ILLINOIS HEALTH INFORMATION EXCHANGE

Immunization Use Case

The Illinois Immunization Registry and Health Information Exchange

Illinois Health Information Exchange Public Health Work Group
December 2010

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1.0 Executive Summary

This Use Case is a product of the Public Health Work Group (PHWG) of the Illinois Health Information Exchange (HIE) Advisory Committee. The Illinois HIE Advisory Committee was constituted as the diverse public healthcare stakeholder body providing input and recommendations on the creation of the Illinois HIE Authority ("the Authority") as the Illinois vehicle for designing and implementing electronic health information exchange in Illinois. The establishment of the Authority marks the formal transition of the work of the HIE Advisory Committee and the Work Groups into alignment with the provisions of Illinois Public Act 096-1331, the Illinois Health Information Exchange and Technology Act.

Generally, the mission of the PHWG is to provide guidance and recommendations to the HIE Advisory Committee or its successors on the exchange of data relevant to public health between HIEs that operate in Illinois and Illinois public health agencies. This will be advanced by

- encouraging the adoption of electronic health records (EHRs) and the use of health information technology (health IT) to improve both individual and population health status and public health outcomes;
- assuring standards-based interoperability and workable data sharing between the public health system and HIEs in Illinois, including the Illinois HIE, local exchanges, and institution-based EHR systems;
- demonstrating and documenting the mutual benefit to public health and healthcare providers in the development of the Illinois HIE;
- assuring policy compatibility with the goals of public health for the use of individual and population health data;
- communicating to and educating the public health system about the value and applications of the Illinois HIE and promoting participation in the HIE by state and local health departments and the broader public health community; and
- promoting the identification of resources for public health to fully participate in HIE planning.

The Illinois Office of Health Information Technology (OHIT) will provide administrative and implementation support to the Authority as it moves forward with the development of the Illinois HIE. It is the intention of OHIT to release a request for proposals in early 2011 that will detail the requirements for the initial design of the Illinois HIE. **The purpose of this Use Case is to document and describe the current state of information flows regarding immunizations in Illinois, and to document and describe the ideal state in a future system that includes expanded electronic health information systems and**

HIE. The PHWG expects that the Use Case will be one of many inputs into the upcoming RFP process, and will be a scored element of the process to award the contract to design and build the Illinois HIE.

Making a priority of integrating Illinois' immunization registry in Illinois' HIE planning is justified by its specific inclusion in the federal rules for Meaningful Use under the EHR Incentive Programs, including the criterion for "electronic submission to immunization registries". Because the Illinois immunization registry is already employing federal health information technology funding to upgrade the registry, now is the right time to work to integrate it with the emerging HIE development plans. Additionally, supporting bi-directional communications between the registry and healthcare providers has the following benefits:

- Reduces death, morbidity, disability
- Enables stakeholders to meet Meaningful Use
- Enriches clinical records to enhance decision support for providers
- Increases patient safety and quality of care
- Increases system efficiency, reduces redundancy and repetition of services
- Which in turn decreases overall cost of providing immunization services
- Results in a more complete description of population-level health outcomes
- Which in turn allows for better allocation of public resources to support more effective immunization practices
- Increases capacity to prevent vaccine-preventable diseases
- Provides a structural model for other governmental public health systems to be integrated with EHR/HIE

The PHWG Immunization Use Case addresses several aspects of immunization information, including: immunization status for specific populations as well as the general population; the automated integration of electronic immunization data into Illinois' immunization registry and case management databases; vaccine supply management and the automated integration of immunization and vaccine information into supply chain and product management tracking functions; and automated functionalities related to Illinois statutory requirements regarding elementary school attendance.

This Use Case is divided into the following Sections:

2.0 Introduction

Vaccines save lives routinely and in times of outbreaks – they are one of the ten great Public Health Achievements of the last century. From a variety of perspectives, including medical and financial, the public benefits when the whole population is vaccinated against disease are immense; providing individual and population level protection against illness and death caused by infectious diseases. Simplifying the reporting, tracking, and monitoring of immunizations in the population through use of a registry that is interoperable with the clinical EHR, will pay off in helping to ensure that appropriate immunizations are administered to everyone.

Immunizations are a proxy measure for the overall health of the population; the idea being that if people are appropriately immunized they are also receiving other preventive and primary care. As such they are an important quality indicator for public health departments, health care organizations, and consumers to monitor for continuous improvement.

The PHWG chose to provide a clear pathway for interoperability between clinical providers and the Illinois immunization registry, the Illinois Comprehensive Automated Immunization Registry Exchange (I-CARE). The secure exchange of this data will allow Illinois to increase the number of children and adults participating in the immunization registry, eliminate double entry of immunization data by providers, reduce the risk of care interruption, and ensure widespread use of the registry to establish greater accuracy on Illinois and national immunization levels. Eventually the immunization registry may become part of the public health node on the Illinois HIE.

I-CARE is an immunization registry application developed by the Illinois Department of Public Health (IDPH), allowing heath care providers to share immunization records of Illinois residents. I-CARE is designed to help providers collect, store, analyze, and report their patients' immunization data as well as access patient records for information about immunizations administered outside their practices. I-CARE currently stores

immunization information on approximately 4 million patients and contains nearly 40 million records.[1]

Among the functionality available to I-CARE users is the capability to: forecast immunization due dates; prevent duplicate immunizations; follow CDC's immunization schedule for children and adults; produce a health record and pre-printed school physical forms; record patient contraindications, adverse reactions, and immunities; track vaccine inventory; collect patient demographic data and insurance eligibility; maintain running progress notes; and schedule appointments as well as track and notify patients of upcoming due dates. I-CARE has also incorporated additional data fields to track and record body mass index, height and weight, blood pressure, and blood lead screenings.

I-CARE can accept data from Cornerstone (the statewide data management information system developed to effectively measure health outcomes and facilitate the integration of community maternal and child health services provided to Illinois residents by the Illinois Department of Human Services) through daily batch flat file transfers. Data entered directly into the I-CARE web-portal is available in real-time. IDPH is currently working with providers to enable secure messaging directly between a provider's EHR and I-CARE. I-CARE is able to accept HL7 data, in versions 2.31 and 2.51, from outside sources and is prepared to accept batch data through a secure STP site, which it will use to populate the registry. IDPH anticipates implementing 2-way real time patient data exchange in early 2011.

This immunization registry Use Case focuses on the needs of consumers, clinicians, registries, and public health carrying out routine care activities associated with immunizations. This Use Case also recognizes that the technical infrastructure for the immunization registry supports routine immunizations by governmental public health and other healthcare providers as well as emergency situations arising from outbreaks, epidemics and natural disasters. This Use Case does not address all the operational possibilities of the immunization registry – but will focus on universality, the functionality of providers receiving real time feedback regarding immunization status, reminder recalls, vaccine and drug administration reporting, immunization monitoring, vaccine and drug inventory reporting, and reporting and notification of adverse events.

3.0 Scope

Since widespread adoption of the EHR and meaningful use of that record is the goal of the national and statewide health IT agenda, this Use Case for immunization data exchange

[1] Illinois Department of Public Health, 2010.

between the clinical provider's EHR and I-CARE will provide clinicians, technology vendors, and the State the opportunity to align the technical specifications for exchange . The Use Case will present the public health workflow, perspectives, pre and post conditions, and include the actions required to exchange specific patient care data between clinical providers and state and local public health departments through I-CARE. This Use Case also outlines how, as the HIEs becomes operational, they will facilitate bi-directional exchange. The PHWG Use Case for the Illinois immunization registry addresses the following:

- Access to information about who receives or needs to receive specific vaccines, including:
  - Patient demographics, physician orders, vaccine administration data, and adverse events data
- The ability to report and track vaccines, including:
  - Measuring and reporting immunizations with a minimum burden assessed on the provider
  - The aggregation of health information for the purpose of public health reporting of immunizations
  - Recall data and supply management data
- Documentation of vaccine administration
- Ability to provide reminders about immunization to patients
- Ability to provide aggregate reports of immunizations in a practice
- Ability to expand I-CARE beyond traditional medical and healthcare settings
- Ability to identify and electronically exchange information describing the immunizations of the population, both routine and emergency. This gives both providers and public health the capability to request real time information from the registry.

3.1 Criteria for Meaningful Use for Public Health in Illinois

The value of the creation and implementation of criteria for Meaningful Use for public health is in the promotion of unified standards, the development of interoperable data stores, and the establishment of a foundation for future efforts to leverage information technology for public health practice in Illinois.

The PHWG recognizes the challenges inherent in implementation of new methods and workflows for data sharing. These challenges may include a) development of interface engines or web service engines that message data b) harmonization of semantic knowledge into a common format c) allocation of limited IT resources to accomplish technical implementation tasks d) incorporation of security and consents in health information

exchange and e) maintenance and certification of the accuracy of electronically detected and transmitted data.

To that end, this document will summarize the recommendations for messaging of data to public health as a part of the HIE and in the effort to meet the Stage 1 Meaningful Use criteria for public health. The two initial Use Cases to be developed by the PHWG will be the transmission of data to the state immunization registry and electronic laboratory reporting. It is not coincidental that these two Use Cases correspond to existing robust reporting systems at the state level: I-CARE and I-NEDSS. The general philosophy in the development of infrastructure to support the public health Use Cases is to leverage existing implementation guides and standards to promote a short term/current state messaging implementation framework, while also looking forward to the future for a longer term/future state framework to be developed in parallel. We will provide these two paths to enable use of existing systems while also providing a roadmap for the future of public health surveillance infrastructure. We will also give some examples of ways these standards can be implemented to permit sustainability, auditing and certification, and minimal impact on existing public health work processes.

4.0 Use Case Stakeholders

The primary stakeholders for HIE for immunizations are listed below and defined by their functional role related to either submitting and/or retrieving immunization information electronically through EHRs and HIEs.

Stakeholder	Working Definition of Role
Patient	Members of the public who require immunizations. May also include a person who can act on behalf of the patient, such as a parent. Patient consent is required to participate in I-CARE.
Clinician	Health care providers with direct patient care responsibilities, including ordering clinicians and providers of care in all health care delivery settings. Eligible professionals participating in the Medicare and Medicaid EHR Incentive Programs. Programs demonstrating fulfillment of the immunization objective. Providers would both submit and retrieve data.
Health care delivery organization	All health care delivery organizations that provide vaccines to children and adults. Examples of healthcare organizations include hospitals, physician practices, Federally Qualified Health Centers, and long term care facilities that manage the delivery of care and

	maintain personal health records with immunizations. Health care delivery organizations would both submit and retrieve data.
Local health department	Public health agencies that manage delivery of immunizations, maintain personal immunization records, and enter immunization record for individual patients into Cornerstone or I-CARE. Uses population-based immunization coverage levels for the purpose of improving immunization rates in the population. Local health departments would both submit and retrieve data.
Illinois Comprehensive Automated Immunization Registry Exchange (I-CARE)	The Illinois Department of Public Health's web-based immunization registry application housing information on public and private patients receiving immunizations.
Local Health Information Exchange	Local conduit for sharing electronic health information among certified participants in exchange and the Illinois Health Information Exchange.
State Health Information Exchange	State conduit for sharing electronic health information among local HIEs, interstate exchanges, certified participants in exchange, and state and federal data sources.

There are a number of secondary stakeholders who use immunization data in a wide variety of ways but who would primarily be accessing the data through the I-CARE system rather than the HIE. These include: community-based organizations, family case management services, schools and daycare centers, Cornerstone, the Department of Healthcare and Family Services (State Medicaid), and public and privacy vaccine experts. Additionally, secondary stakeholders in public and population health may access aggregated data from either I-CARE or the HIE to support assessment, assurance and advocacy. This functional aspect of HIE will be more fully addressed in subsequent Use Case documents.

5.0 Issues and Obstacles

Realizing the full benefits of health IT is dependent on overcoming a number of issues and obstacles in today's environment. Inherent is the premise that some of these issues and obstacles will be cross-cutting and therefore will apply to all the Use Cases developed by the PHWG, while others are unique to this specific Use Case. This Use Case promotes the standardization of data messaging either directly to I-CARE or to the proposed public health node on the Illinois HIE.

Generally, the issues and obstacles applicable across all Use Cases are related to the adoption of health IT and the concerns of clinical workflow integration and workforce education, and the use of standards to promote data interoperability and facilitate HIE. These issues, while critical to the success and widespread implementation to the exchange of immunization data, are outside the scope of this Use Case and, are being addressed by the multiple federally funded programs to encourage the widespread use of health IT and HIE created under the Health Information Technology for Economic and Clinical Health Act of 2009.

In addition to the cross-cutting issues and obstacles identified above, several issues or obstacles exist that are specific to this Use Case and include:

- Immunization schedules, as well as local, school and state interpretations of published schedules, vary between jurisdictions and are not available in an electronic interoperable form for inclusion in EHRs, Personal Health Records (PHRs), or registries.
- As personally controlled health records evolve, it is possible that the consumer's PHR or health data bank may contain immunization information supplied directly by a clinician; however the standards by which that information can be properly attributed are not currently harmonized.
- It is acceptable for providers to accept patient's self-report as long as it is documented as such in the medical record.
- From state to state, policies vary regarding patient consent regarding treatment and the release of immunization information in the event of a public health emergency.
- I-CARE is a web-based registry and can be used by providers without an EHR. Therefore, providers may choose not to adopt or upgrade their EHRs with an immunization/I-CARE module.

6.0 Use Case Pre-Conditions

Pre-conditions are the conditions that must be in place before the start of the use case.

This includes, but is not limited to, the state of a stakeholder, data that must be available somewhere, or an action that must have occurred.

- Health care provider has completed the I-CARE registration process, including the user agreement
- Health care provider is located in Illinois and has administered an immunization
- Health care provider has the consent of the patient, or a child's parent or guardian, to participate in I-CARE
- Data system technical specifications
    - Provider's EHR will be able to record data elements required by I-CARE
        - See Appendix A for data field requirements for HL7 messaging to I-CARE
    - Messaging will adhere to I-CARE approved data exchange file specifications; EHR technology supporting HL7 2.3.1 or 2.5.1 messaging standards
        - See HL72.3.1 and HL7 2.5.1 implementation guides, available online
- Memo of Understanding between the Authority and IDPH for implementation, routing and query functions using the Illinois HIE

7.0 Use Case Post-Conditions

Post-conditions are the conditions that will result or be the output from the Use Case. This includes, but is not limited to, the state of the stakeholder upon conclusion of the Use Case, data that was created or now available, and identification of actions that may serve as pre-conditions for other Use Cases.

Systems

1. Local, state and federal public health agencies will have higher quality data and can develop effective programming to improve immunization rates in targeted populations and ensure prevention of vaccine preventable diseases.

2. In a public health emergency, central storage of immunization data would improve the ability to track vaccinations given and where vaccine is needed.

3. Vaccine experts will have more usage data to draw on for future decisions/recommendations.

Individual

1. Patient receives needed immunization at appropriate time and can check PHR to know when future immunizations are due.

2. Clinician has access to previous immunizations given and can make appropriate clinical decisions on what additional immunizations are needed.

8.0 Details Scenarios/Technical Specifications

I-CARE is the immunization registry in use by IDPH. This system has a web-based interface that permits manual entry of client information. In addition to the web-based system, there is the capability to receive HL7 messages from stakeholders of vaccine recipients and incorporate this information into the registry. The necessary fields are listed in Appendix A.

Much as with electronic laboratory reporting, messaging is currently planned to occur using HL7 2.3.1, and sent to the registry using Secure FTP to the MoveIT system at the state level. It is anticipated that future standards will incorporate the use of XML based methods of data transfer, and a web services model to enable transmission of data.

For Stage 1 Meaningful Use, the focus of data sharing will be unsolicited messages to the state immunization registry, I-CARE. It is anticipated that bidirectional, real-time data transmission will be achievable to I-CARE in 2011. Future stages of Meaningful Use will incorporate these features. Vendors and developers are asked to refer to the following implementation guides with the full description of immunization messaging standards for HL7 2.3.1 and HL7 2.5.1:

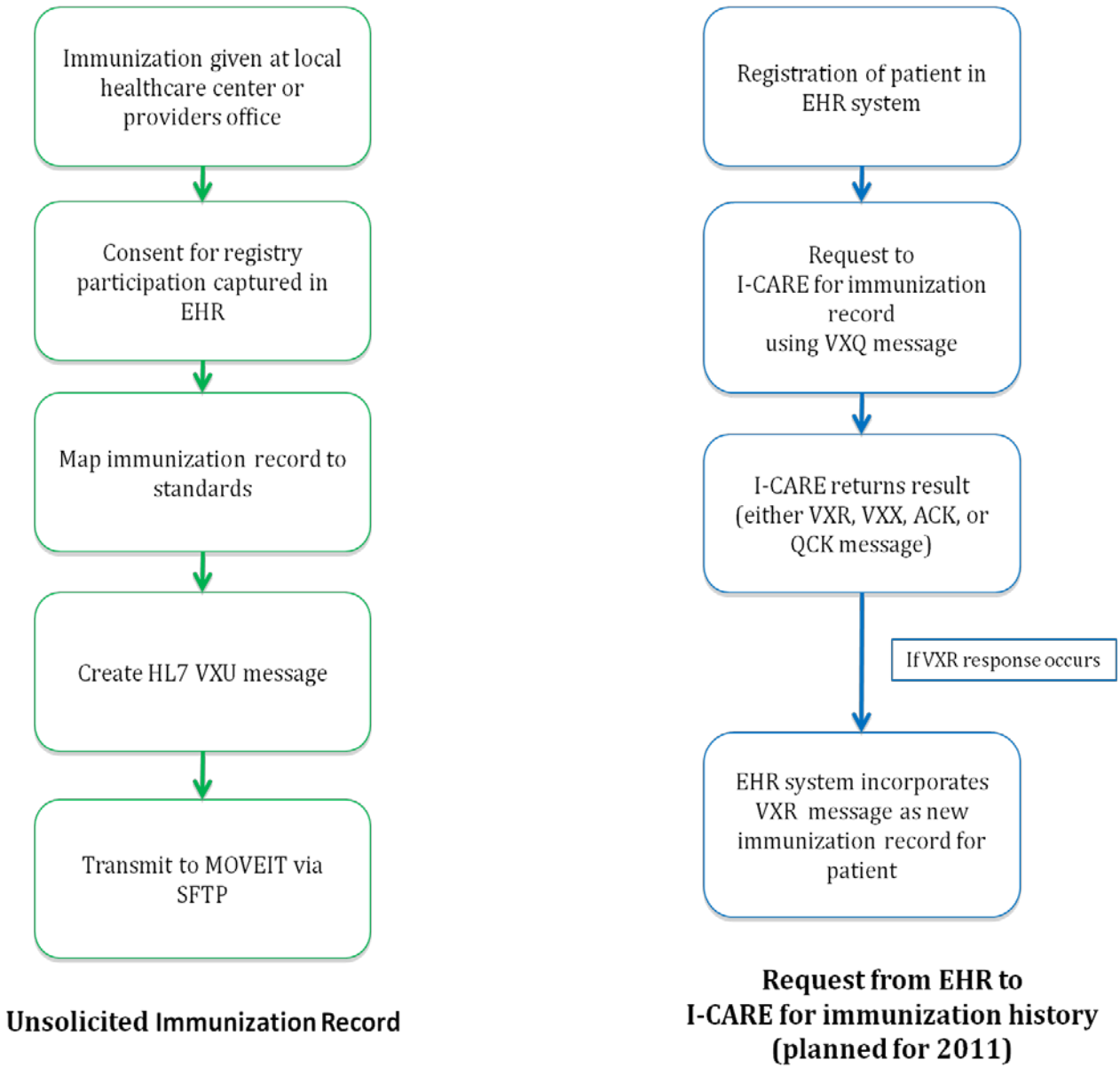
- HL72.3.1 http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7guide.pdf
- HL7 2.5.1 http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7-guide2010-508.pdf

Messages to the immunization registry shall be sent as VXU message types (i.e., unsolicited vaccination record update). The VXQ/VXR response pair will not be used at this time but will be implemented as a future state. Infrastructure to support the ACK response to a VXU message type should also be planned with modifications possible at the vendor site with a repeat send of message.

Examples of methods of implementation are shown below (Figure 7-1). In mid-2011, it is anticipated that the bi-directional flow of data to I-CARE will be available, with availability of VXQ/VXR pairs of data transmission.

It is anticipated that as national standards mature for the transmission of data to governmental agencies, new standards will emerge. For example, a candidate for a new standard that already is in use on the federal level in some domains of data exchange is the National Information Exchange Model (or NIEM) model. As there is maturation in the exchange of health information, new standards will be discussed with stakeholders and pursued where appropriate.

Figure 7-1 Methods of Implementation



9.0 Information Exchange

Messaging to the state I-CARE registry can be viewed as a current state, and a future state. The current state consists of all existing methods of messaging to registries, and is what will be leveraged for Stage 1 Meaningful Use for public health. The future state encompasses possible and desirable systems of data exchange that can fully leverage new technologies like XML, web services, and novel security paradigms.

In the current state, the use of Secure FTP to the MoveIT system will be recommended for transmission of HL7 messages to the State. Daily batch uploads will be sufficient, though real time transmission of data are supported. The MoveIT system is available at www.idphnet.com. Potential users can follow a registration process to access the IDPH Health Alert Network web portal, as well as to obtain credentials to enable Secure FTP uploads. Facilities seeking to transmit data to I-CARE will need to transmit data using the Secure FTP protocol and develop the appropriate institutional infrastructure (e.g. Secure FTP clients, firewall, and network modifications) to permit transmission in this manner.

For the future state, we will seek input from stakeholders and anticipate some support of web services and SaaS models to enable transmission of data.

9.1. Examples of Models of Standards-Based Reporting to I-CARE

It is anticipated that, with the opportunity presented through Stage 1 Meaningful Use, that opportunities for sustainable systems will be maximized. The following section provides non-prescriptive examples of methods to deploy reporting systems.

1 EHR based, vendor provided solutions. In this scenario, health care systems will utilize software products provided by the EHR vendor to enable compliance with the Meaningful Use criteria. Vendors will be expected to comply with Illinois guidance for messaging to I-CARE, including use of standard vocabularies as suggested by the HL7 specification in use in Illinois, transport mechanisms suggested for data transmission, and implementation of consent and other workflow processes necessary for a working system.

2 Middleware, on-site solutions. It is anticipated that health care providers, particularly hospital systems, may select middleware software providers for data transmission to the immunization registry. For example, point-to-point interfaces from EHR systems to middleware systems on-site at hospitals might provide the capability for transmission of immunization dosing to I-CARE.

3 A third party, off-site solution. A third option is the use of a neutral third party entity to which data are sent, whose responsibility is to receive data from providers,

map the data to standards, create HL7 messages, and transmit to I-CARE. The third party could perform auditing functions, standardize mapping approaches, and achieve economies of scale in the transmission of data to I-CARE.

4 HIE. When the Illinois HIE has matured in Illinois, this might serve as a method to simplify and streamline data transmission to I-CARE. In this scenario, providers and healthcare systems will send data to the HIE, which will then be responsible for data transmission to I-CARE.

10.0 Dataset Considerations

The mandatory fields regarding the immunization event in an immunization VXU message are:

Patient Identifier List (segment PID 3.1)
Patient Name(segment PID 5.1)
Date of Birth (PID 7)
Sex (PID 8)
Patient Address (Street: PID 11.1; Other designator: PID 11.2;City: PID 11.3; State: PID 11.4; Zip Code: 11.5 Zip Code)
Route (RXR 1)
Date/Time of Administration (start: RXA 3; end: RXA 4)
Administered Code/Amount (RXA 5: Administered Code)
Lot Number (RXA 15)
Manufacturer (RXA 17)
Optional, but desirable fields are:
Cornerstone ID (PID 4)
Medical Record ID (PID 4)
State Master Patient Locator Number (PID 4)
Race (PID 10)
County Code (PID 12)
Phone Number – Home (PID 13)
Phone Number – business (PID 14)
SSN number – patient (for identification– PID 19)
Driver's License Number –patient (for identification – PID 20)
Ethnic Group (PID 22)
Ordering Provider (ORC 12)
Call back phone number (ORC 14)
Entering Organization (ORC 17)
Ordering Facility Name (ORC 21)
Ordering Facility Phone Number (ORC 23)
Ordering Provider Address (ORC 24)
Administration Site (RXR 2)
Administration Method (RXR 4)

Administered Units (RXA 7)
Administered Dosage Form (RXA 8)
Administering Provider (RXA 10)
Administered-at Location (RXA 11)
Administered strength (RXA 13)
Administered strength units (RXA 14)
Substance Expiration Date (RXA 16)
Substance Refusal Reason (RXA 18)
Indication (RXA 19)
Completion Status (RXA 20)
System Entry Date/Time (RXA 22)

11.0 Validation and Certification

Some aspects of exchange of data with public health agencies require the application of business logic rules to detect cases of interest. It is anticipated that a useful approach to implementation of this Use Case will be the creation of a third party entity/entities that will serve several functions: a) enforcement of standardization in data mapping b) application of public health business rules c) audit and validation of application of mapping terms and d) audit and validation of the rule sets used for public health surveillance. Such entity/entities will be developed, it is expected, under the supervision of or as agents of OHIT or HFS; possible opportunities for auditing and validation are at the time of integration testing of new interfaces, or before the initiation of transmission of data to I-CARE.

			[] = optional
VXU^V04		***Unsolicited Vaccination Record Update***	{} = repeatable
	[FHS]	(file header segment)	
	{[BHS]	(batch header segment)	
	{[MSH	Message Header Segment	
	PID	Patient Identification Segment	
	[PD1]	Additional Demographics	
	[{NK1}]	Next of Kin/Associated Parties	
	[PV1	Patient Visit	
	PV2]	Patient Visit Additional Information	
	[{IN1	Insurance	
	[IN2]	Insurance Additional Information	
	[IN3]}]	Insurance Additional Information-Cert.	
	[{[ORC]	Common Order Segment	
	RXA	Pharmacy Administration	
	[RXR]	Pharacy Route	
	[{ OBX	Observation/Result	
	[{NTE}] }] }]	Notes (Regarding Immunizations)	
	[BTS]}	(batch trailer segment)	
	[FTS]	(file trailer segment)	
ADT			
A01		***Admit/Visit Notification***	
	MSH	Message Header Segment	
	EVN	Event Type	
	PID	Patient Identification Segment	
	[PD1]	Patient Additional Demographics	
	[{NK1}]	Next of Kin/Associated Parties	
	PV1	Patient Visit Information	
	[PV2]	Patient Visit / Add'l information	
	[{DB1}]	Disability Information	
	[{OBX}]	Observation /Result	
	[{AL1}]	Allergy Information	
	[{DG1}]	Diagnosis Information	
	[DRG]	Diagnosis Related Group	

	[{PR1}]	Procedures	
	[{ROL}]	Role	
	[{GT1}]	Guarantor	
	[{IN1}}	Insurance	
	[{IN2}]	Insurance Add'l Information	
	[{IN3}]	Insurance Add'l Info - Cert	
	[ACC]	Accident Information	
	[UB1]	Universal Bill Information	
	[UB2]	Universal Bill 92 Information	
A04		***Register a Patient***	
	MSH	Message Header Segment	
	EVN	Event Type	
	PID	Patient Identification Segment	
	[PD1]	Patient Additional Demographics	
	[{NK1}]	Next of Kin/Associated Parties	
	PV1	Patient Visit Information	
	[PV2]	Patient Visit / Add'l information	
	[{DB1}]	Disability Information	
	[{OBX}]	Observation /Result	
	[{AL1}]	Allergy Information	
	[{DG1}]	Diagnosis Information	
	[DRG]	Diagnosis Related Group	
	[{PR1}]	Procedures	
	[{ROL}]	Role	
	[{GT1}]	Guarantor	
	[{IN1}}	Insurance	
	[{IN2}]	Insurance Add'l Information	
	[{IN3}]	Insurance Add'l Info - Cert	
A05		Pre-Admit a Patient	
A08		***Update Patient Information***	
	MSH	Message Header Segment	
	EVN	Event Type	
	PID	Patient Identification Segment	
	[PD1]	Patient Additional Demographics	

	[{NK1}]	Next of Kin/Associated Parties	
	PV1	Patient Visit Information	
	[PV2]	Patient Visit / Add'l information	
	[{DB1}]	Disability Information	
	[{OBX}]	Observation /Result	
	[{AL1}]	Allergy Information	
	[{DG1}]	Diagnosis Information	
	[DRG]	Diagnosis Related Group	
	[{PR1}]	Procedures	
	[{ROL}]	Role	
	[{GT1}]	Guarantor	
	[{IN1}}	Insurance	
	[{IN2}]	Insurance Add'l Information	
	[{IN3}]	Insurance Add'l Info - Cert	
	[ACC]	Accident Information	
	[UB1]	Universal Bill Information	
	[UB2]	Universal Bill 92 Information	
A18		***Merge Patient Information***	
	MSH	Message Header Segment	
	EVN	Event Type	
	PID	Patient Identification Segment	
	[PD1]	Patient Additional Demographics	
	MRG	Merge Information	
	PV1	Patient Visit Information	
A28		***Add Person Information***	
	MSH	Message Header Segment	
	EVN	Event Type	
	PID	Patient Identification Segment	
	[PD1]	Patient Additional Demographics	
	[{NK1}]	Next of Kin/Associated Parties	
	PV1	Patient Visit Information	
	[PV2]	Patient Visit / Add'l information	
	[{DB1}]	Disability Information	
	[{OBX}]	Observation /Result	
	[{AL1}]	Allergy Information	

	[{DG1}]	Diagnosis Information	
	[DRG]	Diagnosis Related Group	
	[{PR1}]	Procedures	
	[{ROL}]	Role	
	[{GT1}]	Guarantor	
	[{IN1}}	Insurance	
	[{IN2}]	Insurance Add'l Information	
	[{IN3}]	Insurance Add'l Info - Cert	
	[ACC]	Accident Information	
	[UB1]	Universal Bill Information	
	[UB2]	Universal Bill 92 Information	
A31		***Update Person Information***	
	MSH	Message Header Segment	
	EVN	Event Type	
	PID	Patient Identification Segment	
	[PD1]	Patient Additional Demographics	
	[{NK1}]	Next of Kin/Associated Parties	
	PV1	Patient Visit Information	
	[PV2]	Patient Visit / Add'l information	
	[{DB1}]	Disability Information	
	[{OBX}]	Observation /Result	
	[{AL1}]	Allergy Information	
	[{DG1}]	Diagnosis Information	
	[DRG]	Diagnosis Related Group	
	[{PR1}]	Procedures	
	[{ROL}]	Role	
	[{GT1}]	Guarantor	
	[{IN1}}	Insurance	
	[{IN2}]	Insurance Add'l Information	
	[{IN3}]	Insurance Add'l Info - Cert	
	[ACC]	Accident Information	
	[UB1]	Universal Bill Information	
	[UB2]	Universal Bill 92 Information	
A47		***Change Patient Identifier List***	
	MSH	Message Header Segment	

	EVN	Event Type	
	PID	Patient Identification Segment	
	[PD1]	Patient Additional Demographics	
	MRG	Merge Information	
ORU^R01		***Unsolicited Transmission of an Observation (Result)***	
	MSH	Message Header Segment	
	EVN	Event Type	
	PID	Patient Identification Segment	
	[PD1]	Patient Additional Demographics	
	[{NK1}]	Next of Kin/Associated Parties	
	[{NTE}]	Notes and Comments	
	[PV1]	Patient Visit Information	
	[PV2]	Patient Visit / Add'l information	
	[ORC]	Order Common	
	OBR	Observation Report ID	
	{[NTE]}	Notes and comments	
	{[OBX]	Observation/Result	
	{[NTE]}}	Notes and Comments	
	{[CTI]}}}}	Clinical Trial Identification	
	[DSC]	Continuation Pointer	

File Header Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Comment
FHS	1	1	ST	R			00067	File field separator	
FHS	2	4	ST	R			00068	File encoding characters	
FHS	3	15	ST	O			00069	File sending application	
FHS	4	20	ST	O			00070	File receiving application	
FHS	5	15	ST	O			00071	File receiving application	
FHS	6	20	ST	O			00072	File receiving facility	
FHS	7	26	TS	O			00073	File creation date/time	
FHS	8	40	ST	O			00074	File security	
FHS	9	20	ST	O			00075	File name/ID/type	
FHS	10	80	ST	O			00076	File comment	
FHS	11	20	ST	O			00077	File control ID	
FHS	12	20	ST	O			00078	Reference file control ID	

Batch Header Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Comment
BHS	1	1	ST	R			00081	Batch field separator	
BHS	2	3	ST	R			00082	Batch encoding characters	
BHS	3	15	ST	O			00083	Batch sending application	
BHS	4	20	ST	O			00084	Batch sending facility	
BHS	5	15	ST	O			00085	Batch receiving application	
BHS	6	20	ST	O			00086	Batch receiving facility	
BHS	7	26	TS	O			00087	Batch creation date/time	
BHS	8	40	ST	O			00088	Batch security	
BHS	9	20	ST	O			00089	Batch name/ID/type	
BHS	10	80	ST	O			00090	Batch comment	
BHS	11	20	ST	O			00091	Batch control ID	
BHS	12	20	ST	O			00092	Reference batch control ID	

Message Header Segment

Segment	Field	Length	Type	Req/ Opt	RP/#	Table	Item #	Element Name	Source Mapping	ICARE Field
MSH	*1*	*1*	*ST*	*R*			*00001*	*Field Separator*		
MSH	*2*	*4*	*ST*	*R*			*00002*	*Encoding Characters*		
MSH	3	180	HD	O		0361	00003	Sending Application		
MSH	4	180	HD	O		0362	00004	Sending Facility		
MSH	5	180	HD	O		0361	00005	Receiving Application		
MSH	6	180	HD	O		0362	00006	Receiving Facility		
MSH	*7*	*26*	*TS*	*R*			*00007*	*Date/Time of Message*		
MSH	*8*	*40*	*ST*	*O*			*00008*	*Security*		
MSH	*9*	*13*	*CM*	*R*		*0076 0003*	*00009*	*Message Type*		
MSH	*10*	*20*	*ST*	*R*			*00010*	*Message Control ID*		
MSH	11	3	PT	R			00011	Processing ID		
MSH	12	60	VID	R		0104	00012	Version ID		
MSH	13	15	NM	O			00013	Sequence Number		
MSH	14	180	ST	O			00014	Continuation Pointer		
MSH	15	2	ID	O		0155	00015	Accept Acknowledgement Type		
MSH	16	2	ID	O		0155	00016	Application Acknowledgement Type		
MSH	17	3	ID	O		0399	00017	Country Code		
MSH	18	16	ID	O	Y	0211	00692	Character Set		
MSH	19	250	CE	O			00693	Principal Language of Message		
MSH	20	20	ID	O		0356	01317	Alternate Character Set Handling Scheme		
MSH	21	10	ID	O		0449	01598	Conformance Statement ID		

Message Acknowledgement

Segment	Field	Length	Type	Req/Opt	RP/#	Table	Item #	Element Name	Comment
MSA	*1*	*2*	*ID*	*R*			*00018*	*Acknowledgement code*	
MSA	*2*	*20*	*ST*	*R*			*00010*	*Message control ID*	
MSA	3	80	ST	O			00020	Test message	
MSA	4	15	NM	O			00021	Expected sequence number	
MSA	5	1	ID	B		0102	00022	Delayed acknowledgment type	
MSA	6	100	CE	O			00023	Error condition	

Patient Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Comment	Source Mapping	ICARE field
PID	1	4	SI	O			00104	Set ID-PID			
PID	2	20	CX	B			00105	Patient ID	Chart ID could reside here		
PID	*3*	*20*	*CX*	*R*	*Y*		*00106*	*Patient Identifier list*		*PID 3.1*	*patient_id*
PID	4	20	CX	B	Y		00107	Alternate patient ID-PID			
PID	*5*	*48*	*XPN*	*R*	*Y*		*00108*	*Patient name*		*PID 5.1 Lastname PID 5.2 Firstname PID 5.3 Middlename*	*Name_first, Name_middle, Name_last*
PID	*6*	*48*	*XPN*	*O*	*Y*		*00109*	*Mother's maiden name*			*Name_mother_maiden*
PID	*7*	*26*	*TS*	*O*			*00110*	*Date/time of birth*		*PID 7*	*Birth_date*
PID	*8*	*1*	*IS*	*O*		*0001*	*00111*	*Sex*		*PID 8*	*HL7_sex_code*
PID	9	48	XPN	O	Y		00112	Patient alias			Patient_alias_id Patient_alias Name_first Name_middle Name_last
PID	10	80	CE	O	Y	0005	00113	Race			HL7_race_code
PID	*11*	*106*	*XAD*	*O*	*Y*		*00114*	*Patient address*		*PID 11.1 Street Addr PID 11.2 Other Designator PID 11.3 City PID 11.4 State PID 11.5 Zip Code*	*Patient_address_id Address_name HL7_address_type_code Address_1 Address_2 City State Zip*
PID	12	4	IS	B	Y	0289	00115	County code			County
PID	13	40	XTN	O	Y		00116	Phone number - home		PID 13	
PID	14	40	XTN	O	Y		00117	Phone number - business			

Patient Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Comment	Source Mapping	ICARE field
PID	15	60	CE	O		0296	00118	Primary language			
PID	16	80	CE	O		0002	00119	Marital status			
PID	17	80	CE	O		0006	00120	Religion			
PID	18	20	CX	O			00121	Patient account number			
PID	19	16	ST	B			00122	SSN number - patient			
PID	20	25	DLN	O			00123	Driver's license number - patient			
PID	21	20	CX	O	Y		00124	Mother's identifier			
PID	22	80	CE	O	Y	0189	00125	Ethnic group			
PID	23	60	ST	O			00126	Birth place			Birth_facility_code, Birth_state_code
PID	24	1	ID	O		0136	00127	Multiple birth indicator			Multiple_birth_total
PID	25	2	NM	O			00128	Birth order			Multiple_birth_order
PID	26	80	CE	O	Y	0171	00129	Citizenship			
PID	27	60	CE	O		0172	00130	Veterans military status			
PID	28	80	CE	O		0212	00739	Nationality			
PID	29	26	TS	O			00740	Patient death date and time			
PID	30	1	ID	O		0136	00741	Patient death indicator			

Additional Patient Demographic Information Segment

Segment	Field	Length	Type	Req/ Opt	RP/ #	Table	ITEM #	Element Name	Source Mapping	ICARE Field
PD1	1	2	IS	O	Y	0223	00755	Living dependency		
PD1	2	2	IS	O		0220	00742	Living arrangement		
PD1	3	90	XON	O	Y		00756	Patient primary facility		
PD1	4	90	XCN	O	Y		00757	Patient primary care provider name & ID number		
PD1	5	2	IS	O		0231	00745	Student indicator		
PD1	6	2	IS	O		0295	00753	Handicap		
PD1	7	2	IS	O		0315	00759	Living will		
PD1	8	2	IS	O		0316	00760	Organ donor		
PD1	9	1	ID	O		0136	00761	Separate bill		
PD1	10	20	CX	O	Y		00762	Duplicate patient		
PD1	11	80	CE	O		0215	00763	Publicity code		
PD1	12	1	ID	O		0136	00744	Protection indicator		
PD1	13	8	DT	O			01566	Protection Indicator effective date		
PD1	14	250	XON	O	Y		01567	Place of worship		
PD1	15	250	CE	O	Y		01568	Advance directive code		
PD1	16	1	IS	O		0441	01569	Immunization registry status		
PD1	17	8	DT	O			01570	Immunization registry status effective date		
PD1	18	8	DT	O			01571	Publicity code effective date		

Patient Visit Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
PV1	1	4	SI	O			00131	Set ID - PV1		
PV1	2	1	IS	R		0004	00132	Patient class		
PV1	3	80	PL	O			00133	Assigned patient location		
PV1	4	2	IS	O		0007	00134	Admission type		
PV1	5	20	CX	O			00135	Preadmit number		
PV1	6	80	PL	O			00136	Prior patient location		
PV1	7	60	XCN	O	Y	0010	00137	Attending doctor		
PV1	8	60	XCN	O	Y	0010	00138	Referring doctor		
PV1	9	60	XCN	O	Y	0010	00139	Consulting doctor		
PV1	10	3	IS	O		0069	00140	Hospital service		
PV1	11	80	PL	O			00141	Temporary location		
PV1	12	2	IS	O		0087	00142	Preadmit test indicator		
PV1	13	2	IS	O		0092	00143	Re-admission indicator		
PV1	14	3	IS	O		0023	00144	Admit source		
PV1	15	2	IS	O	Y	0009	00145	Ambulatory status		
PV1	16	2	IS	O		0099	00146	VIP indicator		
PV1	17	60	XCN	O	Y	0010	00147	Admitting doctor		
PV1	18	2	IS	O		0018	00148	Patient type		
PV1	19	20	CX	O			00149	Visit number		
PV1	20	50	FC	O	Y	0064	00150	Financial class		
PV1	21	2	IS	O		0032	00151	Charge price indicator		
PV1	22	2	IS	O		0045	00152	Courtesy code		
PV1	23	2	IS	O		0046	00153	Credit rating		
PV1	24	2	IS	O	Y	0044	00154	Contract code		
PV1	25	8	DT	O	Y		00155	Contract effective date		
PV1	26	12	NM	O	Y		00156	Contract amount		
PV1	27	3	NM	O	Y		00157	Contract period		
PV1	28	2	IS	O		0073	00158	Interest code		
PV1	29	1	IS	O		0110	00159	Transfer to bad debt code		
PV1	30	8	DT	O			00160	Transfer to bad debt date		
PV1	31	10	IS	O		0021	00161	Bad debt agency code		
PV1	32	12	NM	O			00162	Bad debt transfer amount		
PV1	33	12	NM	O			00163	Bad debt recovery amount		

Patient Visit Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
PV1	34	1	IS	O		0111	00164	Delete account indicator		
PV1	35	8	DT	O			00165	Delete account date		
PV1	36	3	IS	O		0112	00166	Discharge disposition		
PV1	37	25	CM	O		0113	00167	Discharged to location		
PV1	38	80	CE	O		0114	00168	Diet type		
PV1	39	2	IS	O		0115	00169	Servicing facility		
PV1	40	1	IS	O		0116	00170	Bed status		
PV1	41	2	IS	O		0117	00171	Account status		
PV1	42	80	PL	O			00172	Pending location		
PV1	43	80	PL	O			00173	Prior temporary location		
PV1	44	26	TS	O			00174	Admit date/time		
PV1	45	26	TS	O			00175	Discharge date/time		
PV1	46	12	NM	O			00176	Current patient balance		
PV1	47	12	NM	O			00177	Total charges		
PV1	48	12	NM	O			00178	Total adjustments		
PV1	49	12	NM	O			00179	Total payments		
PV1	50	20	CX	O		0203	00180	Alternate visit ID		
PV1	51	1	IS	O		0326	01226	Visit indicator		
PV1	52	60	XCN	O	Y	0010	01274	Other healthcare provider		

Additional Patient Visit Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
PV2	1	80	PL	C			00181	Prior pending location		
PV2	2	60	CE	O		0129	00182	Accommodation code		
PV2	3	60	CE	O			00183	Admit reason		
PV2	4	60	CE	O			00184	Transfer reason		
PV2	5	25	ST	O	Y		00185	Patient valuables		
PV2	6	25	ST	O			0186	Patient valuables location		
PV2	7	2	IS	O		0130	00187	Visit user code		
PV2	8	26	TS	O			00188	Expected admit date/time		
PV2	9	26	TS	O			00189	Expected discharge date/time		
PV2	10	3	NM	O			00711	Estimated length of inpatient stay		
PV2	11	3	NM	O			00712	Actual length of inpatient stay		
PV2	12	50	ST	O			00713	Visit description		
PV2	13	90	XCN	O	Y		00714	Referral source code		
PV2	14	8	DT	O			00715	Previous service date		
PV2	15	1	ID	O		0136	00716	Employment illness related indicator		
PV2	16	1	IS	O		0213	00717	Purge status code		
PV2	17	8	DT	O			00718	Purge status date		
PV2	18	2	IS	O		0214	00719	Special program code		
PV2	19	1	ID	O		0136	00720	Rentention indicator		
PV2	20	1	NM	O			00721	Expected number of insurance plans		
PV2	21	1	IS	O		0215	00722	Visit publicity code		
PV2	22	1	ID	O		0136	00723	Visit protection indicator		
PV2	23	90	XON	O	Y		00724	Clinic organization name		
PV2	24	2	IS	O		0216	00725	Patient status code		
PV2	25	1	IS	O		0217	00726	Visit priority code		
PV2	26	8	DT	O			00727	Previous treatment date		

Additional Patient Visit Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
PV2	27	2	IS	O		0112	00728	Expected discharge disposition		
PV2	28	8	DT	O			00729	Signature on file date		
PV2	29	8	DT	O			00730	First similar illness date		
PV2	30	80	CE	O		0218	00731	Patient charge adjustment code		
PV2	31	2	IS	O		0219	00732	Recurring service code		
PV2	32	1	ID	O		0136	00733	Billing media code		
PV2	33	26	TS	O			00734	Expected surgery date & time		
PV2	34	1	ID	O		0136	00735	Military partnership code		
PV2	35	1	ID	O		0136	00736	Military non-availability code		
PV2	36	1	ID	O		0136	00737	Newborn baby indicator		
PV2	37	1	ID	O		0136	00738	Baby detained indicator		

Next of Kin Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
NK1	*1*	*4*	*SI*	*R*			*00190*	*Set ID- NK1*		
NK1	*2*	*48*	*XPN*	*O*	*Y*		*00191*	*Name*		
NK1	*3*	*60*	*CE*	*O*		*0063*	*00192*	*Relationship*		
NK1	4	106	XAD	O	Y		00193	Address		
NK1	5	40	XTN	O	Y		00194	Phone number		
NK1	6	40	XTN	O	Y		00195	Business phone number		
NK1	7	60	CE	O		0131	00196	Contact role		
NK1	8	8	DT	O			00197	Start date		
NK1	9	8	DT	O			00198	End date		
NK1	10	60	ST	O			00199	Next of kin/AP job title		
NK1	11	20	JCC	O		0327 0328	00200	Next of kin/AP job code/class		
NK1	12	20	CX	O			00201	Next of kin/AP employee number		
NK1	13	90	XON	O	Y		00202	Organization name - NK1		
NK1	14	80	CE	O		0002	00119	Martial status		
NK1	15	1	IS	O		0001	00111	Sex		
NK1	16	26	TS	O			00110	Date/time of birth		
NK1	17	2	IS	O	Y	0223	00755	Living dependency		
NK1	18	2	IS	O	Y	0009	00145	Ambulatory status		
NK1	19	80	CE	O	Y	0171	00129	Citizenship		
NK1	20	60	CE	O		0296	00118	Primary language		
NK1	21	2	IS	O		0220	00742	Living arrangement		
NK1	22	80	CE	O		0215	00743	Publicity code		
NK1	23	1	ID	O		0136	00744	Protection indicator		
NK1	24	2	ID	O		0231	00745	Student indicator		
NK1	25	80	CE	O		0006	00120	Religion		
NK1	26	48	XPN	O	Y		00746	Mother's maiden name		
NK1	27	80	CE	O		0212	00739	Nationality		
NK1	28	80	CE	O	Y	0189	00125	Ethnic group		
NK1	29	80	CE	O	Y	0222	00747	Contact reason		
NK1	30	48	XPN	O	Y		00748	Contact person's name		

Next of Kin Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
NK1	31	40	XTN	O	Y		00749	Contact person's telephone number		
NK1	32	106	XAD	O	Y		00750	Contact person's address		
NK1	33	32	CX	O	Y		00751	Next of kin/AP's identifier		
NK1	34	2	IS	O		0311	00752	Job status		
NK1	35	80	CE	O	Y	0005	00113	Race		
NK1	36	2	IS	O		0295	00753	Handicap		
NK1	37	16	ST	O			00754	Contact person social security #		

Order Control Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
ORC	1	2	ID	R			00215	Order control		
ORC	2	22	EI	C			00216	Placer order number		
ORC	3	22	EI	C			00217	Filler order number		
ORC	4	22	EI	O			00218	Placer group number		
ORC	5	2	ID	O		0038	00219	Order status		
ORC	6	1	ID	O		0121	00220	Response flag		
ORC	7	200	TQ	O			00221	Quantity/timing		
ORC	8	200	CM	O			00222	Parent		
ORC	9	26	TS	O			00223	Date/time of transaction		
ORC	10	120	XCN	O			00224	Entered by		
ORC	11	120	XCN	O			00225	Verified by		
ORC	12	120	XCN	O			00226	Ordering provider		
ORC	13	80	PL	O			00227	Enterer's location		
ORC	14	40	XTN	O	Y/2		00228	Call back phone number		
ORC	15	26	TS	O			00229	Order effective date/time		
ORC	16	200	CE	O			00230	Order control code reason		
ORC	17	60	CE	O			00231	Entering organization		
ORC	18	60	CE	O			00232	Entering device		
ORC	19	120	XCN	O			00233	Action by		
ORC	20	40	CE	O		0339	01310	Advanced beneficiary notice code		
ORC	21	60	XON	O	Y		01311	Ordering facility name		
ORC	22	106	XAD	O	Y		01312	Ordering facility address		
ORC	23	48	XTN	O	Y		01313	Ordering facility phone number		
ORC	24	106	XAD	O	Y		01314	Ordering provider address		

Pharmacy/Treatment Route Information Segment

Segment	Field	Length	Type	Req/ Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
RXR	1	60	CE	R		0162	00309	Route		
RXR	2	60	CE	O		0163	00310	Site		
RXR	3	60	CE	O		0164	00311	Administration Device		
RXR	4	60	CE	O		0165	00312	Administration Method		
RXR	5	60	CE	O			01315	Routing instructions		

Pharmacy/Treatment Administration Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
RXA	*1*	*4*	*NM*	*R*			*00342*	*Give sub-ID counter*		
RXA	*2*	*4*	*NM*	*R*			*00344*	*Administration sub-ID counter*		
RXA	*3*	*26*	*TS*	*R*			*00345*	*Date/time start of administration*		
RXA	*4*	*26*	*TS*	*R*			*00346*	*Date/time end of administration*		
RXA	*5*	*100*	*CE*	*R*		*0292*	*00347*	*Administered code*		
RXA	*6*	*20*	*NM*	*R*			*00348*	*Administered amount*		
RXA	7	60	CE	C			00349	Administered units		
RXA	8	60	CE	O			00350	Administered dosage form		
RXA	9	200	CE	O	Y		00351	Administration notes		
RXA	10	200	XCN	O	Y		00352	Administering provider		
RXA	11	200	CM	O			00353	Administered-at location		
RXA	12	20	ST	C			00354	Administered per (time unit)		
RXA	13	20	NM	O			01134	Administered strength		
RXA	14	60	CE	O			01135	Administered strength units		
RXA	*15*	*20*	*ST*	*O*	*Y*		*01129*	*Substance lot number*		
RXA	16	26	ST	O	Y		01130	Substance expiration date		
RXA	*17*	*60*	*CE*	*O*	*Y*	*0227*	*01131*	*Substance manufacturer name*		
RXA	18	200	CE	O	Y		01136	Substance refusal reason		
RXA	19	200	CE	O	Y		01123	Indication		
RXA	20	2	ID	O		0322	01223	Completion status		
RXA	21	2	ID	O		0323	01224	Action code-RXA		
RXA	22	26	TS	O			01225	System entry date/time		

Observation Request Segment Information

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
OBR	1	4	SI	O			00237	Set ID - OBR		
OBR	2	22	EI	C			00216	Placer Order Number		
OBR	3	22	EI	C			00217	Filler order number		
OBR	*4*	*200*	*CE*	*R*			*00238*	*Universal Service ID*		
OBR	5	2	ID	X			00239	Priority		
OBR	6	26	TS	X			00240	Requested Date/Time		
OBR	7	26	TS	C			00241	Observation Date/Time #		
OBR	8	26	TS	O			00242	Observation End Date/Time #		
OBR	9	20	CQ	O			00243	Collection Volume		
OBR	10	60	XCN	O	Y		00244	Collector Identifier		
OBR	11	1	ID	O		0065	00245	Specimen Action Code		
OBR	12	60	CE	O			00246	Danger Code		
OBR	13	300	ST	O			00247	Relevant Clinical Info.		
OBR	14	26	TS	C			00248	Specimen Received Date/Time		
OBR	15	300	CM	O		0070	00249	Specimen Source		
OBR	16	80	XCN	O	Y		00226	Ordering Provider		
OBR	17	40	XTN	O	Y/2		00250	Order Callback Phone Number		
OBR	18	60	ST	O			00251	Placer Field 1		
OBR	19	60	ST	O			00252	Placer Field 2		
OBR	20	60	ST	O			00253	Filler Field 1		
OBR	21	60	ST	O			00254	Filler Field 2		
OBR	22	26	TS	C			00255	Results Rpt/Status Chng-Date/Time		
OBR	23	40	CM	O			00256	Charge to Practice		
OBR	24	10	ID	O		0074	00257	Diagnostic Serv Sect ID		
OBR	25	1	ID	C		0123	00258	Result Status		
OBR	26	400	CM	O			00259	Parent Result		
OBR	27	200	TQ	O	Y		00221	Quantity/Timing		
OBR	28	150	XCN	O	Y/5		00260	Result copies to		
OBR	29	200	CM	O			00261	Parent		

Observation Request Segment Information

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
OBR	30	20	ID	O		0124	00262	Transportation mode		
OBR	31	300	CE	O	Y		00263	Reason for study		
OBR	32	200	CM	O			00264	Principal Result Interpreter		
OBR	33	200	CM	O	Y		00265	Assistant Result Interpreter		
OBR	34	200	CM	O	Y		00266	Technician		
OBR	35	200	CM	O	Y		00267	Transcriptionist		
OBR	36	26	TS	O			00268	Schedule Date/Time		
OBR	37	4	NM	O			01028	Number of Sample Containers		
OBR	38	60	CE	O	Y		01029	Transport Logistics of Collected Sample		
OBR	39	200	CE	O	Y		01030	Collector's comments		
OBR	40	60	CE	O			01031	Transport Arrangement Resonsibility		
OBR	41	30	ID	O		0224	01032	Transport Arranged		
OBR	42	1	ID	O		0225	01033	Escort Required		
OBR	43	200	CE	O	Y		01034	Planned Patient Transport Comment		
OBR	44	80	CE	O		0088	00393	Procedure Code		
OBR	45	80	CE	O	Y	0340	01316	Procedure Code Modifier		

Observation/Result Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
OBX	1	4	SI	O			00569	Set ID - OBX		
OBX	2	3	ID	C		0125	00570	Value Type		
OBX	3	80	CE	R			00571	Observatin identifier		
OBX	4	20	ST	C			00572	Observation sub-ID		
OBX	5	65536	CE,TX, FT	C	Y		00573	Observation value		
OBX	6	60	CE	O			00574	Units		
OBX	7	60	ST	O			00575	Reference ranges		
OBX	8	5	ID	O	Y/5	0078	00576	Abnormal flags		
OBX	9	5	NM	O			00577	Probablity		
OBX	10	2	ID	O	Y	0080	00578	Nature of abnormal test		
OBX	11	1	ID	R		0085	00579	Observ result status		
OBX	12	26	TS	O			00580	Date last obs normal values		
OBX	13	20	ST	O			00581	User defined access checks		
OBX	14	26	TS	O			00582	Date/time of the observation		
OBX	15	60	CE	O			00583	Producer's ID		
OBX	16	80	XCN	O	Y		00584	Responsible observer		
OBX	17	60	CE	O	Y		00936	Observation method		

Notes and Comments Information Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Source Mapping	ICARE Field
NTE	1	4	SI	O			00096	Set ID-NTE		
NTE	2	8	ID	O		0105	00097	Source of comment		
NTE	3	64k	FT	O	Y		00098	Comment		
NTE	4	60	CE	O			01318	Comment type		

Batch Trailer Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Comment
BTS	1	10	ST	O			00093	Batch message count	
BTS	2	80	ST	O			00094	Batch comment	
BTS	3	100	NM	O	Y		00095	Batch totals	

File Trailer Segment

Segment	Field	Length	Type	Req/Opt	RP/#	Table	ITEM #	Element Name	Comment
FTS	1	10	NM	O			00079	File batch count	
FTS	2	80	ST	O			00080	File trailer comment	

Race	
Code	Type
10	WHITE
20	BLACK
50	HISPANIC
42	ALASKAN NATIVE
43	ALEUT
41	AMERICAN INDIAN
38	ASIAN - OTHER
36	ASIAN INDIAN
30	ASIAN OR PACIFIC ISLANDER
31	CHINESE
34	FILIPINO
3A	GUAMANIAN
33	HAWAIIAN
32	JAPANESE
35	KOREAN
40	NATIVE AMERICAN
80	OTHER
3B	SAMOAN
99	UNKNOWN
37	VIETNAMESE
Race Types	
1002-5	American Indian or Alaska Native
2028-9	Asian
2076-8	Native Hawaiian or Other Pacific Islander
2054-5	Black or African-American
2106-3	White
2135-2	Hispanic or Latino
2186-5	Other race
2131-1	Unknown

Relationship	
Type	**Description**
BRO	Brother
CGV	Caregiver
DEP	Handicapped dependent
DOM	Life Partner
EMC	Emergency Contact
EME	Employee
EMR	Employer
EXF	Extended family
FCH	Foster Child
FND	Friend
FTH	Father
GCH	Grandchild
GRD	Guardian
GRP	Grandparent
MGR	Manager
MTH	Mother
NCH	Natural child
NON	None
OAD	Other adult
OTH	Other
OWN	Owner
PAR	Parent
SCH	Stepchild
SEL	Self
SIB	Sibling
SIS	Sister
SPO	Spouse
TRA	Trainer
UNK	Unknown
WRD	Ward of court
VAB	Vaccine administered by
FVP	Form completed by Vaccine provider
FPP	Form completed by Patient/Parent
FMN	Form completed by Manufacturer
FOT	Form completed by Other

VFC	
Type	**Description**
V00	VFC eligibility not determined/unknown
V01	Not VFC eligible
V02	VFC eligible-Medicaid/Medicaid Managed Care
V03	VFC eligible-Uninsured
V04	VFC eligible - American Indian/Alaskan Native
V05	VFC eligible - Federally Qualified Health Center Patient (under-insured)
V06	VFC eligible - State specific eligibility (e.g. S-CHIP plan)
V07	VFC eligibility - Local- specific eligibility

Address	
Type	**Description**
C	Current or temporary
P	Permanent
M	Mailing
B	Firm/business
O	Office
H	Home
N	Birth
F	Country of origin
L	Legal Address
BDL	Birth delivery location
BRO	Residence at birth
RH	Registry home
BA	Bad address

Shot Route	
Type	**Description**
ID	Intradermal
IM	Intramuscular
IN	Intranasal
IV	Intravenous
PO	Oral
OTH	Orther/Miscellaneous
SCH	Subcutaneous
TD	Transdermal

Shot Site	
Type	**Description**
LT	Left Thigh
LA	Left Arm
LD	Left Deltoid
LG	Left Gluteous Medius
LVL	Left Vastus Lateralis
LLFA	Left Lower Forearm
RA	Right Arm
RT	Right Thigh
RVL	Right Vastus Lateralis
RG	Right Gluteus Medius
RD	Rigth Deltoid
RLFA	Right Lower Forearm

Telecomm	
Type	**Description**
PRN	Primary residence number
ORN	Other resicence number
WPN	Work number
VHN	Vacation home number
ANS	Answering service number
EMR	Emergency number
NET	Network (email) address
BPN	Beeper number
PH	Telephone
FX	Fax
MD	Modem
CP	Cellular phone
BP	Beeper number
Internet	Internet address
X.400	Email address

Identifier Type	
Type	**Description**
SS	Social Security Number
MA	Medicaid Number
MC	Medicare Number
BRO	Birth Registry Number
U	Unspecified
AM	American Express
AN	Account Number
ANON	Anonymous Identifier
DI	Diner's Club Card
DL	Driver's License Number
DN	Doctor's Number
DS	Discover Card
EI	Employee Number
EN	Employer Number
FI	Facility Identifier
GI	Guarantee Internal Identifier
GN	Guarantee External Identifier
LN	License Number
LR	Local Registry ID
MS	MasterCard
MR	Medical Record Number
NET	National Employer Identifier
NH	National Health Plan Identifier
NPI	National Provide Identifier
PI	Patient Internal Identifier
PN	Person Number
PRN	Provider Number
PT	Patient External Identifier
RRI	Regional Registry ID
RRI	Railroad Retirement Number
SL	State License
SR	State Registry ID
UPIN	Meicare/CMS's Universal Physician ID Numbers
VS	Visa
VN	Visit Number
WC	WIC Identifier
XX	Organization Identifier
VEI	Vaccinatory Employee Number
OEI	Order Employee Number
REI	Recorder Employee Number
CS_ID	Cornerstone ID
TOTID	TOTS ID

Nationality	
Type	**Description**
CAN	Canada
MEX	Mexico
USA	United State
UMI	United States Minor Outlying Islands

Manufacturer	
Type	**Description**
AB	Abbot Laboratories (includes Ross Products Division)
ACA	Acambis, Inc
AD	Adams Laboratories, Inc.
ALP	Alpha Therapueutic Corporation
AR	Armour **[inactive use ZLB]**
AVB	Aventis Behrig L.L.C. (formerly Centeon L.L.C.; includes Armour Pharmaceutical Company **[inactive use ZLB]**
AVI	Aviron
BA	Baxter healthcare Corporation **[inactive use BAH]**
BAH	Baxter healthcare Corporation (includes Hyland Immuno, Immuno Internaltion AG, and North American Vaccine, Inc.)
BAY	Bayer Corporation (includes Miles, Inc. and Cutter Laboratories)
BP	Berna Products **[inactive use BPC]**
BPC	Berna Products Corporation (includes Swiss Serum and Vaccine Institute Berne)
CNJ	Cagene Corporation
CEN	Centeon L.L.C. **[inactive use ZLB]**
CHI	Chiron Corporation **[inactive use NOV]**
CSL	CSL Biotherapies, Inc.
CMP	Celltech Medeva Pharmaceuticals **[inactive use NOV]**
CON	Connaught **[inactive use PMC]**
DVC	DynPort Vaccine Company, LLC
EVN	Evans Medical Limited **[inactive use PMC]**
GEO	Geo Vax Labs, Inc
GRE	Greer Laboratories, Inc.
IAG	Immuno International AG
IM	Merieux **[inactive use PMC]**

Manufacturer	
Type	**Description**
IUS	Immuno-U.S., Inc.
JPN	The Research Foundation for Microbial Deseases of Osaka University (BIKEN)
KGC	Korea Green Corss Corporation
LED	Lederle **[inactive use WAL]**
MA	Massachusettes Public Health Biological Laboratories **[inactive use MBL]**
MBL	Massachusettes Biological Laboratories (formerly Massachusettes Public Health Biologic Laboratories)
MED	MedImmune, Inc.
MIL	Miles **[inactive use BAY]**
MIP	BioPort Corporation (formerly Michigan bilogic Products Institute)
MSD	Merck & Co. Inc.
NAB	NABI (formerly Michigan Biologic Products Institute)
HYB	New York Blood Center
NAV	North American Vaccine, Inc. **[inactive use BAH]**
NOV	Novartis Pharmaceutical Corporation (includes Celltech Medeva Vaccines and Evans Medical Limited)
NVX	Novavax, Inc.
OTC	Organon Teknika Corporation
ORT	Ortho-Clinical Diagnostics (formerly Ortho Diagnostics Systems, Inc.)
PD	Parkedale pharmaceuticals (formerly Parke-Davis)
PMC	Aventis Pasteur Inc. (formerly Pasteur Merieux Connaught; includes Connaught Laboratories and Pasteur Merieux)
PRX	Praxis Biologics **[inactive use WAL]**

Manufacturer	
Type	**Description**
PWJ	PowerJect Pharmaceuticals (includes Celtech Medeva Vaccines and Evans Medical Limited) **[inactive use NOV]**
SCL	Sclavo, Inc.
SI	Swiss Serum and Vaccine Inst. **[inactive use BPC]**
SKB	GlaxoSmithKline (formerly SmithKline Beecham; includes SmithKline Beecham and Glaxo Wellcome)
SOL	Solvay Pharmaceuticals
TAL	Talecris
USA	United States Army Medical Research and Material Command
VXG	VaxGen
WA	Wyeth-Ayerst **[inactive use WAL]**
WAL	Wyeth-Ayerst (includes Wyeth-Lederke Vaccines and Pediatrics, Wyeth Laboratories, Lederle Laboratories, and Prazis Biologics)
ZLB	ZLB Behring (includes Aventis Behring and Armour Pharmaceutical Company)
OTH	Other
UNK	Unknown Manufacturer

Contraindications	
HL7 Type	**Description**
01	recipient condition - unspecified
02	household condition - unspecified
03	allery to baker's yeast (anaphylactic)
04	allery to egg ingestion (anaphylactic)
05	allery to gelatin (anaphylactic)
06	allery to neomycin (anaphylactic)
07	allery to streptomycin (anaphylactic)
08	allergy to thimerosal (anaphylactic)
09	allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)
10	anaphylactic (life-threatening) reaction to previous dose of this vaccine or any of its components
11	collapse or shock like state within 48 hours of previous dose of DTP/DTaP
12	convulsions (fits, seizures) within 72 hours of precious dose of DTP/DTaP
13	persistent, inconsolable crying >=3 hours within 48 hours of precious dose of DTP/DTaP
14	current diarrhea, moderate to severe
15	encephalopathy within 7 days of precious dose of DTP or DTaP
16	current fever with moderate-to-severe illiness
17	fever of >=40.5C (015F) within 48 hours of previous dose of DTP/DTaP
18	Guillain-Barre syndrome (GBS) within 6 weeks of previous dose of DTP/DTaP
19	[inactive use 36]
20	[inactive use 36]
21	current acute illness, moderate to severe (with or without fever) (e.g. diarrhea, otitis media, vomiting)

Contraindications	
HL7 Type	**Description**
22	chronic illness (e.g. chronic gastronintestinal disease)
23	recent or simultaneous administration of an antibody-containing blood product (immune globulin)
24	immunity:diptheria
25	immunity: Haemophilus influenza type B (Hib)
26	immunity: hepatitis B
27	immunity: measles
28	immunity: mumps
29	immunity: pertussis
30	immunity: poliovirus
31	immunity: rubella
32	immunity: tetanus
33	immunity: varicella
34	[inactive use 36]
35	[inactive use 36]
36	immunodeficiency due to any cause, including HIV (hematologic and solid tumors, congential immunodeficiency, long-term immunosuppressive therapy, including steroids)
37	underlying unstable, evolving neurologic disorders, (including seizure disorders, cerebral palsy, and developmental delay)
38	otitis media (ear infection) moderate to severe (with or without fever)
39	pregnancy (in recipient)
40	thromboctopenia
41	thrombocytopenic pupura (history)
42	other contraindication/precaution/immunity not listed (must add text component of the CE field with description)

Contraindications	
HL7 Type	**Description**
43	Unknown (valid only for historical immunization)

Patient Registry Status Code	
Type	**Description**
A	Active
I	Inactive
L	Inactive-Lost to follow-up (cannot contact)
M	Inactive-Moved or gone elsewhere (transferred)
P	Inactive-Permanently inactive (do not re-activate or add new entries to this record)
O	Other/unspecified
U	Unknown

Transaction	Description	Results	Action	Comments
VXU^V04	Unsolicited Vaccination Update			
		Record Found	Update Record	
		Record Not Found	Create New	
ADT^A31	Update Person Information			
		Record Found	Update Record	
		Record Not Found	Add New Record	