as the deletion of immunizations from the registry that were added incorrectly.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	4	NM	R			Give Sub-ID Counter
2	4	NM	R			Administration Sub-ID Counter
3	26	TS	R			Date/Time Start of Administration
4	26	TS	R			Date/Time End of Administration
5	100	CE	R		0292	Administered Code
6	20	NM	R			Administered Amount
9	200	CE		Y	NIP001	Administration Notes
10	200	XCN		Y		Administering Provider
11	200	CM				Administered-at location
15	20	ST		Y		Substance Lot Number
17	60	CE		Y	0227	Substance Manufacturer Name
16	26	TS		Y		Substance Expiration Date
21	2	ID			0323	Action code-RXA
22	26	TS				System Entry Date/Time

Field Notes:

RXA-1   Required by HL7. Use **0** for GRITS.

RXA-2   Required by HL7. Use **999** for GRITS.

RXA-3   Date the vaccine was given. Format is: YYYYMMDD. GRITS ignores any time component.

RXA-4   Required by HL7. Format is: YYYYMMDD. Ignored by GRITS, which will use the value in RXA-3.

RXA-5   Identifies the vaccine administered. See the **CE** data type. GRITS accepts the following vaccine code sets: CVX (CVX Codes), C4 (CPT Codes), WVTN (Vaccine Trade Names), and WVGC (Vaccine Group Codes). Order of preference: Trade Name, CPT, CVX, Vaccine Group.

- For the CVX code set, provide information in the FIRST TRIPLET of the RXA-5 segment. Provide the identifier (CVX code) in the first component, text description in the second component (optional), and the name of coding system in the third component.

    CVX example: |20^DTP/aP^CVX^^^|

- For all other code sets, provide information in the SECOND TRIPLET of the RXA-5 segment. Provide the identifier in the fourth component, text description in the fifth component (optional), and the name of coding system in the sixth component.

    WVTN example: |^^^INFANRIX^DTP/aP^WVTN|
    CPT example: |^^^90700^DTP/aP^C4|
    WVGC example: |^^^DTP/aP^DTP/aP^WVGC|

- If sending multiple code sets, provide the CVX code set in the FIRST TRIPLET, and alternate code set in the SECOND TRIPLET.

    CVX and CPT example: |20^DTP/aP^CVX^90700^DTP/aP^C4|

- **Note: If the CPT Code set is used, the data exchange process will assign and store a trade name on the database for the incoming immunizations (that do not deduct from inventory) when the incoming CPT Code correlates to a single trade name.**

RXA-6   Required by HL7. Quantity of vaccine administered, in milliliters. Zero may be entered when quantity is unknown.

RXA-9   Use **00** to indicate a "New" immunization or **01** to indicate a "Historical" immunization. Sending the immunization as new allows a provider organization to 'own' the immunization and prevents other provider organizations from editing the immunization. For provider organizations set up to deduct from GRITS inventory via data exchange, **00** is mandatory in this field. GRITS does not support repetition of this field. See Table NIP001, for a full list of acceptable values and descriptions for this field.

RXA-10 Identifies the name of the person physically administering the vaccine (the vaccinator). GRITS will use components 2 – 7 to record the vaccinator's name. GRITS does not support repetition of this field.

RXA-11 Identifies the site where the vaccine was administered. The site ID and/or site name is entered in component 4. Component 4 is data type HD, so enter the site ID in the first subcomponent and the site name in the second subcomponent. For provider organizations set up to deduct from GRITS inventory via data exchange, if the organization contains more than one site, this field is mandatory.

Example: |^^^4321&Test Site|

RXA-15 Manufacturer's lot number for the vaccine. For provider organizations set up to deduct from GRITS inventory via data exchange, when sending a deduction transaction this is a mandatory field. GRITS does not support repetition of this field.

RXA-16 Identifies the expiration date of the medical substance administered. Format is: YYYYMMDD. GRITS ignores any time component. When deducting from inventory within GRITS, this value is useful for locating a matching vaccine lot.

RXA-17 See Table 0227. Vaccine manufacturer. The HL7 specification recommends use of the external code set MVX. "When using this code system to identify vaccines, the coding system component of the CE field should be valued as "MVX" not as "HL70227." GRITS does not support repetition of this field.

Example: |AB^Abbott^MVX^^^|

RXA-21 See Table 0323. Provides a method for correcting vaccination information previously transmitted incorrectly. To delete an immunization from GRITS, this field must be populated with "D". Immunizations deducted from GRITS inventory cannot be deleted. An add/update occurs when this field is populated with anything other than "D".

RXA-22 Timestamp telling when the immunization record was entered into the sender's database. This field is optional, and the receiver is free to ignore it during processing.

Example: RXA|0|999|20040903|20040903|08^Hep B, adolescent or pediatric^CVX^^^|0.25|||00
|^TRAPPER^JOHN^F^JR^DR^MD|^^^4321&Test Site|||lot13221b||AB^Abbott^MVX^^^||||A|20040904

RXR – Pharmacy/Treatment Route Segment

The Pharmacy/Treatment Route Segment contains the alternative combination of route and site.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	60	CE	R		0162	Route
2	60	CE			0163	Site

Field Notes:

RXR-1 See Table 0162. Route of administration (e.g., intramuscular, oral).

RXR-2 See Table 0163. Site of the administration route (e.g., left arm, right arm).

Example: RXR|IM^INTRAMUSCULAR^HL70162|LA^LEFT ARM^HL70163

OBX – Observation/Result Segment

The Observation/Result Segment is used to transmit an observation. GRITS accepts three types of observations: reactions, vaccine adverse events, and contraindications. Reactions and vaccine adverse events point to a specific immunization that caused the condition, so they must be associated with a specific immunization. An OBX segment that contains a Reaction and/or VAERS event must be tied to a specific RXA segment (immunization event), and therefore, must be listed in a VXU message directly following the RXA segment. If the optional RXR segment is utilized, the OBX segment will follow the RXR segment. Contraindications to a vaccine exist with or without having received an immunization, so they are not associated with an immunization. An OBX segment that contains a Contraindication is not tied to a specific RXA segment, so GRITS recommends grouping all Contraindications at the end of the VXU message.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	4	SI				Set ID-OBX
2	3	ID				Value type
3	80	CE	R		NIP003	Observation Identifier
5	65536	-	R	Y	NIP004, NIP005	Observation value
11	1	ID	R		0085	Observation result status
14	26	TS				Date/time of the observation
17	60	CE			OBMT	Observation method

Field Notes:

OBX-1   Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth.

OBX-2   Contains the data type, which defines the format of the observation value in OBX-5. Use **CE** for GRITS.

OBX-3   See Table NIP003. Identifies the general category of an observation.

> Example: |30945-0^Contraindication^LN|

OBX-5   See Table NIP004 and NIP005. Identifies the specific value observed. GRITS has imposed a CE data type upon this field; the first component of which is required.

> Example: |23^IG received^NIP|

OBX-11 See Table 0085. Required for HL7. Use **F** for GRITS.

OBX-14 Records the date and time of observation. Format is YYYYMMDD. GRITS ignores any time component. OBX-14 is mandatory for Contraindications. GRITS ignores the date for Reactions and Adverse Events.

OBX-17 See Table OBMT. For use with Immunity to Varicella only. When Immunity to Varicella is indicated in OBX-5, the Observation Method is mandatory.

> Example of Contraindication - Immunity to Varicella:
>
> Contraindication: OBX|1|CE|30945-0^Contraindication^LN||33^immunity: Varicella (chicken pox)^NIP
> ||||||F|||20021010|||HIST^Historical^OBMT

> Examples of Contraindications, Reactions, and VAERS events:
>
> Contraindication: OBX|1|CE|**30945-0^Contraindication^LN**||23^IG received^NIP||||||F|||20040920
>
> Reaction: OBX|1|CE|**31044-1^Reaction^LN**||10^Anaphylaxis within 24 hours^NIP||||||F
>
> VAERS event: OBX|1|CE|**30949-2^Vaccine Adverse Event Outcome^LN**||L^Life threatening illness^NIP||||||F

File Interchange between GRITS and Outside Systems

The central repository of GRITS contains records of clients from around the state. Client and immunization records flow both ways between GRITS and outside systems. Data for a particular client is transmitted by GRITS to an outside system at a Provider Organization only if the client is already identified as having a relationship with that Provider Organization, and this relationship is created by transmitting the client's record to GRITS. So an exchange through this General Transfer Specification of information about a given client is always initiated by the outside system. There are three (3) options via the GRITS-Web interface for exchanging data with GRITS. 1) The Provider Organization can send data to GRITS and request no data be returned from GRITS (PO to GRITS). 2) The Provider Organization can request data from GRITS while not providing data to GRITS (GRITS to PO). (3) The Provider Organization can send data to GRITS and GRITS will return any updated information regarding clients having a relationship with the Provider Organization to the Provider Organization (Bi-directional).

Note that client and immunization data can also be queried, entered, and/or modified using the GRITS-Web interface, which provides an alternate means of identifying a client as having a relationship with a Provider Organization. Use of the GRITS-Web interface, however, is not required to create a relationship between a Provider Organization and a client; the first transmission to GRITS of a client immunization record creates the link that thereafter causes GRITS to transmit that client's record to the outside system.

HL7 messages are always part of a two-way exchange between an initiating system and a responder. Sometimes the initial message implies specific data to be sent in a response. Other times, as is the case with GRITS client and immunization data, the principal response of the receiving system is to process the message and post whatever it contains to its own database. For these cases, HL7 provides the ACK message type, which contains no new application data, but allows the receiver to inform the initiator that the message has been received and processed successfully. In case of an error that prevents successful processing, optional parts of the ACK message allow this to be communicated as well.

For exchanges between GRITS and outside systems, it is the responsibility of the outside system to initiate the transfer of the first file, containing ADT and/or VXU messages with client and immunization data. After processing those messages, GRITS responds with a file of ACK messages. At the same time or soon thereafter, GRITS also creates another file of ADT and VXU messages to send to the Provider Organization that initiated the transfer. It is the responsibility of that Organization as receiver to transmit back a file of ACK messages. During this second exchange, in terms used by HL7, GRITS is the initiator and the outside system is the respondent. However, it is the receipt of the first file initiated by the outside system that causes GRITS to initiate sending its own data file.

	Provider Organization	GRITS
1.	Creates a file of client and immunization records that have changed since they were last transmitted to GRITS.	
2.	Transmits the file to GRITS.	
3.		Processes the file received, creates a file of ACK messages.
4.		Transmits the ACK file back to the initiator of the original file.
5.	Processes the ACK file to confirm success of the file transmission.	
6.		Creates a file of client and immunization records that have changed since they were last transmitted to this Provider Organization.
7.		Transmits the file to the Provider Organization.
8.	Processes the file received, creates a file of ACK messages.	
9.	Transmits the ACK file to GRITS	
10.		Processes the ACK file to confirm success of the file transmission.

The 15th field in the MSH message header segment allows the initiator to ask that the message be acknowledged only in case of an error, and GRITS suggests this choice to minimize the number of ACK messages transmitted. In this case the ACK file contains only error messages (an optional form of the ACK message type), and the original messages with no answering error messages are implicitly acknowledged as successfully processed. If all messages in a batch are successful, the answering ACK file may contain only file and batch headers and footers, with no actual ACK messages. In Step 1 in the above table, it is permissible for a Provider Organization to send a file containing only file and batch headers and footers as a way of triggering the file GRITS creates in Step 6. It is also possible for the file GRITS creates in Step 6 to contain only file and batch headers and footers, if there are no records selected to send.

Examples

To illustrate how a GRITS HL7 file is put together, we will show how the fictional Peach Pediatrics formats client and immunization records to transmit to GRITS. The following tables show the information to be transmitted, organized into HL7 segments and fields. For example, PID-3 refers to the third field in the Patient Identification segment. In an HL7 message, each segment is a single text line, ending with the carriage return character. In the examples, long lines are broken artificially for display purposes and <CR> denotes the carriage return character.

Client #1

Information Type	Value to Transmit	HL7 Field
PID segment		
Chart Number for Peach Pediatrics	CHRT101	PID-3
Name	John Jo Smith, Jr.	PID-5
Mother's maiden name	Jain Doe	PID-6
Birth date	September 01, 2004	PID-7
Sex	F	PID-8
Social Security Number	111223333	PID-19
Multiple Birth Indicator	Y (client born as part of a multiple birth)	PID-24
Birth Order	2 (second birth of a multiple birth)	PID-25
PD1 segment		
Publicity Code	02 (immunization reminders allowed)	PD1-11
Protection Indicator	Y (client records are visible to other provider organizations)	PD1-12
Protection Indicator effective date	September 13, 2004	PD1-13
Immunization Registry Status	A (client is active in the registry)	PD1-16
Immunization Registry Status eff. date	September 17, 2004	PD1-17
Publicity Code effective date	September 18, 2004	PD1-18
NK1 segment		
Responsible Person Name #1	Jain Smith	NK1-2
Relationship to client	Mother (MTH)	NK1-3
Address	123 PEACH ST ATLANTA, GA 53000, GA121	NK1-4
Email	jsmith@email.com	NK1-4
Phone	(555) 444-3333 ext. 4321	NK1-5
Responsible Person Name #2	John J. Smith, Sr.	NK1-2
Relationship to client	Father (FTH)	NK1-3
PV1 segment		
Eligibility for State-Supplied Vaccine	Medicaid (V02)	PV1-20
Eligibility Effective Date	September 01, 2004	PV1-20

Demographic Update only:

```
MSH|^~\&||PCHPD||GRITS|20040930||ADT^A31|376663730|P|2.4|||AA<CR>
PID|||111223333^^^SS~CHRT101^^^^PI^||SMITH^JOHN^JO^JR|DOE^JAIN|20040930|M|||||||||||||||||Y|2<CR>
PD1|||||||||||02^Yes reminder/recall – any method^HL70215|Y|20040913|||A|20040917|20040918
NK1|1|SMITH^JAIN^^|MTH^Mother^HL70063|111 My Ave^Apt B^Atlanta^GA^54321^^H^^GA067
|^PRN^^jsmith@email.com^^555^4443333^4321^<CR>
NK1|2|SMITH^JOHN^J^SR|FTH^Father^HL70063<CR>
PV1||R||||||||||||||||||||V02^20040901<CR>
```

In the example above, Peach Pediatrics sends a HL7 version 2.4 message to GRITS. The message is not bracketed by file or batch header segments. GRITS will accept HL7 version 2.4 messages with or without file and batch header and trailer segments. The message is of type ADT, which is used when sending new or revised client data on an existing GRITS client, but it DOES NOT contain immunization information. Client John Jo Smith, Jr. is identified by Peach Pediatrics chart number, CHRT101, in the PID-3 segment. The Social Security Number is also supplied in PID-03. The message could have included John's GRITS ID number in field PID-2, but is not mandatory, as it may not be recorded in Peach Pediatrics' outside system. John's mother's maiden name, birth date, sex, and address also serve to identify him. Some other optional fields are not present, including some fields from the full HL7 standard not defined in this document because they are not used by GRITS. Two NK1 segments provide information on John's mother and father. The father has the minimum required fields listed, while the mother also has her address, telephone and e-mail address listed. The PV1 segment indicates John's client eligibility for State-Supplied vaccine and the effective date.

Client #2 & 3

Information Type	Value to Transmit	HL7 Field
PID segment		
GRITS Client ID (Peach Pediatrics received this as the SR–State Registry # in an earlier transmission from GRITS in PID-3)	2221040	PID-2
Chart Number for Peach Pediatrics	CHRT102	PID-3
Name	Nicole Hansen	PID-5
Mother's maiden name	Julia Hansen	PID-6
Birth date	April 2, 1993	PID-7
Sex	F	PID-8
PV1 segment		
Eligibility for State-Supplied Vaccine	Insured – vaccines covered (V01)	PV1-20
Eligibility Effective Date	July 23, 2003	PV1-20
RXA segment #1		
Date administered	April 01, 1999	RXA-3
Vaccine	Influenza	RXA-5
CVX Code	16	RXA-5
Dose (ml)	0.25	RXA-6
Administration Notes	Historical (00)	RXA-9
Administered-at location	Test Site	RXA-11
RXA segment #2		
Date administered	February 13, 2003	RXA-3
Vaccine	DTP/aP	RXA-5
CPT Code	90700	RXA-5
Dose (ml)	0.5	RXA-6
Administration Notes	New (00)	RXA-9
Administered-at location	Test Site 2	RXA-11
Lot number	lot111b	RXA-15
Manufacturer name	Abbott Laboratories	RXA-17
RXA segment #3		
		RXA segment
Date administered	July 23, 2003	RXA-3
Vaccine	Hepatitis B	RXA-5
Dose (ml)	Unknown (0)	RXA-6
Administration Notes	Historical (00)	RXA-9
Action Code-RXA	Delete record (D)	RXA-21
Information Type	**Value to Transmit**	**HL7 Field**
PID segment		
Chart Number for Peach Pediatrics	CHRT103	PID-3
Name	KIRSTEN MUELLER	PID-5
Mother's maiden name		PID-6
Birth date	May 28, 2000	PID-7
Sex	F	PID-8
PV1 segment		
Eligibility for State-Supplied Vaccine 1	V05	PV1-20
Eligibility Effective Date	Null *(will default to most recent date administered)*	PV1-20
RXA segment #1		
Date administered	May 28, 2000	RXA-3
Vaccine	HEPB	RXA-5
Dose (ml)	0.5	RXA-6
OBX segment		
Reaction to vaccine	Reaction (31044-1)	OBX-3
Type	Anaphylaxis within 24 hours (10)	OBX-5

```
FHS|^~\&||PCHPD||GRITS|20040930||FILENM|File Text|20<CR>
BHS|^~\&||PCHPD||GRITS|20040930|||Batch Text|1<CR>
MSH|^~\&||PCHPD||GRITS|20040930||VXU^V04|test002|P|2.4|||ER<CR>
PID||2221040|CHRT102^^^^PI^||HANSEN^NICOLE|HANSEN^JULIA|19930402|F<CR>
PV1||R|||||||||||||||||||V02^19990401~ V01^20030723<CR>
RXA|0|999|19990401|19990401|16^INFLUENZA^CVX^^^|0.25|||01||^^^4321&Test Site|<CR>
RXA|0|999|20030213|20030213|^^^90700^DTP/AP^C4|0.5|||00||^^^2345&GRITS Site||||lot111b|| AB^Abbott^MVX^^^<CR>
RXA|0|999|20030723|20030723|^^^HPB^HEPATITS B^WVGC|0|||01|||||||||||||D<CR>
MSH|^~\&||PCHPD||GRITS|20040930||VXU^V04|test003|P|2.4|||ER<CR>
PID|||CHRT103^^^^PI^||MUELLER^KRISTIN||20000528|F<CR>
PV1||R|||||||||||||||||||V05<CR>
RXA|0|999|20000528|20000528|^^^HEPB^HEPATITIS B^WVGC|0.5<CR>
OBX|1|CE|31044-1^Reaction^LN||10^Anaphylaxis within 24 hours^NIP|||||||F<CR>
BTS|2<CR>
FTS|1<CR>
```

In the example above, Peach Pediatrics sends a batch file of two HL7 messages to GRITS. The messages are bracketed by file and batch header segments. The two messages are of type VXU, used for client and immunization updates.

The first message for Nicole Hansen contains a GRITS client ID in field PID-2. This must have been transmitted earlier from GRITS to the GRITS Physicians' system. In this case it is legitimate to omit more of the optional PID fields, since GRITS must have the minimum required information for these clients to create a record. However, if there is a possibility that there is new or changed information to send to GRITS, these fields should be present, and it does no harm to repeat fields even if they have been transmitted previously. The message also consists of RXA segments for three immunizations. The first immunization is a historical Influenza immunization administered by Test Site. The second immunization is a new immunization administered by GRITS Site. A lot number and manufacturer was also specified. The third immunization, a historical Hepatitis B immunization is an immunization Delete transaction.

The second client, Kristin Mueller, has one Hepatitis B immunization. An OBX segment contains a Reaction of 'Anaphylaxis within 24 hours', which is associated with the immunization.

Response File

```
FHS|^~\&|GRITS|GRITS|||20041013075706||5499.12069.36.2004.10.13|||||
BHS|^~\&|GRITS|GRITS|||20041013075706||5499.12069.36.2004.10.13|||||||
MSH|^~\&|GRITS|GRITS|||20041013075706||ACK|test002|P|2.4
MSH|^~\&|GRITS|GRITS|||20041013075706||ACK|test003|P|2.4
BTS|2
FTS|1
```

GRITS answers the file from the above example with a file of ACK messages. No MSA and ERR segments are present indicating the file processed successfully. An MSH segment is created for each message in the batch file – Message control ID test002 and test003.

Response File with Errors

A response file for a batch file that did not process normally is listed below. Message control ID test004 contained an invalid or missing eligibility code that is mandatory for new immunizations. Because this is an error in the GRITS business rules, no ERR segment is generated. The second response message for test005 indicates an invalid administered amount was in the message. This error will not cause the immunization to be rejected, so it is considered an informational error. Because Administered Amount value violated a data type standard set by HL7 (not GRITS), the ERR segment displays the location of the error. The error is in the RXA segment, on line 12 of the incoming file, field (component) 6. Because RXA-6 contains no sub-components, GRITS defaults the last portion of the ERR segment to 0.

```
FHS|^~\&|GRITS|GRITS|||20041013075122||5496.12059.36.2004.10.13|||||
BHS|^~\&|GRITS|GRITS|||20041013075122||5496.12059.36.2004.10.13|||||||
MSH|^~\&|GRITS|GRITS|||20041013075122||ACK|test004|P|2.4
MSA|AR|test004|Immunization Record Rejected. Eligibility code missing or invalid for a new immunization.
MSH|^~\&|GRITS|GRITS|||20041013075122||ACK|test005|P|2.4
MSA|AR|test005|INFORMATIONAL ERROR - Invalid immunization INVALID ADMINISTERED AMOUNT.
ERR|RXA^12^6^0
BTS|2
FTS|1
```

In the sample file exchanges above, the outside system initiated the exchange with a file of ADT and VXU segments, and GRITS responded with ACK segments. The format is identical when GRITS sends ADT and VXU segments out, and the ACK responses are similar too. In the FHS, BHS, and MSH segments, the values of the fourth and sixth fields are reversed to show sender and receiver. GRITS always sends its own client identifier in the required field PID-3, and includes the outside system's identifier in PID-2 if known. Outside systems are encouraged to store GRITS' client ID, and use it in PID-2 when sending to GRITS. This provides a firm basis for client identification, makes processing easier for the GRITS system, and avoids errors in storing client information, such as creation of duplicate records when an insufficiently identified client record cannot be matched with a record already in the GRITS database. Though GRITS makes a great effort to match client records effectively, use of the GRITS client ID is the best guarantee of clean and useful data.

HL7 – Real-time Processing

"Real-time" processing refers to the ability to transmit an HL7 2.4 formatted ADT^A31 Message (Update Patient Information, Demographic Only), VXQ^V01 Message (Query for Vaccination Record) and a VXU^V04 Message (Unsolicited Vaccination Update) and receive from GRITS the resulting HL7 2.4 Response Message in real time. A provider organization will query a registry to get information on a certain client (i.e. send an HL7 2.4 VXQ^V01 message) and will receive an HL7 2.4 Message Response (i.e. VXR^V03, VXX^V02, ACK or QAK) to that query in real time.

In order to have this capability, provider organizations need to perform the following:

1. Obtain or develop, install and configure a client interface capable of transmitting an HL7 formatted Message file via the Electronic Business using eXtensible Markup Language (ebXML) infrastructure to securely transmit public health information over the Internet to the Public Health Information Network Messaging System (PHINMS) Message Receiver.

   The CDC provides, free of charge, their PHINMS client Message Sender for communication with their PHINMS Message Receiver. Alternatively, providers may choose to develop their own ebXML Message Sender to communicate with the PHINMS Message Receiver.

2. The provider organization will submit a text file containing HL7 2.4 formatted ADT^A31, VXQ^V01 and VXU^V04 Messages (up to 100 messages are accepted) to be delivered via their ebXML-based client Message Sender to the GRITS PHINMS Message Receiver. GRITS will process the Messages and send back via the PHINMS Message Receiver a file of HL7 2.4 formatted Response Messages, one per associated query (VXQ) or vaccination update (VXU) request.

3. GRITS will provide limited assistance to the provider organization to obtain, install and configure an ebXML client Message Sender for sending the HL7 2.4 formatted Message Requests and receiving the resulting HL7 2.4 formatted Message Response file generated by GRITS, although it is the provider organizations ultimate responsibility.

4. The provider organization will need to obtain from GRITS a CPA (Collaboration Protocol Agreement) for access to the GRITS Real-time system.

5. The provider organization will need to obtain the GRITS SSL certificate for secure access. See Appendix C (Obtaining the GRITS SSL Certificate) for detailed instructions. Please note: your certificate must be renewed annually. You will need to repeat the procedure detailed in Appendix C on an annual basis.

**GRITS will provide limited assistance for installation, configuration, and technical support for the ebXML Client Message Sender; however, the Center of Disease Control provides ultimate technical support.

Full documentation and contact information for the PHINMS product may be found at the following link: http://www.cdc.gov/phin/

Full documentation for the ebXML specification may be found at the following link: http://www.ebxml.org/specs

PHINMS is ebXML version 2.1 compliant.

Real-time message types
The following section outlines the various message types that are involved in real-time processing.

Provider Organizations may send the following message types to GRITS:

ADT^A31	**Update Patient Information**
MSH	Message Header
PID	Patient Identification
[*PD1]	Patient Additional Demographic
[{NK1}]	Next of Kin/Associated Parties
PV1	Patient Visit
[{**OBX}]	Observation/Result

* The PD1 segment is required to indicate the client registry status is Inactive, the PD1-16 field must be populated with I – Inactive or P – Permanently Inactive – Deceased,)

**The only OBX segment accepted in an ADT message is a Contraindication. (See OBX – Observation/Result Segment)

VXU^V04   **Unsolicited Vaccination Update**
MSH   Message Header
PID   Patient Identification
[PD1]   Patient Additional Demographic
[{NK1}]   Next of Kin/Associated Parties
[PV1]   Patient Visit
{RXA}   Pharmacy Administration (At least ONE RXA is REQUIRED by HL7)
[RXR]   Pharmacy Route (Only one RXR per RXA segment)
[{OBX}]   Observation/Result

VXQ^V01   **Query for Vaccination Record**
MSH   Message Header
QRD   Query Definition
QRF   Query Filter (GRITS has made this segment MANDATORY)

GRITS may send the following message types to a Provider Organization:

VXR^V03   Response TO Vaccination Query Returning the Vaccination Record
MSH   Message Header
MSA   Message Acknowledgment
QRD   Query Definition
QRF   Query Filter (GRITS has made this segment MANDATORY)
PID   Patient Identification
  [PD1]   Patient Additional Demographic
[{NK1}]   Next of Kin/Associated Parties
[PV1]   Patient Visit
[{ RXA   Pharmacy Administration
    [RXR]   Pharmacy Route
       [{OBX}]   Observation/Result (Contraindications, Reactions, or Vaccine Adverse Event Outcomes)
}]
[{OBX}]   Observation/Result (Vaccines Due Next)

VXX^V02   Response TO Vaccination Query (Returning Multiple PID Matches)
MSH   Message Header
MSA   Message Acknowledgment
QRD   Query Definition
QRF   Query Filter (GRITS has made this segment MANDATORY)
{ PID   Patient Identification (One per matching client)
  [{NK1}]   Next of Kin Segment
}

ACK   General Acknowledgment
MSH   Message Header
MSA   Message Acknowledgment
[ERR]   Error

QCK   Query General Acknowledgment
MSH   Message Header
MSA   Message Acknowledgment
[ERR]   Error
[QAK]   Query Acknowledgment

Page 2-3 of this document outlines the rules/specifications needed to construct a HL7 message. These same rules must be applied for Real-time message processing. **Note: Batch Message Headers (i.e. FHS, BHS) and footers (i.e. FTS, BTS) are NOT required for Real-time processing.

The message segments below are needed to construct message types that are used by GRITS. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since GRITS does not use all the

fields that HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, the field separators maintain the ordinal position of the fourth field: |field1|||field4.

MSH – Message Header Segment
For ADT, VXU and VXQ message types, the MSH segment must be constructed according to normal HL7 format specifications. (MSH specifications are listed previously in this document). For Real-time processing, GRITS limits the number of MSH segments that can be processed in a single file. Files containing more than 100 MSH segments will be rejected and an ACK message will be generated, informing the provider that 100 is the maximum number of MSH segments that GRITS accepts for Real-time processing.

ADT^A31 – Update Patient Information
As stated earlier in this document, the ADT message is used for sending client demographic only updates. This message type can be sent via Real-time. ADT segments should be constructed according to normal HL7 format batch processing specifications listed previously in this document. The PV1 message segment is MANDATORY in an ADT message. The ADT message must be received in the HL7 2.4 format; GRITS does not support prior HL7 versions for Real-time processing. GRITS validates the version by reading the MSH-12 field. The ADT message must contain |2.4^^| in MSH-12.

To indicate the client status is Inactive, the PD1-16 field must be populated with a value of "I". Below is an example of a Inactive PD1 segment.

PD1|||||||||||01^No Reminder/Recall|||||I||||

VXU^V04 – Unsolicited Vaccination Record Update
As stated earlier in this document, the VXU message is used for sending client demographic and immunization specific data. This message type can be sent via Real-time. VXU segments should be constructed according to normal HL7 format batch processing specifications listed previously in this document. For new immunizations, the PV1 message segment is MANDATORY in a VXU message. A VXU message must be received in the HL7 2.4 format; GRITS does not support prior HL7 versions for Real-time processing. GRITS validates the version by reading the MSH-12 field. A VXU message must contain |2.4^^| in MSH-12.

Immunization deletions can be submitted for both batch HL7 2.4 and Real-time submissions. To indicate a deletion, the RXA-21 field must be populated with a value of "D". Below is an example of a RXA deletion segment.

RXA|0|999|20040906|20040906|^^^90718^Td^C4|0|||01^^^^^||^^^1208&Test Site|||||||||**D**|

VXQ^V01 – Query for Vaccination Record
When a health care provider (participating in an immunization registry) needs to obtain a complete patient vaccination record, a VXQ (query) is sent to the immunization registry for the definitive (last updated) immunization record. The three segments that make up a VXQ message are the MSH (message header), QRD (query definition) and QRF (query filter). For a VXQ message, the MSH-09 field must contain |VXQ^V01| and the segments must be in the following sequence order:

MSH|^~\&|QUERYINGORG|QUERYINGORG|GRITS|GRITS|200409301200||VXQ^V01|test001|P^|2.4||||ER
QRD|20040930|R|I|test001|||25RD|01^SMITH^JOHN^J^JR|VXI^VACCINE INFORMATION^HL700048|^SIIS|20
QRF|test001||||256946789~20040901~MA~MA99999999~88888888~SMITH^JANE^LEE~DOE~898666725~SMITH^JOHN^JO~822546618|

The QRD and QRF segments are outlined in detail below.

QRD – Query Definition Segment
Used to define a query.

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	26	TS	R			Query date/time
2	1	ID	R		0106	Query Format Code
3	1	ID	R		0091	Query Priority
4	10	ST	R			Query ID
7	10	CQ	R		0126	Quantity limited request
8	60	XCN	R	Y		Who subject filter
9	60	CE	R	Y	0048	What subject filter
10	60	CE	R	Y		What department data code
12	1	ID	O		0108	Query results level

Field Notes:
QRD-1   Date the query was generated by the application program. Format is YYYYMMDD.
QRD-2   See Table 0106. The Query format code to be used in GRITS is **R** for Record-oriented.
QRD-3   See Table 0091. Time frame in which the response is expected. The Query Priority to be used in GRITS is **I** for Immediate.
QRD-4   Unique identifier for the query. Assigned by the querying application. This field is returned intact by GRITS in a response (VXR or VXX).
QRD-7   See Table 0126. Maximum length of the response that can be accepted by the requesting system. Valid responses are numerical values specified in the first sub-component followed by units specified in the second sub-component (i.e. |5RD|). The Quantity limited request unit to be used in GRITS is **RD** for Records. A null/invalid value in either sub-component results in message rejection. GRITS will interpret the units as the maximum number of client MATCHES to be returned via a VXX response message.

    *Note: GRITS will return a <u>maximum</u> of 10 records per query message submitted. "0" (zero) and any number 10 or greater will result in a maximum of 10 matches returned by GRITS.
QRD-8   Identifies the subject of the query or whom the inquiry is about. The XCN data type is used; the 2nd and 3rd components (family name and given name) are MANDATORY in GRITS. GRITS supports repetition of this field. GRITS will process each name in the order received until a match is found; the rest will be ignored.
QRD-9   See Table 0048. Describes the kind of information required to satisfy the request. The What subject filter to be used in GRITS is **VXI** for Vaccine Information. GRITS supports repetition of this field. If the field repeats at least one value must be "VXI".
QRD-10 The What department data code to be used in GRITS is **SIIS** for State Immunization Information Systems. GRITS supports repetition of this field. A null value results in message rejection.
QRD-12 Used to control level of detail in results. This field is optional and will be populated by GRITS with the total count of PID matches found in GRITS when a Query results in a VXX Response Message.

    Example:
    QRD|20040930|R|I|test001|||5RD |^SMITH^JOHN^J^JR|VXI^VACCINE INFORMATION^HL700048^^^|^SIIS||20

QRF – Query Filter Segment (MANDATORY in GRITS)
Used with the QRD segment to further refine the content of a query.

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	20	ST	R	Y		Where subject filter
2	26	TS	O			When data start date/time
3	26	TS	O			When data end date/time
4	60	ST	O	Y		What user qualifier
5	60	ST	M			Other query subject filter

Field Notes:
QRF-01 Identifies the department, system or subsystem to which the query pertains. A null value results in message rejection.
QRF-05 This field is used by registries to transmit up to ten separate search "keys". This field is MANDATORY in GRITS. GRITS does NOT support repetition. The 2nd component (patient date of birth) is minimally required by GRITS. Format is

YYYYMMDD. For patient identification, GRITS also processes the mother's first name and maiden name, which are found in this component.

The "keys" within QRF-5 are order and separated by the repeat delimiter "~". If a "key" has no value, it is left empty with the repeat delimiter holding its place. Order of data "keys" is as follows:

<patient Social Security number>**~<patient birth date>**~<patient birth state>~<patient birth registration number>~<patient Medicaid number>~<mother's name Last^**First**^Middle>~<**mother's maiden name**>~<mother's Social Security number>~<father's name>~<father's Social Security number>.

Example:
QRF|MA0000||||~20021230~GA~~~SMITH^JANE^LEE~DOE~~SMITH^JOHN^JO~|

VXR^V03 – Response TO Vaccination Query (Returning the Vaccination Record)

When a patient has been uniquely identified (there is only one "match" to the query), the response to the query is a VXR^V03 message that is generated and sent back to the querying organization. GRITS has imposed rules for when a VXR will be sent to the querying organization. Please see the following rules:

1. If an exact match is found in GRITS AND the client's "Allow Sharing of Immunization Data" indicator is set to NO, then that client will **NOT** be returned to the requestor unless one of the statements below pertains:
    - The organization requesting the query is the Parent organization of a child organization owning the data **OR**
    - The organization requesting the query had originally set the "Allow Sharing" indicator to NO.
2. If an exact match is found in GRITS AND the client's "Allow Sharing" indicator is set to NO (and none of the above rules apply), then a QCK response is sent instead of the VXR message.
3. If an exact match is found in GRITS AND the client has opted out of the registry, no immunizations will be returned.
4. GRITS will supply all vaccines administered, regardless of validity. GRITS determines validity according to CDC/ACIP schedule.

VXR Segment details

Several segments make up the VXR message type. The following segments have been outlined previously in this document and will follow the same formatting for the VXR message type.

MSH, MSA, QRD, QRF, PID, PD1, NK1, PV1, RXA, RXR, OBX (Observation/Result Contraindications or Reactions)

In addition to supplying the querying organization with client specific demographic and immunization data (contained in the above segments), the VXR message also specifies "Observation/Result Vaccines Due Next" information. This information is supplied by generating a minimum of 3 OBX segments per 1 vaccine recommendation. GRITS reports the Vaccination Schedule in the OBX segments through the specification of the LOINC code 30979-9 (Vaccines Due Next) and its sub-components in OBX-03. GRITS requires specification of OBX-05 when OBX-03 is specified and valid. Further, GRITS has superimposed a CE data type on the OBX-05 field. The corresponding observation values will be specified in OBX-05. Combinations are as follows:

OBX-3 LOINC Code	OBX-5	Description
30979-9	CVX	Vaccines due next
30979-9&30980-7	GRITS Recommended Date	Date vaccine due
30979-9&30973-2	GRITS Dose Number	Vaccines due next dose number
30979-9&30981-5	GRITS Earliest Date	Earliest date to give
30979-9&30982-3	GRITS Tracking Schedule	Reason applied by forecast logic to project this vaccine

See table HL70292 Vaccines Due Next for CVX Code values returned by GRITS.

Below you'll find an example of what a recommendation might look like in a VXR message response (see **bolded** OBX's below).

```
MSH|^~\&|GRITS|GRITS|QUERYING ORG|QUERYING ORG|200409301200||VXR^V04|test001|P^|2.4|||ER
MSA|AA|test001|
QRD|20040930|R|I|test001|||1^RD|^SMITH^JOHN^J^JR|VXI^VACCINE INFORMATION^HL700048|^SIIS||1|
QRF|test001||||~20040901~GA~~~SMITH^JANE^LEE~DOE~~SMITH^JOHN^JO~
PID|||1234^^^^SR^~CHRT101^^^^PI^||SMITH^JOHN^JO^JR^^||20040901|M||2106-3^^^^^|121 MY AVE^Apt B^
ATLANTA^GA^30303^^H^^^||^PRN^jsmith@email.com^^555^4443333^4321^|||||||||2186-5^^^^^|||||||
PD1||||||||||||01^^^^^|Y||||A
NK1|1|SMITH^JOHN^JO^JR^^|SEL^SELF^HL70063^^^|121 MY AVE^Apt B^ ATLANTA^GA^30303^^H^^^
| ^PRN^jsmith@email.com^^555^4443333^4321^
PV1||I|||||||||||||||||||||V02^20040901|
RXA|0|0|20070610|20070610|998^No Vaccine Administered^CVX|999|
OBX|1|CE|30979-9^Vaccines Due Next^LN^^^|1|107^DTaP-Unspecified^CVX^^^|||||F|
OBX|2|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|1|20070810||||||F|
OBX|3|NM|30979-9&30973-2^Vaccine due next dose number^LN^^^|1|1||||||F|
OBX|4|TS|30979-9&30981-5^Earliest date to give^LN^^^|1|20070722||||||F|
OBX|5|CE|30979-9&30982-3^Reason applied by forecast logic to project this vaccine^LN^^^|1|^ACIP schedule||||||F|
```

VXX^V03 –Response TO Vaccination Query (Returning Multiple PID Matches)

When a health care provider participating in an immunization registry needs to obtain a complete patient vaccination record, a query (VXQ message) is sent to the immunization registry for the definitive (last updated) immunization record. When a query results in multiple patient matches, the VXX message response is generated. The VXX contains multiple clients and their demographic information but does not contain their vaccination information. The number of matches that GRITS generates is determined by the first component of the incoming VXQ (QRD-07 Quantity Limited request field). GRITS will interpret the quantity specified as the maximum number of client MATCHES to be returned via a VXX response message.

*Note: GRITS will return a maximum of 10 records per query message submitted. "0" (zero) and any number 10 or greater will result in a maximum of 10 matches returned by GRITS.

GRITS has imposed rules for when a VXX will be sent to the querying organization. Please see the following rules:

1. If the "Allow Sharing of Immunization Data" indicator is set to No (in GRITS) for a client found matching the query, then that client will **NOT** be returned to the requestor unless one of the statements below pertains:
    - The requestor is the Parent organization of the Child organization owning the data OR
    - The organization requesting the query had originally set the "Allow Sharing" indicator to NO.
2. If the client is deceased the client and any immunization data for the client will be returned to the requestor.
3. If the client has opted out of the registry the client will be returned to the requestor but there will not be client immunization data returned to the requestor.

The following scenarios outline when a VXX message will be sent back when multiple matches are found, but some of the matches have an "Allow Sharing" indicator of NO.

Scenario 1:
The following paragraph holds true, assuming that the VXQ sent "0" in QRD-07 (meaning the provider organization requests the maximum number of clients sent back).

If GRITS matches 10 clients and 2 of those clients have the "Allow Sharing" indicator set to YES, then those 2 clients will be sent back in the VXX message. The remaining 8 clients ("Allow Sharing" = NO) will not be sent back. The QRD-12 field (in the VXX) will reflect the total number of matches found in GRITS (10 in our example) and the querying organization will need to assume that the 8 clients that were not returned had the "Allow Sharing" indicator set to NO.

Example:
VXQ
MSH|^~\&|QUERYING ORG|QUERYING ORG|GRITS|GRITS|200409061200||VXQ^V01|001|P^|2.4|||ER
QRD|20040120|R|I|01|||0RD|^SMITH^JOHN^J^^|VXI^VACCINE INFORMATION^HL700048|^SIIS
QRF|ZZ000||||~20040906|

VXX
MSH|^~\&|GRITS|GRITS|QUERYING ORG|QUERYING ORG|200409061200||VXX^V02|001|P^|2.4|||ER
MSA|AA|001||0||0^Message Accepted^HL70357^^^
QRD|20040906|R|I|001||||0^RD^^^^|^SMITH^JOHN^J^^|VXI^VACCINE INFORMATION^HL700048^^^ |^ SIIS ^^^^||10|
QRF|ZZ000||||~20040906~~~~~~~~
PID||123^^^^SR^~^^^^PI^||SMITH^JOHN^J^^^^||20030906|M||2028-9^^^^^|||||||||||||2186-5^^^^|||||||
NK1|1|DOE^JOHN^^|SEL^SELF^HL70063^^^|123 MY STREET^^ATLANTA^GA^30303^^^^^|^PN^^^^^1114444^^
PID||456^^^^SR^~^^^^PI^||SMITH^JON^^JR^^^^||20040906| M||2028-9^^^^^|||||||||||||2186-5^^^^|||||||

Scenario 2:
If GRITS matches 2 clients and both have the "Allow Sharing" indicator set to NO, then a QCK is generated. The QCK message will be comprised of the MSH, MSA and QAK segments. The MSA-01 field will have a value of "AR" (Application Reject). The MSA-03 field will display a message similar to "Client has an Allow Sharing of Immunization Data indicator = No". MSA-06 text will display, "Record not released".

Example:
VXQ
MSH|^~\&|QUERYING ORG|QUERYING ORG|GRITS|GRITS|200409301200||VXQ^V01|test007|P^|2.4|||ER
QRD|20040906|R|I|test007|0||0RD|01^SMITH^JOHN^|VXI^VACCINE INFORMATION^HL700048|^ SIIS
QRF|ZZ000||||~19760707~|

QCK
MSH|^~\&|GRITS|GRITS|QUERYING ORG|QUERYING ORG|200409301200||QCK|test007|P^|2.4|||ER
MSA|AR|test007|Client has an Allow sharing of immunization data indicator = No|0||500^Record Not Released^HL70357^^^|
QAK|test007|NF|

ACK – Acknowledgment Messages (with Errors)

ACK messages are generated for message rejections and for informational error messages. Three conditions that result in message rejection are:
1. Sequencing (i.e. The PID segment must follow the MSH segment).
2. Segment required fields contain no data.
3. Segment required fields contain invalid data.

An ACK is also generated when an informational error message has occurred, but it has not resulted in message rejection (i.e. NK1 segment contains no last name). In this case, the segment is ignored but the remainder of the message is processed. An ACK message is generated with a message informing the sender of the problem. The error message in the text does NOT include "Message Rejected". The ACK contains the MSH, MSA and ERR segments.

The MSH, MSA, and ERR segments are all detailed previously in this document.

QCK – Query General Acknowledgment

A QCK message is generated when GRITS has processed the query message, but no match was found to the query parameters in the database. In the event an error occurs that does not preclude a query from being processed, an Error segment and a QAK – Query Acknowledgement segment will be created.   The QCK contains the MSH, MSA and QCK segments, and on occasion the ERR segment.

The MSH, MSA, and ERR segments are all detailed previously in this document.

QAK – Query Acknowledgment Segment

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	32	ST				Query Tag
2	2	ID	O		0208	Query response status

Field Notes:

QAK-1 This field is valued by the initiating system to identify the query and can be used to match response messages to the originating query. If it is valued, the responding system is required to echo it back as the first field in the QAK. GRITS uses the value specified in the QRD-04 field (of the VXQ) for the QAK-1 query tag value.

QAK-2 See Table 0208. Allows the responding system to return a precise response status. GRITS displays **NF** for No data found.

     Example: QAK|01|NF|

QCK Example:
MSH|^~\&|GRITS|GRITS|QUERYING ORG|QUERYING ORG|200409301200||QCK^V02|test008|P^|2.4|||ER
MSA|AA|test008||0||0^Message Accepted^HL70357^^^
QAK|test008|NF|

This concludes real-time processing.

Appendix A -- HL7 Data Types

The following descriptions of HL7 data types are excerpted or adapted from the HL7 standard. See the field notes within each segment definition above on how to use data types in particular fields. Some data types have complex definitions much of which do not apply to GRITS usage, and for these we omit much of the HL7 definition of the data type, referring instead to the field notes in the segment definitions.

CE – Coded Element

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (ST)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (ST)>

Example:

|F-11380^CREATININE^I9^2148-5^CREATININE^LN|

This data type transmits codes and the text associated with the code. To allow all six components of a CE data type to be valued, the maximum length of this data type must be at least 60.

Identifier (ST)

Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

Text (ST)

Name or description of the item in question. E.g., myocardial infarction or X-ray impression. Its data type is string (ST).

Name of coding system (ST)

Each coding system is assigned a unique identifier. This component will serve to identify the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item Each system has a unique identifier. ASTM E1238-94, Diagnostic, procedure, observation, drug ID, and health outcomes coding systems are identified in the tables in Section 7.1.4 [of the full HL7 standard], "Coding schemes." Others may be added as needed. When an HL7 table is used for a CE data type, the *name of coding system* component is defined as *HL7nnnn* where *nnnn* is the HL7 table number.

Alternate components

These three components are defined analogously to the above for the alternate or local coding system. If the Alternate Text component is absent, and the Alternate Identifier is present, the Alternate Text will be taken to be the same as the Text component. If the Alternate Coding System component is absent, it will be taken to mean the locally defined system.

Note:	The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.

Note:	For HL7-defined tables which have not been adopted from some existing standard, the third component, "name of coding system," is constructed by appending the table number to the string "HL7." Thus, the field *RXR-2-site*, is a CE data type which refers to HL7 table number 0163. Its "name of coding system" component is "HL70163".

CM - Composite

A field that is a combination of other meaningful data fields. Each portion is called a **component**. The specific components of CM fields are defined within the field descriptions. Certain other composites have been separately identified and are described below. ***The CM data type is maintained strictly for backward compatibility and may not be used for the definition of new fields.*** Wherever a component of an HL7 field is itself an HL7 data type which contains components, its delimiters are demoted by one. Thus a component designated as a CE data type should be encoded as `<identifier & text & name of coding system>` (see data type CE – Coded Element). Note that since HL7 delimiters are not recursive, an HL7 data type containing components cannot be a subcomponent. When this level of detail is needed, each component of the HL7 data type can be encoded as a separate subcomponent. For an example of this, see the encoding of the filler order number in the order-sequencing component of the Timing/Quantity data type.

CX – Extended Composite ID With Check Digit
GRITS uses this data type only for client identification in Patient Identification (PID) segments. See the field notes for values used for GRITS.

HD – Hierarchic Designator
GRITS uses this data type only to identify sender and receiver in Message Header (MSH) segments. See the field notes for values used for GRITS.

ID – Coded Value for HL7 Defined Tables

The value of such a field follows the formatting rules for a ST field except that it is drawn from a table of legal values. There shall be an HL7 table number associated with ID data types. Examples of ID fields include religion and sex. This data type should be used only for HL7 tables. The reverse is not true, since in some circumstances it is more appropriate to use the CE data type for HL7 tables.

IS – Coded Value for User Defined Tables

The value of such a field follows the formatting rules for a ST field except that it is drawn from a site-defined (or user-defined) table of legal values. There shall be an HL7 table number associated with IS data types. An example of an IS field is the *Event reason code* defined in Section 3.3.1.4 [of the full HL7 standard], "Event reason code." This data type should be used only for user-defined tables. The reverse is not true, since in some circumstances, it is more appropriate to use the CE data type for user-defined tables.

NM – Numeric

A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer. Examples:

|999|

|-123.792|

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, "01.20" and "1.2", are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

SI – Sequence ID

A non-negative integer in the form of a NM field. See the field notes in segments using this data type for specifications of SI fields.

ST – String Data

String data is left justified with trailing blanks optional. Any displayable (printable) ACSII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined delimiter characters. Example:

|almost any data at all|

To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence.

Usage note: the ST data type is intended for short strings (e.g., less than 200 characters). For longer strings the TX or FT data types should be used.

TS – Time Stamp
Format: YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>

Contains the exact time of an event, including the date and time. The date portion of a time stamp follows the rules of a date field and the time portion follows the rules of a time field. The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

In prior versions of HL7, an optional second component indicates the degree of precision of the time stamp (Y = year, L = month, D = day, H = hour, M = minute, S = second). This optional second component is retained only for purposes of backward compatibility.

By site-specific agreement, YYYYMMDD[HHMM[SS[.S[S[S[S]]]]]][+/-ZZZZ]^<degree of precision> may be used where backward compatibility must be maintained.

In the current and future versions of HL7, the precision is indicated by limiting the number of digits used, unless the optional second component is present. Thus, YYYY is used to specify a precision of "year," YYYYMM specifies a precision of "month," YYYYMMDD specifies a precision of "day," YYYYMMDDHH is used to specify a precision of "hour," YYYYMMDDHHMM is used to specify a precision of "minute," YYYYMMDDHHMMSS is used to specify a precision of seconds, and YYYYMMDDHHMMSS.SSSS is used to specify a precision of ten thousandths of a second. In each of these cases, the time zone is an optional component. Maximum length of the time stamp is 26. Examples:

```
|19760704010159-0600|    1:01:59 on July 4, 1976 in the Eastern
                         Standard Time zone.

|19760704010159-0500|    1:01:59 on July 4, 1976 in the Eastern
                         Daylight Saving Time zone.

|198807050000|           Midnight of the night extending from July 4 to
                         July 5, 1988 in the local time zone of the sender.

|19880705|               Same as prior example, but precision extends
                         only to the day.  Could be used for a
                         birthdate, if the time of birth is unknown.
```

The HL7 Standard strongly recommends that all systems routinely send the time zone offset but does not require it. All HL7 systems are required to accept the time zone offset, but its implementation is application specific. For many applications the time of interest is the local time of the sender. For example, an application in the Eastern Standard Time zone receiving notification of an admission that takes place at 11:00 PM in San Francisco on December 11 would prefer to treat the admission as having occurred on December 11 rather than advancing the date to December 12.

One exception to this rule would be a clinical system that processed patient data collected in a clinic and a nearby hospital that happens to be in a different time zone. Such applications may choose to convert the data to a common representation. Similar concerns apply to the transitions to and from daylight saving time. HL7 supports such requirements by requiring that the time zone information be present when the information is sent. It does not, however, specify which of the treatments discussed here will be applied by the receiving system.

XAD – Address

> Components: <street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code(ST)> ^ <country (ID)> ^ < address type (ID)> ^ <other geographic designation (ST)>^ <county/parish code (IS)> ^ <census tract (IS)>

> Example:

> |1234 Easy St.^Ste. 123^San Francisco^CA^95123^USA^B^^SF^|

Street address (ST)

> The street or mailing address of a person or institution.

Other designation (ST)

> Second line of address. In general, it qualifies address. Examples: Suite 555 or Fourth Floor.

City (ST)

State or province (ST)

> State or province should be represented by the official postal service codes for that country.

Zip or postal code (ST)

> Zip or postal codes should be represented by the official codes for that country. In the US, the zip code takes the form 99999[-9999], while the Canadian postal code takes the form A9A-9A9.

Country (ID)

> Defines the country of the address. See Table 0212.

Address type (ID)

> Address type is optional and defined by *HL7 table 0190 - Address type*.

Other geographic designation (ST)

> Other geographic designation includes country, bioregion, SMSA, etc.

County/parish code (IS)

> A code that represents the county in which the specified address resides. Refer to *user-defined table 0289 - County/parish*. When this component is used to represent the county (or parish), component 8 "other geographic designation" should not duplicate it (i.e., the use of "other geographic designation" to represent the county is allowed only for the purpose of backward compatibility, and should be discouraged in this and future versions of HL7).

> Allowable values: codes defined by government.

Census tract (IS)

> A code that represents the census track in which the specified address resides. Refer to *user-defined table 0288 - Census tract*.

> Allowable Values: codes defined by government.

XCN – Extended Composite ID Number and Name For Persons

GRITS uses this data type only to identify Provider Organizations that administer immunizations. See the field notes for segment RXA.

XPN – Extended Person Name

> Components: <family name (ST)> & <last name prefix (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (ST)> ^ <name type code (ID) > ^ <name representation code (ID)>

> Example:

> |Smith&St^John^J^III^DR^PHD^L|

Family name (ST)

Last Name Prefix (ST)

Given name (ST)

Middle initial or name (ST)

Suffix (ST)

> Used to specify a name suffix (Defined Values: JR, SR, I, II, III, IV, V, VI, VII, VIII, IX, X).

Prefix (ST)

> Used to specify a name prefix (e.g., Dr.).

Degree (ST)

> Used to specify an educational degree (e.g., MD).

Name type code (ID)

> A code that represents the type of name. Refer to *HL7 table 0200 - Name type* for valid values.

Table 0200 - Name type

Value	Description
A	Alias Name
L	Legal Name
D	Display Name
M	Maiden Name
C	Adopted Name

Note:	The legal name is the same as the current married name.

Name representation code (ID)

> This component can be used when names are represented in ideographic or non-alphabetic systems. GRITS ignores this component.

XTN – Extended Telecommunication Number

> Components: [**N**NN] [(999)]999-9999 [X99999] [B99999] [C any text] ^ <telecommunication use code (ID)> ^ <telecommunication equipment type (ID)> ^ <email address (ST)> ^ <country code (NM)> ^ <area/city code (NM)> ^ <phone number (NM)> ^ <extension (NM)> ^ <any text (ST)>

Example:

(415)555-3210^ORN^FX^

[(999)] 999-9999 [X99999] [C any text]

Defined as the TN data type, except that the length of the country access code has been increased to three.

Telecommunication use code (ID)

A code that represents a specific use of a telecommunication number. Refer *to HL7 table 0201 - Telecommunication use code* for valid values.

Table 0201 - Telecommunication use code

Value	Description
PRN	Primary Residence Number
ORN	Other Residence Number
WPN	Work Number
VHN	Vacation Home Number
ASN	Answering Service Number
EMR	Emergency Number
NET	Network (email) Address
BPN	Beeper Number

Telecommunication equipment type (ID)

A code that represents the type of telecommunication equipment. Refer *to HL7 table 0202 - Telecommunication equipment type* for valid values.

Table 0202 - Telecommunication equipment type

Value	Description
PH	Telephone
FX	Fax
MD	Modem
CP	Cellular Phone
BP	Beeper
Internet	Internet Address: Use Only If Telecommunication Use Code Is NET
X.400	X.400 email address: Use Only If Telecommunication Use Code Is NET

Email address (ST)

Country code (NM)

Area/city code (NM)

Phone number (NM)

Extension (NM)

Any text (ST)

Appendix B -- HL7 Tables

The following tables provide valid values for fields defined in the segments above, in the cases where the field definitions reference a HL7 table number. The tables are considered to be part of the HL7 standard, but those tables designated as type User have values determined by GRITS.

Type	Table	Name	Value	Description
User	**0001**	**Sex**	**(use in PID-8)**	
	0001		F	Female
	0001		M	Male
	0001		U	Unknown
HL7	**0003**	**Event Type**	**(use in MSH-9, second component)**	
	0003		A31	ADT/ACK - Update patient information
	0003		V01	VXQ - Query for vaccination record
	0003		V02	VXX - Response to vaccination query returning multiple PID matches
	0003		V03	VXU - Vaccination record response
	0003		V04	VXU - Unsolicited vaccination record update
User	**0004**	**Patient class**	**(use in PV1-2)**	
	0004		R	Recurring Patient
User	**0005**	**Race**	**(use in PID-10)**	
	0005		1002-5	American Indian or Alaska Native
	0005		2028-9	Asian
	0005		2076-8	Native Hawaiian or Other Pacific Islander
	0005		2054-5	Black or African-American
	0005		2106-3	White
	0005		2135-2	Hispanic or Latino
	0005		2131-1	Other Race
HL7	**0008**	**Acknowledgment Code**	**(find in MSA-1)**	
	0008		AA	Application Accept
	0008		AR	Application Reject
User	**0048**	**What subject filter**	**(use in QRD-9)**	
	0048		VXI	Vaccine Information
User	**0063**	**Relationship**	**(use in NK1-3)**	
	0063		ASC	Associate
	0063		BRO	Brother
	0063		CGV	Care giver
	0063		CHD	Child
	0063		DEP	Handicapped dependent
	0063		DOM	Life partner
	0063		EMC	Emergency contact
	0063		EME	Employee
	0063		EMR	Employer
	0063		EXF	Extended family
	0063		FCH	Foster child
	0063		FND	Friend
	0063		FTH	Father
	0063		GCH	Grandchild
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MGR	Manager
	0063		MTH	Mother
	0063		NCH	Natural child
	0063		NON	None
	0063		OAD	Other adult
	0063		OTH	Other
	0063		OWN	Owner
	0063		PAR	Parent

Type	Table	Name	Value	Description
	0063		SCH	Stepchild
	0063		SEL	Self
	0063		SIB	Sibling
	0063		SIS	Sister
	0063		SPO	Spouse
	0063		TRA	Trainer
	0063		UNK	Unknown
	0063		WRD	Ward of court
HL7	0064	**Financial class**	**(use in PV1-20)**	
	0064		V00	Eligibility Not Determined/Unknown *****ONLY VALID ON HISTORICAL IMMUNIZATIONS*
	0064		V01	Insured - Vaccines Covered
	0064		V02	Medicaid
	0064		V03	No Insurance
	0064		V04	American Indian/Alaska Native
	0064		V05	Insured – No Vaccines/Underinsured
	0064		V06	PeachCare
	0064		V07	PeachCare
HL7	0076	**Message Type**	**(use in MSH-9, first component)**	
	0076		ACK	General acknowledgment
	0076		ADT	ADT message
	0076		QCK	Query general acknowledgment
	0076		VXQ	Query for vaccination record
	0076		VXX	Vaccination query response with multiple PID matches
	0076		VXR	Vaccination query record response
	0076		VXU	Unsolicited vaccination record update
HL7	0085	**Observation result status codes**	**(use in OBX-11)**	
	0085		F	Final results
HL7	0091	**Query priority**	**(use in QRD-3)**	
	0091		I	Immediate
HL7	0103	**Processing ID**	**(use in MSA-11, first component)**	
	0103		P	Production
HL7	0104	**Version ID**	**(use in MSH-12)**	
	0104		2.3.1	Release 2.3.1 1999
	0104		2.4	Release 2.4 2000
HL7	0106	**Query/Response format code**	**(use in QRD-2)**	
	0106		R	Response is in record-oriented format
HL7	0126	**Quantity limited request**	**(use in QRD-7)**	
	0126		RD	Records
HL7	0136	**Yes/No Indicator**	**(use in PID-24, PD1-12)**	
	0136		Y	Yes
	0136		N	No
HL7	0155	**Accept/Application Acknowledgment Conditions**	**(use in MSH-15)**	
	0155		ER	Error/Reject conditions only
HL7	0162	**Route of administration**	**(use in RXR-1)**	
	0162		ID	Intradermal
	0162		IM	Intramuscular
	0162		IN	Intranasal
	0162		IV	Intravenous
	0162		PO	Oral
	0162		SC	Subcutaneous
	0162		TD	Transdermal
HL7	0163	**Administrative site**	**(use in RXR-2)**	
	0163		LT	Left Thigh
	0163		LA	Left Arm

Type	Table	Name	Value	Description
	0163		LD	Left Deltoid
	0163		LG	Left Gluteous Medius
	0163		LVL	Left Vastus Lateralis
	0163		LLFA	Left Lower Forearm
	0163		RA	Right Arm
	0163		RT	Right Thigh
	0163		RVL	Right Vastus Lateralis
	0163		RG	Right Gluteous Medius
	0163		RD	Right Deltoid
	O163		RLFA	Right Lower Forearm
User	**0189**	**Ethnic Group**	**(use in PID-22)**	
	0189		H	Hispanic
	0189		N	Non-Hispanic
User	**0190**	**Address type**	**(use in PID-11; NK1-4)**	
	0190		H	Home
	0190		O	Office
User	**0200**	**Name type**	**(use in PID-5, 6; NK1-2)**	
	0200		L	Legal name
	0200		M	Maiden name
User	**0201**	**Telecommunication use code**	**(use in PID-13; NK1-5)**	
	0201		PRN	Primary residence number
User	**0202**	**Telecommunication equipment type**	**(use in PID-13; NK1-5)**	
	0202		PH	Telephone
User	**0203**	**Identifier type**	**(use in PID-2, 3)**	
	0203		MA	Medicaid Number
	0203		MC	Medicare Number
	0203		PI	Patient Internal Identifier
	0203		PN	Person Number
	0203		PRN	Provider Number
	0203		PT	Patient Number
	0203		SS	Social Security Number
User	**0207**	**Processing mode**	**(use in MSH-11, second component)**	
	0207		A	Archive
	0207		R	Restore from archive
	0207		I	Initial load
	0207		T	Current processing, transmitted at intervals (scheduled or on demand)
User	**0208**	**Query response status**	**(find in QAK-2)**	
	0208		NF	No data found, no errors
User	**0212**	**Nationality**	**(use in PID-11; NK1-4)**	
	0212		CA	Canada
	0212		US	United States of America
User	**0215**	**Publicity Code**	**(use in PD1-11)**	
	0215		01	No reminder/recall
	0215		02	Yes reminder/recall – any method
HL7	**0227**	**Manufacturers of vaccines (code = MVX)**	**(use in RXA-17)**	
	0227		AB	Abbott Laboratories *(includes Ross Products Division)*
	0227		ACA	Acambis, Inc.
	0227		AD	Adams Laboratories, Inc.
	0227		ALP	Alpha Therapeutic Corporation
	0227		AR	Armour **[Inactive- use AVB]**
	0227		AVB	Aventis Behring L.L.C. *(formerly Centeon L.L.C.; includes Armour Pharmaceutical Company)* **[Inactive – user ZLB]**
	0227		AVI	Aviron

Type	Table	Name	Value	Description
	0227		BA	Baxter Healthcare Corporation **[Inactive- use BAH]**
	0227		BAH	Baxter Heathcare Corporation *(includes Hyland Immuno, Immuno International AG, and North American Vaccine, Inc.)*
	0227		BAY	Bayer *(includes Miles, Inc., and Cutter Laboratories)*
	0227		BP	Berna Products **[Inactive- use BPC]**
	0227		BPC	Berna Products Corporation *(includes Swiss Serum And Vaccine Institute Berne)*
	0227		MIP	Bioport Corporation *(formerly Michigan Biologic Products Institute)*
	0227		BTP	Biotest Pharmaceuticals Corporation
	0227		CNJ	Cangene Corporation
	0227		CMP	Celltech Medeva Pharmaceuticals **[Inactive- use NOV]**
	0227		CEN	Centeon L.L.C. **[Inactive- use AVB]**
	0227		CHI	Chiron Corporation **[Inactive – use NOV]** *(includes PowderJect Pharmaceuticals, Celltech Medeva Vaccines and Evans Medical Limited)*
	0227		CON	Connaught **[Inactive- use PMC]**
	0227		CSL	CSL Biotherapies, Inc.
	0227		DVC	DynPort Vaccine Company, LLC
	0227		EVN	Evans Medical Limited **[Inactive- use NOV]**
	0227		GEO	GeoVax Labs, Inc.
	0227		SKB	GlaxoSmithKline *(formerly SmithKline Beecham; includes SmithKline Beecham and Glaxo Wellcome)*
	0227		GRE	Greer Laboratories Inc.
	0227		GRF	Grifols
	0227		IDB	ID Biomedical
	0227		IAG	Immuno International AG **[Inactive- use BAH]**
	0227		IUS	Immuno-U.S., Inc.
	0227		INT	Intercell Biomedical
	0227		KGC	Korea Green Cross Corporation
	0227		LED	Lederle **[Inactive-use WAL]**
	0227		MBL	Massachusetts Biologic Laboratories *(formerly Massachusetts Public Heath Biologic Laboratories)*
	0227		MA	Massachusetts Public Health Biologic Laboratories **[Inactive-use MBL]**
	0227		MED	MedImmune, Inc.
	0227		MSD	Merck & Co., Inc.
	0227		IM	Merieux **[Inactive-use PMC]**
	0227		MIL	Miles **[Inactive-use BAY]**
	0227		NAB	NABI *(formerly North American Biologicals, Inc.)*
	0227		NYB	New York Blood Center
	0227		NAV	North American Vaccine, Inc. **[Inactive-use BAH]**
	0227		NOV	Novartis Pharmaceutical Corporation *(includes Chiron, Powderject Pharmaceuticals, Celltech Medeva Vaccines and Evans Limited, Ciba-Geigy Limited and Sandoz Limited)*
	0227		NVX	Novavax, Inc.
	0227		OTC	Organon Teknika Corporation
	0227		ORT	Ortho-clinical Diagnostics *(formerly Ortho Diagnostic Systems, Inc.)*
	0227		PD	Parkedale Pharmaceuticals *(formerly Parke-Davis)*
	0227		PWJ	Powerject Pharmaceuticals *(includes Celltech Medeva Vaccines and Evans Medical Limited)* **[Inactive- use NOV]**
	0227		PRX	Praxis Biologics **[Inactive- use WAL]**
	0227		JPN	Research Foundation for Microbial Diseases of Osaka University (BIKEN)
	0227		PFR	Pfizer, Inc
	0227		PMC	sanofi pasteur *(formerly Aventis Pasteur, Pasteur Merieux Connaught; includes Connaught Laboratories and Pasteur Merieux)*
	0227		SCL	Sclavo, Inc.
	0227		SOL	Solvay Pharmaceuticals
	0227		SI	Swiss Serum and Vaccine Inst. **[Inactive-use BPC]**

Type	Table	Name	Value	Description
	0227		TAL	Talecris Biotherapeutics *(includes Bayer Biologicals)*
	0227		USA	United States Army Medical Research and Material Command
	0227		WA	Wyeth-Ayerst **[Inactive- use WAL]**
	0227		WAL	Wyeth-Ayerst *(includes Wyeth-Lederle Vaccines and Pediatrics, Wyeth Laboratories, Lederle Laboraties, and Praxis Biologics)* [Inactive - use PFR]
	0227		ZLB	ZLB Behring *(includes Aventis Behring and Armour Pharmaceutical Company)*
	0227		OTH	Other manufacturer
	0227		UNK	Unknown manufacturer
User	**0289**	**County/parish (Georgia only)**	**(use in PID-11; NK1-4)**	
	0289		GA001	APPLING
	0289		GA003	ATKINSON
	0289		GA005	BACON
	0289		GA007	BAKER
	0289		GA009	BALDWIN
	0289		GA011	BANKS
	0289		GA013	BARROW
	0289		GA015	BARTOW
	0289		GA017	BEN HILL
	0289		GA019	BERRIEN
	0289		GA021	BIBB
	0289		GA023	BLECKLEY
	0289		GA025	BRANTLEY
	0289		GA027	BROOKS
	0289		GA029	BRYAN
	0289		GA031	BULLOCH
	0289		GA033	BURKE
	0289		GA035	BUTTS
	0289		GA037	CALHOUN
	0289		GA039	CAMDEN
	0289		GA043	CANDLER
	0289		GA045	CARROLL
	0289		GA047	CATOOSA
	0289		GA049	CHARLTON
	0289		GA051	CHATHAM
	0289		GA053	CHATTAHOOCHEE
	0289		GA055	CHATTOOGA
	0289		GA057	CHEROKEE
	0289		GA059	CLARKE
	0289		GA061	CLAY
	0289		GA063	CALYTON
	0289		GA065	CLINCH
	0289		GA067	COBB
	0289		GA069	COFFEE
	0289		GA071	COLQUITT
	0289		GA073	COLUMBIA
	0289		GA075	COOK
	0289		GA077	COWETA
	0289		GA079	CRAWFORD
	0289		GA081	CRISP
	0289		GA083	DADE
	0289		GA085	DAWSON
	0289		GA087	DECATUR
	0289		GA089	DEKALB
	0289		GA091	DODGE

Type	Table	Name	Value	Description
	0289		GA093	DOOLY
	0289		GA095	DOUGHERTY
	0289		GA097	DOUGLAS
	0289		GA099	EARLY
	0289		GA101	ECHOLS
	0289		GA103	EFFINGHAM
	0289		GA105	ELBERT
	0289		GA107	EMANUEL
	0289		GA109	EVANS
	0289		GA111	FANNIN
	0289		GA113	FAYETTE
	0289		GA115	FLOYD
	0289		GA117	FORSYTH
	0289		GA119	FRANKLYN
	0289		GA121	FULTON
	0289		GA123	GILMER
	0289		GA125	GLASCOCK
	0289		GA127	GLYNN
	0289		GA129	GORDON
	0289		GA131	GRADY
	0289		GA133	GREENE
	0289		GA135	GWINNETT
	0289		GA137	HABERSHAM
	0289		GA139	HALL
	0289		GA141	HANCOCK
	0289		GA143	HARALSON
	0289		GA145	HARRIS
	0289		GA147	HART
	0289		GA149	HEARD
	0289		GA151	HENRY
	0289		GA153	HOUSTON
	0289		GA155	IRWIN
	0289		GA157	JACKSON
	0289		GA159	JASPER
	0289		GA161	JEFF DAVIS
	0289		GA163	JEFFERSON
	0289		GA165	JENKINS
	0289		GA167	JOHNSON
	0289		GA169	JONES
	0289		GA171	LAMAR
	0289		GA173	LANIER
	0289		GA175	LAURENS
	0289		GA177	LEE
	0289		GA179	LIBERTY
	0289		GA181	LINCOLN
	0289		GA183	LONG
	0289		GA185	LOWNDES
	0289		GA187	LUMPKIN
	0289		GA189	MCDUFFIE
	0289		GA191	MCINTOSH
	0289		GA193	MACON
	0289		GA195	MADISON
	0289		GA197	MARION
	0289		GA199	MERIWETHER
	0289		GA201	MILLER

Type	Table	Name	Value	Description
	0289		GA205	MITCHELL
	0289		GA207	MONROE
	0289		GA209	MONTGOMERY
	0289		GA211	MORGAN
	0289		GA213	MURRAY
	0289		GA215	MUSCOGEE
	0289		GA217	NEWTON
	0289		GA219	OCONEE
	0289		GA221	OGLETHORPE
	0289		GA223	PAULDING
	0289		GA225	PEACH
	0289		GA227	PICKENS
	0289		GA229	PIERCE
	0289		GA231	PIKE
	0289		GA233	POLK
	0289		GA235	PULASKI
	0289		GA237	PUTNAM
	0289		GA239	QUITMAN
	0289		GA241	RABUN
	0289		GA243	RANDOLPH
	0289		GA245	RICHMOND
	0289		GA247	ROCKDALE
	0289		GA249	SCHLEY
	0289		GA251	SCREVEN
	0289		GA253	SEMINOLE
	0289		GA255	SPALDING
	0289		GA257	STEPHENS
	0289		GA259	STEWART
	0289		GA261	SUMTER
	0289		GA263	TALBOT
	0289		GA265	TALIAFERRO
	0289		GA267	TATTNALL
	0289		GA269	TAYLOR
	0289		GA271	TELFAIR
	0289		GA273	TERRELL
	0289		GA275	THOMAS
	0289		GA277	TIFT
	0289		GA279	TOOMBS
	0289		GA281	TOWNS
	0289		GA283	TREUTLEN
	0289		GA285	TROUP
	0289		GA287	TURNER
	0289		GA289	TWIGGS
	0289		GA291	UNION
	0289		GA293	UPSON
	0289		GA295	WALKER
	0289		GA297	WALTON
	0289		GA299	WARE
	0289		GA301	WARREN
	0289		GA303	WASHINGTON
	0289		GA305	WAYNE
	0289		GA307	WEBSTER
	0289		GA309	WHEELER
	0289		GA311	WHITE
	0289		GA313	WHITFIELD

Type	Table	Name	Value	Description
	0289		GA315	WILCOX
	0289		GA317	WILKES
	0289		GA319	WILKINSON
	0289		GA321	WORTH
HL7	0292	Vaccines Administered (code=CVX)	(use in RXA-5)	
	0292		54	Adenovirus, type 4
	0292		55	Adenovirus, type 7
	0292		82	Adenovirus-Unspecified
	0292		24	Anthrax
	0292		19	BCG
	0292		26	Cholera
	0292		29	CMVIG
	0292		28	DT (pediatric)
	0292		20	DTaP
	0292		110	DTaP-HepB-IPV
	0292		120	DTaP-Hib-IPV
	0292		50	DTaP-Hib
	0292		130	DTaP-IPV
	0292		106	DTaP, 5 pertussis antigens
	0292		107	DTAP-Unspecified
	0292		01	DTP
	0292		22	DTP-Hib
	0292		102	DTP-HIB-HEP B
	0292		88	FLU-Unspecified
	0292		15	FLU, SPLIT
	0292		16	FLU, WHOLE
	0292		111	FLU-LAIV3
	0292		135	FLU, High-Dose
	0292		140	FLU, injectable, trivalent, pres free
	0292		141	FLU, injectable, trivalent
	0292		144	FLU, intradermal, preservative free
	0292		149	FLU-LAIV4
	0292		150	FLU, injectable, quadrivalent, pres free
	0292		151	FLU-LAIV Unspecified
	0292		153	FLU, injectable, MDCK, pres free
	0292		155	FLU, recombinant, injectable, pres free
	0292		158	FLU, injectable, quadrivalent
	0292		161	FLU, injectable, quadrivalent, pres free, pediatric
	0292		30	HBIG
	0292		52	HepA, adult
	0292		85	Hep A-Unspecified
	0292		83	Hep A, ped/adol, 2 dose
	0292		84	Hep A, ped/adol, 3 dose
	0292		31	Hep A, ped-Unspecified
	0292		104	HepA-HepB
	0292		08	Hep B, adolescent or pediatric
	0292		42	Hep B, adolescent/high risk infant
	0292		43	Hep B, adult
	0292		44	Hep B, dialysis
	0292		45	Hep B-Unspecified
	0292		47	Hib (HbOC)
	0292		121	Herpes Zoster
	0292		49	Hib (PRP-OMP)
	0292		46	Hib (PRP-D)

Type	Table	Name	Value	Description
	0292		48	Hib (PRP-T)
	0292		148	Hib-MenCY-TT
	0292		17	Hib-Unspecified
	0292		51	Hib-Hep B
	0292		165	HPV9
	0292		118	Human Papillomavirus-bivalent
	0292		62	Human Papillomavirus-quadrivalent
	0292		137	HPV, uncertain formulation
	0292		86	Ig
	0292		14	IG-Unspecified
	0292		87	IGIV
	0292		10	IPV
	0292		39	Japanese Enceph-SC
	0292		134	Japanese Enceph-IM
	0292		66	Lyme disease
	0292		05	Measles
	0292		04	Measles-Rubella
	0292		163	Meningococcal B, OMV
	0292		162	Meningococcal B, recombinant
	0292		32	Meningococcal, poly
	0292		103	Meningococcal C conjugate
	0292		114	Meningococcal-MCV4P
	0292		136	Meningococcal-MCV4O
	0292		147	Meningococcal MCV4-Unsp
	0292		108	Meningococcal-Unspecified
	0292		03	MMR
	0292		94	MMRV
	0292		07	Mumps
	0292		127	Novel Influenza-H1N1-09
	0292		128	Novel Influenza-H1N1-09 all formulations
	0292		125	Novel Influenza-H1N1-09, nasal
	0292		126	Novel Influenza-H1N1-09, preserve-free
	0292		02	OPV
	0292		23	Plague
	0292		11	Pertussis
	0292		100	Pneumococcal conjugate 7
	0292		133	Pneumococcal conjugate 13
	0292		33	Pneumococcal, poly
	0292		109	Pneumococcal-Unspecified
	0292		89	Polio-Unspecified
	0292		40	Rabies, intradermal injection
	0292		18	Rabies, intramuscular injection
	0292		90	Rabies-Unspecified
	0292		34	RIG
	0292		119	Rotavirus-monovalent, live
	0292		116	Rotavirus-pentavalent, live, oral
	0292		74	Rotavirus-tetravalent, live
	0292		122	Rotavirus-Unspecified
	0292		71	RSV-IGIV
	0292		93	RSV-Mab
	0292		06	Rubella
	0292		38	Rubella-Mumps
	0292		09	TD (adult)
	0292		113	TD-PF
	0292		115	Tdap

Type	Table	Name	Value	Description
	0292		35	Tetanus toxoid
	0292		112	Tetanus-Unspecified
	0292		13	TIG
	0292		101	Typhoid Vi capsular polysaccharide
	0292		91	Typhoid-Unspecified
	0292		25	Typhoid, oral
	0292		41	Typhoid, parenteral
	0292		53	Typhoid, parenteral, AKD
	0292		75	Vaccinia (Smallpox)
	0292		105	Vaccinia (smallpox), diluted
	0292		79	Vaccinia Immune Globulin- VIG
	0292		21	Varicella
	0292		36	VZIG
	0292		37	Yellow fever
HL7 GRITS	**0292 C4**	**Vaccines Due Next (CVX code=CVX) & (CPT code=C4)**	**(Registry uses in OBX-5 for VXR messages)**	
	0292		82	Adenovirus-Unspecified
	0292 C4		24 90581	Anthrax
	0292		19	BCG
	0292 C4		26 90725	Cholera-Inject
	0292		90719	Diphtheria
	0292		107	DTAP-Unspecified
	0292		88	FLU-Unspecified
	0292		85	Hep A-Unspecified
	0292		45	Hep B-Unspecified
	0292 C4		121 90736	Herpes Zoster
	0292		17	Hib-Unspecified
	0292 C4		118 90650	Human Papillomavirus-bivalent
	0292 C4		62 90649	Human Papillomavirus-quadrivalent
	0292		14	IG-Unspecified
	0292 C4		39 90735	Japanese Enceph-SC
	0292 C4		134 90738	Japanese Enceph-IM
	0292 C4		66 90665	Lyme
	0292 C4		05 90705	Measles
	0292		108	Meningococcal-Unspecified
	0292 C4		07 90704	Mumps
	0292		11	Pertussis
	0292 C4		23 90727	Plague
	0292		109	Pneumococcal-Unspecified
	0292 C4		33 90732	Pneumococcal 23
	0292		89	Polio-Unspecified
	0292		90	Rabies-Unspecified
	0292		122	Rotavirus-Unspecified

Type	Table	Name	Value	Description
	0292		06	Rubella
	C4		90706	
	0292		09	Td
	C4		90718	
	0292		112	Tetanus-Unspecified
	0292		91	Typhoid-Unspecified
	0292		75	Vaccinia (Smallpox)
	0292		21	Varicella
	C4		90716	
	0292		37	Yellow fever
	C4		90717	
HL7	**0323**	**Action code**	**(use in RXA-21)**	
	0323		A	Add
	0323		D	Delete
	0323		U	Update
HL7	**0357**	**Message error status codes**	**(find in ERR-1)**	
	0357		0	Message accepted
	0357		100	Segment sequence error
	0357		101	Required field missing
	0357		102	Data type error
	0357		103	Table value not found
	0441	**Immunization Registry Status**	**(use in PID-16)**	
	0441		A	Active
	0441		I	Inactive
	0441		P	Permanently inactive - Deceased
NIP	**NIP001**	**Immunization Information Source**	**(use in RXA-9)**	
	NIP001		00	New Immunization Record
	NIP001		01	Historical Information - source unspecified
	NIP001		02	Historical information - from other provider
	NIP001		03	Historical information - from parent's written record
	NIP001		04	Historical information - from parent's recall
	NIP001		05	Historical information - from other registry
	NIP001		06	Historical information - from birth certificate
	NIP001		07	Historical information - from school record
	NIP001		08	Historical information - from public agency
LN	**NIP003**	**Observation Identifiers**	**(use in OBX-3)**	
	NIP003		30945-0	Vaccination contraindication/precaution
	NIP003		31044-1	Reaction
	NIP003		30949-2	Vaccination adverse event outcome
	NIP003		30979-9	Vaccines due next
	NIP003		30980-7	30979-9&30980-7 – Date vaccine due
	NIP003		30973-2	30979-9&30973-2 – Vaccine due next dose number
	NIP003		30981-5	30979-9&30981-5 – Earliest date to give
	NIP003		30982-3	30979-9&30982-3 – Reason applied by forecast logic to project this vaccine
NIP	**NIP004**	**Contraindications, Precautions, and Immunities**	**(use in OBX-5)**	
	NIP004		03	Allergy to baker's yeast (anaphylactic)
	NIP004		04	Allergy to egg ingestion (anaphylactic)
	NIP004		05	Allergy to gelatin (anaphylactic)
	NIP004		06	Allergy to neomycin (anaphylactic) – MMR IPV VZU
	NIP004		07	Allergy to streptomycin (anaphylactic)
	NIP004		08	Allergy to thimerosal (anaphylactic)
	NIP004		15	Encephalopathy within 7 days of previous dose of DTP
	NIP004		18	Gullain-Barre syndrome (GBS) within 6 weeks after DTP/DTaP

Type	Table	Name	Value	Description
	NIP004		21	Current acute illness, moderate to severe (with or without fever) (e.g. diarrhea, otitis media, vomiting)
	NIP004		22	Chronic illness (e.g. chronic gastrointestinal disease)
	NIP004		23	IG received
	NIP004		26	Serologic immunity: hepatitis B
	NIP004		27	Serologic immunity: measles
	NIP004		28	Serologic immunity: mumps
	NIP004		31	Serologic immunity: rubella
	NIP004		33	Immunity: Varicella (chicken pox)
	NIP004		34	Immunodeficiency (family history)
	NIP004		35	Immunodeficiency (household contact)
	NIP004		36	Immunodeficiency (in recipient) OPV MMR VZU
	NIP004		37	Neurologic disorders, underlying (seizure disorder, CP,DD)
	NIP004		39	Pregnancy (in recipient)
	NIP004		40	Thrombocytopenia
	NIP004		41	Thrombocytopenia purpura (history)
	GRITS		*PB*	*Allergy to POLYMYXIN B*
	GRITS		*AB*	*Receipt of anti-body containing products*
	GRITS		*RB*	*Client has been exposed to rabies*
	GRITS		*HA*	*Serologic immunity: hepatitis A*
NIP	**NIP004**	**Reactions**	**(use in OBX-5)**	
	NIP004		10	Anaphylaxis within 24 hours
	NIP004		11	Hypotonic-hyporesponsive collapse within 48 hours
	NIP004		12	Seizure occurring within 3 days
	NIP004		13	Persistent crying lasting >= 3 hours within 48 hours
	NIP004		17	Temperature >= 105 (40.5C) within 48 hours
NIP	**NIP005**	**Event Consequence**	**(use in OBX-5)**	
	NIP005		D	Patient died
	NIP005		E	Required emergency room/doctor visit
	NIP005		H	Required hospitalization
	NIP005		J	Resulted in permanent disability
	NIP005		L	Life threatening illness
	NIP005		P	Resulted in prolongation of hospitalization
	GRITS		*G1*	*Unspecified Reaction indicated on file*
GRITS	**OBMT**	**Observation method**	**(use in OBX-17)**	
	OBMT		DIAG	Diagnosed
	OBMT		HIST	Historical
	OBMT		SERO	Serologic
GRITS	**WVGC**	**Vaccine Group Code (WVGC)**	**(use in RXA-5)**	
	WVGC		Adeno	Adeno
	WVGC		Anthrax	Anthrax
	WVGC		BCG	BCG
	WVGC		Cholera	Cholera
	WVGC		Diphtheria	Diphtheria Antitioxin
	WVGC		DTP/aP	Diphtheria, Tetanus, Acellular Pertussis
	WVGC		Encephalitis	Encephalitis
	WVGC		Flu H1N1-09	Flu H1N1-09
	WVGC		HBIG	HBIG
	WVGC		HepA	Hepatitis A
	WVGC		HepB	Hepatitis B
	WVGC		Hib	Hib
	WVGC		HPV	Human Papillomavirus
	WVGC		HZ	Herpes Zoster
	WVGC		Ig	Ig
	WVGC		Influenza	Influenza
	WVGC		Lyme	Lyme

Type	Table	Name	Value	Description
	WVGC		Measles	Measles Virus Vaccine
	WVGC		Meningo	Meningococcal
	WVGC		Meningococcal B	MeningB
	WVGC		Mumps	Mumps Virus Vaccine
	WVGC		Plague	Plague
	WVGC		Pneumococcal or PCV	Pneumonia Conjugate
	WVGC		Pneumo-Poly or PPV	Pneumonia Polysaccharide
	WVGC		Polio	Poliomyelitis
	WVGC		Rabies	Rabies
	WVGC		Rotavirus	Rotavirus
	WVGC		Rubella	Rubella Virus Vaccine
	WVGC		Tetanus	Tetanus
	WVGC		Td	Tetanus, Diphtheria
	WVGC		Tdap	Tetanus, Diphtheria, Acellular Pertussis
	WVGC		Typhoid	Typhoid
	WVGC		Smallpox	Vaccinia
	WVGC		Varicella	Varicella
	WVGC		Yellow Fever	Yellow Fever
GRITS	WVTN	Vaccine Trade Name (WVTN)	(use in RXA-5)	
	WVTN		ACAM2000	Vaccinia (Smallpox)
	WVTN		Acel-Imune	DTaP
	WVTN		ActHib	Hib-PRP-T
	WVTN		ADACEL	Tdap
	WVTN		Adeno T4	Adeno T4
	WVTN		Adeno T7	Adeno T7
	WVTN		AFLURIA	Influenza, injectable
	WVTN		AFLURIA-PF	Influenza, injectable, preservative free
	WVTN		Attenuvax	Measles
	WVTN		BayGam	HepA-Ig
	WVTN		BayHep B	HBIG
	WVTN		BayHep B-Peds	HBIG
	WVTN		BayRab	RIg
	WVTN		BayTet	TIg
	WVTN		BCG-Cancer	BCG-BC
	WVTN		BCG-TB	BCG-TB
	WVTN		BEXSERO	Meningococcal B, OMV
	WVTN		Biavax II	Rubella-Mumps
	WVTN		BioThrax	Anthrax
	WVTN		BOOSTRIX	Tdap
	WVTN		Certiva	DTaP
	WVTN		Cervarix	Human Papillomavirus-bivalent
	WVTN		Cholera-I	Cholera-Inject
	WVTN		Cholera-O	Cholera-Oral
	WVTN		CMV-IgIV	CMV-IgIV
	WVTN		Comvax	HepB-Hib
	WVTN		DAPTACEL	DTaP
	WVTN		DECAVAC	Td-PF
	WVTN		Diphtheria	Diphtheria
	WVTN		Dryvax	Vaccinia (Smallpox)
	WVTN		DT	DT-Peds
	WVTN		DT-PF	DT-PF
	WVTN		DTP	DTP
	WVTN		Engerix-B Adult	HepB-Adult
	WVTN		Engerix-B Dialysis	HepB Dialysis 4 dose
	WVTN		Engerix-B Peds	HepB-Peds

Type	Table	Name	Value	Description
	WVTN		AFLURIA	FLU, injectable, trivalent
	WVTN		AFLURIA-PF	FLU, injectable, trivalent, pres free
	WVTN		Flu-Imune 6-35 Months	FLU, injectable, trivalent
	WVTN		Flu-Imune > 12 Years	FLU, WHOLE
	WVTN		Flu-Imune > 3 Years	FLU, injectable, trivalent
	WVTN		Flu-Shield 6-35 Months	FLU, injectable, trivalent
	WVTN		Flu-Shield > 12 Years	FLU, WHOLE
	WVTN		Flu-Shield > 3 Years	FLU, injectable, trivalent
	WVTN		Fluarix-PF (IIV4)	FLU, injectable, quadrivalent, pres free
	WVTN		Fluarix-PF (IIV3)	FLU, injectable, trivalent, pres free
	WVTN		Flublok	FLU, recombinant, injectable, pres free
	WVTN		Flucelvax	FLU, injectable, MDCK, pres free
	WVTN		FluLaval > 3Y (IIV3)	FLU, injectable, trivalent
	WVTN		FluLaval-PF > 3Y (IIV3)	FLU, injectable, trivalent, pres free
	WVTN		FluLaval > 3Y (IIV4)	FLU, injectable, quadrivalent
	WVTN		FluLaval-PF > 3Y (IIV4)	FLU, injectable, quadrivalent, pres free
	WVTN		FluMist (LAIV3)	FLU-LAIV3
	WVTN		FluMist (LAIV4)	FLU-LAIV4
	WVTN		Fluogen 6-35 Months	FLU, injectable, trivalent
	WVTN		Fluogen > 12 Years	FLU, WHOLE
	WVTN		Fluogen > 3 Years	FLU, injectable, trivalent
	WVTN		Fluvirin 6-35 Months	FLU, injectable, trivalent
	WVTN		Fluvirin > 12 Years	FLU, WHOLE
	WVTN		Fluvirin > 3 Years	FLU, injectable, trivalent
	WVTN		Fluvirin > 4 Years	FLU, injectable, trivalent
	WVTN		Fluvirin-PF > 4 Years	FLU, injectable, trivalent, pres free
	WVTN		Fluzone > 12 Years	FLU, WHOLE
	WVTN		Fluzone > 3 Years	FLU, injectable, trivalent
	WVTN		Fluzone > 6M (IIV3)	FLU, injectable, trivalent
	WVTN		Fluzone > 6M (IIV4)	FLU, injectable, quadrivalent
	WVTN		Fluzone-PF 6-35M (IIV3)	FLU, injectable, trivalent, pres free
	WVTN		Fluzone-PF 6-35M (IIV4)	FLU, injectable, quadrivalent, pres free
	WVTN		Fluzone-PF > 3Y (IIV3)	FLU, injectable, trivalent, pres free
	WVTN		Fluzone-PF > 3Y (IIV4)	FLU, injectable, quadrivalent, pres free
	WVTN		Fluzone High-Dose	FLU, High-Dose
	WVTN		Fluzone Intradermal	FLU, intradermal, preservative free
	WVTN		GARDASIL	HPV-quadrivalent
	WVTN		GARDASIL 9	HPV9
	WVTN		H1N1 FluMist	Novel Influenza-H1N1-09, nasal
	WVTN		H1N1 Afluria-PF	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 Fluvirin-PF > 4Y	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 Fluzone-PF 6-35M	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 Fluzone-PF > 3Y	Novel Influenza-H1N1-09, preserve-free
	WVTN		H1N1 Afluria	Novel Influenza-H1N1-09
	WVTN		H1N1 Fluvirin > 4Y	Novel Influenza-H1N1-09
	WVTN		H1N1 Fluzone > 6M	Novel Influenza-H1N1-09
	WVTN		Havrix Adult	HepA Adult
	WVTN		Havrix Peds 2 Dose	Hep A Ped 2 Dose
	WVTN		{inactive} Havrix Peds 3 Dose	HepA Ped 3 Dose
	WVTN		HBIg	HBIG
	WVTN		HepaGam B	HBIG
	WVTN		Hib-TITER	Hib-HbOC
	WVTN		Hiberix	Hib-PRP-T
	WVTN		HyperHEP B	HBIG
	WVTN		Hyper-TET	TIg

Type	Table	Name	Value	Description
	WVTN		Ig	Ig
	WVTN		IgIV	IgIV
	WVTN		Imogam Rabies-HT	RIg-HT
	WVTN		Imovax Rabies ID	Rabies-ID
	WVTN		Imovax Rabies IM	Rabies-IM
	WVTN		Infanrix	DTaP
	WVTN		IPOL	Polio-Inject
	WVTN		Ixiaro	Japanese Enceph-IM
	WVTN		JE-Vax	Japanese Enceph-SC
	WVTN		KINRIX	DTaP-IPV
	WVTN		LYMErix	Lyme
	WVTN		Measles	Measles
	WVTN		Measles-Rubella (MERU)	Measles-Rubella
	WVTN		Menactra	Meningococcal-MCV4P
	WVTN		Menhibrix	Meningococcal C/Y-HIB PRP
	WVTN		MENOMUNE	Meningococcal-Polysaccharide
	WVTN		Menveo	Meningococcal-MCV4O
	WVTN		Meruvax II	Rubella
	WVTN		MICRhoGAM	Rho(D) Ig mini-dose
	WVTN		MMR II	MMR
	WVTN		M-R-VAX	Measles-Rubella
	WVTN		Mumps	Mumps
	WVTN		Mumps-Rubella (MURU)	Rubella-Mumps
	WVTN		Mumpsvax	Mumps
	WVTN		Nabi-HB	HBIg
	WVTN		OmniHib	Hib-PRP-T
	WVTN		ORIMUNE	Polio-Oral
	WVTN		Pediarix	DTaP-Hep B-IPV
	WVTN		PedvaxHIB	Hib-OMP
	WVTN		Pentacel	DTaP-Hib-IPV
	WVTN		Plaque	Plaque
	WVTN		Pneumovax 23	Pneumococcal 23
	WVTN		PNU-IMUNE 23	Pneumococcal 23
	WVTN		Prevnar 7 (formerly Prevnar)	Pneumo-Conjugate 7
	WVTN		Prevnar 13	Pneumo-Conjugate 13
	WVTN		ProHIBit	Hib-PRP-D
	WVTN		PROQUAD	MMRV
	WVTN		Quadracel	DTaP-IPV
	WVTN		RabAvert	Rabies-IM
	WVTN		Recombivax Adult	HepB Adult
	WVTN		Recombivax Dialysis	Hep B dialysis 4 dose
	WVTN		Recombivax Peds	HepB Peds
	WVTN		RespiGam	RSV-RgIV
	WVTN		Rotarix	Rotavirus-monovalent, live, oral
	WVTN		RotaShield	Rotavirus-tetravalent, live
	WVTN		RotaTeq	Rotavirus-pentavalent, live, oral
	WVTN		RhoGAM	Rho(D) Ig full-dose
	WVTN		Rubella	Rubella
	WVTN		Synagis	RSV-RgIM
	WVTN		Td	Td
	WVTN		TENIVAC	Td-PF
	WVTN		Tetramune	DTP-Hib
	WVTN		TriHIBit	DTaP-Hib
	WVTN		Tripedia	DTaP
	WVTN		Trumenba	Meningococcal B, recombinant

Type	Table	Name	Value	Description
	WVTN		TT	Tetanus
	WVTN		Twinrix	HepA-HepB Adult
	WVTN		Typhim Vi	Typhoid-ViCPs
	WVTN		Typhoid	Typhoid-HP
	WVTN		Typhoid-AKD	Typhoid-AKD
	WVTN		Vaccinia-Diluted	Vaccinia (small pox), diluted
	WVTN		Vaccinia-Ig	Vaccinia immune globulin VIG
	WVTN		VAQTA Adult	HepA Adult
	WVTN		VAQTA Peds 2 Dose	HepA Ped 2 Dose
	WVTN		VAQTA Peds 3 Dose	HepA Ped 3 Dose
	WVTN		Varivax	Varicella
	WVTN		Vivotif Berna/Ty21a	Typhoid-Oral
	WVTN		Vivotif Berna	Typhoid-Oral
	WVTN		Ty21a	Typhoid-Oral
	WVTN		VZIg	VZIg
	WVTN		YF-VAX	Yellow Fever
	WVTN		ZOSTAVAX	Herpes Zoster
GRITS	**C4**	**Vaccines Administered (CPT code=C4)**	**(use in RXA-5)**	(Note: The CPT End Dates indicate those CPT codes deleted in 1997 or later. 90714 was deleted in 1999 for Typhoid and re-issued in 2005 for Td preservative vaccine. It, therefore, has both a Start and End Date. For more information please reference "Current Procedural Terminology (CPT) Codes Mapped to CVX Codes" at http://www.cdc.gov/vaccines/programs/iis/stds/cpt.htm.)
	C4		90476	Adeno tp4
	C4		90477	Adeno tp7
	C4		90581	Anthrax
	C4		90586	BCG-BC
	C4		90585	BCG-TB
	C4		90287	Botulinum-antitoxin
	C4		90288	Botulism
	C4		90725	Cholera-I
	C4		90592	Cholera-O - *End 12/31/2000*
	C4		90291	CMV-IGIV
	C4		90728	Deleted BCG code - *End 12/31/1999*
	C4		90730	Deleted HepA code - *End 12/31/1999*
	C4		90745	Deleted HepB - *End 12/31/2000*
	C4		90731	Deleted HepB code - *End 12/31/1997*
	C4		90737	Deleted Hib code - *End 12/31/1999*
	C4		90724	Deleted Influenza code - *End 12/31/1999*
	C4		90726	Deleted Rabies - *End 12/31/1999*
	C4		90296	Diphtheria-antitoxin
	C4		90719	Diphtheria
	C4		90702	DT
	C4		90700	DTaP
	C4		90723	DTaP-HepB-IPV
	C4		90698	DTaP-Hib-IPV
	C4		90721	DTaP-Hib
	C4		90696	DTaP-IPV
	C4		90701	DTP
	C4		90720	DTP-Hib
	C4		90659	FLU > 12 Years - *End 12/31/2002*
	C4		90658	FLU > 3 Years IIV3
	C4		90688	FLU > 3 Years IIV4
	C4		90657	FLU 6-35 Months IIV3
	C4		90687	FLU 6-35 Months IIV4
	C4		90660	FLU-LAIV3 - *End 07/01/2013*

Type	Table	Name	Value	Description
	C4		90672	FLU-LAIV4
	C4		90655	FLU-PF 6-35 Months IIV3
	C4		90685	FLU-PF 6-35 Months IIV4
	C4		90656	FLU-PF > 3 Years IIV3
	C4		90686	FLU-PF > 3 Years IIV4
	C4		90662	FLU, High-Dose
	C4		90654	FLU, Intradermal
	C4		90371	HBIG
	C4		90633	HepA ped-2 dose
	C4		90634	HepA ped-3 dose
	C4		90632	HepA adult
	C4		90636	HepA-HepB
	C4		90743	HepB adolescent
	C4		90740	HepB dialysis
	C4		90746	HepB adult
	C4		90747	HepB-dial
	C4		90748	HepB-Hib
	C4		90744	HepB-peds
	C4		90736	Herpes Zoster
	C4		90645	Hib-HbOC
	C4		90644	Hib-MenCY-TT
	C4		90647	Hib-OMP
	C4		90646	Hib-PRP-D
	C4		90648	Hib-PRP-T
	C4		90651	HPV9
	C4		90650	Human Papillomavirus-bivalent
	C4		90649	Human Papillomavirus-quadrivalent
	C4		90281	IG
	C4		90283	IGIV
	C4		90735	Japanese Enceph-SC
	C4		90738	Japanese Enceph-IM
	C4		90665	Lyme
	C4		90705	Measles
	C4		90708	Measles-Rubella
	C4		90620	MeningB, OMV
	C4		90621	MeningB, recombinant
	C4		90733	Meningococcal-Polysaccharide
	C4		90734	Meningococcal-MCV4
	C4		90707	MMR
	C4		90710	MMRV
	C4		90704	Mumps
	C4		90663	Novel Influenza-H1N1-09, nasal
	C4		90663	Novel Influenza-H1N1-09, preserve-free
	C4		90663	Novel Influenza-H1N1-09
	C4		90663	Novel Influenza-H1N1-09 all formulations
	C4		90470	Novel Influenza-H1N1-09, nasal
	C4		90470	Novel Influenza-H1N1-09, preserve-free
	C4		90470	Novel Influenza-H1N1-09
	C4		90470	Novel Influenza-H1N1-09 all formulations
	C4		90727	Plague
	C4		90669	Pneumo-Conjugate 7
	C4		90670	Pneumo-Conjugate 13
	C4		90732	Pneumococcal 23
	C4		90713	Polio IPV
	C4		90712	Polio oral

Type	Table	Name	Value	Description
	C4		90376	Rabies-HT
	C4		90676	Rabies-ID
	C4		90375	Rabies-IG
	C4		90675	Rabies-IM
	C4		90726	Rabies-NOS
	C4		90384	Rho(D) Ig full-dose
	C4		90385	Rho(D) Ig mini-dose
	C4		90386	Rho(D) IgIV
	C4		90681	Rotavirus-monovalent, live, oral
	C4		90680	Rotavirus-pentavalent, live, oral
	C4		90378	RSV-IglM
	C4		90379	RSV-IgIV
	C4		90706	Rubella
	C4		90709	Rubella-Mumps
	C4		90718	Td
	C4		90714	Td-PF - *Start 07/01/2005*
	C4		90715	Tdap
	C4		90703	Tetanus
	C4		90389	TetanusIG
	C4		90693	TyphoidAKD
	C4		90692	TyphoidHP
	C4		90690	Typhoid-O
	C4		90691	TyphoidVi
	C4		90714	Typhoid-Unspecified - *End 12/31/1999*
	C4		90393	Vaccinia-Ig
	C4		90716	Varicella
	C4		90396	VZIg
	C4		90717	Yellow Fever