PUBLIC HEALTH INFORMATION NETWORK

PHIN MESSAGING GUIDE FOR SYNDROMIC SURVEILLANCE: EMERGENCY DEPARTMENT, URGENT CARE, INPATIENT AND AMBULATORY CARE SETTINGS

ADT MESSAGES A01, A03, A04 and A08

Optional ORU^R01 Message Notation for Laboratory Data

HL7 Version 2.5.1

(Version 2.3.1 Compatible)

Release 2.0

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PHIN Messaging Guide For Syndromic Surveillance: ED/UC, Inpatient and Ambulatory Care Settings

1 INTRODUCTION

1.1 BACKGROUND

On February 17, 2009, the President signed the American Recovery and Reinvestment Act of 2009 (Recovery Act). Title XIII of Division A and Title IV of Division B of the Recovery Act, together cited as the Health Information Technology for Economic and Clinical Health Act (HITECH Act), include provisions to promote meaningful use of health information technology (health IT) to improve the quality and value of American health care.

In July 2010, the Center for Medicare and Medicaid Services (CMS) released the Stage 1 Final Rule - Medicare *and Medicaid Programs; Electronic Health Record Incentive Program; Final Rule, July 28, 2010*. The Office of the National Coordinator for Health Information Technology (ONC) released a companion regulation - *Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology: Final Rule July 28, 2010.* This final rule defined standards, specifications, and certification criteria for the 2011 Edition Electronic Health Record (EHR) Technology necessary to meet the Meaningful Use (MU) objectives defined in the CMS Stage 1 Final Rule. The Stage 1 MU menu (optional) objectives included a public health related objective for reporting syndromic surveillance data. Although there was a standard specified for syndromic surveillance reporting in Stage 1 (HL7 2.3.1 or HL7 2.5.1), there was no implementation guide or specification mandated in the 2011 Edition EHR certification criteria.

In September 2010, the Centers for Disease Control and Prevention (CDC) supported the International Society for Disease Surveillance (ISDS) to recommend EHR requirements for core Syndromic Surveillance business practices. ISDS used a community consensus-driven process to develop its recommendation, receiving input from a workgroup of local and state Syndromic Surveillance experts served as the basis for early recommendation iterations (i.e., Preliminary Recommendation on 9/30/10, and a Provisional Recommendation on 12/1/10). Input collected during a

public comment period on the provisional recommendations document then informed ISDS's, "Final Recommendation: The Core Processes & EHR Requirements of Public Health Syndromic Surveillance", published in January 2011. CDC translated the ISDS business requirement recommendations to technical specifications and published the *PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care Data, Release 1.0* in October 2011*.*

The CMS Stage 2 EHR Meaningful Use final rule was published in the Federal Register on September 4th, 2012. The corresponding ONC final rule also published on September 4th, 2012 defined the standards, implementation specifications, and certification criteria for 2014 Edition Electronic Health Record Technology. In Stage 2, the syndromic surveillance objective, moved the to the core (required) objectives for eligible hospitals and remained a menu objective for eligible professionals. The 2014 Edition EHR certification criteria mandated HL7 2.5.1 standard and the *PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care Data, Release 1.1 (August 2012)* for EHR products certified for the inpatient (hospital) settings and made this guide optional for EHR products certified for the ambulatory setting.

On September 11, 2014, ONC released a final rule that introduced regulatory flexibilities and general improvements for certification to the 2014 Edition EHR certification criteria (2014 Edition) Release 2.0 - *2014 Edition Release 2 Electronic Health Record (EHR) Certification Criteria and the ONC HIT Certification Program; Regulatory Flexibilities, Improvements, and Enhanced Health Information Exchange.* The 2014 Edition criterion required the use of the HL7 2.5.1 standard. At that time, there wasn't an HL7 2.5.1 Implementation Guide (IG) for syndromic surveillance in ambulatory and non-urgent care settings.

To promote providers' ability to achieve the MU syndromic surveillance objective for Stage 2 in ambulatory and non-urgent care settings, in 2014 Edition Release 2.0, ONC permitted EHR technology to be *certified to an optional criterion that allowed any electronic method of transmission.*

- ONC adopted an optional 2014 Edition (Release 2.0) ''syndromic surveillance'' certification criterion (§ 170.314(f) (7)) for the ambulatory setting.

- This optional certification criterion on "syndromic surveillance" permits EHR technology designed for the ambulatory setting, was to simply demonstrate that the EHR technology can electronically create syndrome-based public health surveillance information for electronic submission (using any method or standard) to be certified to this criterion.

This provided certification flexibility, while also providing a path forward. The ONC 2014 Edition Release 2.0 Certification criteria included an optional set of data elements within this optional certification criterion to provide some additional specificity and to which EHR technology developers may choose to have their EHR technology certified. These data elements included:

- Patient demographics
- Provider specialty
- Provider address
- Problem list
- Vital signs
- Laboratory results
- Procedures
- Medications
- Insurance

While the aforementioned data elements are optional for the purposes of demonstrating compliance to this certification criterion, if an EHR technology developer wishes to certify its EHR technology to this criterion as a whole, including the optional data set, the EHR technology would need to demonstrate that it can electronically produce syndromic surveillance information that contains all of the data elements. On February 17, 2009, the President signed the American Recovery and Reinvestment Act of 2009 (Recovery Act). Title XIII of Division A and Title IV of Division B of the Recovery Act, together cited as the Health Information Technology for Economic and Clinical Health Act (HITECH Act), include provisions to promote meaningful use of health information technology (health IT) to improve the quality and value of American health care.

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Care Data, Release 1.1 (August 2012) for EHR products certified for the inpatient (hospital) settings and made this guide optional for EHR products certified for the ambulatory setting.

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To promote providers' ability to achieve the MU syndromic surveillance objective for Stage 2 in ambulatory and non-urgent care settings, in the 2014 Edition Release 2.0, ONC permitted EHR technology to be certified to an optional criterion that allowed any electronic method of transmission. This optional certification criterion permits EHR technology designed for the ambulatory setting, for the purposes of certification, to use any method or standard to electronically create syndrome-based public health surveillance information for electronic transmission. This optional criterion provided certification flexibility, while also providing a path forward.

The ONC 2014 Edition Release 2.0 Certification criteria included an optional set of data elements within this optional certification criterion to provide some additional specificity and to which EHR technology developers may choose to have their EHR technology certified. These data elements included:

• Patient demographics

• Provider specialty

• Provider address

• Problem list

• Vital signs

• Laboratory results

- Procedures

- Medications

- Insurance

While the aforementioned data elements are optional for the purposes of demonstrating compliance to this certification criterion, if an EHR technology developer wishes to certify its EHR technology to this criterion as a whole, including the optional data set, the EHR technology would need to demonstrate that it can electronically produce syndromic surveillance information that contains all of the data elements.

1.2   INTRODUCTION TO SYNDROMIC SURVEILLANCE

Syndromic surveillance is a process that regularly and systematically uses health and health-related data in near "real-time" to make information available on the health of a community. This information includes statistics on disease trends and community health seeking behaviors that support essential public health surveillance functions in governmental public health authorities (PHAs). Syndromic surveillance is particularly useful to local, state, and federal PHAs for supporting public health situational awareness, emergency response management, and outbreak recognition and characterization. Patient encounter data from healthcare settings are a critical input for syndromic surveillance. Clinical data are provided by hospitals and urgent care centers to PHAs for all patient encounters (not a subset), and used by PHAs under authorities granted to them by applicable local and state laws.

For the purposes of this Messaging Guide, emergency department and urgent care services are defined using the following definition from the Centers for Medicare and Medicaid Services (CMS)[1]:

Emergency services are defined as being services furnished to an individual who has an emergency medical condition as defined in 42 CFR 424.101. The CMS has adopted the

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[1] Medicare Benefit Policy Manual, Chapter 15. (Rev. 157, 06-08-12). Section 40.29-Definition of Emergency and Urgent Care Situations (Rev. 1, 10-01-03). B3-3044.29. Available online: <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/bp102c15.pdf>

definition of emergency medical condition in that section of the Code of Federal Regulations (CFR). However, it seemed clear that Congress intended that the term "emergency or urgent care services" not be limited to emergency services since they also included "urgent care services." Urgent Care Services are defined in 42 CFR 405.400 as services furnished within 12 hours in order to avoid the likely onset of an emergency medical condition. For example, if a beneficiary has an ear infection with significant pain, CMS would view that as requiring treatment to avoid the adverse consequences of continued pain and perforation of the eardrum. The patient's condition would not meet the definition of emergency medical condition because **immediate care** is not needed to avoid placing the health of the individual in serious jeopardy or to avoid serious impairment or dysfunction. However, although it does not meet the definition of emergency care, the beneficiary needs care within a relatively short period of time (which CMS defines as 12 hours) to avoid adverse consequences, and the beneficiary may not be able to find another physician or practitioner to provide treatment within 12 hours.

The CDC's Public Health Information Network (PHIN) is a national initiative to increase the capacity of public health agencies to electronically exchange data and information across organizations and jurisdictions (e.g., clinical care to public health, public health to public health and public health to other federal agencies). To do so, PHIN promotes the use of standards and defines functional and technical requirements for public health information exchange.

Health Level Seven (HL7) is a nationally recognized standard for electronic data exchange between systems housing health care data. The HL7 standard is a key factor that supports this two-way exchange of information because it defines a syntax or grammar for formulating the messages that carry this information. It further describes a standard vocabulary that is used in these messages. HL7 also does not depend on specific software, that is, it is platform independent.

This document represents the collaborative effort of the International Society for Disease Surveillance (ISDS), the Centers for Disease Control and Prevention (CDC), and National Institute of Standards and Technology (NIST) to specify a national electronic messaging standard that enables disparate healthcare applications to submit or transmit administrative and clinical data for public health surveillance and response. A set of

recommendations made by expert committees convened by ISDS and CDC serve as the basis for this guide:

International Society for Disease Surveillance. (2011, January). Final Recommendation: Core Processes and EHR Requirements for Public Health Syndromic Surveillance.

Available online: www.syndromic.org/projects/meaningful-use.

International Society for Disease Surveillance. Electronic Syndromic Surveillance Using Hospital Inpatient and Ambulatory Clinical Care Electronic Health Record Data: Recommendations from the ISDS Meaningful Use Workgroup. 2012.

Available online: http://www.syndromic.org/meaningfuluse/IAData/Recommendations.

This Guide provides:

1. An HL7 messaging and content reference standard for national, syndromic surveillance electronic health record technology certification
2. A basis for local and state syndromic surveillance messaging implementation guides
3. A resource for planning for the increasing use of electronic health record technology and for providing details on health data elements that may become a part of future public health syndromic surveillance messaging requirements
4. Optional elements of interest for adding laboratory results to syndromic surveillance messages using ORU^R01 message structure (see details in *the PHIN messaging Standard, National Condition Reporting case Notification, ORU^R01 message Structure Specification profile, Version 2.1, 2014*)

This implementation guide replaces or supersedes all previous guide releases and related documentation. Specifically, this guide supersedes:

- ◦ PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent Care and Inpatient Settings. ADT MESSAGES A01, A03, A04, and A08 HL7 Version 2.5.1 (Version 2.3.1 Compatible), Release 1.9 (April 2013)
- ◦ PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care Data, Addendum Release 1.1 (August 2012)
- ◦ PHIN Conformance Clarification for EHR Certification of Electronic Syndromic Surveillance ADT MESSAGES A01, A03, A04, and A08 HL7 Version 2.5.1, Testing Clarification Document, Release 1.0 (September 28, 2012)

This Guide is based on HL7 Version 2.5.1, as published by the HL7 organization (www.hl7.org). Backwards compatibility considerations to HL7 Version 2.3.1 are provided in Appendix E.

1.3   INTENDED AUDIENCE

This Guide has three audiences. The first is managers of healthcare and public health information systems who must understand this process at a high level. The second is technical personnel who develop or work with the information systems that extract, transport, load and transform electronic health record (EHR) data for syndromic surveillance. Finally, the third is national health information technology policy makers who develop and implement EHR technology certification rules and procedures to promote gains in systems interoperability and capability.

1.4   SCOPE

The scope of this guide is to provide guidelines for sending HL7 v.2.5.1 compliant messages from emergency department, urgent and ambulatory care and inpatient settings to public health authorities.

This Guide is intended to facilitate the exchange of patient clinical encounter records for syndromic surveillance purposes between different systems. This includes:

- ◦   Sending for all patient encounters
- ◦   Treatment facility information
- ◦   Limited personal identifiable information
- ◦   Demographic information about patients
- ◦   Visit information
- ◦   Diagnostic and pre-diagnostic information
- ◦   Vital measurement information
- ◦   Risk factor and other information
- ◦   Acknowledging message receipt

The Guide is *not* intended to specify other issues such as:

- ◦   Establishing and maintaining a health data relationship among healthcare providers and PHAs

- Legal and governance issues regarding data access authorizations, data ownership and data use
- Business rules, which are not implicit in HL7, applied when creating a message (including data extraction from source systems);
- A standard transport layer;
- Business rules, which are not implicit in HL7, applied when processing a received message (including translation, normalization, and preparing data for statistical analyses); and
- Data quality monitoring and control.

Local implementers are responsible for the important issues described above. One way to insure success is to publish a local profile or implementation guide that outlines the local business rules and processes. These guides may further constrain this Guide, but may not contradict it. This Guide does identify some of the key issues that should be addressed in local profiles.

1.5   ASSUMPTIONS

This Guide makes the following assumptions:

- Infrastructure is in place to allow accurate and secure information exchange between sending and receiving systems;
- Privacy and security has been implemented at an appropriate level; and
- External business rules are documented locally

An ability to join multiple records for the same patient visit with limited personal identifiable information, as well as to securely look up additional information about the patient, is crucial for syndromic surveillance practice. This requires that data senders provide a de-identified record identifier with each and every visit record, in addition to maintaining well-defined data integration and public health investigation processes. Guidance for these and other core syndromic surveillance processes are available from ISDS in *Core Processes and EHR Requirements for Public Health Syndromic Surveillance*. Visit ISDS at http://www.syndromic.org for more information.

1.6   ORGANIZATION AND FLOW

The first two chapters define what can be done and why. The chapters that follow describe and specify how. They start at the most granular level and proceed to the

message level. Several appendices support implementers with value sets and examples of use.

2 ACTORS, GOALS, AND MESSAGING TRANSACTIONS

2.1 USE CASE MODEL

The use case model is based on business process documentation and core requirements for public health syndromic surveillance using electronic health record data from emergency department (ED), urgent care (UC), inpatient and ambulatory care settings.

TABLE 2-1: USE CASE: ED/UC, INPATIENT AND AMBULATORY CARE HEALTH RECORD SYNDROMIC DATA TO PUBLIC HEALTH	
ITEM	**DETAIL**
Description	The Public Health Syndromic Surveillance Use Case focuses on the transmission of electronic health data from healthcare providers (senders) and the reception of that data by a public health authorities (PHAs) (receiver). Health data transmitted are captured in a health information system during a patient's visit to a healthcare facility.
	Senders of data include, but are not limited to hospitals, emergency departments, urgent care centers, ambulatory care settings, clinician networks, hospital corporations, corporate third party operators of information brokers, regional data centers for hospitals, health information exchanges (HIEs), and regional health information organizations (RHIOs).
	Receivers may be state, regional and/or local public health authorities, or a designated third party. A PHA is broadly defined as including agencies or authorities of the United States, states, territories, political subdivisions of states or territories, American Indian tribes, or an individual or entity acting under a grant of authority from such agencies and responsible for public health matters as part of an official mandate.
	The goal of the use case is to provide secure, reliable delivery of syndromic surveillance data to PHAs. A variety of transport methods may be used. If PHIN MS is used for transport, then use of the HL7 Acknowledgements may be unnecessary, although PHIN MS does not ensure that the payload conforms to HL7 formatting rules, it does provide safe and reliable transport. If another transport mechanism is chosen, consideration should be given for acknowledgement of messages, whether single or batch, and/or possible acknowledgement of payload prior to processing or consumption.
Actors	Patient - A person receiving or registered to receive medical treatment.
	Senders of syndromic surveillance data include, but are not limited to: Hospitals, emergency departments, urgent care centers, and regional data centers for hospitals.
	The syndromic surveillance receiver perspective is from the PHA's point of view. Data transmission to a federal authority is not explicitly addressed. Data transmission between local and state jurisdictions is also out of scope.
Assumptions and	The following assumptions are preconditions for the use of this profile:
	1. Syndromic surveillance data senders are responsible for providing data that

TABLE 2-1: USE CASE: ED/UC, INPATIENT AND AMBULATORY CARE HEALTH RECORD SYNDROMIC DATA TO PUBLIC HEALTH	
ITEM	**DETAIL**
Limitations	are syntactically and semantically consistent with the syndromic surveillance data receiver's requirements.

2. Prior to sending syndromic data, the data sender and receiver have completed all the necessary legal and administrative work for syndromic surveillance data exchange.

The scope of data exchange is limited to hospital (ED and inpatient) and urgent care (UC) patient visits information captured by electronic medical record systems and sent to a PHA. |
| Business Rules | For emergency department (ED), urgent care (UC), Ambulatory Care (AC) and inpatient settings (Inpatient):

- Data must be timely for syndromic surveillance. Therefore, data must be submitted at least within 24 hours of the date and time of the patient's initial encounter. Any subsequent updates to a patient's record must also be submitted within 24 hours of the information (transaction) being added to the patient record. Real time data transmission, or very frequent batch data transmission, is preferred. If batch transmission mode is utilized, batches must be transmitted at least once every 6 hours.
- Batch processing may optionally be used as shown in figures 2.1.3 and 2.1.5 and table 2-3. The statements below are conformance requirements for the application as a whole during the sending of multiple messages.
  a. **Conformance Statement SS-001:** ALL messages constrained by this guide that are produced as a result of a single patient encounter for the purpose of syndromic surveillance, **SHALL** have the same value for PV1-19.1 (Visit ID).
  b. **Conformance Statement SS-002:** Messages constrained by this guide that are produced as a result of **different** patient encounters for the purpose of syndromic surveillance, **SHALL NOT** have the same value for PV1-19.1 (Visit ID).

For ED, UC, and AC settings:
- When data elements are updated in the sender's system, the entire record (i.e., all specified elements) shall be resent. Message receivers will use unique identifiers to match and reconcile records.
- Provide syndromic surveillance data for all face-to-face clinical encounters
- Provide with each syndromic surveillance record, de-identified data that can be securely used to lookup additional information about a patient visit of public health concern

For inpatient setting **only**:
- At minimum, syndromic surveillance inpatient data providers should:
  - Provide syndromic surveillance data for all new hospital inpatient admissions (a.k.a., syndromic surveillance admission records)
  - Provide syndromic surveillance data at least once for all hospital discharges (a.k.a., syndromic surveillance post-discharge records)
  - Provide syndromic surveillance data when the data changes in the electronic record
  - Provide with each syndromic surveillance admission and post-discharge |

TABLE 2-1: USE CASE: ED/UC, INPATIENT AND AMBULATORY CARE HEALTH RECORD SYNDROMIC DATA TO PUBLIC HEALTH	
ITEM	DETAIL
	record de-identified data that can be used to join records for the same visit, and securely used to lookup additional information about a patient visit of public health concern. **If and only if senders are providing syndromic surveillance laboratory results data to PHA, the following business rules apply** • In all cases, the dynamic interaction model for laboratory reporting is the same as that for ADT messages. In particular, lab reports may be sent in an acknowledged or unacknowledged mode. • Lab reports are always to be sent without regards to synchronization with any other messages including ADT messages. While it is acceptable to send laboratory messages either synchronously with or in the same message, batch, or file as their corresponding ADT messages, and data receiver systems must be able to correctly process all of these variations, there is no requirement or even suggestion that this be done. • **Conformance Statement SS-003:** Laboratory results should be sent as soon as they are available, with a minimum delay. They shall be sent within a maximum 24 hours of receipt by the data center. There is no need to delay either ADT or laboratory messages, and this should not be done. • It is understood that laboratory data may well originate from different systems or even different facilities than the corresponding ADT data. However, as listed in the specification, it is essential that matching PID segments or, at a minimum, patient identifier fields, be sent. This may require additional logic on the data sender end. Note that, as with ADT segments, patient names should generally not be sent.

The Send Syndromic Surveillance Data Use Case Model has two primary participating actors, the Syndromic Data Sender and the Syndromic Data Receiver. The patient actor triggers the sending of the data initially from the original provider. See Figure 2.1 below.
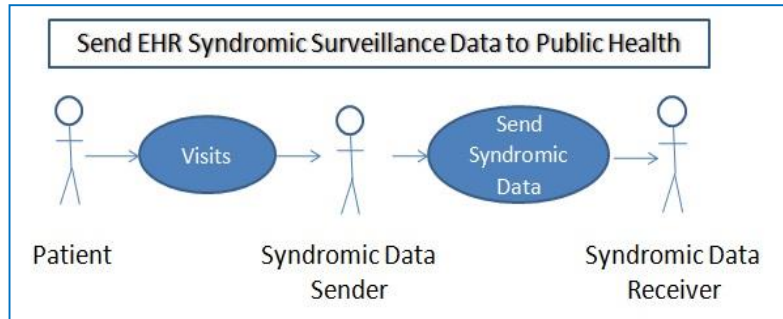
Figure 2-1 Send Syndromic Surveillance Data Use Case Model

2.2 DYNAMIC INTERACTION MODELS

2.2.1 SEND SYNDROMIC SURVEILLANCE DATA WITH ACKNOWLEDGEMENT
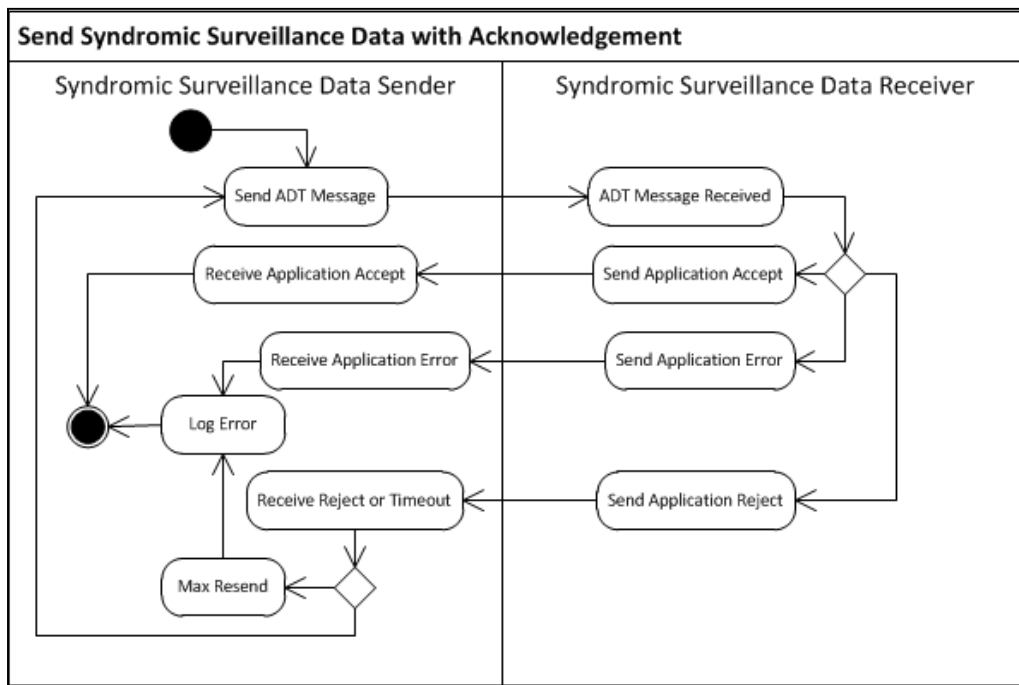
The Send Syndromic Surveillance Data with Acknowledgement activity diagram model consists of Syndromic Surveillance Data Sender transmitting data to the Syndromic Surveillance Data Receiver. An acknowledgement is sent by the Syndromic Surveillance Data Receiver.

2.2.2 SEND SYNDROMIC SURVEILLANCE DATA WITHOUT ACKNOWLEDGEMENT
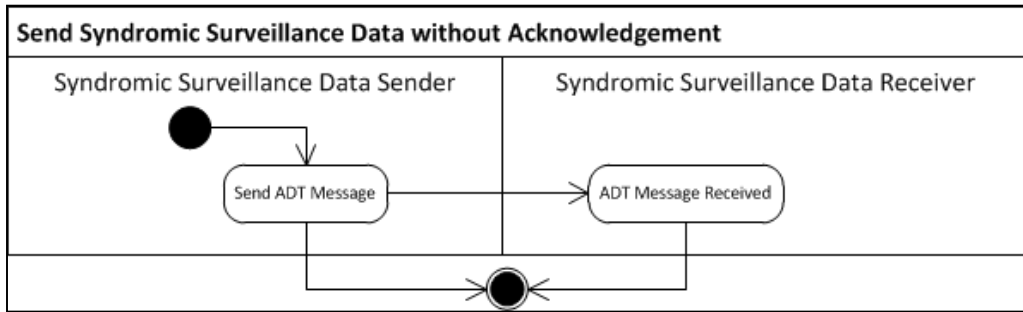
The Send Syndromic Surveillance Data without Acknowledgement activity diagram model consists of Syndromic Surveillance Data Sender transmitting data to the Syndromic Surveillance Data Receiver. An acknowledgement is not sent by the Syndromic Surveillance Data Receiver.

2.2.3 SEND SYNDROMIC SURVEILLANCE DATA - BATCH
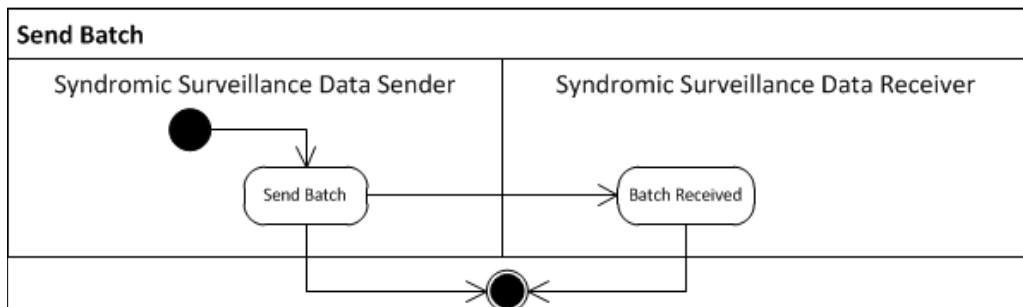
The Send Syndromic Surveillance Data Batch activity diagram model consists of Syndromic Surveillance Data Sender transmitting a batch to the Syndromic Surveillance Data Receiver. An acknowledgement is not sent by the Syndromic Surveillance Data Receiver.

2.2.4 SEND SYNDROMIC SURVEILLANCE LABORATORY RESULTS WITH ACKNOWLEDGEMENT
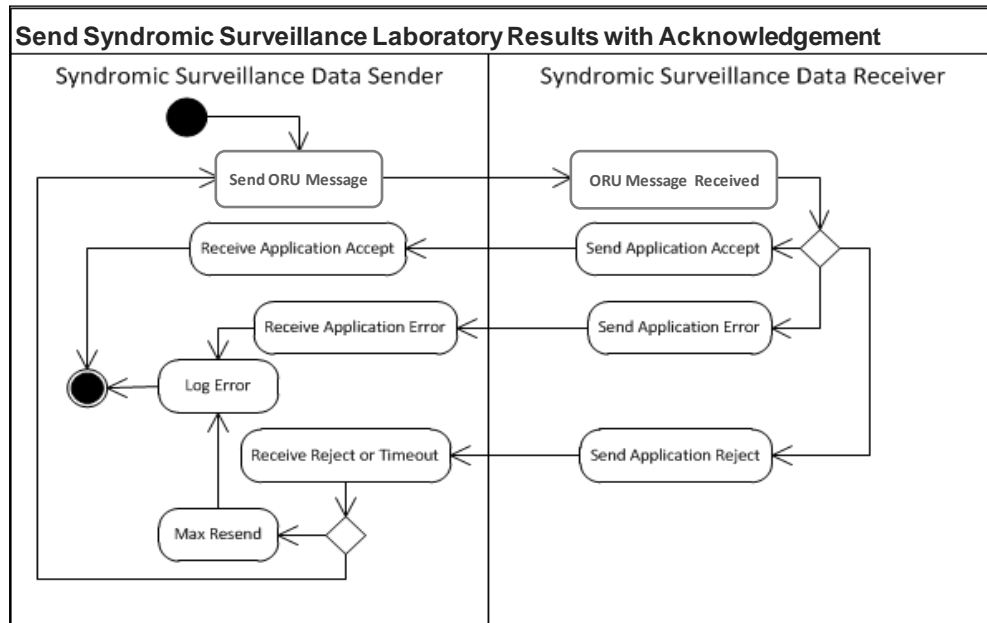
The Send Syndromic Surveillance Laboratory Results with Acknowledgement activity diagram model consists of Syndromic Surveillance Data Sender transmitting laboratory results to the Syndromic Surveillance Data Receiver. An acknowledgement is sent by the Syndromic Surveillance Data Receiver.

2.2.5 SEND SYNDROMIC SURVEILLANCE LABORATORY RESULTS WITHOUT ACKNOWLEDGEMENT
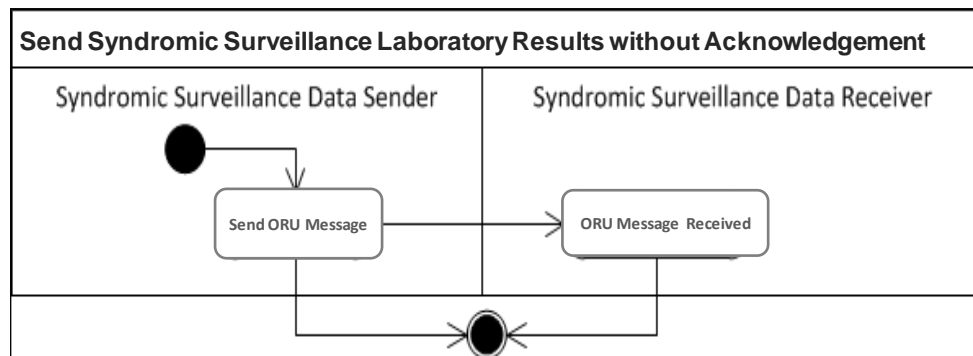
The Send Syndromic Surveillance Laboratory Results without Acknowledgement activity diagram model consists of Syndromic Surveillance Data Sender transmitting laboratory results to the Syndromic Surveillance Data Receiver. An acknowledgement is not sent by the Syndromic Surveillance Data Receiver.

2.3　MESSAGE ACKNOWLEDGEMENTS

HL7 messages that are sent from a healthcare setting to Public Health may be acknowledged. The Acknowledgement type will be solely HL7 Original Mode; no Enhanced Mode Acknowledgements are supported. This means that the receiver at the public health department must assume responsibility for the syndromic surveillance message before it sends the Acknowledgement message, i.e., it must commit the message to persistent storage and intend to process the message. The only conditions that are evaluated for the positive acknowledgement or a possible error rejection are the:

- Message Type contained in MSH-9 is one that can be processed
- Processing ID contained in MSH-11 is appropriate for the communications and can be processed
- Version ID contained in MSH-12 is 2.5.1 and can be processed.

Other types of possible errors in the message, especially in content, must result in downstream action after the acknowledgement message has been sent.

Note: Although the Original Model Acknowledgement is simplest and least costly to implement, it does not generally support syntactic validation of messages. Messages that are accepted with an Acknowledgement message may thus still be missing fields that are required. To do this more detailed level of Acknowledgement usually requires Enhanced Mode Accept Acknowledgement.

2.4　INTERACTIONS

Some additional ADT trigger events not noted in this section may occur within the normal workflow of an EHR. The below ADT trigger events represent the primary message types for PHAs related to syndromic surveillance.

TABLE 2.4.1: INTERACTIONS - INDIVIDUAL TRANSACTION WITH ACKNOWLEDGEMENTS				
EVENT	**MESSAGE TYPE**	**RECEIVER ACTION**	**SENDER**	**DATA VALUES**
Patient visits provider/facility	ADT^A01^ADT_A01	Accept, Reject, Error	SS Data Sender	MSH-9 = "ADT^A01^ADT_A01"
Patient is admitted to provider facility	ADT^A01^ADT_A01	Accept, Reject, Error	SS Data Sender	MSH-9 = "ADT^A01^ADT_A01"
Provider ends patient's visit	ADT^A03^ADT_A03	Accept, Reject, Error	SS Data Sender	MSH-9 = "ADT^A03^ADT_A03"

TABLE 2.4.1: INTERACTIONS - INDIVIDUAL TRANSACTION WITH ACKNOWLEDGEMENTS

EVENT	MESSAGE TYPE	RECEIVER ACTION	SENDER	DATA VALUES
Patient is discharged from facility	ADT^A03^ADT_A03	Accept, Reject, Error	SS Data Sender	MSH-9 = "ADT^A03^ADT_A03"
Patient registers at provider facility	ADT^A04^ADT_A01	Accept, Reject, Error	SS Data Sender	MSH-9 = "ADT^A04^ADT_A01"
Patient record is updated	ADT^A08^ADT_A01	Accept, Reject, Error	SS Data Sender	MSH-9 = "ADT^A08^ADT_A01"
Lab results are received	ORU^R01^ORU_R01	Accept, Reject, Error	SS Data Sender	MSH-9 = "ORU^R01^ORU_R01" ORC-1 = "RE"
Accept message	ACK message related to type of message sent	None	SS Data Receiver	MSA-1 = 'AA'
Reject message	ACK message related to type of message sent	None	SS Data Receiver	MSA-1 = 'AR'
Error Message	ACK message related to type of message sent	None	SS Data Receiver	MSA-1 = 'AE'

TABLE 2.4.2: INTERACTIONS - INDIVIDUAL TRANSACTION WITHOUT ACKNOWLEDGEMENT / BATCH

EVENT	MESSAGE TYPE	RECEIVER ACTION	SENDER	DATA VALUES
Patient visits provider/facility	ADT^A01^ADT_A01	None	SS Data Sender	MSH-9 = "ADT^A01^ADT_A01"
Patient is admitted to provider facility	ADT^A01^ADT_A01	None	SS Data Sender	MSH-9 = "ADT^A01^ADT_A01"
Provider ends patient's visit	ADT^A03^ADT_A03	None	SS Data Sender	MSH-9 = "ADT^A03^ADT_A03"
Patient is discharged from facility	ADT^A03^ADT_A03	None	SS Data Sender	MSH-9 = "ADT^A03^ADT_A03"

TABLE 2.4.2: INTERACTIONS - INDIVIDUAL TRANSACTION WITHOUT ACKNOWLEDGEMENT / BATCH				
EVENT	MESSAGE TYPE	RECEIVER ACTION	SENDER	DATA VALUES
Patient registers at provider facility	ADT^A04^ADT_A01	None	SS Data Sender	MSH-9 = "ADT^A04^ADT_A01"
Patient record is updated	ADT^A08^ADT_A01	None	SS Data Sender	MSH-9 = "ADT^A08^ADT_A01"
Labs results are received for patient	ORU^R01^ORU_R01	Accept, Reject, Error	SS Data Sender	MSH-9 = "ORU^R01^ORU_R01" ORC-1 = "RE"

FOR BATCHING SPECIFICS, SEE HL7 BATCH PROTOCOL

3   MESSAGING INFRASTRUCTURE

HL7 (Health Level Seven) Version 2 is the most widely used standard for computer communication of patient information in the United States Healthcare industry today. This guide is based on the HL7 version 2.5.1 messaging standard, published by Health Level Seven International, Inc., and approved as an ANSI standard on February 21, 2007, as an update to the version 2.5 standard released in 2003. This section describes the messages used for syndromic surveillance, and includes a very brief introduction to HL7 terms and concepts. The reader is referred to the full HL7 version 2.5.1 Standard for complete information and details of this background.

3.1   BASIC HL7 TERMS

TABLE 3-1: BASIC HL7 TERMS	
TERM	**DEFINITION**
Message	A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event.
Segment	A segment is a logical grouping of data fields. Segments within a defined message may be required or optional and may occur only once or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique three-character code.
Field	A field is a string of characters. Each field has an element name. The segment it is in and its sequence within the segment identify each field. Usage and cardinality requirements are defined in the Segment Definitions.
Component	A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are necessarily required to be populated.
Data type	A data type restricts the contents and format of the data field. Data types are given a two- or three-letter code. Some data types are coded or composite types with several components. The applicable HL7 data type is listed in each field definition.

Delimiters	The delimiter values are defined in MSH-1 and MSH-2 and are used throughout the message. The default delimiters are:
	
	    | - Field Separator
	    ^ - Component Separator

TABLE 3-1: BASIC HL7 TERMS	
TERM	**DEFINITION**
	& - Sub-Component Separator
	~ - Repetition Separator
	\ - Escape Character

3.2   ENCODING RULES

The following list details the encoding rules.

- Encode each segment in the order specified in the Message Structure.
- Begin each segment with the three-letter segment ID (e.g., PID).
- End each segment with the carriage return terminator (hex 0D). Note that in the examples in this guide, this character is illustrated as "". This character is a single ASCII character; the segment terminator is NOT the four-character sequence.
- Encode the data fields in the sequence given in the corresponding segment definition tables.
- Encode each data field according to the data type format listed in this guide.
- Components, subcomponents, or repetitions that are not valued at the end of a field need not be represented by component separators. Likewise, field separators are not required for empty fields at the end of a segment.

  For example, the data fields and segments below are equivalent:

|^XXX&YYY&&^| is equal to |^XXX&YYY|

|ABC^DEF^^| is equal to |ABC^DEF|

MSH|^~\&||Facillity_NPI^1234567890^NPI|||201009221330||ADT^A04^ADT_A01|1|P|2.5.1||||||||
   is equal to

MSH|^~\&||Facillity_NPI^1234567890^NPI|||201009221330||ADT^A04^ADT_A01|1|P|2.5.1

- The Receiver should ignore undocumented, optional segments which conform to the HL7 message structure and not error the message if received.

3.3   MESSAGE ELEMENT ATTRIBUTES

The following table describes the various attributes used by this guide to document data type attribute tables, message structure attribute tables and segment attribute tables. Not all attributes apply to all attribute tables.

TABLE 3.3. MESSAGE ELEMENT ATTRIBUTES

ATTRIBUTE	DEFINITION
SEQ	Sequence of the elements as numbered in the HL7 message element. The SEQ attribute applies to the data type attribute table and the segment attribute table.
Component Name	Short name for the component

Segment	Three-character code for the segment and the abstract syntax (e.g., the square and curly braces)
	If a segment is not documented in this guide, it should not be sent.
	    XXX Required and singular
	    [XXX] Optional and singular
	    { XXX } Required and may repeat
	    [{ XXX }] Optional and may repeat
	Note that for segment groups there is no segment code present, but the square and curly braces will still be present.
	The Segment attribute only applies to the Message attribute table.

DT	Data type used by this profile for HL7 element. The data type attribute applies to data type attribute tables and segment attribute tables.

Usage	Usage of the message element for this profile. Indicates whether the message element (segment, segment group, field, component, or subcomponent) is Required, Optional, Not Supported, or Conditional in the corresponding message element. Usage applies to the message attribute table, data type attribute table and the segment attribute table; see Section 3.8 Usage Conformance Testing Recommendations.
	Legal values are:
	   R - Required, Must always be populated
	   RE-Required, but may be empty. If the Sender has data, it must be sent. The Receiver must be capable of processing data if sent, and must not raise an error or warning if the data is not sent.
	   C – Conditionally Required (see Section 3.8 for more details)
	   CE – Conditionally Required but may be empty. The Receiver must be capable of processing data if sent, and must not raise an error or warning if the data is not sent.
	   X – Not supported
	   O – Optional; there are no specified conformance rules for either Sender or Receiver for this segment in this guide. As an implemented interface must follow known rules for populating segments, a specific interface for a particular Sender or Receiver must constrain this usage to either R, RE, C, CE, or X. This has been deliberately left unconstrained in this guide to support differing and sometimes mutually exclusive statutory requirements in different jurisdictions; this must be determined locally.

Cardinality	Minimum and maximum number of times the segment may appear
	   [0..1] Component may be omitted and can have, at most, one occurrence.
	   [1..1] Component must have exactly one occurrence.
	   [0..*] Component may be omitted or repeat an unlimited number of times.

TABLE 3.3. MESSAGE ELEMENT ATTRIBUTES	
ATTRIBUTE	**DEFINITION**
	[1..*] Component must appear at least once, and may repeat unlimited number of times.
Value Set	The set of coded values to be used with the field. The value set attribute applies only to the data type attribute tables and the segment attribute tables. The value set may equate with an entire code system, part of a code system, or codes drawn from multiple code systems.
Name	HL7 descriptor of the message element. Name applies to the message attribute table, data type attribute table and the segment attribute table.
Description/Comments	Context and usage for the element. Description/Comments applies to the message attribute table, data type attribute table and the segment attribute table.

3.4   DATA TYPE DEFINITIONS

The HL7 Standard defines a large number of data types for use in HL7 messaging. Not all of these datatypes are required for the messages defined in this guide. Those datatypes that are used in this guide are defined and specified further in the table below.

TABLE 3.4.1: DATA TYPES UTILIZED IN SYNDROMIC SURVEILLANCE	
DATA TYPE	**DATA TYPE NAME**
CE	Coded Element
CWE	Coded with Exceptions
CX	Extended Composite ID with check Digit
DTM	Date/Time
EI	Entity Identifier
FN	Family Name
HD	Hierarchic Designator
ID	Coded Value for HL7-defined tables
IS	Coded Value for user-defined tables
MSG	Message Type
NM	Numeric
PL	Person Location

TABLE 3.4.1: DATA TYPES UTILIZED IN SYNDROMIC SURVEILLANCE	
DATA TYPE	DATA TYPE NAME
PT	Processing Type
SI	Sequence Identifier
ST	String Data
TX[2]	Text Data
TS	Timestamp
VID	Version Identifier
XAD	Extended Address
XCN	Extended Composite ID Number and Name for Persons
XPN	Extended Person Name

3.4.1   CE - CODED ELEMENT

TABLE 3.4.1. CODED ELEMENT (CE)						
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Identifier	20	ST	RE		
2	Text	199	ST	RE		It is strongly recommended that text be sent to accompany any identifier. When a coded value is not known, text can still be sent, in which case no coding system should be identified
3	Name of Coding System	20	ID	C	0396	Condition Predicate: If CE.1 (Identifier) is valued.
4	Alternate Identifier	20	ST	O		The alternate identifier (from the alternate coding system) should be the closest match for the identifier found in component 1.
5	Alternate Text	199	ST	O		It is strongly recommended that alternate text be sent to accompany any alternate identifier.
6	Name of Alternate Coding System	20	ID	C	0396	Condition Predicate: If CE.3 (Identifier) is valued.

Usage Notes: This data type transmits codes, the text associated with the code, and the code system from which the code is taken. This datatype was retained for backward compatibility only as of v 2.5. Refer to CNE and CWE data types.

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[2] In this message specification, the only allowed escape sequences are those allowed in HL7 Version 2.5.1, Chapter 2, and Section 2.7.4 - Special Characters. These are the escape sequences for the message delimiters (i.e., "|" = \F\, "^" = \S\, "~" = \R\, "&" = \T\, and "\" = \E\).

Examples: PID-10 Race

|2054-5^Black or African American^2.16.840.1.113883.6.238|

or |2054-5^Black or African American^CDCREC|

3.4.2 CWE – CODED WITH EXCEPTIONS

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
TABLE 3.4.2. CODED WITH EXCEPTIONS (CWE)
1	Identifier	20	ST	RE		
2	Text	199	ST	RE		It is strongly recommended that text be sent to accompany any identifier. When a coded value is not known, text can still be sent, in which case no coding system should be identified
3	Name of Coding System	20	ID	C	0396	Condition Predicate: If CE.1 (Identifier) is valued.
4	Alternate Identifier	20	ST	O		The alternate identifier (from the alternate coding system) should be the closest match for the identifier found in component 1.
5	Alternate Text	199	ST	O		It is strongly recommended that alternate text be sent to accompany any alternate identifier.
6	Name of Alternate Coding System	20	ID	C	0396	Condition Predicate: If CE.3 (Identifier) is valued.
7	Coding System Version ID	10	ST	O		The version ID for the coding system identified by components 1-3. It belongs conceptually to the group of component 1-3 and appears here only for reasons of backward compatibility.
8	Alternate Coding System Version ID	10	ST	O		The version ID for the coding system identified by components 4-6. It belongs conceptually to the group of alternate components and appears here only for reasons of backward compatibility.
9	Original Text	199	ST	RE		The original text that was available to an automated process or a human before a specific code was assigned

Usage Notes: Specifies a coded element and its associated detail.

3.4.3 CX - EXTENDED COMPOSITE ID WITH CHECK DIGIT

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
					TABLE 3.4.3. EXTENDED COMPOSITE ID WITH CHECK DIGIT (CX)	
1	ID Number	15	ST	R		Identifier may be alphanumeric.
2	Check Digit	1	ST	O		
3	Check Digit Scheme	20	ID	O	0061	
4	Assigning Authority	227	ST	R	0363	A unique name of the system (or organization or agency or department) that creates the data
5	Identifier Type Code	5	ID	O	0203	PHVS_IdentifierType_SyndromicSurveillance
6	Assigning Facility	227	HD	O	0396	
7	Effective Date	8	DT	O		
8	Expiration Date	8	DT	O		
9	Assigning Jurisdiction	705	CWE	O		
10	Assigning Agency or Department	705	CWE	O		

Usage Notes: This data type is used for specifying an identifier with its associated administrative detail.

Note: The check digit and check digit scheme are null if ID is alphanumeric.

Example: PID-3 Patient ID: |PSN101059711^^^TX01&OID&ISO|

3.4.4 DT - DATE

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
				TABLE 3.4.4. DATE (DT)		
1	Date	8	DT	RE		

Usage Notes: Specifies the century and year with optional precision to month and day.
The number of digits populated specifies the precision.

   Example: |199904| specifies April 1999.

   Format: YYYY[MM[DD]].

   Thus:

a) only the first four digits are used to specify a precision of "year"

b) the first six are used to specify a precision of "month"

c) the first eight are used to specify a precision of "day"

3.4.5 DTM - DATE/TIME

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
	TABLE 3.4.5. DATE/TIME (DTM)					
1	Date/time	24	DTM	RE		

Usage Notes: Specifies a point in time using a 24-hour clock notation.

The number of characters populated (excluding the time zone specification) specifies the precision.

Example: |199904| specifies April 1999.

Format: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ].

Thus:

a) only the first four are used to specify a precision of "year"

b) the first six are used to specify a precision of "month"

c) the first eight are used to specify a precision of "day"

d) the first ten are used to specify a precision of "hour"

e) the first twelve are used to specify a precision of "minute"

f) the first fourteen are used to specify a precision of "second"

g) the first sixteen are used to specify a precision of "one tenth of a second"

h) the first nineteen are used to specify a precision of "one ten thousandths of a second"

The time zone (+/-ZZZZ) is represented as +/-HHMM offset from Co-ordinated Universal Time (UTC) (formerly Greenwich Mean Time (GMT)), where +0000 or -0000 both represent UTC (without offset). The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E). Note that if the time zone is not included, the time zone is assumed to be that of the local time zone of the sender. Also note that a DTM or TS valued field with the HHMM part set to "0000" represents midnight of the night extending from the previous day to the day given by the YYYYMMDD part.

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.

3.4.6 EI - ENTITY IDENTIFIER

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
	TABLE 3.4.6. ENTITY IDENTIFIER (EI)					
1	Entity Identifier	199	ST	RE		The first component is usually defined to be unique within the series of identifiers created by the <assigning authority>, defined by a hierarchic designator, represented by components 2 through 4. See "HD - hierarchic designator".
2	Namespace ID	20	IS	R		See HD - hierarchic designator - "Namespace ID".
3	Universal ID	199	ST	R		See HD - hierarchic designator - "Universal ID".
4	Universal ID Type	6	ID	R		See HD - hierarchic designator - Universal ID Type".

Usage Notes: The entity identifier defines a given entity within a specified series of identifiers. The assigning authority (components 2-4) is a unique identifier of the system (or organization or agency or department) that creates the data.

3.4.7 HD - HIERARCHIC DESIGNATOR

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
	TABLE 3.4.7. HIERARCHIC DESIGNATOR (HD)					
1	Namespace ID	20	IS	RE	0300	Namespace ID is a local code that identifies the object
2	Universal ID	199	ST	R		This is a string formatted according to the scheme defined by the third component, <universal ID type>.The UID is intended to be unique over time within the UID type. It is rigorously defined. Each UID must belong to one of the specifically enumerated schemes for constructing UIDs (defined by the UID type).
3	Universal ID Type	6	ID	R	0301	Universal ID Type (ID) governs the interpretation of the second component of the HD. This component contains the code system identifier 'NPI' if National Provider identifiers are used PHVS_UniversalIDType_Syndromic Surveillance List of Universal ID Types supported by Syndromic Surveillance IG.

Usage Notes: The HD data type is used directly to identify objects such as applications or facilities. It is used also as a component of other data types, where it is typically an assigning authority for an identifier. Where this capability is used in this specification, the usage is described separately. Note that the HD data type has been constrained to carry an OID identifying an application, a facility, or an assigning authority.

3.4.8 ID - CODED VALUE FOR HL7 DEFINED TABLES

	TABLE 3.4.8. CODED VALUE FOR HL7 DEFINED TABLES (ID)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Coded Value for HL7-Defined Tables	Varies	__	R		

Usage Notes: The value of such a field follows the formatting rules for an ST field, except that it is drawn from a table of legal values defined by HL7.

3.4.9 IS - CODED VALUE FOR USER-DEFINED TABLES

	TABLE 3.4.9. CODED VALUE FOR USER- DEFINED TABLES (IS)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Coded Value for User-Defined Tables	20	__	R		

Usage Notes: 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.

3.4.10 MSG - MESSAGE TYPE

	TABLE 3.4.10. MESSAGE TYPE (MSG)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Message Code	3	ID	R	0076	PHVS_MessageType_SyndromicSurveillance specifies the message codes used for this implementation.
2	Trigger Event	3	ID	R	0003	PHVS_EventType_SyndromicSurveillance specifies the trigger event codes used for this implementation.
3	Message Structure	3	ID	R	0354	PHVS_MessageStructure_SyndromicSurveillance specifies the abstract message structure codes used for this implementation.

Usage Notes: This field contains the message type, trigger event, and the message structure ID for the message.

Example: MSH-9 Message Type: |ADT^A01^ADT_A01|

3.4.11 NM – NUMERIC

	TABLE 3.4.11. NUMERIC (NM)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Numeric	16	ST	R	0076	A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point.

Usage Notes: 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. Leading zeros, or trailing zeros after a decimal point, are not significant.

Examples: |999| |-123.792|

3.4.12 PT - PROCESSING TYPE

	TABLE 3.4.12. PROCESSING TYPE (PT)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Processing ID	3	ID	R	0103	A value that defines whether the message is part of a production, training, or debugging system
2	Processing Mode	3	ID	O	0207	Not present is the default, meaning current processing

Usage Notes: This data type indicates whether to process a message as defined in HL7 Application (level 7) Processing rules.

Example: MSH-10 Processing ID: |D| or |P| or |T|.

3.4.13 SI - SEQUENCE ID

	TABLE 3.4.123. SEQUENCE ID (SI)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Sequence ID	4	NM	R		

Usage Notes: A non-negative integer in the form of a NM field.

3.4.14 ST - STRING DATA

	TABLE 3.4.14. STRING DATA (ST)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	String Data	4	NM	R		

Usage Notes: String data is left justified with trailing blanks optional.

3.4.15 TS - TIME STAMP

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
TABLE 3.4.15. TIME STAMP (TS)
1	Time	24	DTM	R		The point in time
2	Degree of Precision			X		A component of the Timestamp that is no longer used.

Usage Notes: Specifies a point in time.

Format: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]

See "DTM - Date/Time" for the full description of this component.

3.4.16 TX - TEXT DATA

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
TABLE 3.4.16. TEXT DATA (TX)
1	Text Data		--	R		

Usage Notes: String data meant for user display (on a terminal or printer). Such data would not necessarily be left justified since leading spaces may contribute greatly to the clarity of the presentation to the user. Because this type of data is intended for display, it may contain certain escape character sequences designed to control the display. Leading spaces should be included. Trailing spaces should be removed.

3.4.17 VID – VERSION IDENTIFIER

SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
TABLE 3.4.17. VERSION IDENTIFIER (VID)
1	Version ID	5	ID	R	0104	
2	Internationalization Code			O		
3	International Version ID			O		

Usage Notes: Version ID is used to identify the HL7 version.

Example: MSH-12 Version ID: |2.5.1|

3.4.18 XAD – EXTENDED ADDRESS

	TABLE 3.4.18. EXTENDED ADDRESS (XAD)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Street Address	50	ST	O		
2	Other Designation	50	ST	O		
3	City	50	ST	RE		
4	State or Province	50	ID	RE		
5	Zip or Postal Code	12	ST	RE		
6	Country	3	ID	RE		
7	Address Type	3	ID	O		
8	Other Geographic Designation	50	ST	O		
9	County/Parish Code	20	IS	RE		Note: The datatype has been changed from ST to IS to constrain to FIPS codes.
10	Census Tract	20	IS	O		
11	Address Representation Code	1	ID	O		
12	Address Validity Range			X		Deprecated as of v2.5
13	Effective Date	26	TS	O		
14	Expiration Date	26	TS	O		

Example OBX segment: FACILITY LOCATION

OBX|1|XAD|SS002^TREATING FACILITY

LOCATION^PHINQUESTION||^^^13^30341^USA^C^^13089||||||F|||201102091114

3.4.19 XCN - EXTENDED COMPOSITE ID NUMBER AND NAME

	TABLE 3.4.19. EXTENDED COMPOSITE ID NUMBER AND NAME (XCN)					
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	ID Number	15	ST	O		
2	Family Name	194	FN	O		
3	Given Name	30	ST	O		
4	Second and Further Given Names or Initials Thereof	30	ST	O		
5	Suffix (e.g., JR or III)	20	ST	O		
6	Prefix (e.g., DR)	20	ST	O		
7	Degree (e.g., MD)	5	IS	B	0360	
8	Source Table	4	IS	C	0297	
9	Assigning Authority	227	HD	O	0363	

TABLE 3.4.19. EXTENDED COMPOSITE ID NUMBER AND NAME (XCN)						
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
10	Name Type Code	1	ID	O	0200	
11	Identifier Check Digit	1	ST	O		
12	Check Digit Scheme	3	ID	C	0061	
13	Identifier Type Code	5	ID	O	0203	
14	Assigning Facility	227	HD	O		
15	Name Representation Code	1	ID	O	0465	
16	Name Context	483	CE	O	0448	
17	Name Validity Range	53	DR	B		
18	Name Assembly Order	1	ID	O	0444	
19	Effective Date	26	TS	O		
20	Expiration Date	26	TS	O		
21	Professional Suffix	199	ST	O		
22	Assigning Jurisdiction	705	CWE	O		
23	Assigning Agency or Department	705	CWE	O		

Usage Notes: This data type specifies the ID number and name of a person.

Example: 2231231234^Hippocrates^Harold^H^IV^Dr^MD^^&Provider Master.Community Health and Hospitals&NPI^L^9^M10^DN^&Good Health Hospital.Community Health and Hospitals&L^A

3.4.20 XPN - EXTENDED PERSON NAME

TABLE 3.4.20. EXTENDED PERSON NAME (XPN)						
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
1	Family Name	194	FN			
2	Given Name	30	ST			
3	Second and Further Given Names or Initials Thereof	30	ST			
4	Suffix (e.g., JR or III)	20	ST			
5	Prefix (e.g., DR)	20	ST			
6	Degree (e.g., MD)	6	IS			

TABLE 3.4.20. EXTENDED PERSON NAME (XPN)						
SEQ	COMPONENT NAME	LEN	DT	USAGE	TBL#	COMMENTS
7	Name Type Code	1	ID			PHVS_NameType_SyndromicSurveillance Contains the constrained value set for the patient name with Legal, Pseudo-Name and Unspecified name types
8	Name Representation Code	1	ID	X		
9	Name Context	483	CE	X		
10	Name Validity Range	53	DR	X		
11	Name Assembly Order	1	ID	X		
12	Effective Date	26	TS	X		
13	Expiration Date	26	TS	X		
14	Professional Suffix	199	ST	X		

Usage Notes: For this implementation, the only acceptable values in PID-5 Patient Name are name type values of "S" |~^^^^^^S| or "U" |~^^^^^^U|

3.5   MESSAGE TYPES

The HL7 message formats sent to public health agencies will be constrained versions of the 2.5.1 abstract message types listed below. Only the segments necessary for carrying the syndromic data, and certain structural message segments, are included.

Message types that are NOT documented in this guide are considered NOT SUPPORTED.

3.5.1   HL7 MESSAGE TYPE REQUIREMENTS BY CARE SETTING[3]

Patient Care Setting	ADT				ORU
Message Trigger Types	A04	A08	A03	A01	R01
Eligible hospitals providing inpatient care	R	R	R	R	O*
Eligible hospitals providing emergency care ONLY	R	R	R	C	O*
Eligible professionals (urgent and non-urgent ambulatory care)	R	R	C	C	O*

- **R = Required**
- **C = Required only if used during normal flow of business**
- **O* = Optional but strongly requested**

3.5.2   HL7 ADT MESSAGE TYPES

The following HL7 ADT Messages have been identified for syndromic surveillance. Additional ADT trigger events not noted in this section may occur within the normal workflow of an EHR. The below ADT trigger events represent the transactions that would convey the core data elements of interest for public health authorities (PHAs) related to syndromic surveillance

ADT^A01   Admit / Visit Notification

A patient is undergoing the admission process which assigns the patient to a bed for inpatient care. It signals the beginning of a patient's stay in a healthcare facility.

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[3] Washington State Messaging Guide for Syndromic Surveillance. HL7 2.5.1 messaging for Emergency, Inpatient, Non-urgent Ambulatory, and Urgent Care Settings. April 2014, Version 1.4. DOH 420-096

NOTE: ED/UC may also use the A01 transaction even if the patient is ultimately never assigned to an inpatient bed.

ADT^A04   Register a Patient

A patient has arrived or checked in. This includes one-time and recurring patients.

ADT^A08   Update Patient Information

Patient information has changed or new information has become available, but no other trigger event has occurred. These A08 update messages shall be sent at the time the new or changed information becomes available, whether before or after discharge. The information they contain shall be cumulative, presenting all previously sent information that remains correct and adding the new or changed information.

ADT^A03   Discharge / End Visit

A patient's stay in a healthcare facility has ended and their status is changed to discharged.

ACK^A01   General Acknowledgement/Admit Patient

ACK^A04   General Acknowledgement/ Register a Patient

ACK^A08   General Acknowledgement/ Update Patient Information

ACK^A03   General Acknowledgement/ Discharge / End Visit

3.5.3 ADMIT / VISIT NOTIFICATION MESSAGE (ADT^A01)

ADT^A01 messages are used to communicate syndromic surveillance data to PHAs in the event of a patient admission to a hospital inpatient facility. This may occur as a result of a patient transfer from another facility (e.g., an emergency department or another hospital), or from other places (e.g., home). A01 messages are also used for ED visits in some places, rather than the A04 Registration message.

TABLE 3.5.3: ADT^A01 ADMIT / VISIT NOTIFICATION				
SEG	NAME	DESCRIPTION	USAGE	CARDINALITY
MSH	Message Header	Information explaining how to parse and process the message Information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Trigger event information for receiving application	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information	R	[1..1]
PV1	Patient Visit	Information related to this visit at this facility including the nature of the visit, critical timing information and a unique visit identifier.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason information.	RE	[0..1]
{OBX}	Observation / Result	Information regarding chief complaint, age, temperature, and other information	R	[1..*]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information	RE	[0..*]
[{PR1}]	Procedures	Information relative to various types of procedures performed	O	[0..*]
[{IN1}]	Insurance	Information about insurance policy coverage information	RE	[0..*]

3.5.4 REGISTER A PATIENT MESSAGE (ADT^A04)

ADT^A04 messages are used to communicate syndromic surveillance data to PHAs in the event of a patient visit registration to an emergency department, urgent care facility, or ambulatory care setting.

	TABLE 3.5.4: ADT^A04 REGISTER A PATIENT			
Seg	**Name**	**Description**	**Usage**	**Cardinality**
MSH	Message Header	Information explaining how to parse and process the message Information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Trigger event information for receiving application	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information	R	[1..1]
PV1	Patient Visit	Information related to this visit at this facility including the nature of the visit, critical timing information and a unique visit identifier.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason information.	RE	[0..1]
{OBX}	Observation / Result	Information regarding chief complaint, age, temperature, and other information	R	[1..*]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information	RE	[0..*]
[{PR1}]	Procedures	Information relative to various types of procedures performed	O	[0..*]
[{IN1}]	Insurance	Information about insurance policy coverage information	RE	[0..*]

3.5.5 UPDATE PATIENT INFORMATION (ADT^A08)

ADT^A08 messages are used to communicate syndromic surveillance data to PHAs in the event of an update to a patient's record during an encounter. These updates are specifically triggered when a change is made to an item listed in the Data Elements of Interest table for the ADT messages (Section 4.2).

	TABLE 3.5.5: ADT^A08 UPDATE PATIENT INFORMATION			
SEG	NAME	DESCRIPTION	USAGE	CARDINALITY
MSH	Message Header	Information explaining how to parse and process the message Information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Trigger event information for receiving application	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information	R	[1..1]
PV1	Patient Visit	Information related to this visit at this facility including the nature of the visit, critical timing information and a unique visit identifier.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason information.	RE	[0..1]
{OBX}	Observation / Result	Information regarding chief complaint, age, temperature, and other information	R	[1..*]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information	RE	[0..*]
[{PR1}]	Procedures	Information relative to various types of procedures performed	O	[0..*]
[{IN1}]	Insurance	Information about insurance policy coverage information	RE	[0..*]

3.5.6 Discharge / End Visit (ADT^A03)

An A03 event signals the end of a patient's stay in a healthcare facility. It signals that the patient's status has changed to "discharged" and that a discharge date has been recorded. The patient is no longer in the facility. The patient's location prior to discharge should be entered in *PV1-3 - Assigned Patient Location*.

If an A03 is not triggered at the end of an ED visit where a patient is admitted, it may be possible to extrapolate and create an A03 message using a combination of other ADT message triggers, universal billing codes that are in the PV1 segment, and/or the prior patient location.

TABLE 3.5.6: ADT^A03 DISCHARGE / END VISIT				
SEG	NAME	DESCRIPTION	USAGE	CARDINALITY
MSH	Message Header	Information explaining how to parse and process the message This information includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Trigger event information for receiving application	R	[1..1]
PID	Patient Identification	Patient identification and demographic information	R	[1..1]
PV1	Patient Visit	Information related to this visit at this facility including the nature of the visit, critical timing information and a unique visit identifier.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason information.	RE	[0..1]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information	RE	[0..*]
[{PR1}]	Procedures	Information relative to various types of procedures performed	O	[0..*]
{OBX}	Observation / Result	Information regarding the age, temperature, and other information	R	[1..*]
[{IN1}]	Insurance	Information about insurance policy coverage information	RE	[0..*]

3.5.7 ACKNOWLEDGEMENT MESSAGE (ACK^A01) (ACK^A04) (ACK^A08) (ACK^A03)

SEG	NAME	DESCRIPTION	USAGE	CARDINALITY
TABLE 3.9.1: ACK^A01 ACK^A04 ACK^A08 ACK^A03 ACKNOWLEDGEMENT MESSAGE				
MSH	Message Header	Information explaining how to parse and process the message. This includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
MSA	Message Acknowledgement	Acknowledgement information identifying the ability of a receiver to accept a message transmitted	R	[1..1]

3.5.8 HL7 ORU MESSAGE TYPE FOR LABORATORY DATA ELEMENTS OF INTEREST

HL7 Unsolicited Observation (ORU) Messages may be sent for syndromic surveillance purposes. General business rules and interaction diagrams regarding lab data exchange using ORU message types are provided in Chapter 2.

ORU messages for submission of laboratory results pertinent to public health surveillance have been specified with "O*" usage (laboratory results are considered "extended" data elements in national Release 1.1 guidance and "O" usage in national Release 2.0 guidance). Facilities are encouraged to consider implementing this aspect of syndromic surveillance messaging as they bring their EHR systems into compliance with the Meaningful Use Stage 2 Core Objective to incorporate clinical lab test results into Certified EHR Technology.[4]

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[4] Washington State Messaging Guide for Syndromic Surveillance, HL7 2.5.1 messaging for Emergency, Inpatient, Non-urgent Ambulatory, and Urgent Care Settings April 2014, Version 1.4.DOH 420-096.

3.6   SEGMENT DEFINITIONS

The segments used in the ADT message types and their acknowledgements are defined below.

3.6.1   MESSAGE HEADER (MSH) SEGMENT

The MSH Segment is used to define the intent, source, destination, and some specifics of the syntax of the message. This segment includes identification of message delimiters, sender, receiver, message type, timestamp, etc.

TABLE 3.6.1: MESSAGE HEADER SEGMENT (MSH)						
FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Field Separator	1	ST	1	R	[1..1]	**Definition**: This field contains 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. Default value is |, (ASCII 124).
Encoding Characters	2	ST	4	R	[1..1]	**Definition**: This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Default values are ^~\& (ASCII 94, 126, 92, and 38, respectively).
Sending Application	3	HD	227	O	[0..1]	**Definition**: This field uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise.
Sending Facility	4	HD	227	R	[1..1]	**Definition**: This field further describes the sending application, MSH-3-sending application. This field uniquely identifies the facility associated with the application that sends the message. If Acknowledgements are in use, this facility will receive any related Acknowledgement message. Use of National Provider Identifier is recommended (10-digit identifier) **Note**: The use of 'NPI' should be discussed during the implementation process as local jurisdictions may differ on use of identifiers for this field.

					TABLE 3.6.1: MESSAGE HEADER SEGMENT (MSH)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Receiving Application	5	HD	227	O	[0..1]	HL7 table 0361: User-defined: Application **Definition**: This field uniquely identifies the receiving application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise.
Receiving Facility	6	HD	227	O	[0..1]	HL7 table 0362: User-defined: Facility **Definition**: This field identifies the receiving application among multiple identical instances of the application running on behalf of different organizations.
Date/Time Of Message	7	TS	26	R	[1..1]	**Definition**: This field contains the date/time that the sending system created the message. If the time zone is specified, it will be used throughout the message as the default time zone. **Note**: MSH-7 (Date/Time of Message) does not have to equal EVN-2 (Message Date/Time) **Conformance Statement SS-013:** MSH-7 (Date/Time of Message) **SHALL** be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S]]]] [+/-ZZZZ]'
Security	8	ST	40	X	[0..1]	

TABLE 3.6.1: MESSAGE HEADER SEGMENT (MSH)					
FIELD NAME	SEQ	DT	LEN	USAGE	CARDIN ALITY	DESCRIPTION/COMMENTS
Message Type	9	MSG	15	R	[1..1]	**Definition**: This field contains the message type, trigger event, and the message structure ID for the message. **Conformance Statement SS-014:** MSH-9 (Message Type) **SHALL** be the literal value: 'ADT^A01^ADT_A01' for Admission Messages **Conformance Statement SS-004:** MSH-9 (Message Type) **SHALL** be the literal value: 'ADT^A04^ADT_A01' for Registration Messages **Conformance Statement SS-035:** MSH-9 (Message Type) **SHALL** be the literal value: 'ADT^A08^ADT_A01' for Update Messages' **Conformance Statement SS-038:** MSH-9 (Message Type) **SHALL be** the literal value: 'ADT^A03^ADT_A03' for Discharge Messages'
Message Code	9.1	ID	3	R	[1..1]	PHVS_MessageType_SyndromicSurveillance
Trigger Event	9.2	ID	3	R	[1..1]	PHVS_EventType_SyndromicSurveillance
Message Structure	9.3	ID	7	R	[1..1]	PHVS_MessageStructure_SyndromicSurveillance
Message Control ID	10	ST	199	R	[1..1]	**Definition**: This field contains a number or other identifier that uniquely identifies the message. The receiving system echoes this ID back to the sending system in the Message acknowledgment segment (MSA). **Note**: This field is a number or other identifier that uniquely identifies the message.
Processing ID	11	PT	3	R	[1..1]	**Definition**: This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules. **Note**: Indicates how to process the message as defined in HL7 processing rules **Conformance Statement SS-015:** MSH-11 (Processing ID) **SHALL** have a value in the set of literal values: "P" for Production, "D" for Debug or "T" for Training.

TABLE 3.6.1: MESSAGE HEADER SEGMENT (MSH)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Version ID	12	VID	5	R	[1..1]	**Definition**: HL7 version number used to interpret format and content of the message. This field is matched by the receiving system to its own version to be sure the message will be interpreted correctly. For this message the value shall be 2.5.1 **Note:** For implementation of HL7 v.2.3.1 see details in Appendix E, Section 10.1 MSH Segment. **Conformance Statement SS-016:** MSH-12 (Version ID) **SHALL** have a value '2.5.1'
Sequence Number	13	NM	15	X	[0..1]	
Continuation Pointer	14	ST	180	X	[0..1]	
Accept Acknowledgement Type	15	ID	2	CE	[0..1]	HL7 table 0155: HL7 defined: Accept/application acknowledgment conditions **Condition Rule**: For MSH-21 Message Profile ID PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO, the ADT and ORU message must be valued with the literal value "AL". Must be left empty for the Accept Acknowledgment.
Application Acknowledgement Type	16	ID	2	CE	[0..1]	HL7 table 0155: HL7 defined: Accept/application acknowledgment conditions **Condition Rule**: For MSH-21 Message Profile ID PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO, the ADT and ORU message should be populated from HL7 Table 0155 – Accept/Application Acknowledgment Conditions. Must be left empty for the Accept Acknowledgment.
Country Code	17	ID	3	X	[0..1]	HL7 table 0399: HL7 defined: Country code
Character Set	18	ID	16	X	[0..*]	HL7 table 0211: HL7 defined: Alternate character sets
Principal Language Of Message	19	CE	478	X	[0..1]	
Alternate Character Set Handling Scheme	20	ID	20	X	[0..1]	HL7 table 0356: HL7 defined: Alternate character set handling scheme

TABLE 3.6.1: MESSAGE HEADER SEGMENT (MSH)						
FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Message Profile Identifier	21	EI	427	R	[1..1]	**Definition**: Sites may use this field to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages. **Conformance Statement SS-017:** An instance of MSH.21 (Message Profile Identifier) **SHALL** contain the constant value: PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-NoAck^SS Receiver^2.16.840.1.114222.4.10.3^ISO or PH_SS-Batch^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Batch^SS Receiver^2.16.840.1.114222.4.10.3^ISO

Example Segment for A01 Admit transaction without Acknowledgment:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201408071400||ADT^A01^A
DT_A01|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
```

Example Segment for A01 Admit transaction with Acknowledgment:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201408071400||ADT^A01^A
DT_A01|NIST-SS-001.12|P|2.5.1|||AL|ER|||||PH_SS-Ack^SS
Sender^2.16.840.1.114222.4.10.3^ISO
```

3.6.2 EVENT TYPE (EVN) SEGMENT

The EVN segment is used to communicate trigger event information to receiving applications.

TABLE 3.6.2: EVENT TYPE SEGMENT (EVN)						
FIELD NAME	**SEQ**	**DT**	**LEN**	**USAGE**	**CARDINALITY**	**DESCRIPTION/COMMENTS**
Event Type Code	1	ID	3	RE	[0..1]	PHVS_EventType_SyndromicSurveillance List of HL7 Table 0003 Event Types associated with Syndromic Surveillance IG.
Recorded Date/Time	2	TS	26	R	[1..1]	**Definition:** System date/time when the transaction was entered. **Note:** EVN-2 (Recorded Date/Time) does not have to equal MSH-7 (Date/Time of Message) Data Element of Interest: Message Date/Time **Conformance Statement SS-018:** EVN-2 (Recorded Date/Time of Message) **SHALL** be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'
Date/Time Planned Event	3	TS	26	X	[0..1]	
Event Reason Code	4	IS	3	X	[0..1]	HL7 table 0062: User defined: Event reason
Operator ID	5	XCN	309	X	[0..*]	HL7 table 0188: User defined: Operator ID
Event Occurred	6	TS	26	X	[0..1]	

TABLE 3.6.2: EVENT TYPE SEGMENT (EVN)						
FIELD NAME	**SEQ**	**DT**	**LEN**	**USAGE**	**CARDIN ALITY**	**DESCRIPTION/COMMENTS**
Event Facility	7	HD	241	R	[1..1]	**Definition**: This field identifies the location where the patient was actually treated. **Note**: The use of 'NPI' should be discussed during the implementation process as local jurisdictions may differ on their use of identifiers for this field **Data Element of Interest**: Facility Identifier (Treating) (EVN-7.2) **Note**: For implementation of Treating Facility Identifier in HL7 v.2.3.1 see details in Appendix E, Section 9.2. **Data Element of Interest**: Facility Name (Treating) (EVN-7.1) **Note**: For implementation of Treating Facility Name in HL7 v.2.3.1 see details in Appendix E, Section 9.2.
Namespace ID	7.1	IS	20	RE	[0..1]	The use of Organization Legal Name is recommended. Business Name (LBN) associated with the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services. For more information about NPI, search for, or to apply for a NPI, click here. If NPI is not available, use a different unique identifier, such as OID or a State-designated identifier.
Universal ID	7.2	ST	199	R	[1..1]	Recommend the use of the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services. For more information about NPI, search for, or to apply for a NPI, click here. If NPI is not available, use a different unique identifier, such as OID or a State-designated identifier.
Universal ID Type	7.3	ID	6	R	[1..1]	PHVS_UniversalIDType_SyndromicSurveillance

Example Segment that shows the use of the NPI for the facility identifier:

```
EVN||201406071300.1234-0500||||||GreaterNorthMedCtr^4356012945^NPI
```

3.6.3 PATIENT IDENTIFICATION (PID) SEGMENT

The PID Segment is used as the primary means of communicating patient identification information. This segment contains pertinent patient identifying and demographic information.

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
TABLE 3.6.3: PATIENT IDENTIFICATION SEGMENT (PID)						
Set ID - PID	1	SI	4	R	[1..1]	**Definition**: This field contains the number that identifies this transaction. The sequence number shall be one. **Conformance Statement SS-019:** PID-1 (Set ID) **SHALL** have the Literal Value of '1'.
Patient ID	2	CX	20	X	[0..0]	
Patient Identifier List	3	CX	478	R	[1..*]	**Definition**: PID.3 is a repeating field that can accommodate multiple patient identifiers. **Note**: Patient's unique identifier(s) from the facility that is submitting this report to public health officials Different jurisdictions use different identifiers and may often use a combination of identifiers to produce a unique patient identifier. Patient identifiers should be strong enough to remain a unique identifier across different data provider models, such as a networked data provider or State HIE. **Data Element of Interest**: Unique Patient Identifier
Alternate Patient ID - PID	4	CX	20	X	[0..0]	
Patient Name	5	XPN	294	R	[1..*]	**Definition**: This field contains the names of the patient; the primary or legal name of the patient is reported first. **Note:** Syndromic surveillance does not allow the patient name. A Visit or Patient ID, as specified within this guide, shall be used by PHAs to join related visit data and for working with hospitals to find additional visit information for syndromic surveillance signal confirmation or investigation. Since, however, HL7 requires the patient name, the field must be populated even when data patient name shall not be sent. In such an instance (i.e., patient name is not sent), patient

TABLE 3.6.3: PATIENT IDENTIFICATION SEGMENT (PID)						
FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
						name shall be presented in a pseudonymized manner. **Conformance Statement SS-023:** PID-5 (Patient Name) **SHALL** be valued with only the constant value "S" or "U" in PID-5.7 Name Type (i.e., PID-5 shall be valued as |~^^^^^^S| or |~^^^^^^U|).
Mother's Maiden Name	6	XPN	294	X	[0..*]	
Date/Time of Birth	7	TS	26	O	[0..1]	**Definition**: This field contains the patient's date and time of birth.
Administrative Sex	8	IS	1	RE	[0..1]	PHVS_Gender_SyndromicSurveillance **Definition**: This field contains the patient's sex. **Data Element of Interest:** Gender
Patient Alias	9	XPN	294	X	[0..0]	
Race	10	CE	478	RE	[0..*]	**Definition**: General race category reported by the patient - subject may have more than one race category. **Note**: Patient could have more than one race defined. PHVS_RaceCategory_CDC **Data Element of Interest**: Race
Patient Address	11	XAD	513	RE	[0..1]	**Definition**: This field contains the mailing address of the patient. **Note**: Expecting only the patient primary (current) address information in the supported components. Not expecting street address information.
County Code	12	IS	4	X	[0..0]	HL7 table 0289: User defined: County/parish
Phone Number - Home	13	XTN	250	X	[0..*]	
Phone Number - Business	14	XTN	250	X	[0..*]	
Primary Language	15	CE	478	X	[0..1]	HL7 table 0296: User defined: Primary Language
Marital Status	16	CE	478	X	[0..1]	HL7 table 0002: User defined: Marital Status

TABLE 3.6.3: PATIENT IDENTIFICATION SEGMENT (PID)

Field Name	Seq	DT	Len	Usage	Cardinality	Description/Comments
Religion	17	CE	478	X	[0..1]	HL7 table 0006: User defined: Religion
Patient Account Number	18	CX	250	O	[0..1]	**Definition**: This field contains the patient account number assigned by accounting to which all charges, payments, etc., are recorded. It is used to identify the patient's account.
SSN Number - Patient	19	ST	16	X	[0..0]	
Driver's License Number - Patient	20	DLN	64	X	[0..0]	
Mother's Identifier	21	CX	250	X	[0..*]	
Ethnic Group	22	CE	478	RE	[0..1*]	**Definition**: This field further defines the patient's ancestry. PHVS_EthnicityGroup_CDC Value set that indicates whether the patient is hispanic or not. **Data Element of Interest**: Ethnicity While the standard allows this field to repeat, only expecting one of the mutually exclusive ethnicity codes to be in the message.
Birth Place	23	ST	250	X	[0..1]	
Multiple Birth Indicator	24	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Birth Order	25	NM	2	X	[0..1]	
Citizenship	26	CE	478	X	[0..*]	HL7 table 0171: User defined: Citizenship
Veterans Military Status	27	CE	478	X	[0..1]	HL7 table 0172: User defined: Veterans Military Status
Nationality	28	CE	478	X	[0..0]	HL7 table 0212: User defined: Nationality

TABLE 3.6.3: PATIENT IDENTIFICATION SEGMENT (PID)						
FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Patient Death Date and Time	29	TS	26	CE (A03) CE (A08) CE (A04) X (A01)	[0..1] [0..1] [0..1] [0..0]	**Definition**: This field contains the date and time at which the patient death occurred. This field shall not be populated on an admission message. **Conformance Statement SS-036:** If valued, PID-29 (Patient Death and Time), **SHALL** be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]' **Condition Predicate:** If valued, PID-30 (Patient Death Indicator) **SHALL** be valued to the Literal Value 'Y'. **Condition Predicate:** If PV1-36 is valued with any of the following: '20', '40', '41', '42' then PID-29 (Patient Death and Time) **SHALL** be populated.
Patient Death Indicator	30	ID	1	CE (A03) CE (A08) CE (A04) X (A01)	[0..1] [0..1] [0..1] [0..0]	**Definition**: This field indicates whether the patient is deceased. Y the patient is deceased N the patient is not deceased This field shall not be populated on an admission message. **Conformance Statement SS-037:** If valued, PID-30 (Patient Death Indicator) **SHALL** be valued to the Literal Value 'Y'. **Condition Predicate:** If PV1-36 (Discharge Disposition) is valued with any of the following: '20', '40', '41', '42' and PID-29 (Patient Death and Time) **SHALL** be populated.
Identity Unknown Indicator	31	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Identity Reliability Code	32	IS	20	X	[0..*]	HL7 table 0445: User defined: Identity Reliability Code
Last Update Date/Time	33	TS	26	O	[0..1]	**Definition**: This field contains the last update date and time for the patient's identifying and demographic data, as defined in the PID segment.

TABLE 3.6.3: PATIENT IDENTIFICATION SEGMENT (PID)						
FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Last Update Facility	34	HD	241	O	[0..1]	**Definition**: This field identifies the facility of the last update to a patient's identifying and demographic data, as defined in the PID segment.
Species Code	35	CE	478	X	[0..1]	HL7 table 0446: User defined: Species code
Breed Code	36	CE	478	X	[0..1]	HL7 table 0447: User defined: Breed code
Strain	37	ST	80	X	[0..1]	
Production Class Code	38	CE	478	X	[0..1]	HL7 table 0429: User defined: Production Class Code
Tribal Citizenship	39	CWE	697	X	[0..*]	HL7 table 0171: User defined: Citizenship

Example PID Segment that shows a Hispanic white female patient. The deceased indicator and date fields are used. Patient address is described as the mailing address, with '13' as the FIPS numeric for Georgia.

```
PID|1||2222^^^GreaterNorthMedCtr&4356012945&NPI^MR||~^^^^^^S|||F||210
6-
3^White^CDCREC|^^Decatur^13^30303^USA^M^^13121||||||||100221223^^Great
erNorthMedCtr&4356012945&NPI^AN|||||2135-2^Hispanic or
Latino^CDCREC|||||||20140826202100|Y
```

Example PID Segment that shows a male patient with multiple patient identifiers and multiple race codes.

```
PID|1||2111000222^^^NEMedCtr&1234567890&NPI^MR~12345789^^^NEMedCtr&12
34567890&NPI^LR||~^^^^^^S|||M||2054-5^Black or African
American^CDCREC~2028-
9^Asian^CDCREC|^^Decatur^13^30303^USA^M^^13121||||||||100221223^^NEMed
Ctr&1234567890&NPI^AN|||||2135-2^Hispanic or Latino^CDCREC
```

3.6.4 PATIENT VISIT (PV1) SEGMENT

The PV1 segment is used by Registration/Patient Administration applications to communicate information on a visit-specific basis.

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
						TABLE 3.6.4: PATIENT VISIT SEGMENT (PV1)
Set ID - PV1	1	SI	4	RE	[0..1]	**Definition**: This field contains the number that identifies this transaction. **Conformance Statement SS-024:** PV1-1 (Set ID) **SHALL** have the Literal Value of '1'
Patient Class	2	IS	1	R	[1..1]	**Definition**: This field is used by systems to categorize patients by site. PHVS_PatientClass_SyndromicSurveillance Patient classification within facility (e.g., Inpatient, Outpatient, Emergency) **Data Element of Interest:** Patient Class
Assigned Patient Location	3	PL	1220	O	[0..1]	**Definition**: This field contains the patient's initial assigned location or the location to which the patient is being moved. The first component may be the nursing station for inpatient locations, or clinic or department, for locations other than inpatient. .
Admission Type	4	IS	2	O	[0..1]	HL7 table 0007: User defined: Admission type **Definition**: This field indicates the circumstances under which the patient was or will be admitted.
Pre-admit Number	5	CX	250	X	[0..1]	
Prior Patient Location	6	PL	1220	O	[0..1]	
Attending Doctor	7	XCN	309	O	[0..*]	Recommend the use of the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services. For more information about NPI, search for, or to apply for a NPI, click here. If NPI is not available, use a different unique identifier, such as OID or a State-designated identifier **Data Element of Interest:** Unique Physician Identifier.
Referring Doctor	8	XCN	309	X	[0..*]	HL7 table 0010: User defined: Physician ID
Consulting Doctor	9	XCN	309	X	[0..0]	HL7 table 0010: User defined: Physician ID

TABLE 3.6.4: PATIENT VISIT SEGMENT (PV1)

Field Name	Seq	DT	Len	Usage	Cardinality	Description/Comments
Hospital Service	10	IS	3	O	[0..1]	HL7 table 0069: User defined: Hospital Service **Definition**: This field contains the treatment or type of surgery that the patient is scheduled to receive.
Temporary Location	11	PL	1220	X	[0..1]	
Preadmit Test Indicator	12	IS	2	X	[0..1]	HL7 table 0087: User defined: Pre-Admit Test Indicator
Re-admission Indicator	13	IS	2	X	[0..1]	HL7 table 0092: User defined: Re-admission Indicator
Admit Source	14	IS	6	O	[0..1]	HL7 table 0023: User defined: Admit Source **Definition**: This field indicates where the patient was admitted. In the US, this field is used on UB92 FL20 "Source of Admission". The UB codes listed as examples are not an exhaustive or current list; refer to a UB specification for additional information.
Ambulatory Status	15	IS	2	O	[0..*]	HL7 table 0009: User defined: Ambulatory Status **Definition**: This field indicates any permanent or transient handicapped conditions.
VIP Indicator	16	IS	2	X	[0..1]	HL7 table 0099: User defined: VIP Indicator
Admitting Doctor	17	XCN	309	X	[0..*]	HL7 table 0010: User defined: Physician ID
Patient Type	18	IS	2	X	[0..1]	HL7 table 0018: User defined: Patient Type
Visit Number	19	CX	478	R	[1..1]	**Definition**: This field contains the unique number assigned to each patient visit. **Conformance Statement SS-025:** PV1-19.5 (Identifier Type Code) **SHALL** be valued to the Literal Value 'VN'. PHVS_IdentifierType_SyndromicSurveillance Subset of HL7 2.x Identifier Type table (excluding organization identifier) **Data Element of Interest**: Unique Visit Identifier
Financial Class	20	FC	50	X	[0..*]	HL7 table 0064: User defined: Financial Class
Charge Price Indicator	21	IS	2	X	[0..1]	HL7 table 0032: User defined: Charge Price Indicator
Courtesy Code	22	IS	2	X	[0..1]	HL7 table 0045: User defined: Courtesy Code

TABLE 3.6.4: PATIENT VISIT SEGMENT (PV1)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Credit Rating	23	IS	2	X	[0..1]	HL7 table 0046: User defined: Credit rating
Contract Code	24	IS	2	X	[0..*]	HL7 table 0044: User defined: Contract code
Contract Effective Date	25	DT	8	X	[0..*]	
Contract Amount	26	NM	12	X	[0..*]	
Contract Period	27	NM	3	X	[0..*]	
Interest Code	28	IS	2	X	[0..1]	HL7 table 0073: User defined: Interest Code
Transfer to Bad Debt Code	29	IS	4	X	[0..1]	HL7 table 0110: User defined: Transfer to Bad Debt Code
Transfer to Bad Debt Date	30	DT	8	X	[0..1]	
Bad Debt Agency Code	31	IS	10	X	[0..1]	HL7 table 0021: User defined: Bad Debt Agency Code
Bad Debt Transfer Amount	32	NM	12	X	[0..1]	
Bad Debt Recovery Amount	33	NM	12	X	[0..1]	
Delete Account Indicator	34	IS	1	X	[0..1]	HL7 table 0111: User defined: Delete Account Indicator
Delete Account Date	35	DT	8	X	[0..1]	
Discharge Disposition	36	IS	3	R (A03) RE (A08) X (A04, A01)	[1..1] [0..1] [0..0]	PHVS_DischargeDisposition_HL7_2x **Definition**: This field contains the disposition of the patient at time of discharge (i.e., discharged to home, expired, etc.) and shall be populated in a Discharge message. Notes: This field shall not be populated in an Admission message (A01). This field shall not be populated in a Registration message (A04). **Data Element of Interest:** Discharge Disposition
Discharged to Location	37	DLD	47	X	[0..1]	HL7 table 0113: User defined: Discharged to Location
Diet Type	38	CE	478	X	[0..1]	HL7 table 0114: User defined: Diet type
Servicing Facility	39	IS	2	X	[0..1]	HL7 table 0115: User defined: Servicing Facility
Bed Status	40	IS	1	X	[0..0]	HL7 table 0116: User defined: Bed Status
Account Status	41	IS	2	X	[0..1]	HL7 table 0117: User defined: Account Status
Pending Location	42	PL	1220	X	[0..1]	
Prior Temporary Location	43	PL	1220	X	[0..1]	

TABLE 3.6.4: PATIENT VISIT SEGMENT (PV1)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Admit Date/Time	44	TS	26	R	[1..1]	**Definition**: This field contains the admit date/time. This field is also used to reflect the date/time of an outpatient/emergency patient registration. **Note**: Date and time of the patient presentation. **Data Element of Interest**: Admit Date/Time **Conformance Statement SS-010:** PV1-44 (Admit Date/Time) **SHALL** be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'
Discharge Date/Time	45	TS	26	RE (A08) X (A01) X (A04) R (A03)	[0..1] [0..0] [0..0] [1..1]	**Definition**: This field contains the discharge date/time and shall be populated in a Discharge message.. This field is also used to reflect the date/time of an outpatient/emergency patient discharge. **Data Element of Interest:** Discharge Date/Time **Conformance Statement SS-012:** If present in the A08, PV1-45 (Discharge Date/Time) SHALL be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]' **Conformance Statement SS-045:** PV1-45 (Discharge Date/Time) **SHALL** be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'
Current Patient Balance	46	NM	12	X	[0..1]	
Total Charges	47	NM	12	X	[0..1]	
Total Adjustments	48	NM	12	X	[0..1]	
Total Payments	49	NM	12	X	[0..1]	
Alternate Visit ID	50	CX	250	X	[0..1]	HL7 table 0203: User defined: Identifier type
Visit Indicator	51	IS	1	X	[0..1]	HL7 table 0326: User defined: Visit Indicator
Other Healthcare Provider	52	XCN	309	X	[0..0]	HL7 table 0010: User defined: Physician ID

Example PV1 Segment for an Inpatient:

This PV1 segment shows the following information

- PV1-2 Patient Class = I (Inpatient)
- PV1-4 Admission Type = E (Emergency) (US UB92 code "1")
- PV1-7 Attending Doctor populated with an identifier assigned by NE Medical Center
- PV1-10 Medical Service = MED (Medical Service)
- PV1-14 Admit source = 7 (suggested UB code for Emergency)
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit Date/time of August 17, 2014 at 12 noon

```
PV1|1|I||E|||112345^Familyname^Givenname^^^DR^MD^^NEMedCtr&123456
7890&NPI|||MED||||7|||||2222_001^^^GreaterNorthMedCtr&4356012945&
NPI^VN||||||||||||||||||||||||||201408171200
```

Example PV1 Segment for an Outpatient (could be used for Ambulatory or Urgent care patients):

This PV1 segment shows the following information

- PV1-2 Patient Class = O (Outpatient)
- PV1-7 Attending Doctor populated with a NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

```
PV1|1|O||||||1234567890^^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||
|||||||270002_001^^^GreaterNorthMedCtr&4356012945&NPI^VN||||||||||
|||||||||||||||201408171200
```

Example PV1 for an Emergency Department patient:

- PV1-2 Patient Class = E (Emergency)
- PV1-7 Attending Doctor populated with a NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

```
PV1|1|E||||||1234567890^^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||
|||||||1200222^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||
||||||||||||201408171200
```

3.6.5 PATIENT VISIT – ADDITIONAL INFORMATION (PV2) SEGMENT

The PV2 segment is a continuation of visit-specific information and is the segment where the Admit Reason is passed.

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
TABLE 3.6.5: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)						
Prior Pending Location	1	PL	1220	X	[0..1]	
Accommodation Code	2	CE	478	X	[0..1]	HL7 table 0129: User defined: Accommodation Code

TABLE 3.6.5: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Admit Reason	3	CE	478	RE	[0..1]	**Definition**: This field contains the short description of the providers' reason for patient admission. **NOTE**: Admit Reason may be coded (CE.1 – CE.3) or Free text (CE.2.) **Data Element of Interest:** Admit Reason PHVS_AdministrativeDiagnosis_CDC_ICD-9CM ICD-9 CM Administrative Diagnosis Codes used for billing purposes, Reason for Study, DG1 Diagnosis segments Keyword: ICD-9 Vol 1 & 2. **Or** PHVS_CauseOfDeath_ICD-10_CDC The list provides ICD-10 codes and associated cause-of-death titles for the most detailed listing of causes of death. This list is maintained by CDC NCHS. **Or** PHVS_Disease_CDC Disease or Disorder - 64572001 SNOMED Domain **Conformance Statement SS-009**: The implementation **SHALL** support all 3 value sets for PV2-3 (Admit Reason): ICD-9 CM Administrative Diagnosis Codes; ICD-10 codes; SNOMED Disease or Disorder - 64572001 Domain Codes. If only Free Text is used, it is communicated in component 3.2. If a drop-down menu of canned admit reason text is used, it is communicated in component 3.2. **Condition Predicate**: If PV2-3.1 (the identifier) is provided then PV2-3.3 is valued. **Conformance Statement SS-026**: PV2-3.3 (Admit Reason Code System Name) SHALL be valued to one of the Literal Values in the set 'I10', 'I9CDX', 'SCT'.
Transfer Reason	4	CE	478	X	[0..1]	
Patient Valuables	5	ST	25	X	[0..*]	
Patient Valuables Location	6	ST	25	X	[0..1]	
Visit User Code	7	IS	2	X	[0..*]	HL7 table 0130: User defined: Visit User Code
Expected Admit Date/Time	8	TS	26	X	[0..1]	

TABLE 3.6.5: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Expected Discharge Date/Time	9	TS	26	X	[0..1]	
Estimated Length of Inpatient Stay	10	NM	3	X	[0..1]	
Actual Length of Inpatient Stay	11	NM	3	X	[0..1]	
Visit Description	12	ST	50	X	[0..1]	
Referral Source Code	13	XCN	309	X	[0..*]	
Previous Service Date	14	DT	8	X	[0..1]	
Employment Illness Related Indicator	15	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Purge Status Code	16	IS	1	X	[0..1]	HL7 table 0213: User defined: Purge Status Code
Purge Status Date	17	DT	8	X	[0..1]	
Special Program Code	18	IS	2	X	[0..1]	HL7 table 0214: User defined: Special Program Code
Retention Indicator	19	ID	1	X	[0..1]	HL7 table 0136: User defined: Retention Indicator
Expected Number of Insurance Plans	20	NM	1	X	[0..1]	
Visit Publicity Code	21	IS	1	X	[0..1]	HL7 table 0215: User defined: Visit Publicity Code
Visit Protection Indicator	22	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Clinic Organization Name	23	XON	250	X	[0..*]	
Patient Status Code	24	IS	2	X	[0..1]	HL7 table 0216: User defined: Patient Status code
Visit Priority Code	25	IS	1	X	[0..1]	HL7 table 0217: User defined: Visit Priority code
Previous Treatment Date	26	DT	8	X	[0..1]	
Expected Discharge Disposition	27	IS	2	X	[0..1]	HL7 table 0112: User defined: Discharge Disposition
Signature on File Date	28	DT	8	X	[0..1]	
First Similar Illness Date	29	DT	8	X	[0..1]	
Patient Charge Adjustment Code	30	CE	478	X	[0..1]	HL7 table 0218: User defined: Charge Adjustment Code

TABLE 3.6.5: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Recurring Service Code	31	IS	2	X	[0..1]	HL7 table 0219: User defined: Recurring Service Code
Billing Media Code	32	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Expected Surgery Date and Time	33	TS	26	X	[0..1]	
Military Partnership Code	34	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Military Non-Availability Code	35	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Newborn Baby Indicator	36	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Baby Detained Indicator	37	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no indicator
Mode of Arrival Code	38	CE	478	X	[0..1]	HL7 table 0430: User defined: Mode of Arrival Code
Recreational Drug Use Code	39	CE	478	X	[0..*]	HL7 table 0431: User defined: Recreational Drug Use Code
Admission Level of Care Code	40	CE	478	X	[0..1]	HL7 table 0432: User defined: Admission Level of Care Code
Precaution Code	41	CE	478	X	[0..*]	HL7 table 0433: User defined: Precaution Code
Patient Condition Code	42	CE	478	X	[0..1]	HL7 table 0434: User defined: Patient Condition Code
Living Will Code	43	IS	2	X	[0..1]	HL7 table 0315: User defined: Living Will Code
Organ Donor Code	44	IS	2	X	[0..1]	HL7 table 0316: User defined: Organ Donor Code
Advance Directive Code	45	CE	478	X	[0..*]	HL7 table 0435: User defined: Advance Directive Code
Patient Status Effective Date	46	DT	8	X	[0..1]	
Expected LOA Return Date/Time	47	TS	26	X	[0..1]	
Expected Pre-admission Testing Date/Time	48	TS	26	X	[0..1]	
Notify Clergy Code	49	IS	20	X	[0..*]	HL7 table 0534: User defined: Notify Clergy Code

Example PV2 Segments:

PV2||||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX (PV2-3 Admit Reason is ICD9-

CM encoded)

`PV2|||11530004^Brittle Diabetes^SCT` (PV2-3 Admit Reason is SNOMED encoded)

`PV2|||O24.4^Diabetes Mellitus arising in pregnancy^I10` (PV2-3 Admit Reason is ICD10 encoded)

This PV2 segment shows PV2-3 Admit Reason that has local information from a drop-down menu:

`PV2|||^Diabetes Mellitus`

3.6.6 DIAGNOSIS (DG1) SEGMENT

The DG1 segment contains patient diagnosis information of various types. Syndromic surveillance supports Admitting, Working and Final Diagnosis types.

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
TABLE 3.6.6: DIAGNOSIS SEGMENT (DG1)						
Set ID - DG1	1	SI	4	R	[1..1]	**Definition**: This field contains the number that identifies this transaction. For the first occurrence of the segment the sequence number shall be 1, for the second occurrence it shall be 2, etc. **Conformance Statement SS-032:** DG1-1 (Set ID) for the first occurrence of a DG1 Segment **SHALL** have the Literal Value of '1'. Each following occurrence **SHALL** be numbered consecutively
Diagnosis Coding Method	2	ID	2	X	[0..1]	HL7 table 0053: User defined: Diagnosis Coding Method
Diagnosis Code - DG1	3	CE	478	R	[1..1]	**Definition**: This contains the diagnosis code assigned to this diagnosis. **Data Element of Interest**: Diagnosis **Condition Predicate:** If the DG1 Segment is provided, DG1-3 (Diagnosis) is required to be valued.

Identifier	3.1	ST	20	R	[1..1]	This component contains a code value (concept ID) from one of the following code systems:
						PHVS_AdministrativeDiagnosis_CDC_ICD-9CM
						        Or
						PHVS_AdministrativeDiagnosis_ICD-10CM
						        Or
						PHVS_Disease_CDC
						
						Conformance Statement SS-011: The implementation **SHALL** support all 3 value sets.

Text	3.2	ST	199	RE	[0..1]	This component contains a description for the concept identified in DG1-3.1.

TABLE 3.6.6: DIAGNOSIS SEGMENT (DG1)

Field Name	Seq	DT	Len	Usage	Cardinality	Description/Comments
Name of Coding System	3.3	ID	20	R	[1..1]	This component contains the coding system identifier (Table 0396 Code System Identifiers) for the concept identified in DG1-3.1. **Condition Predicate:** If DG1-3.1 (the identifier) is provided then DG1-3.3 is valued. **Conformance Statement SS-033:** DG1-3.3 **SHALL** be valued to one of the Literal Values in the set ('I10', 'I9CDX', 'SCT').
Alternate Identifier	3.4	ST	20	X	[0..1]	
Alternate Text	3.5	ST	199	X	[0..1]	
Name of Alternate Coding System	3.6	ID	20	X	[0..1]	
Diagnosis Description	4	ST	40	X	[0..0]	
Diagnosis Date/Time	5	TS	26	O	[0..1]	**Definition**: This field contains the date/time that the diagnosis was determined.
Diagnosis Type	6	IS	2	R	[1..1]	PHVS_DiagnosisType_HL7_2x **Definition**: This field contains a code that identifies the type of diagnosis being sent . **Data Element of Interest**: Diagnosis type. **Condition Predicate:** If the DG1 Segment is provided, DG1-6 (Diagnosis Type) is required to be valued. **Conformance Statement SS-040** Diagnosis Type **SHALL** be either A, F or W (Admitting, Final or Working)
Major Diagnostic Category	7	CE	478	X	[0..0]	HL7 table 0118: User defined: Major Diagnostic Category
Diagnostic Related Group	8	CE	478	X	[0..0]	HL7 table 0055: User defined: Diagnostic Related Group
DRG Approval Indicator	9	ID	1	X	[0..0]	HL7 table 0136: HL7 defined: Yes/no Indicator
DRG Grouper Review Code	10	IS	2	X	[0..0]	HL7 table 0056: User defined: DRG Grouper Review Code

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
TABLE 3.6.6: DIAGNOSIS SEGMENT (DG1)						
Outlier Type	11	CE	478	X	[0..0]	HL7 table 0083: User defined: Outlier Type
Outlier Days	12	NM	3	X	[0..0]	
Outlier Cost	13	CP	538	X	[0..0]	
Grouper Version And Type	14	ST	4	X	[0..0]	
Diagnosis Priority	15	ID	2	X	[0..1]	HL7 table 0359: HL7 defined: Diagnosis Priority
Diagnosing Clinician	16	XCN	309	X	[0..*]	
Diagnosis Classification	17	IS	3	X	[0..1]	HL7 table 0228: User defined: Diagnosis Classification
Confidential Indicator	18	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/No Indicator
Attestation Date/Time	19	TS	26	X	[0..1]	
Diagnosis Identifier	20	EI	427	X	[0..1]	
Diagnosis Action Code	21	ID	1	X	[0..1]	HL7 table 0206: HL7 defined: Segment Action Code

Example DG1 Segments

DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||W   (Working diagnosis from ICD9-CM)

DG1|2||R11^NAUSEA AND VOMITING^I10|||W   (Working diagnosis from ICD10)

DG1|3||16932000^NAUSEA AND VOMITING^SCT|||W   (Working diagnosis from SNOMED-CT)

DG1|1||78906^ABDMNAL PAIN EPIGASTRIC^I9CDX|||A (Admitting diagnosis from ICD9-CM)

DG1|1||4870^influenza with pneumonia^I9CDX||201312271700|F   (Final diagnosis from ICD9-CM)

3.6.7 PROCEDURES (PR1) SEGMENT

The PR1 segment is used to carry information relative to various types of procedures performed.

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
						TABLE 3.6.7: PROCEDURES SEGMENT (PR1)
Set ID – PR1	1	SI	4	R	[1..1]	**Definition**: This field contains the number that identifies this transaction. **Conformance Statement SS-034:** For the first occurrence of the segment the sequence number shall be 1, for the second occurrence it shall be 2, etc.
Procedure Coding Method	2	IS	3	X	[0..1]	HL7 table 0089: User defined: Procedure Coding Method
Procedure Code	3	CE	478	R	[1..1]	**Definition**: This field contains a unique identifier assigned to the procedure **Data Element of Interest**: Procedure Code
Identifier	3.1	ST	20	RE	[0..1]	Concept value from CPT-4 Concept value from ICD-9CM Procedure code , Volume 3 Concept value from ICD-10-PCS International Classification of Diseases, 10th Revision, Procedure Coding System (ICD-10-PCS)
Text	3.2	ST	199	O	[0..1]	Concept description text

TABLE 3.6.7: PROCEDURES SEGMENT (PR1)

Field Name	Seq	DT	Len	Usage	Cardinality	Description/Comments
Name of Coding System	3.3	ID	20	CE	[1..1]	If there is a CPT-4 code in 3.1, this component is valued with 'C4', the value from HL7 2x Table 0396, Code System Identifiers. If there is a ICD-9CM Procedure code in 3.1, this component is valued with 'I9CP', the value from HL7 2x Table 0396, Code System Identifiers. If there is a ICD-10-PCS code in 3.1, this component is valued with 'I10P', the value from HL7 2x Table 0396, Code System Identifiers. PHVS_CodingSystem_HL7_2x_Table0396 Lists of all the code systems identifiers from HL7 Table 0396 **Condition Predicate:** If PR1-3.1 (the identifier) is provided then PR1-3.3 is valued.
Procedure Description	4	ST	40	X	[0..0]	
Procedure Date/Time	5	TS	26	R	[1..1]	**Definition**: This field contains the date/time that the procedure was performed.
Procedure Functional Type	6	IS	2	X	[0..1]	HL7 table 0230: User defined: Procedure Functional Type
Procedure Minutes	7	NM	4	X	[0..1]	
Anesthesiologist	8	XCN	309	X	[0..0]	HL7 table 0010: User defined: Physician ID
Anesthesia Code	9	IS	2	X	[0..1]	HL7 table 0019: User defined: Anesthesia Code
Anesthesia Minutes	10	NM	4	X	[0..1]	
Surgeon	11	XCN	309	X	[0..0]	HL7 table 0010: User defined: Physician ID
Procedure Practitioner	12	XCN	309	X	[0..0]	HL7 table 0010: User defined: Physician ID
Consent Code	13	CE	478	X	[0..1]	HL7 table 0059: User defined: Consent code
Procedure Priority	14	ID	2	X	[0..1]	HL7 table 0418: HL7 defined: Procedure Priority

TABLE 3.6.7: PROCEDURES SEGMENT (PR1)						
FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Associated Diagnosis Code	15	CE	478	X	[0..1]	HL7 table 0051: User defined: Diagnosis Code
Procedure Code Modifier	16	CE	478	X	[0..*]	HL7 table 0340: User defined: Procedure Code Modifier
Procedure DRG Type	17	IS	20	X	[0..1]	HL7 table 0416: User defined: Procedure DRG Type
Tissue Type Code	18	CE	478	X	[0..*]	HL7 table 0417: User defined: Tissue Type Code
Procedure Identifier	19	EI	427	X	[0..1]	
Procedure Action Code	20	ID	1	X	[0..1]	HL7 table 0206: HL7 defined: Segment Action Code

Example PR1 Segment

PR1|1||5472^ABDOMEN WALL REPAIR NEC^I9CP||201408081816   (procedure from ICD9-CM)

3.6.8 OBSERVATION/RESULT (OBX) SEGMENT

The OBX Segment in the ADT Message is used to transmit observations related to the patient and visit. In Section 5 DATA ELEMENTS OF INTEREST FOR SYNDROMIC SURVEILLANCE, if the data element is carried in an OBX and usage is 'Required', the segment and its fields must be populated. The data elements in Table 5.2 and Table 5.3 that use OBX segments are not expected to utilize any specified Set ID number within a given set of OBX segments in a message. However, the Set IDs are required to be sequential.

TABLE 3.6.8: OBSERVATION / RESULT SEGMENT (OBX)						
FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Set ID - OBX	1	SI	4	R	[1..1]	**Definition**: This field contains the sequence number. Set ID numbers the repetitions of the segments **Conformance Statement SS-027:** For the first repeat of the OBX segment, the sequence number **SHALL** be one (1), for the second repeat, the sequence number shall be two (2), etc. Example: OBX|1|…. OBX|2|…. OBX|3|….
Value Type	2	ID	3	R	[1..1]	**Definition**: This field contains the format of the observation value in OBX. Note: Identifies the structure of data in observation value (OBX.5) **Conformance Statement SS-028:** OBX-2 **SHALL** be valued to the Literal Value in the set ('TS', 'TX', 'NM', 'CWE', 'XAD') from the value set PHVS_ValueType_SyndromicSurveillance
Observation Identifier	3	CE	478	R	[1..1]	**Definition**: This field contains a unique identifier for the observation. These are observation identifiers associated with syndromic surveillance that are contained in the value set: PHVS_ObservationIdentifier_SyndromicSurveillance
Observation Sub-ID	4	ST	20	O	[0..1]	
Observation Value	5	varies	99999	RE	[0..*]	**Definition**: This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which observation value is formatted.

TABLE 3.6.8: OBSERVATION / RESULT SEGMENT (OBX)						
FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
						Note: Values received in observation value are defined by value type (OBX.2) and observation identifier (OBX.3). Listed below are the supported fields for each of the supported value types.
When OBX-2=TS, OBX-5 data is specified as follows:						
Time	5.1	DTM	24	RE	[0..1]	
Degree of Precision	5.2	ST	1	X	[0..0]	
When OBX-2=TX, OBX-5 data is specified as follows:						
Text Data	5.1	TX	65536	RE	[0..1]	
When OBX-2=NM, OBX-5 data is specified as follows:						
Numeric Value	5.1	ST	16	RE	[0..1]	
When OBX-2=CWE, OBX-5 data is specified as follows:						
Identifier	5.1	ST	20	R	[1..1]	
Text	5.2	ST	199	RE	[0..1]	
Name of Coding System	5.3	ID	20	R	[1..1]	
Alternate Identifier	5.4	ST	20	RE	[0..1]	
Alternate Text	5.5	ST	199	RE	[0..1]	
Name of Alternate Coding System	5.6	ID	20	C(R/X)	[0..1]	**Condition Predicate:** If OBX-5.4 (alternate identifier) is valued.
Coding System Version ID	5.7	ST	10	O	[0..1]	
Alternate Coding System Version ID	5.8	ST	10	O	[0..1]	
Original Text	5.9	ST	199	RE	[0..1]	Free text may be included in this component.
When OBX-2=XAD, OBX-5 data is specified as follows:						
Street Address	5.1	SAD	184	C (R/O)	[0..1]	Condition Predicate: If OBX-3=`SS002`. (`SS002^TREATING FACILITY LOCATION^PHINQUESTION`)
Dwelling Number	5.1.3	ST	12	O	[0..1]	
Other Designation	5.2	ST	120	O	[0..1]	
City	5.3	ST	50	RE	[0..1]	The ISDS recommendations suggest free text City/Town designations for Treating Facility
State or Province	5.4	IS	50	RE	[0..1]	PHVS_State_FIPS_5-2

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
TABLE 3.6.8: OBSERVATION / RESULT SEGMENT (OBX)						
ZIP or Postal Code	5.5	ST	12	RE	[0..1]	USPS
Country	5.6	ID	3	RE	[0..1]	PHVS_Country_ISO_3166-1
Address Type	5.7	ID	3	O	[0..1]	PHVS_AddressType_HL7_2x
Other Geographic Designation	5.8	ST	50	O	[0..1]	
County/Parish Code	5.9	IS	20	RE	[0..1]	
Census Tract	5.10	IS	20	X	[0..1]	
Address Representation Code	5.11	ID	1	X	[0..1]	
Address Validity Range	5.12	DR	53	X	[0..0]	
Effective Date	5.13	TS	26	X	[0..1]	
Expiration Date	5.14	TS	26	X	[0..1]	
Units	6	CE	62	C	[0..1]	**Definition**: The identifier that is used in Syndromic Surveillance for Units of measurement either for age, or temperature or pulse oximetry **Background**: When an observation's value is measured on a continuous scale (OBX-5) , one must report the measurement units within the units field of the OBX segment (OBX-6). **Condition Predicate:** If OBX.2 (Value Type) is valued "NM", the units field is required. **Conformance Statement SS-029:** If OBX 3.1 (Observation Identifier) is valued with 21612-7, then OBX-6.1 (Unit Identifier) **SHALL** be valued to a member of the set: PHVS_AgeUnit_SyndromicSurveillance. **Conformance Statement SS-030:** If OBX 3.1 (Observation Identifier) is valued with 11289-6 then OBX-6.1 (Identifier) **SHALL** be valued to a member of the set: PHVS_TemperatureUnit_UCUM **Conformance Statement SS-031:** If OBX 3.1 (Observation Identifier) is valued with 59408-5 then OBX-6.1 (Identifier) **SHALL** be valued to a member of the set: PHVS_PulseOximetryUnit_UCUM OBX-6.3 will contain the code system code 'UCUM' for any unit values given.
References Range	7	ST	60	X	[0..1]	

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
						TABLE 3.6.8: OBSERVATION / RESULT SEGMENT (OBX)
Abnormal Flags	8	IS	5	X	[0..*]	HL7 table 0078: User defined: Abnormal Flags
Probability	9	NM	5	X	[0..1]	
Nature of Abnormal Test	10	ID	2	X	[0..*]	HL7 table 0080: HL7 defined: Nature of Abnormal Test
Observation Result Status	11	ID	1	R	[1..1]	HL7 table 0085: HL7 defined: Observation Result Status **Definition**: This field contains the observation result status. This field reflects the current completion status of the results for one Observation Identifier.
Effective Date of Reference Range	12	TS	26	X	[0..1]	
User Defined Access Checks	13	ST	20	X	[0..1]	
Date/Time of the Observation	14	TS	26	O	[0..1]	**Definition**: This field is the observation date-time is the physiologically relevant date-time or the closest approximation to that date-time.
Producer's ID	15	CE	478	X	[0..1]	
Responsible Observer	16	XCN	309	X	[0..*]	
Observation Method	17	CE	478	X	[0..*]	
Equipment Instance Identifier	18	EI	424	X	[0..*]	
Date/Time of the Analysis	19	TS	26	X	[0..1]	
Reserved for harmonization with V2.6	20					
Reserved for harmonization with V2.6	21					
Reserved for harmonization with V2.6	22					
Performing Organization Name	23	XON		X	[0..1]	
Performing Organization Address	24	XAD		X	[0..1]	
Performing Organization Medical Director	25	XCN		X	[0..1]	

3.6.9 INSURANCE (IN1) SEGMENT

The IN1 segment contains insurance policy coverage information necessary to produce properly pro-rated and patient and insurance bills.

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
TABLE 3.6.9: INSURANCE SEGMENT (IN1)						
Set ID – IN1	1	SI	4	R	[1..1]	**Definition**: The Set ID in the IN1 segment is used to aggregate the grouping of insurance segments. **Note**: Set ID numbers the repetitions of the segments.
Insurance Plan ID	2	CE	478	R	[1..1]	HL7 table 0072: User defined: Insurance Plan ID **Definition**: This field contains a unique identifier for the insurance plan. **Note**: This field is HL7-required to use the IN1 segment. If an insurance plan ID is unavailable, use |UNK^UNKNOWN^NULLFL| to meet the requirement to populate the field with a CE value type for HL7 compliance.
Insurance Company ID	3	CX	250	R	[1..*]	**Definition**: This field contains unique identifiers for the insurance company. The assigning authority and identifier type code are strongly recommended for all CX data types. **Note**: This field is HL7-required to use the IN1 segment. If an insurance company identifier is unavailable, use |UNKNOWN^^^UNKNOWN| to meet the requirement to populate the field as a CX value type for HL7 compliance.
Insurance Company Name	4	XON	250	X	[0..*]	
Insurance Company Address	5	XAD	513	X	[0..*]	
Insurance Co Contact Person	6	XPN	294	X	[0..*]	
Insurance Co Phone Number	7	XTN	250	X	[0..*]	
Group Number	8	ST	12	X	[0..1]	
Group Name	9	XON	250	X	[0..*]	

TABLE 3.6.9: INSURANCE SEGMENT (IN1)					
FIELD NAME	**SEQ**	**DT**	**LEN**	**USAGE**	**CARDINALITY**	**DESCRIPTION/COMMENTS**
Insured's Group Emp ID	10	CX	250	X	[0..*]	
Insured's Group Emp Name	11	XON	250	X	[0..*]	
Plan Effective Date	12	DT	8	X	[0..1]	
Plan Expiration Date	13	DT	8	X	[0..1]	
Authorization Information	14	AUI	239	X	[0..1]	
Plan Type	15	IS	3	O	[0..1]	HL7 table 0086: User defined: Plan Type **Definition**: This field contains the coding structure that identifies the various plan types, for example, Medicare, Medicaid, Blue Cross, HMO, etc. NOTE: Suggesting use of the Source of Payment Typology (PHDSC) value set with OID 2.16.840.1.114222.4.11.3591 as the user-defined plan type referenced by HL70086 PHVS_SourceOfPaymentTypology_PHDSC
Name Of Insured	16	XPN	294	X	[0..*]	
Insured_ Relationship To Patient	17	CE	478	X	[0..1]	HL7 table 0063: User defined: Relationship
Insured_ Date Of Birth	18	TS	26	X	[0..1]	
Insured_ Address	19	XAD	513	X	[0..*]	
Assignment Of Benefits	20	IS	2	X	[0..1]	HL7 table 0135: User defined: Assignment of Benefits
Coordination Of Benefits	21	IS	2	X	[0..1]	HL7 table 0173: User defined: Coordination of Benefits
Coord Of Ben. Priority	22	ST	2	X	[0..1]	
Notice Of Admission Flag	23	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no Indicator
Notice Of Admission Date	24	DT	8	X	[0..1]	
Report Of Eligibility Flag	25	ID	1	X	[0..1]	HL7 table 0136: HL7 defined: Yes/no Indicator
Report Of Eligibility Date	26	DT	8	X	[0..1]	
Release Information Code	27	IS	2	X	[0..1]	HL7 table 0093: User defined: Release of Information Code
Pre-Admit Cert (PAC)	28	ST	15	X	[0..1]	
Verification Date/Time	29	TS	26	X	[0..1]	

TABLE 3.6.9: INSURANCE SEGMENT (IN1)

Field Name	Seq	DT	Len	Usage	Cardinality	Description/Comments
Verification By	30	XCN	309	X	[0..*]	
Type Of Agreement Code	31	IS	2	X	[0..1]	HL7 table 0098: User defined: Type Of Agreement Code
Billing Status	32	IS	2	X	[0..1]	HL7 table 0022: User defined: Billing Status
Lifetime Reserve Days	33	NM	4	X	[0..1]	
Delay Before L.R. Day	34	NM	4	X	[0..1]	
Company Plan Code	35	IS	8	X	[0..1]	HL7 table 0042: User defined: Company Plan Code
Policy Number	36	ST	15	X	[0..1]	
Policy Deductible	37	CP	538	X	[0..1]	
Policy Limit - Amount	38	CP	538	X	[0..0]	
Policy Limit - Days	39	NM	4	X	[0..1]	
Room Rate - Semi-Private	40	CP	538	X	[0..0]	
Room Rate - Private	41	CP	538	X	[0..0]	
Insured Employment Status	42	CE	478	X	[0..1]	HL7 table 0066: User defined: Employment Status
Insured Administrative Sex	43	IS	1	X	[0..1]	HL7 table 0001: User defined: Administrative Sex
Insured Employer's Address	44	XAD	513	X	[0..*]	
Verification Status	45	ST	2	X	[0..1]	
Prior Insurance Plan ID	46	IS	8	X	[0..1]	HL7 Table 0072: User defined: Insurance Plan ID
Coverage Type	47	IS	3	X	[0..1]	HL7 Table 0309: User defined: Coverage Type
Handicap	48	IS	2	X	[0..1]	HL7 Table 0295: User defined: Handicap
Insured ID Number	49	CX	250	X	[0..*]	
Signature Code	50	IS	1	X	[0..1]	HL7 Table 0535: User defined: Signature Code
Signature Code Date	51	DT	8	X	[0..1]	
Insured_ Birth Place	52	ST	250	X	[0..1]	
VIP Indicator	53	IS	2	X	[0..1]	HL7 Table 0099: User defined: VIP Indicator

3.6.10 MESSAGE ACKNOWLEDGEMENT (MSA) SEGMENT

In order to acknowledge a correct receipt of a message, message receivers use the MSA segment along with the MSH as specified in this section.

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
TABLE 3.6.10: MESSAGE ACKNOWLEDGEMENT SEGMENT (MSA)						
Acknowledgement Code	1	ID	2	R	[1..1]	**Definition**: This field contains an acknowledgment code indicating receipt of message. See message processing rules for details. PHVS_AcknowledgmentCode_HL7_2x Refer to HL7 Table 0008 - Acknowledgment code for valid values. Null flavors are not allowed.
Message Control ID	2	ST	20	R	[1..1]	Specifies the value in MSH-10 of the message being acknowledged **Definition**: This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended.
Text Message	3	ST	80	X	[0..1]	
Expected Sequence Number	4	NM	15	X	[0..1]	
Delayed Acknowledgement Type	5			X	[0..0]	
Error Condition	6	CE	250	RE	[0..1]	HL7 Table 0357: HL7 defined: Message Error Code **Definition**: This field allows the acknowledging system to use a user-defined error code to further specify AR or AE type acknowledgments. The MSA-6 was deprecated as of v2.4. The reader is referred to the ERR segment. The ERR segment allows for richer descriptions of the erroneous conditions.

3.7   HL7 BATCH PROTOCOL

The HL7 Batch Protocol can be used to allow for periodic reporting. The HL7 file and batch header and trailer segments are defined in exactly the same manner as the HL7 message segments; hence, the same HL7 message construction rules used for individual messages can

be used to encode and decode HL7 batch files. One batch of messages per file is supported.

3.7.1 HL7 BATCH FILE STRUCTURE

The structure of the batch file is constrained as follows:

	TABLE 3.7.1: BATCH SIMPLE FILE STRUCTURE			
SEGMENT	**NAME**	**DESCRIPTION**	**USAGE**	**CARDINALITY**
FHS	File Header Segment	Information explaining how to parse and process the file. This information includes identification of file delimiters, sender, receiver, timestamp, etc.	R	[1..1]
BHS	Batch Header Segment	Trigger event information for receiving application. One batch per file is supported.	R	[1..1]
{ HL7 messages }			R	[1..*]
BTS	Batch Trailer Segment		R	[1..1]
FTS	File Trailer Segment		R	[1..1]

3.7.2 FILE HEADER (FHS) SEGMENT

This segment is used as the lead-in to a file (group of batches).

	TABLE 3.7.2: FILE HEADER SEGMENT (FHS)				
FIELD NAME	**SEQ**	**DT**	**LEN**	**USAGE**	**CARDINALITY**	**DESCRIPTION/COMMENTS**
File Field Separator	1	ST	1	R	[1..1]	Default Value "|" (ASCII 124).
File Encoding Characters	2	ST	4	R	[1..1]	Default Values "^~\&" (ASCII 94, 126, 92, and 38).
File Sending Application	3	HD	227	O	[0..1]	
File Sending Facility	4	HD	227	O	[0..1]	
File Receiving Application	5	HD	227	O	[0..1]	
File Receiving Facility	6	HD	227	O	[0..1]	
File Creation Date/Time	7	TS	26	O	[0..1]	
File Security	8	ST	40	X	[0..1]	
File Name/ID	9	ST	20	O	[0..1]	

TABLE 3.7.2: FILE HEADER SEGMENT (FHS)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
File Header Comment	10	ST	80	O	[0..1]	
File Control ID	11	ST	199	O	[0..1]	
Reference File Control ID	12	ST	20	O	[0..1]	

Example: `FHS|^~\&`

3.7.3 FILE TRAILER (FTS) SEGMENT

The FTS segment defines the end of a file (group of batches).

TABLE 3.7.3: FILE TRAILER SEGMENT (FTS)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
File Batch Count	1	NM	10	R	[0..1]	The number of batches contained in this file. Since this interface is constrained to one batch per file, this number should always be '1'.
File Trailer Comment	2	ST	80	O	[0..1]	

Example: `FTS|1`

3.7.4 BATCH HEADER (BHS) SEGMENT

The BHS segment is used to head a group of messages that comprise a batch.

TABLE 3.7.4: BATCH HEADER SEGMENT (BHS)

FIELD NAME	SEQ	DT	LEN	USAGE	CARDINALITY	DESCRIPTION/COMMENTS
Batch Field Separator	1	ST	1	R	[1..1]	Default Value "|" (ASCII 124).
Batch Encoding Characters	2	ST	4	R	[1..1]	Default Values "^~\&" (ASCII 94,126,92, and 38).
Batch Sending Application	3	HD	227	R	[1..1]	
Batch Sending Facility	4	HD	227	R	[1..1]	
Batch Receiving Application	5	HD	227	R	[1..1]	
Batch Receiving Facility	6	HD	227	R	[1..1]	
Batch Creation Date/Time	7	TS	26	R	[1..1]	

TABLE 3.7.4: BATCH HEADER SEGMENT (BHS)					
FIELD NAME	**SEQ**	**DT**	**LEN**	**USAGE**	**CARDINALITY**	**DESCRIPTION/COMMENTS**
Batch Security	8	ST	40	X	[0..1]	
Batch Name/ID	9	ST	20	O	[0..1]	
Batch Header Comment	10	ST	80	O	[0..1]	
Batch Control ID	11	ST	20	O	[0..1]	
Reference Batch Control ID	12	ST	20	O	[0..1]	

Example: `BHS|^~\&|ER1^2.16.840.1.113883.19.3.1.1^ISO`
`|CITY_GENERAL^2.16.840.1.113883.19.3.1^ISO|SS_APP^2.16.840.1.113883`
`.19.3.2.1^ISO|SPH^2.16.840.1.113883.19.3.2^ISO|20080723123558-0400`

3.7.5 BATCH TRAILER (BTS) SEGMENT

The BTS segment defines the end of a batch of messages.

TABLE 3.7.5: BATCH TRAILER SEGMENT (BTS)					
FIELD NAME	**SEQ**	**DT**	**LEN**	**USAGE**	**CARDINALITY**	**DESCRIPTION/COMMENTS**
Batch Message Count	1	NM	10	R	[0..1]	The number of messages contained in the preceding batch.
Batch Comment	2	ST	80	O	[0..1]	
Batch Totals	3	NM	100	X	[0..*]	

Example: `BTS|100|Facility reporting for 2-1-2011`

3.8 USAGE CONFORMANCE TESTING RECOMMENDATIONS

The following text is pre-adopted from the HL7 V2.7.1 Conformance (Chapter 2B, 2.B.7.5). Please refer to the base standard documentation for a full explanation of conformance concepts. Usage is described here as it introduces the revised approach to conditional element handling; upon successful ballot and publication this material will be replaced with a reference to the normative documentation.

---------- *start citation*---------

2.B.7.5 Usage

> Message content is governed by the cardinality specification associated (explicitly or implicitly) with each element of an HL7 message. Usage rules govern the expected behavior of the sending application and receiving application with respect to the element. The usage codes expand/clarify the optionality codes defined in the HL7

standard. Usage codes are employed in a message profile to constrain the use of elements defined in the standard. The usage code definitions are given from a sender and receiver perspective and specify implementation and operational requirements.

The standard allows broad flexibility for the message structures that HL7 applications must be able to receive without failing. But while the standard allows that messages may be missing data elements or may contain extra data elements, it should not be inferred from this requirement that such messages are conformant. In fact, the usage codes specified in a message profile place strict conformance requirements on the behavior of the application.

Definition of Conditional Usage

The conditional usage is defined as follows:

C(a/b) - "a" and "b" in the expression are placeholders for usage codes representing the true ("a") predicate outcome and the false ("b") predicate outcome of the condition. The condition is expressed by a conditional predicate associated with the element ("See section 2.b.7.9, "Condition predicate"). "a" and "b" shall be one of "R", "RE", "O" and/or "X". The values of "a" and "b" can be the same.

The example C(R/RE) is interpreted as follows. If the condition predicate associated with the element is true then the usage for the element is R-Required. If the condition predicate associated with the element is false then the usage for the element is RE-Required but may be empty.

There are cases where it is appropriate to value "a" and "b" the same. For example, the base standard defines the usage of an element as "C" and the condition predicate is dependent on the presence or non-presence of another element. The profile may constrain the element that the condition is dependent on to X; in such a case the condition should always evaluate to false. Therefore, the condition is profiled to C(X/X) since the desired effect is for the element to be not supported. Note it is not appropriate to profile the element to X since this breaks the rules of allowable usage profiling (see table HL7 Optionality and Conformance Usage).

Usage Rules for a Sending Application

Optionality /Usage Indicator	Description	Implementation Requirement	Operational Requirement
R	Required	The application shall implement "R" elements.	The application shall populate "R" elements with a non-empty value.
RE	Required but may be empty	The application shall implement "RE" elements.	The application shall populate "RE" elements with a non-empty value if there is relevant data. The term "relevant" has a confounding interpretation in this definition[5].

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[5] There are multiple interpretations of "RE" when a value is known. One is "the capability must always be

Optionality /Usage Indicator	Description	Implementation Requirement	Operational Requirement
C(a/b)	Conditional	An element with a conditional usage code has an associated condition predicate (See section 2.B.7.9, "Condition predicate" that determines the operational requirements (usage code) of the element. **If the condition predicate associated with the element is true, follow the rules for *a* which shall be one of "R", "RE", "O" or "X":** **If the condition predicate associated with the element is false, follow the rules for *b* which shall be one of "R", "RE", "O" or "X".** *a* and *b* can be valued the same.	
X	Not supported	The application (or as configured) shall not implement "X" elements.	The application shall not populate "X" elements.
O	Optional	None. The usage indicator for this element has not yet been defined. For an implementation profile all optional elements must be profiled to R, RE, C(a/b), or X.	Not Applicable.

Usage Rules for a Receiving Application

Optionality/Usage Indicator	Description	Implementation Requirement	Operational Requirement
R	Required	The application shall implement "R" elements.	The receiving application shall process (save/print/archive/etc.) the information conveyed by a required element. A receiving application shall raise an exception due to the absence of a required element. A receiving application shall not raise an error due to the presence of a required element.

supported and a value is sent if known", the other is "the capability must always be supported and a value may or may not be sent even when known based on a condition external to the profile specification. The condition may be noted in the profile but cannot be processed automatically". This is what can be interpreted from the "relevant" part of the definition. Regardless of the interpretation the "RE" usage code, a set of test circumstances can be developed to sufficiently test the "RE" element. See the "Conformity Assessment of Conformance Constructs" section for more details.

Optionality/Usage Indicator	Description	Implementation Requirement	Operational Requirement
RE	Required but may be empty	The application shall implement "RE" elements.	The receiving application shall process (save/print/archive/etc.) the information conveyed by a required but may be empty element. The receiving application shall process the message if the element is omitted (that is, an exception shall not be raised because the element is missing).
C(a/b)	Conditional	The usage code has an associated condition predicate true (See section 2.B.7.9, "Condition predicate"). **If the condition predicate associated with the element is true, follow the rules for *a* which shall one of "R", "RE", "O" or X":** **If the condition predicate associated with the element is false, follow the rules for *b* which shall one of "R", "RE", "O" or X".** *a* and *b* can be the same.	
X	Not supported	The application (or configured) shall not implement "X" elements.	None, if the element is not sent. If the element is sent the receiving application may process the message, shall ignore the element, and may raise an exception. The receiving application shall not process (save/print/archive/etc.) the information conveyed by a not-supported element.
O	Optional	None. The usage indicator for this element has not yet been defined. For an implementation profile all optional elements must be profiled to R, RE, C(a/b), or X.	None.

--------- end citation ---------

4 DATA ELEMENTS OF INTEREST FOR SYNDROMIC SURVEILLANCE

4.1 COLUMN HEADINGS

Table 4-1 contains the column heading for the Data Elements of Interest tables that follow.

TABLE 4-1: COLUMN HEADINGS FOR DATA ELEMENTS OF INTEREST TABLES	
COLUMN NAME	**DEFINITION**
Data Element Name	Name of the core data set element as provided by ISDS
Description of Field	Description of the data element
Sender Usage Receiver (RCVR) Usage	Indicator of whether a data element is required, optional, or conditional in a message, set separately for Senders and Receivers. Legal values are: R – Required, Must always be populated by the Sender, and if not present, the Receiver may reject the message. RE[6] - Required, but may be empty (no value). If the Sender has data, the data must be sent. The Receiver must be capable of processing data if sent, and must not raise an error or warning if the data is not sent. O – Optional-There are no specified conformance rules for either Sender or Receiver for this field in this guide. As an implemented interface must follow known rules for populated fields and components, a specific interface for a particular Sender or Receiver must constrain this usage to either R, RE, C, CE, or X. This value has been deliberately left unconstrained in this guide to support differing and sometimes mutually exclusive statutory requirements in different jurisdictions; this must be determined locally. C – Conditional - When conditionality predicate evaluates to 'True', considered the same as 'R'. When condition evaluates to 'False', Senders must not populate the field, and Receivers may raise an error if the field is present but must not raise an error if the field is not present. CE - Conditionality Empty - When conditionality predicate evaluates to 'True', behaves the same as 'RE'.

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[6] The element may be missing from the message, but must be sent by sending application if there is relevant data. A conforming sending application must be capable of providing all 'RE' elements. If conforming sending application knows required values for the element, it must send that element. If conforming sending application does not know the required values, then that element will be omitted.

TABLE 4-1: COLUMN HEADINGS FOR DATA ELEMENTS OF INTEREST TABLES	
COLUMN NAME	DEFINITION
	When conditionality predicate evaluates to 'False', the Sender should not populate the field, and the Receiver may raise an application error if the field is present. X - Not supported - Senders must not populate. Receivers may ignore the element if it is sent, or may raise an error if field is present. **Note:** A required field in an optional segment does not mean the segment must be present in the message. It means that if the segment is present, the required fields within that segment must be populated. The same applies to required components of optional fields. If the field is being populated, then the required components must be populated. The same applies to required sub-components of optional components. If a component is being populated, then the required sub-components of that component must be populated.
Cardinality	Minimum and maximum number of times the field may appear. [0..0] Field never present [0..1] Field may be omitted and can have, at most, one occurrence. [1..1] Field must have exactly one occurrence [0..n] Field may be omitted or may repeat up to *n* times [1..n] Field must appear at least once, and may repeat up to *n* time. [0..*] Field may be omitted or repeat an unlimited number of times. [1..*] Field must appear at least once, and may repeat unlimited number of times. [m..n] Field must appear at least *m* and at most *n* times.
Value Set /Value Domain	Link to value set or literal value of data expected to be populated in the field. Numbers in this field denote the related vocabulary in that HL7 Table. Contains the name and/or the PHIN Value Set (accessible through PHIN VADS) when relevant as well as notes, condition rules and recommendations
Implementation Notes	Describes additional notes that are relevant to the rules and/or processing of the data element field. **NOTE**: If it is not otherwise explicitly stated, data element usage applies to all patient settings.
HL7 Location Mapping	Recommended location of Data Element for HL7 message population

4.2 SYNDROMIC SURVEILLANCE DATA ELEMENTS OF INTEREST

Table 4-2 contains the data elements of interest commonly used for public health syndromic surveillance. These data elements are captured from the exchange of patient clinical encounter records between different systems. The Data Element Name may be slightly different if translated to an HL7 Field Name in the segment descriptions. Changes/updates to any of these data elements trigger a new ADT^A08 message to be sent.

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST						
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RCVR USAGE**	**CARDINALITY**	**VALUE SET /VALUE DOMAIN**	**IMPLEMENTATION NOTES**	**HL7 LOCATION MAPPING**
Basic Message Information						
Facility Identifier (Treating)	Unique facility identifier where the patient was treated (original provider of the data)	R	R	[1..1]	Recommend the use of the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services. For more information about NPI, search for, or to apply for a NPI, click here. If NPI is not available, use a different unique identifier, such as OID or a State-designated identifier.	This number should be specific for each facility location (not a number representing an umbrella business) It is recommended that National Provider Identifier (NPI) be used for the Facility Identifier. NPI is a 10-digit identifier. **Note:** The use of 'NPI' should be discussed during the implementation process as local jurisdictions may differ on their use of identifiers for this field.	EVN-7.2 Event Facility - Facility Identifier

Example EVN-7: `|OTH_REG_MEDCTR^1234567890^NPI|`

Note: For implementation of Treating Facility Identifier in HL7 v.2.3.1 see details in Appendix E, |

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Facility Name (Treating)	Name of the treating facility where the patient is treated	RE

R for NIST validatio n | O | [0..1] | The use of Organization Legal Name Business Name (LBN) associated with the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services. is recommended. For more information about NPI, search for, or to apply for a NPI, click here. | If this data element is captured and maintained as part of the facility registration process, it may not be sent with every message. See ISDS recommendations, section 4.2, on Facility Registration.[7] | EVN-7.1 Event Facility - Facility Name

Example EVN-7: `|OTH_REG_MEDCTR^1234567890^NPI|`

Note: For implementation of Treating Facility Name in HL7 v.2.3.1 see details in Appendix E, Section 9.2. |

[7] International Society for Disease Surveillance. (2011, January). Final Recommendation: Core Processes and EHR Requirements for Public Health Syndromic Surveillance. Available online: www.syndromic.org/projects/meaningful-use, pp. 42-47

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Treating Facility Address (Street address, City, State, ZIP, and County)	Address of treating facility location: Street Address, City, ZIP Code, County, State	RE R for NIST validation	O	[0..1]	State: Use FIPS state codes as follows: 2.16.840.1.114222.4.11.830 PHVS_State_FIPS_5-2 County: Use 5 digit FIPS County codes as follows: 2.16.840.1.114222.4.11.828 PHVS_County_FIPS_6-4 Country: Use 3 character ISO Country Codes as follows: 2.16.840.1.114222.4.11.828 PHVS_Country_ISO_3166-1	If this data element is captured and maintained as part of the facility registration process, it may not be sent with every message. See ISDS recommendations, section 4.2, on Facility Registration.[8] This data can also be accommodated in the Facility Registration process as defined by ISDS.	OBX Segment with OBX-3 Observation Identifier of SS002 Treating Facility Location (PHINQUESTION) and OBX-2 Value Type of XAD. The XAD Data Type has specific fields to accommodate the street address, city, county and state, so only a single OBX is required to pass the data. Example OBX segment: `OBX|1|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||1234 Anywhere Street^^Doraville^13^30341^USA^C^^13089|||||||F|||201102091114`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST

DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING

Facility/Visit type	Type of facility that the patient visited for treatment	R	R	[1..1]	For OBX-3 Use the following the National Claim Committee , NUCC, codes 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance SS003 Facility / Visit Type (PHIN Questions)
					
					For OBX-5 use: 2.16.840.1.114222.4.11.3401 PHVS_FacilityVisitType_SyndromicSurveillance
						ED/UC/AC DATA ELEMENT OF INTEREST ONLY
						
						Relevant facility/visit type values are defined in value set.
						This data can also be accommodated in the Facility Registration process as defined by ISDS for facilities where a single facility/visit type is expected.
						
						Inpatient example using Healthcare Service Location code:
						`OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||`**`1021-5^Inpatient Care Setting`**`^HSLOC||||||F|||201102091114`
						
						Urgent Care example using NUCC code:
						`OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||`**`261QU0200X^Urgent Care^`**`HCPTNUCC||||||F|||201102091114`
							OBX Segment with OBX-3 Observation Identifier SS003^FACILITY/VISIT TYPE (PHINQUESTION) and OBX-2 Value Type of CWE to allow for coded input of facility types in OBX-5 Observation Value.
							Example OBX segments:
							`OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||`**`261QE0002X^Emergency Care^HCPTNUCC||||||F|||201102091114`**
							
							`OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||`**`261QM2500X^Medical Specialty^HCPTNUCC||||||F|||201102091114`**
							
							`OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||`**`261QP2300X^Primary Care`**`^HCPTNUCC||||||F|||201102091114`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Message (Event) Date/Time	Date and time that the report is created / generated from original source (from treating facility)	R	R	[1..1]		If data flows through an intermediary or third party, the intermediary must keep the original date/time of transmission. HL7 Date/Time Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]	EVN-2 Event Date/Time Example Report Date/Time: 1:01:59 AM EST on July 4, 2011 |20110704010159-0500|
Unique Physician Identifier	Unique identifier for the physician providing care	O	O	[0..1]	Recommend the use of the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services. For more information about NPI, search for, or to apply for a NPI, click here. If NPI is not available, use a different unique identifier, such as OID or a State-designated identifier		PV1-7 Attending Doctor Attending Doctor is the XCN datatype where the ID number is in the first component and the assigning authority is in the 9th component as a HD (hierarchical designator) type. Example using the NPI: |1234567890^^^^^^^^^NPI& 2.16.840.1.113883.4.6& ISO|
Provider Type		O	O	[0..*]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.35 89 PHVS_ObservationIdentifi er_SyndromicSurveillance 54582-2 Provider type (LOINC) OBX-5 uses a value from Provider Type from NUCC Healthcare Provider Taxonomy Code System : 2.16.840.1.113883.1.6.101 ProviderType		

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING

Unique Patient Identifier / Medical Record Number	Unique identifier for the patient or visit	R	R	[1..*]	Value set uses a subset of HL7 2.x Identifier Type table (excluding organization identifier) 2.16.840.1.114222.4.11.3597 PHVS_IdentifierType_SyndromicSurveillance
					
					Notes: Data providers and PHAs should determine which unique identifier(s) will be sent in accordance with applicable local and state laws for the purpose of conducting reach-back if necessary. If the sender and receiver agree to support record linkage (of patient records across multiple encounters), a Unique Patient Identifier should be used that will allow the matching and linking of a patient's records across multiple encounters.
						Unique Patient Identifiers related to individual identifiers found in the Value set/Value Set Domain column. The contents of this field can be used to crosswalk patient visits with multiple visit numbers.
						It is recommended that data providers submit the patient medical record number to facilitate identification of the patient, in the event of a required follow-up investigation. Without the medical record number, the work required to follow-up on the records of interest greatly increases on the data provider and may cause unacceptable delays in public health response. In addition, the medical record number may aid in record de-duplication efforts and may often aid in the resolution of apparent transcription errors.
							PID-3 Patient Identifier List
							The Unique Patient Identifier occurs in the 1st component of the CX data type. The 5th component, the Identifier Type Code, defines the type of identifier used in the 1st component. This field allows multiple patient identifiers to be passed in the message.
							
							The Medical Record # is a specific instance of a unique patient identifier. It occurs in the 1st component of the CX data type. The fifth component, the Identifier Type Code, defines the identifier as the Medical Record # (MR).
							
							Example PID-3 Field:
							`|MR101100001^^^^MR|`
							Other examples of identifiers:
							Internal Identifier (PI)
							`|95101100001^^^^PI|`
							External Identifier (PT)
							`|E95101100001^^^^PT|`
							
							Example PID-3 that shows all of these identifiers in the same message:
							`|MR101100001^^^^MR~95101100001^^^^PI~E95101100001^^^^PT|`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Unique Visit Identifier	Unique identifier for the visit/encounter	R	R	[1..*]	Value set uses a subset of HL7 2.x Identifier Type table (excluding organization identifier) 2.16.840.1.114222.4.11.3597 PHVS_IdentifierType_Syndro micSurveillance	Unique Patient Identifiers related to individual identifiers found in the Value set/Value Set Domain column. A visit is defined as a discrete or unique clinical encounter within a service department or location. **Note**: Every visit will generate a record.	PV1-19 Visit ID The Unique Visit ID occurs in the 1st component of the CX data type. The 5th component, the Identifier Type Code, defines the identifier as the Visit Number (VN). Example PV1-19 Field: `|VN101100001^^^^VN|`
Gender	Stated gender of patient	RE R for NIST validatio n	RE	[0..1]	Use HL7 administrative sex codes as the following: 2.16.840.1.114222.4.11.3403 PHVS_Gender_SyndromicSu rveillance	Relevant Gender values are defined in value set. Notes: Helps to characterize the outbreak / condition of interest by person/place/time that may be affected by this social determinant	PID-8 Administrative Sex Example PID-8 Fields: `|F| or |M| or |U| or |O|`
Race	Race of patient	RE R for NIST validati on	RE	[0..*]	Use CDC Race & Ethnicity codes as the following: 2.16.840.1.114222.4.11.836 PHVS_RaceCategory_CDC	Relevant Race Category values are defined in value set. Notes: Helps to characterize the outbreak / condition of interest by person/place/time that may be affected by this social determinant	PID-10 Race A singe race code example: `|1002-5^American Indian or Alaska Native^CDCREC|` A multiple race codes example: `|2028-9^Asian^CDCREC~2106-3^White^CDCREC~2054-5^Black or African American^CDCREC|`
Ethnicity	Ethnicity of patient	RE R for NIST validati on	RE	[0..*]	Use CDC Race & Ethnicity codes 2.16.840.1.114222.4.11.837 PHVS_EthnicityGroup_CDC	Relevant Ethnicity values are defined in value set. Notes: Helps to characterize the outbreak / condition of interest by person/place/time that may be affected by this social determinant HL7 defines this field as repeating but it is not expected to repeat, based in the mutually exclusive values in the value set.	PID-22 Ethnicity Examples: `|2135-2^Hispanic or Latino^CDCREC|` `|2186-5^Not Hispanic or Latino^CDCREC|` `|UNK^Unknown^NULLFL|`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUE SET / VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Demographics							

Age/Age Units	Numeric value of patient age at time of visit	RE
		
		R for NIST validation
			RE	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance 21612-7 Age – Reported (LOINC)
					
					OBX-6 Units uses UCUM or Null Flavor as the following: 2.16.840.1.114222.4.11.3402 PHVS_AgeUnit_SyndromicSurveillance
						Data providers and receivers should determine specific data restrictions for their jurisdiction.
						In order for age to be de-identified, age must be rounded to an integer. For patients age greater than or equal to (>=) 2 years old, report in whole years. Unit value should be "Year"
						• Truncate age to integer. For example, 16.75 years = 16 years old For patients less than (<) 2 years old:
						• Report the age in integer months. Do not report days or weeks.
						• Truncate month to integer. For example, 5 months and 20 days = 5 months old.
						• Unit value should be "Months" for patients less than (<) 2 years old
							OBX Segment with OBX-3 Observation Identifier of 21612-7 AGE – REPORTED (LOINC) and OBX-2 Value Type of NM
							Age number is reported in OBX-5 Observation Value
							Example OBX Segment for a patient greater than 2 years:
							`OBX|4|NM|21612-7^AGE – REPORTED^LN||43|a^YEAR^UCUM|||||F|||20110217`
							Example OBX Segment for a patient less than 2 years:
							`OBX|4|NM|21612-7^AGE – REPORTED^LN||5|mo^month^UCUM|||||F|||20110217`

Patient City/Town	City or town of patient residence	RE R for NIST validation	RE	[0..1]	The ISDS recommendations allow free text City/Town designations.	Helps characterize spatio-temporal patterns for analysis based on patient's residence. Potential proxy to identify socio-economic disparities. Can identify out of state patients for treatments/conditions. This data element is RE to allow for differences in geographical characterization between jurisdictions (i.e., some states operate public health activities on a county level, others on a city/town level, etc.) By making City/Town, ZIP and County all Core (RE) PHAs will have access to the necessary geographic information.	PID-11.3 Patient Address City Examples: `|^^City/Town Name|`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Patient ZIP Code	ZIP Code of patient residence	RE R for NIST validatio n	RE	[0..1]		Provide a minimum of 5 digits for domestic ZIP codes. Foreign postal codes should be supported. Supports the Federal use case. County helps to further target spatio-temporal patterns since ZIP Code can cross multiple counties. This data element is Core to allow for differences in geographical characterization between jurisdictions (i.e., some states operate public health activities on a county level, others on a city/town level, etc.)	PID-11.5 Patient Address Postal Code Example Address with just ZIP/Postal code component populated: |^^^^30303|
Patient County	County of patient residence	RE R for NIST validatio n	RE	[0..1]	Use 5-digit FIPS county codes as the following: 2.16.840.1.114222.4.11.829 PHVS_County_FIPS_6-4	Patient's residence County Supports the Federal use case. County helps to further target spatio-temporal patterns since ZIP Code can cross multiple counties. This data element is Core to allow for differences in geographical characterization between jurisdictions (i.e., some states operate public health activities on a county level, others on a city/town level, etc.)	PID-11.9 Patient Address County Example Address with just County component populated as FIPS numeric: |^^^^^^^^13089|
Patient State	State of patient residence	RE R for NIST validatio n	O	[0..1]	Use FIPS state codes as the following: 2.16.840.1.114222.4.11.830 PHVS_State_FIPS_5-2	It is recommended that the 2-digit (numeric) abbreviation be used for State of the patient domestic home address. Helps characterize spatial-temporal patterns for analysis based on patient's residence. It is also a readily available data element that is useful if other patient location data elements are not available.	PID-11.4 Patient Address State Example Address with just State component populated as FIPS numeric used GA as the example): |^^^13|

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Patient Country	Country of patient residence	RE R for NIST validatio n	O	[0..1]	Use ISO country codes as following: 2.16.840.1.114222.4.11.828 PHVS_Country_ISO_3166-1	It is recommended that the 3-character country codes be used for Country of the patient home address. There are some foreign countries that use 5 digit zip codes, so country is needed to help identify if patient is international.	PID-11.6 Patient Address Country Example Address with just Country component populated as FIPS numeric used GA as the example): `|^^^^^CAN|`
Visit Information							
Chief Complaint / Reason for Visit	Patient's self-reported chief complaint or reason for visit	RE R for NIST validatio n	RE	[0..*]	For OBX-3 Use: 8661-1 Chief complaint – Reported (LOINC) For OBX-5 Use: Free text	This field is the patient's **self-reported** chief complaint or reason for visit. It is distinct from the Admit Reason field which is the **provider's reason** for admitting the patient Senders should send the most complete description of the patient's chief complaint. In some cases, this may entail sending multiple chief complaint values. If both the free text chief complaint text and drop down selection chief complaint text are available, send both. Some systems may automatically overwrite chief complaint with final diagnosis when the final diagnosis code is assigned. The chief complaint text should NOT be replaced with other information either manually or by the data provider's system. Keep the chief complaint the same as how it was captured at time of admission.	OBX Segment with OBX-3 Observation Identifier of 8661-1 Chief Complaint – Reported (LOINC) and OBX-3 Value Type of TX. Free text chief complaint is entered as OBX-5 Observation Value. Example OBX Segment: `OBX|3|TX|8661-1^CHIEF COMPLAINT – REPORTED^LN||STOMACH ACHE THAT HAS LASTED 2 DAYS; NAUSEA AND VOMITING; MAYBE A FEVER||||||F|||201102171 531` **Conformance Statement SS-005:** The patient's chief complaint **SHALL** be captured only as an unstructured, free-text note, valued in OBX- 5, TX.1. This method includes chief complaint captured from a coding system or captured as a structured field in the source system.

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Admit or Encounter Reason	Short description of the provider's reason for admitting the patient	RE R for NIST validatio n	RE	[0..1]	Free Text **Or** ICD-9 codes as the following:PHVS_Administrati veDiagnosis_CDC_ICD-9CM **Or** Or ICD-10 codes as the following PHVS_AdministrativeDiagnos is_ICD-10CM **Or** SNOMED-CT codes as the following: PHVS_Disease_CDC **Conformance Statement SS-009**: The implementation SHALL support all 3 value sets for Admit Reason: ICD-9 CM Administrative Diagnosis Codes; ICD-10 codes; SNOMED Disease or Disorder - 64572001 Domain.	This field is the **provider's reason** for admitting the patient. It is distinct from the Chief Complaint / Reason for Visit field which is the patient's **self-reported** chief complaint or reason for visit. Senders should send the richest and most complete description of the patient's reason for admission or encounter. If both free text and drop down selection text are available, send both. If only drop down list fields are available, then concatenate all drop down list values selected and submit.	PV2-3 Admit Reason Coded admit/encounter reasons use PV2-3 Components 1 through 3 (Identifier, text, code system id) Free text admit /encounter reason statements are documented in PV2-3.2 Text Drop-down, canned text admit /encounter reason is documented in PV2-3.2 Text Example using ICD9-CM: |94821^Burn [any degree] involving 20-29 percent of body surface with third degree burn, 10-19%^I9CDX| Example using free text: |^Third degree burns over head, neck and both arms| Example using "canned text" that is also mapped in PV2-3.2: |^Burned over 25% of body surface with third degree burns|
Admit or Encounter Date / Time	Date and Time of encounter or admission	R	R	[1..1]		Helps identify temporal patterns. HL7 Date/Time Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] Required for all ADT transactions	PV1-44 Admit Date Example Admit or Encounter Date/Time: 2:06:59 PM EST on April 1, 2011 |20140401140659-0500| with time zone offset or |201404011406| meets the minimum precision

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Date of onset	Date that the patient began having symptoms of condition being reported	O	O	[0..1]	For OBX-3 Use: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ Syndromic Surveillance 11368-8 Illness or injury onset date and time (LOINC)	This element is represented by the LOINC code: 11368-8 in the OBX observation identifier. The actual data value occurs in the 5th field of the same OBX segment and is a Timestamp as defined by the OBX Data Type TS.	OBX Segment with OBX-3 Observation Identifier 11368-8 Illness or Injury Onset Date (LOINC) and OBX-2 Value Type of TS to allow timestamp format input (YYYYMMDD) in OBX-5 Observation Value. Example OBX Segment: `OBX|7|TS|11368-8^ILLNESS OR INJURY ONSET DATE^LN||20110215|||||F`
Patient Class	Patient classification within facility	R	R	[1..1]	For PV1-2, use HL7 Patient Class codes from: 2.16.840.1.114222.4.11.3404 PHVS_PatientClass_Syndro micSurveillance	Used to identify which data stream (setting) the record is coming from. PV1-2 Patient Class is HL7-required in the PV1 segment. Limit values only to E: Emergency; I: Inpatient; O: Outpatient If patient class is unavailable, use |U| to populate the field. A strict validator requires this field to be populated.	PV1-2 Patient Class Example PV1-2 Fields: `|I| or |E| or |O|`
Admission Type	This field indicates the circumstances under which the patient was or will be admitted	O	O	[0..1]	2.16.840.1.114222.4.11.913 Admission Type (HL7) In the US, it is recommended to report the UB92 FL 19 "Type of Admission" in this field.	Potentially used for filtering on ED patients to create the A03 Discharge when one is not created when an ED patient is admitted as an inpatient UB code of |1| is Emergency Type of Admission)	PV1-4 Admission Type `|E|` (Emergency), `|U|` (Urgent), `|A|` (Accident), `|L|` (Labor and Delivery), `|R|` (Routine), `|C|` (Elective), `|N|` (Newborn)

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Admit Source	This field indicates where the patient was admitted	O	O	[0..1]	2.16.840.1.114222.4.11.918 Admission Source (HL7) This field is used on UB92 FL20 "Source of Admission". Refer to a UB specification for additional information.	Potentially used for filtering on ED patients to create the A03 Discharge when one is not created upon ED admission to inpatient	PV1-14 Admit Source May have a UB code of '7' if ED is admit source
Hospital Unit	Hospital unit where patient is at the time the message is sent (admission and discharge)	RE R for NIST validatio n	RE	[0..1]	For OBX-3 use the following LOINC codes and PHIN values: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ SyndromicSurveillance 56816-2 Patient location (LOINC) For OBX-5 Use HL7 service location codes: 2.16.840.1.113883.13.19 NHSNHealthcareServiceLoca tionCode	INPATIENT DATA ELEMENT OF INTEREST ONLY NOTE: this is a standardization of the PV1-3 Assigned Patient Location that will require a mapping to the Healthcare Service Location codes.	OBX Segment with OBX-3 Observation Identifier of 56816-2 Patient Location (LOINC) and OBX-2 Value Type of CWE Hospital Unit value from Healthcare Service Location code system is in OBX-5 Value Example OBX Segment OBX|3|CWE|56816-2^PATIENT LOCATION^LN||1029-8^Medical/Surgical critical care unit^HSLOC||||||F|||20110217
Previous Hospital Unit	Hospital unit where patient was prior to the current transaction	O R for NIST validatio n	RE	[0..1]	Local location mappings only	INPATIENT DATA ELEMENT OF INTEREST ONLY Potentially used for filtering on A01 admits if the previous location was "Emergency"	PV1-6 Prior Patient Location
Diagnostic and Pre-Diagnostic							
Diagnosis Type	Qualifier for Diagnosis / Injury Code specifying type of diagnosis	RE R for NIST validatio n	RE	[0..*]	Use the following HL7 Diagnosis Type codes: 2.16.840.1.114222.4.11.827 PHVS_DiagnosisType_HL7_2 x	N/A FOR AMBULATORY CARE It is critical to be able to distinguish among the diagnosis types when the syndromic system is receiving messages in real-time. Diagnosis Type helps identify the type/status of diagnosis since it may change over time.	DG1-6 Diagnosis Type **Condition Predicate:** If the DG1 Segment is provided, DG1-6 (Diagnosis Type) is required to be valued. Values are: A = Admitting, F = Final, W = Working

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RCVR USAGE**	**CARDINALITY**	**VALUE SET /VALUE DOMAIN**	**IMPLEMENTATION NOTES**	**HL7 LOCATION MAPPING**
Primary Diagnosis Additional Diagnosis	Primary diagnosis of the patient's condition Additional diagnoses of the patient's condition(s)	RE R for NIST validation	RE	[0..*]	Use ICD-9 CM Administrative Diagnosis Codes used for billing purposes, Reason for Study as the following: 2.16.840.1.114222.4.11.856 PHVS_AdministrativeDiagnosis_CDC_ICD-9CM **Or** ICD-10 codes and associated cause-of-death titles as the following : 2.16.840.1.114222.4.11.3593 PHVS_CauseOfDeath_ICD-10_CDC **Or** SNOMED-CT codes as the following: 2.16.840.1.114222.4.11.909 PHVS_Disease_CDC (SNOMED Based Value set)	Diagnosis from the provider (EHR) is preferred over the diagnosis provided through billing. Include V-codes and E-codes. When the primary diagnosis code is an injury, also provide one or more supplemental external-cause-of-injury codes or E-codes. E-codes provide useful information on the mechanism and intent of injury, place of occurrence, and activity at the time of injury. This also applies to ICD-10-CM (when it is implemented) where V, W, X, Y and selected T codes represent external cause of injury codes. Data should be sent on a regular schedule and should not be delayed for diagnosis or verification procedures. Regular updating of data should be used to correct any errors or send data available later. This field is a repeatable field; multiple codes may be sent. The first diagnosis code should be the primary diagnosis.	DG1-3 Diagnosis Code – DG1 **Condition Predicate:** If the DG1 Segment is provided, DG1-3 (Diagnosis Code) is required to be valued. When sending data, Primary Diagnosis and Additional Diagnosis are reported using the same data field. The data elements are separated in the ISDS Recommendations and Guidelines document in order to distinguish the PHA use/significance between the two data elements.

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Discharge Disposition	Patient's anticipated location or status following discharge	RE R for NIST validation (A03 only)	RE	[0..1]	Uses National Uniform Billing Committee (NUBC) –Patient Status (UB04 -Field 17 Codes). PHVS_DischargeDisposition_HL7_2x 2.16.840.1.114222.4.11.915 Discharge Disposition (HL7) The disposition of the patient at time of discharge (i.e., discharged to home, expired, etc.).	N/A FOR AMBULATORY CARE Helps identify severity of patient's condition and any indication of death It is expected that this field will update with multiple submissions. Include both the code and text description of the code. This field should indicate patient death, if applicable.	PV1-36 Discharge Disposition PV1-36 is defined as a user-defined datatype (IS) that uses the UB92 FL22 codes as listed in the value set **Condition Predicate:** This data element is: Required in ADT^A03 message type/trigger event Required Empty in ADT^A08 message type/trigger event Not Supported in ADT^A01, ADT^A04 message type/trigger event
Discharge or Disposition Date/Time	Date and time of discharge	RE R for NIST validation (A03 only)	RE	[0..1]		N/A FOR AMBULATORY CARE HL7 Date/Time Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] **Condition Predicate:** This data element is: Required in ADT^A03 message type/trigger event Required Empty in ADT^A08 message type/trigger event Not Supported in ADT^A01, ADT^A04 message type/trigger event**.**	PV1-45 Discharge Date/Time Example Discharge Date/Time: 4:45:12 PM EST on January 13, 2011 `|20110113164512-0500|`
Procedure Code	Procedures administered to the patient	O	O	[0..1]	CPT-4, ICD-9CM Procedure code , Volume 3 or ICD-10-PCS International Classification of Diseases, 10th Revision, Procedure Coding System (ICD-10-PCS)	If a PR1 segment is included in message then this is a required data element. *Note*: Each jurisdiction should define what procedure codes should be transmitted.	PR1-3 Procedure Code

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RCVR USAGE**	**CARDI NALITY**	**VALUE SET /VALUE DOMAIN**	**IMPLEMENTATION NOTES**	**HL7 LOCATION MAPPING**
Triage Notes	Triage notes for the patient visit	O	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.358 9 PHVS_ObservationIdentifier _SyndromicSurveillance 54094-8 Emergency department Triage note (LOINC) For OBX-5 use: Free text. For further guidance refer to the column – 'HL7 Location' Mapping	ED/UC DATA ELEMENT OF INTEREST ONLY This element is represented by the LOINC code: 54094-8 in the OBX observation identifier. Triage Notes should be sent as free text. Triage notes may benefit from additional processing (e.g. negation processing, natural language processing, etc.) in order to maximize the utility of the data.	OBX Segment with OBX-3 Observation Identifier 54094-8 Emergency Department Triage Notes (LOINC) and OBX-2 Value Type of TX to allow free text input only in OBX-5 Observation Value. Example OBX Segment: `OBX|7|TX|54094-8^EMERGENCY DEPARTMENT TRIAGE NOTE^LN||Pain a recurrent cramping sensation.||||||F|||2011 02091114`
Clinical Impression	Clinical impression (free text) of the diagnosis	O	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ SyndromicSurveillance 44833-2 Preliminary diagnosis (LOINC) For OBX-5 Use: Free text. For further guidance refer to the column – 'HL7 Location' Mapping	ED/UC/AC DATA ELEMENT OF INTEREST ONLY This element is represented by the LOINC code: 44833-2 in the OBX observation identifier. Clinical Impressions should be sent as free text.	OBX Segment with OBX-3 Observation Identifier 44833-2 Preliminary Diagnosis (LOINC) and OBX-2 Value Type of TX to allow free text input only in OBX-5 Observation Value. Example OBX Segment: `OBX|1|TX|44833-2^PRELIMINARY DIAGNOSIS^LN||Pain consist with appendicitis||||||F|||20 110209111`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Pregnancy Status	Whether the patient is pregnant during the encounter	O	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier SyndromicSurveillance 11449-6 Pregnancy Status (LOINC) OBX-5 is Yes, No or Unknown PHVS_YesNoUnknown_CDC 2.16.840.1.114222.4.11.888	HL70136 if 'yes' or 'no' NULLFL if Unknown	OBX Segment with OBX-3 Observation Identifier 11449-6 Pregnancy Status (LOINC) and OBX-2 Value Type of CWE. The observation value in OBX-5 is text-only. Example OBX Segment: OBX|1|CWE|11449-6 Pregnancy Status ^LN||Y^Yes^HL70136|||||F

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RCVR USAGE**	**CARDI NALITY**	**VALUE SET /VALUE DOMAIN**	**IMPLEMENTATION NOTES**	**HL7 LOCATION MAPPING**
Problem List	Problem list of the patient condition(s)	O	O	[0..*]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ SyndromicSurveillance 11450-4 Problem List - Reported (LOINC) The certification criterion specifies that ICD-9CM or SNOMED-CT® are the code sets which must be included in Certified EHR Technology, and are therefore the code sets that would be used to record entries as structured data.	ISDS Recommendation document: [9]: Rationale: Can provide co-morbidity, pregnancy status, and indications of severity and chronic disease conditions, and medical and surgical histories The Problem List may be derived from the HL7 Message types PPR - Patient Problem Message (Events PC1, PC2, PC3). The patient problem message is used to send problems from one application to another (e.g., a point of care system to a clinical repository). Many of the segments associated with this event are optional. This optionality allows systems in need of this information to set up transactions that fulfill their requirements. Receiving systems may only be interested in active problems.	OBX Segment with OBX-3 Observation Identifier 11450-4 Problem List - Reported (LOINC) and OBX-2 Value Type of CWE. Example OBX Segment: `OBX|1|CWE|11450-4^Problem List - Reported^LN|| 5990^UTI (URINARY TRACT INFECTION)^I9CDX ||||||F|||20110217`

[9] International Society for Disease Surveillance. Electronic Syndromic Surveillance Using Hospital Inpatient and Ambulatory Clinical Care Electronic Health Record Data: Recommendations from the ISDS Meaningful Use Workgroup. 2012. Available online: http://www.syndromic.org/meaningfuluse/IAData/Recommendations.

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RCVR USAGE**	**CARDINALITY**	**VALUE SET /VALUE DOMAIN**	**IMPLEMENTATION NOTES**	**HL7 LOCATION MAPPING**
Medication List	Current medications entered as narrative	O	O	[0..*]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ SyndromicSurveillance 10160-0 Medication Use Reported (LOINC) OBX-5 allows formatted text/narrative only		OBX Segment with OBX-3 Observation Identifier 10160-Medication Use Reported (LOINC) and OBX-2 Value Type of TX. The observation value in OBX-5 is text-only. Example OBX Segment: `OBX|1|TX|10160-0 ^Medication Use Reported^LN||Lasix 20 mg po bid, Simvastatin 40 mg po qd||||||F|||20110217`
Medications Prescribed or Dispensed	Current medications entered as standardized codes	O	O	[0..*]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ SyndromicSurveillance 8677-7 History of Medication Use - Reported (LOINC) OBX-5 (1) Standard. Any source vocabulary that is included in RxNorm, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine. (2) Standard. RxNorm, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine, August 6, 2012 Release (incorporated by reference in §170.299).	Collection of this data may be relevant to more in-depth analyses, individual patient follow-up or other surveillance process.	OBX Segment with OBX-3 Observation Identifier 8677-7 History of Medication Use - Reported (LOINC) and OBX-2 Value Type of CWE. Example OBX Segment: `OBX|8|TX|8677-7^History of Medication Use Reported^LN ||151679^Serzone^RXNOR M~42568^Wellbutrin^RXN ORM~431722^12 HR Tramadol 100 MG Extended Release Tablet||||||F`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Vitals							
Height	Height of the patient	RE R for NIST validati on	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.113883.3.88.12.80 .62 PHVS_VitalSignResult_HITS P 8302-2 Body height (LOINC) For OBX-6 use the following UCUM - Unified Codes for Units of Measure: 2.16.840.1.114222.4.11.891 PHVS_HeightUnit_UCUM	Allows calculation of Body Mass Index (BMI), which may be an indicator of obesity for chronic disease. **Note**: If BMI can be calculated within the EHR, then it is preferable to just receive BMI instead of height and weight.	OBX Segment with OBX-3 Observation Identifier 8302-2 Body Height (LOINC) and OBX-2 Value Type of NM. The height number is OBX-5 Observation Value and the height units are in OBX-6 Units. Example OBX Segment: `OBX|3|NM|8302-2^BODY HEIGHT^LN||69|[in_us]^in ch [length]^UCUM |||||F|||20110217`
Weight	Weight of the patient	RE R for NIST validati on	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.113883.3.88.12.80 .62 PHVS_VitalSignResult_HITS P 3141-9 Body weight Measured (LOINC) For OBX-6 use the following UCUM - Unified Codes for Units of Measure: 2.16.840.1.114222.4.11.879 PHVS_WeightUnit_UCUM	Allows calculation of Body Mass Index (BMI), which may be an indicator of obesity for chronic disease. **Note**: If BMI can be calculated within the EHR, then it is preferable to just receive BMI instead of height and weight. Units of measure (OBX-6, (CE Data Type) must be included defining the numeric value.	OBX Segment with OBX-3 Observation Identifier 3141-9 Body Weight Measured (LOINC) and OBX-2 Value Type of NM. The weight number is OBX-5 Observation Value and the weight units are in OBX-6 Units. Example OBX Segment: `OBX|3|NM|3141-9^BODY WEIGHT MEASURED^LN ||120|[lb_av]^ pound [mass]^UCUM|||||F|||201 10217`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
BMI	Body Mass Index	O	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ SyndromicSurveillance and 59574-4 Body mass index (LOINC)	If BMI can be calculated within the EHR, then it is preferable to just receive BMI instead of height and weight	OBX Segment with OBX-3 Observation Identifier 59574-4 Body Mass Index (LOINC) and OBX-2 Value Type of NM. The BMI number is OBX-5 Observation Value.. Example OBX Segment: `OBX|3|NM|59574-4^Body Mass Index^LN||35|| ||||F|||20110217`

Systolic and Diastolic Blood Pressure (SBP/DBP) – Most recent	Most recent Systolic and Diastolic Blood Pressure of the patient.	O	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.113883.3.88.12.80 .62 PHVS_VitalSignResult_HITS P
					
					8480-6 Systolic blood pressure (LOINC)
					
					8462-4 Diastolic blood pressure (LOINC)
					
					OBX-6 uses the following UCUM - Unified Codes for Units of Measure: 2.16.840.1.114222.4.11.920 PHVS_BloodPressureUnit_U CUM
						Allows monitoring of chronic conditions. Most recent systolic and diastolic blood pressure of the patient. Most recent is the blood pressure taken most closely to the time that message is constructed/assembled.
						
						8480-6 Systolic blood pressure (LOINC); Units of Measure must also be included in OBX-6
						
						8462-4 Diastolic blood pressure (LOINC); Units of Measure must also be included in OBX-6.
							Blood Pressure is communicated using 2 different data elements for Systolic and Diastolic Blood Pressure.
							Example OBX Segment for Systolic Blood Pressure :
							`OBX|5|NM|8480-6^SYSTOLIC BLOOD PRESSURE^LN||120|mm(hg) |||||F|||20110217`
							
							Example OBX Segment for Diastolic Blood Pressure:
							`OBX|6|NM|8462-4^DIASTOLIC BLOOD PRESSURE^LN||90|mm(hg)| ||||F|`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Initial Temperature	Initial temperature of the patient	O	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.113883.3.88.12.80.62 PHVS_VitalSignResult_HITSP 11289-6 Body temperature:Temp:Enctrfirst:Patient:Qn (LOINC) OBX-6 Use: 2.16.840.1.114222.4.11.919 PHVS_TemperatureUnit_UCUM	This element is represented by the LOINC code: 11289-6 in the OBX observation identifier. The actual data value occurs in the 5th field of the same OBX segment and is Numeric as defined by the OBX Data Type NM. Temperature: Units of Measure must also be included in OBX-6. Fahrenheit and Celsius units of measure are included in the value set.	OBX Segment with OBX-3 Observation Identifier 11289-6 Body temperature:Temp:Enctr:First (LOINC) and OBX-2 Value Type of NM. The temperature number is OBX-5 Observation Value and the temperature units are in OBX-6 Units. Example OBX Segment: `OBX|3|NM|11289-6^BODY TEMPERATURE^LN||100.1|[degF]^FARENHEIT^UCUM||| ||F|||20110217`
Initial Pulse Oximetry	1st recorded pulse oximetry value	O	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance 59408-5 Oxygen saturation in Arterial blood by Pulse oximetry (LOINC) OBX-6 uses a single Unit of Measure value from UCUM: 2.16.840.1.114222.4.11.3590 PHVS_PulseOximetryUnit_UCUM	This element is represented by the LOINC code: 59408-5 in the OBX observation identifier. The actual data value occurs in the 5th field of the same OBX segment and is numeric as defined by the OBX Data Type NM. Units of measure must also be included in OBX-6. Percentage is the only value included in the value set for Pulse Oximetry.	OBX Segment with OBX-3 Observation Identifier 59408-5 OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY (LOINC) and OBX-2 Value Type of NM. The number value are in OBX-5 Observation Value and the numeric units are in OBX-6 Units. Example OBX Segment: `OBX|4|NM|59408-5^OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY^LN||91|%^PERCENT^UCUM||A|||F|||20110217145139`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDI NALITY	VALUE SET / VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Risk Factors, Other Factors							

Smoking Status	Smoking status of patient	RE
		
		R for NIST validatio n
			O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ SyndromicSurveillance 72166-2 Tobacco smoking status (LOINC)
					
					OBX-5 uses a value from the following SNOMED-CT codes: 2.16.840.1.114222.4.11.6027 PHVS_SmokingStatus_MU
						This data element is a Meaningful Use requirement. Allows monitoring of chronic conditions.	OBX Segment with OBX-3 Observation Identifier 72166-2 Tobacco Smoking Status LOINC) and OBX-2 Value Type of CWE. The observation value in OBX-5 uses the value set defined for meaningful use.
							
							Example OBX Segment:
							`OBX|1|CWE|72166-`
							`2^TOBACCO SMOKING`
							`STATUS^LN||428071000124`
							`103 ^Current Heavy`
							`tobacco smoker`
							`^SCT||||||F|||20110217`

Initial Acuity	Assessment of the intensity of medical care the patient requires.	O	O	[0..1]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ SyndromicSurveillance
					
					11283-9 Initial Acuity (LOINC)
					
					OBX-5 uses a value from HL7 Admission Level of Care : 2.16.840.1.114222.4.11.912 Admission Level of Care (HL7)
							OBX Segment with OBX-3 Observation Identifier 11283-9 Initial Acuity (LOINC) and OBX-2 Value Type of CWE. The observation value in OBX-5 uses a value set that HL7 suggests for Admission Level of Care.
							
							Example OBX Segment:
							`OBX|1|CWE|11283-`
							`9^INITIAL`
							`ACUITY^LN||CR^Critical^`
							`HL70432||||||F|||201102`
							`17`

TABLE 4-2 SYNDROMIC DATA ELEMENTS OF INTEREST							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUE SET/VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Insurance Coverage	Health insurance coverage of the patient	O	O	[0..*]	For IN1-15 Insurance Plan ID, use Source of Payment Typology (PHDSC) 2.16.840.1.114222.4.11.3591 PHVS_SourceOfPaymentTypology_PHDSC		IN1-15 Insurance Plan ID **Definition**: This field contains the coding structure that identifies the various plan types, for example, Medicare, Medicaid, Blue Cross, HMO, etc.
Travel History	Travel History as Narrative	O	O	[0..*]	OBX-3 uses a LOINC observation identifier specified in the value set: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance 10182-4 History of Travel Narrative (LOINC) OBX-5 uses a text value:	Text (TX) may be the best option for travel history because of how EHRs collect the information. Special coding will need to be done by vendors to bring the highly varied travel questions and their responses into a single travel history response for public health. For example, some hospitals collect information on the time period for travel, but have different categories (past 30 days, past 21 days, etc). For the location of travel, hospitals may have a drop down list, check boxes, free text or a combination of these to list the country or region of travel. If they use a drop down they may have standard ISO codes for country.	OBX Segment with OBX-3 Observation Identifier 10182-4 History of travel Narrative (LOINC) and OBX-2 Value Type of TX. Example OBX Segment: `OBX|1|TX|`**10182-4**`^History of travel Narrative ^LN||Arrived home from Liberia two days ago. ||||||F|||20110217`

4.3   SYNDROMIC SURVEILLANCE DATA ELEMENTS OF INTEREST FROM LABORATORY RESULT MESSAGES

Table 5-3 contains the data elements of interest that may be located in the ORU^R01 Electronic Laboratory Reporting standard used for submission of laboratory results pertinent to public health surveillance are optionally implemented. Sites may choose to implement this aspect of syndromic surveillance messaging as they bring their EHR systems into compliance with the Meaningful Use Stage 2 Core Objective to incorporate clinical lab test results into Certified EHR Technology. For more details, refer to *HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 2 (US Realm) Draft Standard for Trial Use, Release 1.1, May 2014,* which is available for download from HL7.org. Details from that document used in the table below are noted as "From V251_IG_LB_LABRPTPH_R2_DSTU_R1.1_2014MAY"

TABLE 4-3 SYNDROMIC DATA ELEMENTS OF INTEREST FROM LABORATORY RESULT MESSAGES							
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RCVR USAGE**	**CARDINALITY**	**VALUE SET /VALUE DOMAIN**	**IMPLEMENTATION NOTES**	**HL7 LOCATION MAPPING**
Basic Message Information							
Unique Patient Identifier / Medical Record Number	Unique identifier for the patient or visit	R	R	[1..*]	2.16.840.1.114222.4.11.3597 PHVS_IdentifierType_SyndromicSurveillance	Unique Patient Identifiers related to individual identifiers found in the Value set/Value Set Domain column. See Table 5-2 for more detail.	ORU^R01 Message PID-3 Patient Identifier List The Unique Patient Identifier occurs in the 1st component of the CX data type. The 5th component, the Identifier Type Code, defines the type of identifier used in the 1st component. This field allows multiple patient identifiers to be passed in the message.
Demographics							
Gender	Stated gender of patient	RE R for NIST validation	RE	[0..1]	Use HL7 administrative sex codes as the following: 2.16.840.1.114222.4.11.3403 PHVS_Gender_SyndromicSurveillance	See Table 5-2 for more detail.	ORU^R01 Message PID-8 Administrative Sex Example PID-8 Fields: `|F| or |M| or |U| or |O|`
Race	Race of patient	RE R for NIST validation	RE	[0..*]	Use CDC Race & Ethnicity codes as the following: 2.16.840.1.114222.4.11.836 PHVS_RaceCategory_CDC	See Table 5-2 for more detail.	ORU^R01 Message PID-10 Race

TABLE 4-3 SYNDROMIC DATA ELEMENTS OF INTEREST FROM LABORATORY RESULT MESSAGES							
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RCVR USAGE**	**CARDINALITY**	**VALUE SET /VALUE DOMAIN**	**IMPLEMENTATION NOTES**	**HL7 LOCATION MAPPING**
Ethnicity	Ethnicity of patient	RE R for NIST validation	RE	[0..*]	Use CDC Race & Ethnicity codes 2.16.840.1.114222.4.11.837 PHVS_EthnicityGroup_CDC	See Table 5-2 for more detail.	ORU^R01 Message PID-22 Ethnicity
Patient City/Town	City or town of patient residence	RE R for NIST validation	RE	[0..1]	The ISDS recommendations allow free text City/Town designations.	See Table 5-2 for more detail.	ORU^R01 Message PID-11.3 Patient Address City
Patient ZIP Code	ZIP Code of patient residence	RE R for NIST validation	RE	[0..1]		See Table 5-2 for more detail.	ORU^R01 Message PID-11.5 Patient Address Postal Code
Patient County	County of patient residence	RE R for NIST validation	RE	[0..1]	Use FIPS county codes as the following: 2.16.840.1.114222.4.11.829 PHVS_County_FIPS_6-4	See Table 5-2 for more detail.	ORU^R01 Message PID-11.9 Patient Address County
Patient State	State of patient residence	RE R for NIST validation	O	[0..1]	Use FIPS state codes as the following: 2.16.840.1.114222.4.11.830 PHVS_State_FIPS_5-2	See Table 5-2 for more detail.	ORU^R01 Message PID-11.4 Patient Address State
Patient Country	Country of patient residence	RE R for NIST validation	O	[0..1]	Use ISO country codes as following: 2.16.840.1.114222.4.11.828 PHVS_Country_ISO_3166-1	See Table 5-2 for more detail.	ORU^R01 Message PID-11.6 Patient Address Country

TABLE 4-3 SYNDROMIC DATA ELEMENTS OF INTEREST FROM LABORATORY RESULT MESSAGES							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Laboratory test/panel requested	The nature of a test ordered for a patient	R	R	[1..1]	Use LOINC concepts as following: 2.16.840.1.114222.4.11.1004 PHVS_LabTestOrderables_CDC From V251_IG_LB_LABRPTPH_R2_DSTU_R1.1_2014MAY PH Component: OBR.4 (Universal Service) Identifier is a test, panel or battery code for the requested observation. For lab test orders in general, Logical Observation Identification Name and Codes (LOINC) SHOULD be used as the standard coding system for this field if an appropriate LOINC code exists.	From V251_IG_LB_LABRPTPH_R2_DSTU_R1.1_2014MAY: Must include code, text, coding system, and coding system version. **Note**: Each jurisdiction should decide which laboratory tests/panels should be transmitted. A local code and local test name SHOULD also be sent to help with identification of coding issues. When no valid LOINC exists, the local code may be the only code sent. When populating this field with values, this guide does not give preference to the triplet in which the standard (LOINC) code should appear.	ORU^R01 Message OBR-4 Universal Service ID is a required field in the ORU message Examples of tests that use a LOINC orderable identifier: `|62428-8^Bordetella DNA XXX PCR ^LN|` `|48508-6^Measles Virus RNA XXX RT- PCR Panel^LN|`

TABLE 4-3 SYNDROMIC DATA ELEMENTS OF INTEREST FROM LABORATORY RESULT MESSAGES							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDIN ALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING

Laboratory Test Performed	The specific test performed / analyte measured	R	R	[1..1]	Use LOINC concepts as following:
					
					2.16.840.1.114222.4.11.1002 PHVS_LabTestName_CDC Or
					2.16.840.1.114222.4.11.6053 PHVS_LabTestName_Report ableConditions
					
					From V251_IG_LB_LABRPTPH_R2 _DSTU_R1.1_2014MAY:
					LOINC shall be used as the standard coding system for this field if an appropriate LOINC code exists. Appropriate status is defined in the LOINC Manual Section 11.2 Classification of LOINC Term Status. If a local coding system is in use, a local code should also be sent to help with identification of coding issues. When no valid LOINC exists the local code may be the only code sent.
						From V251_IG_LB_LABRPTPH_R2_DSTU _R1.1_2014MAY:
						When populating this field with values, this guide does not give preference to the triplet in which the standard (LOINC) code should appear.
							ORU^R01 Message OBX-3 Observation Identifier is a required field in the ORU message Examples:
							`|43913-3^Bordetella pertussis DNA [presence] in Nasopharynx by Probe and target amplification method ^LN|`
							`|48508-6^Measles Virus genotype [identifier] in Unspecified specimen by Probe and target amplification method^LN|`

TABLE 4-3 SYNDROMIC DATA ELEMENTS OF INTEREST FROM LABORATORY RESULT MESSAGES							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Laboratory Result	The result of a test performed	RE	RE	[0..*]	From V251_IG_LB_LABRPTPH_R2_DSTU_R1.1_2014MAY: See Section 4.2 SNOMED CT for guidance on how to value this field for Microbiology. See Section 0, HL7 Table 0125 for the data types that will be supported for this field. For coded lab test results, SNOMED CT shall be used as the standard coding system for this field if an appropriate SNOMED CT code exists. If OBX-2 (Value Type) is valued "NM" or "SN" and OBX-11 is not valued "X" or "N" , a unit is required in OBX-6 PH Component: UCUM (Unified Code for Units of Measure) should be used for reporting units of measure value set: 2.16.840.1.114222.4.11.838 PHVS_UnitsOfMeasure_CDC	Coded results must include code, text, coding system, and coding system version. **Note**: Each jurisdiction should decide which laboratory tests/panels should be transmitted From V251_IG_LB_LABRPTPH_R2_DSTU_R1.1_2014MAY: **Note:** If there is not a unit of measure available while the Condition Predicate is True, the value "NA" shall be used in CWE_CRE.1 and "HL70353" in CWE_CRE.3 .	ORU^R01 Message OBX Segment OBX-2 Value Type specifies the datatype of the OBX-5 OBX-5 Observation Value OBX-6 Units if needed Drawn from SNOMED CT. At a minimum, it will contain the SNOMED CT® Laboratory Test Finding (118246004) hierarchy and the SNOMED CT® Microorganism (264395009) sub-tree. It may also need to contain various modifiers and qualifiers as identified in PHVS_ModifierOrQualifier_CDC value set. Examples:`|F| or |C| or |X|`

TABLE 4-3 SYNDROMIC DATA ELEMENTS OF INTEREST FROM LABORATORY RESULT MESSAGES						
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDIN ALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Date/time of laboratory test	The clinically-relevant date/time of the measurement, such as the time a procedure was performed on the patient or a sample was obtained.	RE	RE	[0..1]		HL7 Date/Time Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] **ELR Condition predicate**: For observations related to the testing of a specimen, OBX-14 (Date/Time of the Observation) shall contain specimen collection time and will be the same value as OBR-7 and SPM-17.1	ORU^R01 Message OBX Segment OBX-14 Date/Time of the Observation
Laboratory Test Status	The release status of a lab result.	O	O	[0..1]	Use HL7-defined Observation Result Status values: 2.16.840.1.114222.4.11.811 PHVS_ObservationResultStatus_HL7_2x	From V251_IG_LB_LABRPTPH_R2_DSTU_R1.1_2014MAY: ELR HL70085 (V2.8) is the referenced value set for this field	ORU^R01 Message OBX-11 Observation Status (ID datatype) Examples:`|F| or |C| or |X|`
Date of Lab Report	The date a result was reported by the performing lab	O	O	[0..1]		HL7 Date/Time Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]	ORU^R01 Message OBR-22 Status Change/Update Date/time (Timestamp datatype)
Performing Organization Name	Name of the organization or facility that performed a lab test	O	O	[0..1]		From V251_IG_LB_LABRPTPH_R2_DSTU_R1.1_2014MAY: The information for producer ID is recorded as an XON data type. Example using a CLIA Identifier in OBX-23.10 (Organization Identifier) University Hospital Chem Lab^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^01D1111111	ORU^R01 Message OBX-23 Performing Organization Name (XON datatype)

TABLE 4-3 SYNDROMIC DATA ELEMENTS OF INTEREST FROM LABORATORY RESULT MESSAGES							
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDIN ALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	HL7 LOCATION MAPPING
Performing Organization Address	Address for the organization or facility that performed a lab test	O	O	[0..1]		All tests performed reported by the same lab for the same customer SHOULD have identical values.. .	ORU^R01 Message OBX-24 Performing Organization Address (XAD datatype)
Specimen Type	The type of specimen upon which a lab test was performed	R	R	[0..1]	Use HL7-defined Specimen Type values: 2.16.840.1.114222.4.11.6046 PHVS_SpecimenType_HL7_ 2x Code System HL70487 and/or SNOMED CT	Must include code, text, coding system, and coding system version. **Note**: Each jurisdiction should decide which specimen types should be transmitted.	ORU^R01 Message SPM-4 Specimen Type (CWE datatype) SPM-4 is a required field in the ORU^R01 message. Use `UNK^UNKNOWN^NULLFL` if no specimen type is available

5   APPENDIX A – CODE TABLES

All the value sets associated with PHIN Syndromic Surveillance Messaging Guide (MG) can also be downloaded using view at the following link to the PHIN Vocabulary Access and Distribution System (VADS):

http://phinvads.cdc.gov/vads/ViewView.action?name=Syndromic%20Surveillance

The following table provides the mapping between the value set information present in Syndromic Surveillance MG and the VADS value set. More detailed version of this mapping table and all the value set concepts can be downloaded from PHIN VADS home page (http://phinvads.cdc.gov) under hot topics "**Syndromic Surveillance**".

CDC vocabulary / PHIN VADS team can be contacted for support at PHINVS@CDC.GOV

PHIN MESSAGING GUIDE INFORMATION			CODE SYSTEM (STANDARD VOCABULARY INFORMATION)	CDC VOCABULARY SERVER - PHIN VADS INFORMATION ABOUT VALUE SETS (PHIN VADS HYPERLINK FOR DOWNLOADING ALL VALUE SETS ASSOCIATED WITH SYNDROMIC SURVEILLANCE)		
DATA ELEMENT	HL7 SEGMENT - FIELD (LOCATION)	VALUE SET INFORMATION	HL7 TABLE 0396 CODE	PHIN VADS VALUE SET NAME	PHIN VADS VALUE SET OID	COMMENTS - IMPLEMENTATION NOTES
Message Structure	MSH 9.3	0354	HL70354	PHVS_MessageStructure_SyndromicSurveillance	2.16.840.1.114222.4.11.6047	Constrained HL7 Table 0354
Message Type	MSH 9	0076	HL70076	PHVS_MessageType_SyndromicSurveillance	2.16.840.1.114222.4.11.6049	Constrained HL7 Table 0076
Universal ID Type	MSH 4.3	0301	HL70301, HL70203	PHVS_UniversalIDType_SyndromicSurveillance	2.16.840.1.114222.4.11.6050	Constrained HL7 Table 0301
Patient Class	PV1-2	PHVS_PatientClass_SyndromicSurveillance	HL70004	PHVS_PatientClass_SyndromicSurveillance	2.16.840.1.114222.4.11.3404	It is recommended that PHA constrain the transmitted data from the source using the patient class code set (e.g., only transmit records where patient class = E, Emergency

PHIN MESSAGING GUIDE INFORMATION			CODE SYSTEM (STANDARD VOCABULARY INFORMATION)	CDC VOCABULARY SERVER - PHIN VADS INFORMATION ABOUT VALUE SETS (PHIN VADS HYPERLINK FOR DOWNLOADING ALL VALUE SETS ASSOCIATED WITH SYNDROMIC SURVEILLANCE)		
DATA ELEMENT	HL7 SEGMENT - FIELD (LOCATION)	VALUE SET INFORMATION	HL7 TABLE 0396 CODE	PHIN VADS VALUE SET NAME	PHIN VADS VALUE SET OID	COMMENTS - IMPLEMENTATION NOTES
Value Type	OBX-2	Value Type	HL70125	PHVS_ValueType_SyndromicSurveillance	2.16.840.1.114222.4.11.6057	Constrained value set of Hl7 Table 0125 Value Type for Syndromic Surveillance (ED).
Address Type	PID- 11.7		HL70190	PHVS_AddressType_HL7_2x	2.16.840.1.114222.4.11.801	Unconstrained HL7 Table
Race	PID - 10	PHVS_RaceCategory_CDC	CDCREC	PHVS_RaceCategory_CDC	2.16.840.1.114222.4.11.836	Based upon CDCREC code system.
Facility State (Treating)	OBX - XAD.4	PHVS_State_FIPS_5-2	FIPS5_2	PHVS_State_FIPS_5-2	2.16.840.1.114222.4.11.830	Numeric FIPS codes are preferred. VADS download includes alpha codes as "alternate codes".
Patient State	PID-11.4	PHVS_State_FIPS_5-2	FIPS5_2	PHVS_State_FIPS_5-2	2.16.840.1.114222.4.11.830	It is recommended that the 2-digit (numeric) abbreviation be used for State of the patient domestic home address. VADS download includes alpha codes as "alternate codes".
Patient Country	PID - 11.6	PHVS_Country_ISO_3166-1	ISO3166_1	PHVS_Country_ISO_3166-1	2.16.840.1.114222.4.11.828	It is recommended that the 3-character country codes be used for Country of the patient home address.
Patient County	PID-11.9	PHVS_County_FIPS_6-4	FIPS6_4	PHVS_County_FIPS_6-4	2.16.840.1.114222.4.11.829	Use numeric codes. FIPS codes syntax (2 character numeric state code + 2 character numeric county code)
Discharge Disposition	PV1-36	PHVS_Discharge Disposition_HL7_2x	HL70112	PHVS_DischargeDisposition_HL7_2x	2.16.840.1.114222.4.11.915	User-defined Table 0112 - Discharge Disposition. Refer to UB-04 form for more implementation guidance. NOTE: This table has not been updated in PHIN VADS to include more recent guidance from Joint Commission.

PHIN MESSAGING GUIDE INFORMATION			CODE SYSTEM (STANDARD VOCABULARY INFORMATION)	CDC VOCABULARY SERVER - PHIN VADS INFORMATION ABOUT VALUE SETS (PHIN VADS HYPERLINK FOR DOWNLOADING ALL VALUE SETS ASSOCIATED WITH SYNDROMIC SURVEILLANCE)		
DATA ELEMENT	HL7 SEGMENT - FIELD (LOCATION)	VALUE SET INFORMATION	HL7 TABLE 0396 CODE	PHIN VADS VALUE SET NAME	PHIN VADS VALUE SET OID	COMMENTS - IMPLEMENTATION NOTES
Ethnicity	PID-22	PHVS_Ethnicity Group_CDC	CDCREC	PHVS_EthnicityGrou p_CDC	2.16.840.1.114 222.4.11.837	Based upon CDCREC code system.
Facility / Visit Type	OBX.5	PHVS_FacilityVi sitType_Syndro micSurveillance	HCPTNUCC	PHVS_FacilityVisitTy pe_SyndromicSurveil lance	2.16.840.1.114 222.4.11.3401	Relevant facility/visit type values are defined in value. OBX.3=SS003 FACILITY/VISIT TYPE (PHINQUESTION)
Gender	PID-8	PHVS_Gender_ SyndromicSurvei llance	HL70001	PHVS_Gender_Synd romicSurveillance	2.16.840.1.114 222.4.11.3403	Constrained value set of Administrative Sex (HL7 Table 001)
Unique Patient / Visit Identifier	PID-3 5th component - Identifier Type Code	PHVS_Identifier Type_Syndromic Surveillance	HL70203	PHVS_IdentifierType _SyndromicSurveilla nce	2.16.840.1.114 222.4.11.3597	The Unique Patient / Visit Identifier occurs in the 1st component of the CX data type. The 5th component, the Identifier Type Code, defines the type of identifier used in the 1st component
Medical Record #	PID-3 5th component - Identifier Type Code	PHVS_Identifier Type_Syndromic Surveillance	HL70203	PHVS_IdentifierType _SyndromicSurveilla nce	2.16.840.1.114 222.4.11.3597	The Medical Record # is a specific instance of a unique patient identifier. It occurs in the 1st component of the CX data type. The fifth component, the Identifier Type Code, defines the identifier as the Medical Record # (MR).
Identifier Type Code	PID 3.5	PHVS_Identifier Type_Syndromic Surveillance	HL70203	PHVS_IdentifierType _SyndromicSurveilla nce	2.16.840.1.114 222.4.11.3597	Constrained HL7 Table 0203
Name Type	PID 5.7	PHVS_NameTyp e_SyndromicSur veillance	HL70200	PHVS_NameType_S yndromicSurveillanc e	2.16.840.1.114 222.4.11.6056	Constrained Table
Age Units	OBX-6 for Age Units (CE data type) and OBX-3=21612-7 (LOINC)	PHVS_AgeUnit_ SyndromicSurvei llance	UCUM, NULLFL	PHVS_AgeUnit_Syn dromicSurveillance	2.16.840.1.114 222.4.11.3402	OBX-3 uses LOINC code (21612-7) as data element for Age, with numeric values in OBX-5 and UCUM age units in OBX-6

PHIN MESSAGING GUIDE INFORMATION			CODE SYSTEM (STANDARD VOCABULARY INFORMATION)	CDC VOCABULARY SERVER - PHIN VADS INFORMATION ABOUT VALUE SETS (PHIN VADS HYPERLINK FOR DOWNLOADING ALL VALUE SETS ASSOCIATED WITH SYNDROMIC SURVEILLANCE)		
DATA ELEMENT	HL7 SEGMENT - FIELD (LOCATION)	VALUE SET INFORMATION	HL7 TABLE 0396 CODE	PHIN VADS VALUE SET NAME	PHIN VADS VALUE SET OID	COMMENTS - IMPLEMENTATION NOTES
Diagnosis Type	DG1-6	PHVS_DiagnosisType_HL7_2x	HL70052	PHVS_DiagnosisType_HL7_2x	HL70052	
Diagnosis / Injury Code	DG1-3	PHVS_AdministrativeDiagnosis_CDC_ICD-9CM	I9CDX	PHVS_AdministrativeDiagnosis_CDC_ICD-9CM	2.16.840.1.114222.4.11.856	ICD-9 CM value set - Volume 1 and 2 (Diagnosis) codes. Value set includes ICD-9 codes with and without decimals. For electronic transaction, it is recommended to use without decimals. Note: Include ICD-9-CM V-codes and E-codes. When the primary diagnosis code is an injury, also provide one or more supplemental external-cause-of-injury codes or E-codes. E-codes provide useful information on the mechanism and intent of injury, place of occurrence, and activity at the time of injury. This also applies to ICD-10-CM (when it is implemented) where V, W, X, Y and selected T codes represent external cause of injury codes.

PHIN MESSAGING GUIDE INFORMATION			CODE SYSTEM (STANDARD VOCABULARY INFORMATION)	CDC VOCABULARY SERVER - PHIN VADS INFORMATION ABOUT VALUE SETS (PHIN VADS HYPERLINK FOR DOWNLOADING ALL VALUE SETS ASSOCIATED WITH SYNDROMIC SURVEILLANCE)		
DATA ELEMENT	HL7 SEGMENT - FIELD (LOCATION)	VALUE SET INFORMATION	HL7 TABLE 0396 CODE	PHIN VADS VALUE SET NAME	PHIN VADS VALUE SET OID	COMMENTS - IMPLEMENTATION NOTES
Diagnosis / Injury Code	DG1-3	PHVS_CauseOf Death_ICD-10_CDC	I10	PHVS_CauseOfDeat h_ICD-10_CDC	2.16.840.1.114 222.4.11.3593	This value set is for future use. This value set is made from CDC NCHS ICD-10 subset that has been used for reporting mortality (WHO mandate). Note: Include ICD-9-CM V-codes and E-codes. When the primary diagnosis code is an injury, also provide one or more supplemental external-cause-of-injury codes or E-codes. E-codes provide useful information on the mechanism and intent of injury, place of occurrence, and activity at the time of injury. This also applies to ICD-10-CM (when it is implemented) where V, W, X, Y and selected T codes represent external cause of injury codes.
Diagnosis / Injury Code	DG1-3	PHVS_Disease_ CDC	SCT	PHVS_Disease_CD C	2.16.840.1.114 222.4.11.909	SNOMED value set based on disorder domain.. This value set is quite big and may not fit in excel 2003. PHIN VADS download includes text, excel 97 - 2003 and excel 2010 format. Note: Include ICD-9-CM V-codes and E-codes. When the primary diagnosis code is an injury, also provide one or more supplemental external-cause-of-injury codes or E-codes. E-codes provide useful information on the mechanism and intent of injury, place of occurrence, and activity at the time of injury. This also applies to ICD-10-CM (when it is implemented) where V, W, X, Y and selected T codes represent external cause of injury codes.

PHIN MESSAGING GUIDE INFORMATION			CODE SYSTEM (STANDARD VOCABULARY INFORMATION)	CDC VOCABULARY SERVER - PHIN VADS INFORMATION ABOUT VALUE SETS (PHIN VADS HYPERLINK FOR DOWNLOADING ALL VALUE SETS ASSOCIATED WITH SYNDROMIC SURVEILLANCE)		
DATA ELEMENT	HL7 SEGMENT - FIELD (LOCATION)	VALUE SET INFORMATION	HL7 TABLE 0396 CODE	PHIN VADS VALUE SET NAME	PHIN VADS VALUE SET OID	COMMENTS - IMPLEMENTATION NOTES
Data Elements That Map as Observations (Coded, Date, Numeric, Text data types)	OBX-3	PHVS_Observati onIdentifier_Syn dromicSurveillan ce	LN, PHINQUESTIO N	PHVS_ObservationI dentifier_Syndromic Surveillance	2.16.840.1.114 222.4.11.3589	List of observation identifiers associated with syndromic surveillance that populate the observation identifier field (OBX-3) in HL7 2.x messaging. (Examples: Age, Date of Onset, Triage notes, Pregnancy Status, Temperature, Pulse Oximetry, Facility Type, Smoking Status, Initial Acuity)
Smoking Status	OBX-5 for smoking status value and OBX-3=72166-2 (LOINC)	PHVS_Smoking Status_MU	SCT	PHVS_SmokingStat us_MU	2.16.840.1.114 222.4.11.6027	This data element is a Meaningful Use requirement. Allows monitoring of chronic conditions
Initial Pulse Oximetry	OBX-6 for Pulse OximetryUnits (CE data type) and OBX-3= 59408-5 (LOINC)	PHVS_PulseOxi metryUnit_UCU M	UCUM	PHVS_PulseOximetr yUnit_UCUM	2.16.840.1.114 222.4.11.3590	OBX-3 uses LOINC code (59408-5) as data element for pulse oximetry with numeric values in OBX-5 and UCUM pulse oximetry unit in OBX-6 (% - percentage)
Initial Temperature	OBX-6 for Temperature Units (CE data type) and OBX-3=11289-6 (LOINC)	PHVS_Temperat ureUnit_UCUM	UCUM	PHVS_Temperature Unit_UCUM	2.16.840.1.114 222.4.11.919	OBX-3 uses LOINC code (11289-6) as data element for temperature with numeric values in OBX-5 and UCUM temperature units in OBX-6 (Celsius and Fahrenheit)
Initial Acuity	OBX-3=11283-9 Initial Acuity (LOINC) OBX-5 is a value from Admission Level of Care (HL7)	PHVS_Observati onIdentifier_Syn dromicSurveillan ce Admission Level of Care (HL7)	HL70432	PHVS_AdmissionLe velOfCareCode_HL7 _2x	2.16.840.1.114 222.4.11.912	OBX-3 uses LOINC code (11283-9) as data element for Initial Acuity with code values in OBX-5. Suggesting use of the HL7 Admission Level of Care Code value set for Initial Acuity value.

PHIN MESSAGING GUIDE INFORMATION			CODE SYSTEM (STANDARD VOCABULARY INFORMATION)	CDC VOCABULARY SERVER - PHIN VADS INFORMATION ABOUT VALUE SETS (PHIN VADS HYPERLINK FOR DOWNLOADING ALL VALUE SETS ASSOCIATED WITH SYNDROMIC SURVEILLANCE)		
DATA ELEMENT	HL7 SEGMENT - FIELD (LOCATION)	VALUE SET INFORMATION	HL7 TABLE 0396 CODE	PHIN VADS VALUE SET NAME	PHIN VADS VALUE SET OID	COMMENTS - IMPLEMENTATION NOTES
Insurance Coverage	IN1-15 Insurance Plan Type	PHVS_SourceOf PaymentTypolog y_PHDSC	HL70086	PHVS_SourceOfPay mentTypology_PHD SC	2.16.840.1.114 222.4.11.3591	Suggesting use of this value set for Insurance Type, which uses the HL7 User-Defined Table 0086 values.
Pregnancy Status	OBX-3=11449-6 Pregnancy Status (LOINC) OBX-5 is Yes, No or Unknown	PHVS_YesNoUn known_CDC	HL70136 if 'yes' or 'no' NULLFL if Unknown	PHVS_YesNoUnkno wn_CDC	2.16.840.1.114 222.4.11.888	
Laboratory test/panel requested	OBR-4 ORU^R01 only	Laboratory Observation Identifier Value Set	LN	PHVS_LabTestOrder ables_CDC	2.16.840.1.114 222.4.11.1004	This identifies the laboratory order. From the LOINC© database, Laboratory Order concepts can be extracted by using the following filter: CLASSTYPE=1 and ORDER_OBS=order
Laboratory Test Performed	OBX-3 ORU^R01 only	Laboratory Observation Identifier Value Set	LN	PHVS_LabTestNam e_CDC	2.16.840.1.114 222.4.11.1002	Unique identifiers for the type of observation. Values must be drawn from LOINC.
Laboratory Test Performed	OBX-3 ORU^R01 only	Laboratory Observation Identifier Value Set	LN	PHVS_LabTestNam e_ReportableConditi ons	2.16.840.1.114 222.4.11.6053	This value set includes all the LOINC codes (OBX-3) from Reportable Condition Mapping Table (RCMT). This is a smaller subset that includes only the LOINC lab test codes related to the reportable conditions (n=5569 codes).
Test Result	OBX-5 (ORU^R01 only)		SCT	PHVS_LabTestResul t_ReportableConditio ns	2.16.840.1.114 222.4.11.6054	Where OBX-5 is a coded result only

PHIN MESSAGING GUIDE INFORMATION			CODE SYSTEM (STANDARD VOCABULARY INFORMATION)	CDC VOCABULARY SERVER - PHIN VADS INFORMATION ABOUT VALUE SETS (PHIN VADS HYPERLINK FOR DOWNLOADING ALL VALUE SETS ASSOCIATED WITH SYNDROMIC SURVEILLANCE)		
DATA ELEMENT	HL7 SEGMENT - FIELD (LOCATION)	VALUE SET INFORMATION	HL7 TABLE 0396 CODE	PHIN VADS VALUE SET NAME	PHIN VADS VALUE SET OID	COMMENTS - IMPLEMENTATION NOTES
Test Result	OBX-5 (ORU^R01 only)	PHVS_Microorganism_CDC	SCT	PHVS_Microorganism_CDC	2.16.840.1.114222.4.11.1009	Where OBX-5 is a coded result only
Test Result	OBX-5 (ORU^R01 only)	PHVS_EvaluationFinding_CDC	SCT	PHVS_EvaluationFinding_CDC	2.16.840.1.114222.4.11.3359	Where OBX-5 is a coded result only
Numeric Results Units	OBX-6	PHVS_UnitsOfMeasure_CDC	UCUM	PHVS_UnitsOfMeasure_CDC	2.16.840.1.114222.4.11.946	Where OBX-5 is a numeric result only
Specimen Type	SPM-4 (ORU^R01 only)	PHVS_SpecimenType_HL7_2x	HL70487 Or SCT	PHVS_SpecimenType_HL7_2x	2.16.840.1.114222.4.11.6046	Use HL7-defined Specimen Type values: 2.16.840.1.114222.4.11.6046 PHVS_SpecimenType_HL7_2x Code System and/or SNOMED CT
Specimen Type	SPM-4 (ORU^R01 only)	PHVS_SpecimenCDC	SCT	PHVS_SpecimenCDC	2.16.840.1.114222.4.11.946	Use SNOMED CT Specimen sub-tree (12303009)
Laboratory Test Status	OBX-11 (ORU^R01 only)	PHVS_ObservationResultStatus_HL7_2x	HL70085	PHVS_ObservationResultStatus_HL7_2x	2.16.840.1.114222.4.11.811	From V251_IG_LB_LABRPTPH_R2_DSTU_R1.1_2014MAY: ELR HL70085 (V2.8) is the referenced value set for this field

6 APPENDIX B – SYNDROMIC SURVEILLANCE MESSAGING EXAMPLES

This appendix presents six (6) case studies to illustrate how this Guide should be used for messaging syndromic surveillance information about a patient visit.

A minimal amount of data is used in each case study to emphasize important aspects of the message structure. Among the case studies, variations in the data elements of interest are made to stress clinical or administrative concepts that are important to syndromic surveillance.

Some additional ADT trigger events not noted in this section may occur within the normal workflow of an EHR. The below ADT trigger events represent the core data elements of interest for Public Health Authorities (PHAs) related to syndromic surveillance.

Case 1 - Brief Urgent Care or Emergency Department Visit

Case Study 1 provides an example of a brief patient visit that could take place in either urgent care or emergency department clinical settings. The patient's chief complaint is captured as an unstructured, free-text value using the patient's own words. ADT A04 and A03 messages are generated and sent to the PHA about this visit.

Step 1: Registration Trigger - ADT A04

A 35 year old female walks into Midtown Urgent Care on August 17, 2014 at 12:00 pm. The patient is registered by a clerical assistant who records the patient's name, date of birth, residence information, race, ethnicity, and records that the patient's reason for visit is, "Fever, chills, smelly urine with burning during urination."

At 12:30 PM on August 17, 2014, the facility's electronic health record module for syndromic surveillance data assembles and transmits a Registration message to Big City Health Department about this visit.

Example Message - Step 1, Case 1:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201408171230||ADT^A04^A
DT_A01|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201408171230|||||MidTwnUrgentC^2231231234^NPI
PID|1||2222^^^^MR||~^^^^^^S||19790505|F||2106-
3^White^CDCREC|^^Decatur^13^30303^^13121|||||||||||||2135-2^Hispanic or
Latino^CDCREC
```

```
PV1|1|||||||||||||||||||||2222_001^^^^VN||||||||||||||||||||||||||2014081
71200
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QU0200X^Urgent
Care^HCPTNUCC||||||F
OBX|2|NM|21612-7^Age - Reported^LN||35|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief complaint^LN||Fever, chills, smelly urine with
burning during urination||||||F
```

Step 2: Discharge Trigger: ADT A03

At 12:35 PM a nurse practitioner examines the patient and diagnoses the patient with urinary tract infection. The nurse assigns an ICD-9-CM diagnosis code of 599.0 within the EHR, and orders a course of antibiotics for the patient. The patient is discharged from the Urgent Care Center at 12:45 PM.

At 2:30 pm on August 17, 2014 the facility's electronic health record module for syndromic surveillance data assembles and transmits a Discharge message to Big City Health Department about this visit.

Example Message - Step 2, Case 1:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201408171430||ADT^A03^A
DT_A03|NIST-SS-001.22|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201408171430||||||MidTwnUrgentC^2231231234^NPI
PID|1||2222^^^^MR||~^^^^^^S|||F||2106-
3^White^CDCREC|^^^^30303^^^^13121|||||||||||||2135-2^Hispanic or Latino
^CDCREC
PV1|1||||||||||||||||||||||2222_001^^^^VN|||||||||||||||||||01||||||||20140
8171200|201408171245
DG1|1||599^Urinary tract infection, site not specified^I9CDX|||F
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QU0200X^Urgent
Care^HCPTNUCC||||||F
OBX|2|NM|21612-7^Age - Reported^LN||35|a^^UCUM|||||F
OBX|3|TX|8661-1^Chief complaint^LN||Fever, chills, smelly urine with
burning during urination||||||F
```

Case 2 - Unconscious Patient Dies in Emergency Department

Case Study 2 provides an example of a hospital emergency department visit where the patient's demographic information is unavailable at registration, chief complaint is captured as

a coded value in PV2-3 Admit Reason, ICD-9-CM ECODEs are captured as part of the working diagnoses, and the patient dies. ADT A04, A08, and A03 messages are generated and sent to the PHA about this visit.

Step 1: Registration Trigger - ADT A04

An unconscious white male with no visible injuries is brought by ambulance to Pacific Northwest Hospital's Emergency Department at 11:45 PM on August 2, 2014. The paramedics report that firefighters responding to a house fire found the patient unconscious in a bedroom. The patient was not breathing when he was found. Once resuscitated, the paramedics performed an intubation and placed on a ventilator. Unable to find any identification, the patient is registered without his true name, date of birth, or ethnicity. His reason for visit is logged as ICD-9-CM code of E890 (conflagration in private dwelling).

At 2:00 AM on August 3, 2014, the hospital's electronic health record module for syndromic surveillance data assembles and transmits an ADT A04 message to the state health department about this encounter.

Example Message - Step 1, Case 2:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201408030200||ADT^A04^A
DT_A01|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201408021145||||||PacificNWHospitalED^2231231234^NPI
PID|1||3333^^^^MR||~^^^^^^U|||M||2106-3^White^CDCREC
PV1|1|E|||||||||||||||||||||3333_001^^^^VN|||||||||||||||||||||||||||||201408
022345
PV2|||E890^conflagration in private dwelling^I9CDX
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION
||261QE0002X^Emergency Care^HCPTNUCC||||||F
```

Step 2: Record Update Trigger: ADT A08

ED physicians perform a physical examination and blood work and find extremely abnormal blood gas numbers. While these tests are being performed a woman shows up in the ED stating that she is the man's wife. She provides the clinicians with the name and date of birth of the patient. At 2:30 AM on August 3, 2014, a working ICD-9-CM diagnosis code of 518.81 (acute respiratory failure) is entered into the patient record along with updated name, ethnicity and date of birth. (Note that name is still not sent in PID-5; the pseudonymizing string is used to have something populate this required field).

At 4:00 AM on August 3, 2014, the hospital's electronic health record module for syndromic surveillance data assembles and transmits an ADT A08 message to the state health department about this encounter.

Example Message - Step 2, Case 2:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201408030400||ADT^A08^A
DT_A01|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201408030230||||||PacificNWHospitalED^2231231234^NPI
PID|1||3333^^^^MR||~^^^^^^S|||M||2106-3^White^CDCREC|||||||||||||2186-
5^Not Hispanic or Latino^CDCREC
PV1|1|E||||||||||||||||||3333_001^^^^VN|||||||||||||||||||||||||||||201408
022345
PV2|||E890^conflagration in private dwelling^I9CDX
OBX|1|CWE|SS003^FACILITY/VISIT
TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC||||||F
DG1|1||51881^acute respiratory failure^I9CDX||201408030230|W
```

Step 3: Discharge Trigger: ADT A03

At 8:30 AM the patient's heart suddenly stops beating. After several minutes of resuscitation attempts the patient is determined to have died of cardiopulmonary arrest. Time of patient death is 8:55 AM. Final ICD-9-CM diagnosis of 427.50 is assigned to the patient's medical record.

At 10:00 AM on August 3, 2014, the hospital's electronic health record module for syndromic surveillance data assembles and transmits an ADT A03 message to the state health department about this encounter.

Example Message - Step 3, Case 2:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201408031000||ADT^A03^A
DT_A03|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-
NoAck^SSSender^2.16.840.1.114222.4.10.3^ISO
EVN||201408031000||||||PacificNWHospitalED^2231231234^NPI
PID|1||3333^^^^MR||~^^^^^^S|||M||2106-3^White^CDCREC|||||||||||||2186-
5^Not Hispanic or Latino^CDCREC
PV1|1|E||||||||||||||||||3333_001^^^^VN||||||||||||||||||41|||||||||2014
08022345|201408031000
DG1|1||42750^Cardiac arrest^I9CDX||201408030830|F
```

```
OBX|1|CWE|SS003^FACILITY/VISIT
TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC||||||F
```

Case 3 - Patient Admitted from Emergency Department

Case Study 3 provides an example of a hospital emergency department visit is captured as an unstructured, free-text chief complaint, and the patient is discharged from the ED and admitted for inpatient care. ADT A04, A08, A03, and A01 messages are generated and sent to the PHA about this visit.

Step 1: Registration Trigger - ADT A04

A 10 year-old boy is brought to the emergency department (ED) at Southwest Corner Hospital by his parents at 3:30 PM on December 27, 2013. The patient is complaining of fever, cough and difficulty breathing. A clerical assistant registers the patient with the parent's help. She records the patient's name, date of birth, race (*note that two races are entered*), ethnicity, and residence and insurance information. The clerical assistant also enters the patient's chief complaint as, "fever, cough, difficulty breathing."

At 4:00 PM on December 27, 2013, the hospital's electronic health record module for syndromic surveillance data assembles and transmits a Registration message about this encounter to the state health department.

Example Message - Step 1, Case 3:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201312271600||ADT^A04^A
DT_A01|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201312271530||||||SWCornerHospitalED^2231231234^NPI
PID|1||4444^^^^MR||~^^^^^^S|||M||2076-8^Native Hawaiian or Other
Pacific Islander^CDCREC~2028-
9^Asian^CDCREC|^^City^GA^30303^^^^13121||||||||||||2135-2^Hispanic or
Latino^CDCREC
PV1|1|E|||||||||||||||||||||||4444_001^^^^^VN|||||||||||||||||||||||||||||||201312
271600
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||
261QE0002X^Emergency Care^HCPTNUCC||||||F
OBX|2|NM|21612-7^Age-Reported^LN||10|a^^UCUM|||||F
OBX|3|TX|8661-1^Chief Complaint^LN||fever, cough, difficulty
breathing||||||F
```

Step 2: Record Update Trigger - ADT A08

The attending physician orders treatment and diagnostic tests for influenza and pneumonia. At 5:00 PM, she updates the patient's clinical record with *working ICD-9-CM diagnosis codes of 786.05 (shortness of breath) and 786.2 (cough). Shortness of breath is the primary diagnosis.*

At *5:15 PM on December 27, 2013*, the hospital's electronic health record module for syndromic surveillance data assembles and transmits an Update message about to this encounter to the state health department.

Example Message - Step 2, Case 3

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201312271715||ADT^A08^A
DT_A01|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201312271715||||||SWCornerHospitalED^2231231234^NPI
PID|1||4444^^^^MR||~^^^^^^S|||M||2076-8^Native Hawaiian or Other
Pacific Islander^CDCREC~2028-
9^Asian^CDCREC|^^City^GA^30303^^^^13121|||||||||||||2135-2^Hispanic or
Latino^CDCREC
PV1|1|E|||||||||||||||||||||4444_001^^^^VN|||||||||||||||||||||||||||201312
271600
OBX|1|CWE|SS003^FACILITY/VISIT
TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC|||||||F
OBX|2|NM|21612-7^Age-Reported^LN||10|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief Complaint^LN||fever, cough, difficulty
breathing||||||F
DG1|1||78605^Shortness of breath^I9CDX||201312271700|W
DG1|2||7862^Cough^I9CDX||201312271700|W
```

Step 3: Discharge Trigger - ADT A03*

At 7:00 PM, radiology tests indicate that the patient has pneumonia and a rapid influenza test is positive. The physician orders treatment and hospital admission. At 7:30 PM, ED staff complete the patient record and administratively discharge the patient from the ED. The patient's final ICD-9-CM diagnoses codes are 487.0 (influenza with pneumonia).

At 7:40 PM on December 27, 2013, the hospital's electronic health record module for syndromic surveillance data assembles and transmits a Discharge message about this

encounter to the state health department.

*Please note that if the patient is admitted directly from the ED without a discharge transaction, the A03 Discharge message may be created by extrapolating from existing transactions such as the *ADT^A06 Change from Outpatient to Inpatient* or *ADT^A02 Patient Transfer.* In addition to Patient Class in PV1-2, the following data elements that are often available in the ADT messages may also help for filtering in the absence of an A03 Discharge transaction: PV1-4 Admission Type, PV1-14 Admit source, PV1-6 Prior Patient Location.

Example Message - Step 3, Case 3:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201312271940||ADT^A03^A
DT_A03|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201312271930||||||SWCornerHospitalED^2231231234^NPI
PID|1||4444^^^^MR||~^^^^^^S|||M||2076-8^Native Hawaiian or Other
Pacific Islander^CDCREC~2028-
9^Asian^CDCREC|^^City^GA^30303^^^^13121|||||||||||||2135-2^Hispanic or
Latino^CDCREC
PV1|1|||||||||||||||||||||||4444_001^^^^VN|||||||||||||||||||09|||||||||2013
12271600|201312271930
DG1|1||4870^influenza with pneumonia^I9CDX||201312271700|F
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||
261QE0002X^Emergency Care^HCPTNUCC||||||F
OBX|2|NM|21612-7^Age-Reported^LN||10|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief Complaint^LN||fever, cough, difficulty
breathing||||||F
```

Step 4: Admission Trigger - ADT A01

At 8:00 PM the patient is transported to a hospital room in the Pediatric ICU Unit. Clinical staff complete an admission record with the admit reason recorded as ICD-9-CM diagnosis code 487.0 (influenza with pneumonia).

At 8:15 PM on December 27, 2013, the hospital's electronic health record module for syndromic surveillance data assembles and transmits an Admission message about to this encounter to the state health department.

Example Message - Step 4, Case 3:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201312272015||ADT^A01^A
DT_A01|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201312272000||||||SWCornerHospital^2231231234^NPI
PID|1||4444^^^^MR||~^^^^^^S|||M||2076-8^Native Hawaiian or Other
Pacific Islander^CDCREC~2028-
9^Asian^CDCREC|^^City^GA^30303^^^^13121|||||||||||||2135-2^Hispanic or
Latino^CDCREC
PV1|1|I|Pediatric ICU
Unit||||||||||||||||||||4444_001^^^^VN||||||||||||||||||||09|||||||||2013122
72000
PV2|||4870^influenza with pneumonia^I9CDX
OBX|1|CWE|SS003^FACILITY/VISIT
TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC||||||F
OBX|2|NM|21612-7^Age-Reported^LN||10|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief Complaint^LN||fever, cough, difficulty
breathing||||||F
DG1|1||4870^influenza with
pneumonia^I9CDX||201312272000|A^Admitting^HL70052
```

Step 5: Discharge Trigger: ADT A03

At 7:30 pm on December 28, 2013, the patient is feeling better and is transferred to the general Pediatrics unit. On January 2, 2014 at 3:00 pm the patient is discharged to his home. The final discharge diagnosis is ICD-9-CM diagnosis code 487.0 (influenza with pneumonia).

The next day, at 12:00 PM on January 3, 2014, the hospital's electronic health record module for syndromic surveillance data assembles and transmits a Discharge message about this encounter to the state health department.

Example Message - Step 5, Case 3:

```
MSH|^~\&||DownTownProcessing^2231237890^NPI|||201401031200||ADT^A03^A
DT_A03|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201401021500||||||SWCornerHospitalED^2231231234^NPI
PID|1||4444^^^^MR||~^^^^^^S|||M|||^^^^30303^^^^13121|||||||||||||2186-
5^White^CDCREC|||||||||||
PV1|1|I|Pediatric||||||||||||||||||||4444_001^^^^VN||||||||||||||||||||||01|||
||||||201312281930|201101021500
DG1|1||4870^influenza with pneumonia^I9CDX||201312271700|F
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X
^Emergency Care^HCPTNUCC||||||F
```

```
OBX|2|NM|21612-7^Age-Reported^LN||10|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief Complaint^LN||fever, cough, difficulty
breathing||||||F
```

Case 4: Inpatient Visit

Case 4 presents an example of direct hospital admission containing all of the hospital inpatient data elements of interest with a Sender Usage of R or RE. ADT A01 and A03 messages are generated and sent to the PHA about this visit.

Step 1: Admission Trigger - ADT A01

On June 7, 2014 at 12:30 pm a black, non-Hispanic 86 year old male shows up to Greater North Medical Center (Facility Identifier: 4356012945) with a request from his physician to admit him for complications from influenza. During registration the patient's address is recorded as Billings, Yellowstone County, Zip Code 59101. He tells the physician that he is suffering from a fever, chills and body aches as well as worsening shortness of breath. These symptoms are recorded as the patient's chief complaint. At 1:00 pm on June 7, 2014 the patient is admitted to an inpatient respiratory unit with an Admit Reason of ICD-9-CM 487.1 (Influenza with other respiratory manifestations). The diagnosis type is recorded as an admitting diagnosis. The patient's medical record number as assigned by Greater North Medical Center, 123451247, is used to uniquely identify the patient. The visit number is assigned as 100023451247, which is used to uniquely identify the visit.

At 2:00 pm on June 7, 2014, the hospital's electronic health record module for syndromic surveillance data assembles and transmits an Admission message about this encounter to the state health department. PV1-4 Admission Type = 'U' for Urgent; PV1-14 Admission Source = '1' for Physician's referral.

Example Message - Step 1, Case 4

```
MSH|^~\&||GreaterNorthMedCtr^4356012945^NPI|||201406071400||ADT^A01^A
DT_A01|NIST-SS-001.12|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201406071300||||||GreaterNorthMedCtr^4356012945^NPI
PID|1||123451247^^^GreaterNorthMedCtr&4356012945&NPI^MR||~^^^^^^S|||M
||2054-5^Black or African
American^CDCREC|^^Billings^MT^59101^^^^30111||||||||||||2186-5^Not
Hispanic or Latino^CDCREC
```

```
PV1|1|I||U|||||||||||||1|||||100023451247^^^GreaterNorthMedCtr&435601294
5&NPI^VN|||||||||||||||||||||||||||||201406071300
PV2|||4871^Influenza with other respiratory manifestations^I9CDX
OBX|1|CWE|56816-2^PATIENT LOCATION^LN||1069-4^Inpatient Pulmonary
Ward^HSLOC|||||||F
OBX|2|NM|21612-7^Age - Reported^LN||86|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief Complaint^LN||fever, chills and body aches;
worsening shortness of breath|||||||F
DG1|1|||4871^Influenza with other respiratory manifestations
^I9CDX||201406071300|A
```

Step 2: Discharge Trigger: ADT A03

After admission the patient is treated for influenza and, over the course of the next 7 days, begins to recover from the respiratory complications of his influenza. After laboratory testing the physicians confirm that the patient was suffering from the H1N1 strain of influenza, possibly accounting for its severe manifestations. *On June 15, 2014 at 3:45 pm* the patient is discharged from the hospital to his home with a final discharge diagnosis of *ICD-9-CM 488.19 (Influenza due to identified 2014 H1N1 influenza virus with other manifestations)*. The final discharge message is ready 3 days after discharge.

At 2:15 pm on June 18, 2014, the hospital's electronic health record module for syndromic surveillance data assembles and transmits a Discharge message about this encounter to the state health department.

Example Message - Step 2, Case 4:

```
MSH|^~\&||
GreaterNorthMedCtr^4356012945^NPI|||201406181415||ADT^A03^ADT_A03|NIS
T-SS-001.12|P|2.5.1|||||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201406151545|||||GreaterNorthMedCtr^4356012945^NPI
PID|1||123451247^^^GreaterNorthMedCtr&4356012945&NPI^MR||~^^^^^^^S|||M
||2054-5^Black or African
American^CDCREC|^^Billings^MT^59101^^^^30111||||||||||||2186-5^Not
Hispanic or Latino^CDCREC
PV1|1|I||U|||||||||||||1|||||100023451247^^^GreaterNorthMedCtr&4356012945
&NPI^VN|||||||||||||||||||||||||||||201406071300|201406151545
DG1|1|||48819^Influenza due to identified 2014 H1N1 influenza virus
with other manifestations^I9CDX||201406151534|F
OBX|1|CWE|56816-2^PATIENT LOCATION^LN||1069-4^Inpatient Pulmonary
Ward^HSLOC|||||||F
```

```
OBX|2|NM|21612-7^Age - Reported^LN||86|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief Complaint^LN||fever, chills and body aches;
worsening shortness of breath|||||||F
```

Case 5 - Ambulatory Care Visit

Case Study 5 provides an example of a routine patient visit in an ambulatory care clinical setting. The patient's chief complaint is captured as an unstructured, free-text value using the patient's own words. ADT A04 and A03 messages are generated and sent to the PHA about this visit.

Step 1: Registration Trigger - ADT A04

A 25 year old female walks into Midtown Obstetric Clinic on August 17, 2014 at 1:00 pm. The patient arrival is noted in the registration/appointment system by a clerical assistant who verifies the patient's demographics and appointment information. She has previously given her race as white and black and ethnic group as non-hispanic, which is captured with the demographic information in the EHR.

At 1:05 PM on August 17, 2014, the facility's electronic health record module for syndromic surveillance data assembles and transmits a Registration/Patient Arrival message to Big City Health Department about this visit.

Example Message - Step 1, Case 5:

```
MSH|^~\&||MidTwnObstetricCl^2231231234^NPI|||20140817130000||ADT^A04^
ADT_A01|NIST-SS-001.14|P|2.5.1|||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||20140817130500|||||MidTwnObstetricCl^2231231234^NPI
PID|1||233222^^^^MR||~^^^^^^S|||F||2106-3^White^CDCREC~2054-5^BLACK
OR AFRICAN AMERICAN^CDCREC|^^Atlanta^13^30303^^13121|||||||||||||2186-
5^Not Hispanic or Latino^CDCREC
PV1|1|O||||||1234567890^^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO|||||||||||
||233222_04^^^MidTwnObstetricCl&2231231234&NPI^VN|||||||||||||||||||||||
|||||201408171305
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION ||261QP2300X^Primary
Care^HCPTNUCC|||||||F
OBX|2|NM|21612-7^Age-Reported^LN||25|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief complaint^LN||Routine obstetric appointment but
may have a cold and is concerned|||||||F
OBX|4|CWE|11449-6^Pregnancy Status^LN||Y^Yes^HL70136|||||||F
```

```
OBX|5|NM|39156-5^BMI^LN||28||||||F
OBX|6|CWE|11450-4^Problem List - Reported^LN||5990^UTI (URINARY TRACT
INFECTION)^I9CDX ||||||F|||20110217
OBX|7|TX|10160-6^History of Medication Use^LN||Estrogen therapy
(Estradiol)  Antianxiety treatment (Serzone, Wellbutrin)||||||F
```

Step 2: Discharge Trigger: ADT A03

After the patient is seen for her routine visit, a discharge message is created which includes the diagnosis and procedure codes from the billing face sheet. The final discharge message is ready immediately when the patient checks out.

At 2:45 PM on August 17, 2014, the facility's electronic health record module for syndromic surveillance data assembles and transmits a Discharge/Visit End message to Big City Health Department about this visit.

Example Message - Step 2, Case 5:

```
MSH|^~\&||MidTwnObstetricCl^2231231234^NPI|||20140817144500||ADT^A03^
ADT_A03|NIST-SS-001.12|P|2.5.1|||||||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN||20140817144500|||||MidTwnObstetricCl^2231231234^NPI
PID|1||233222^^^^MR||~^^^^^^S||19890607|F||2106-3^White^CDCREC~2054-
5^BLACK OR AFRICAN
AMERICAN^CDCREC^^Atlanta^13^30303^^13121|||||||||||||2186-5^Not
Hispanic or Latino^CDCREC
PV1|1|O||||||1234567890^^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO|||||||||||
||233222_04^^^MidTwnObstetricCl&2231231234&NPI^VN||||||||||||||||||||||
|||||201408171305|20140817144500
DG1|1||Z349^Encounter for supervision of normal pregnancy,
unspecified^I10|||F^Final^HL70052
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QP2300X^Primary
Care^HCPTNUCC||||||F
OBX|2|NM|21612-7^Age-Reported^LN||25|a^year^UCUM|||||F
OBX|3|TX|8661-1^Chief complaint^LN||Routine obstetric appointment but
may have a cold and is concerned||||||F
OBX|4|CWE|11449-6^Pregnancy Status^LN||Y^Yes^HL70136||||||F
OBX|5|NM|39156-5^BMI^LN||28||||||F
OBX|6|CWE|11450-4^Problem List - Reported^LN||5990^UTI (URINARY TRACT
INFECTION)^I9CDX ||||||F|||20110217
OBX|8|TX|8677-7^History of Medication Use Reported^LN ||749856^Estradiol
1 MG / noregestimate 0.09 MG
OralTablet^RXNORM~151679^Serzone^RXNORM~42568^Wellbutrin^RXNORM~43172
2^12 HR Tramadol 100 MG Extended Release Tablet||||||F
```

Case 6: Batch Messaging Example

Case Study 6 presents an example of batch messaging.

Mid-Co Health Center sends their syndromic data to their state public health authority. Mid-Co sends the messages that have gathered over the last 12 hour period in batch message format. There are 240 messages.

Example Batch Message - Case 6

```
FHS|^~\&
BHS|^~\&|ER1|MID-
CO_HLTH_CTR^9876543210^NPI|SS_APP^2.16.840.1.113883.19.3.2.1^ISO|SPH^
2.16.840.1.113883.19.3.2^ISO|20110123120000
MSH|^~\&|ER1|MID-CO HLTH
CTR^9876543210^NPI|SS_APP^2.16.840.1.113883.19.3.2.1^ISO|SPH^2.16.840
.1.113883.19.3.2^ISO |20110123003938||ADT^A01^ADT_A01|ER1-20110123-
001|P|2.5.1
PID|... (Continue 240 messages)...
BTS|240|Mid-Co reporting 1-23-2011: 0000-1200 hrs
FTS|1
```

Case 7: Sample International Address Formats

Case 7 provides examples of how international addresses are messaged.

Countries Bordering the United States

Mexico

```
Super Manzana 3 - 403 [street name + building number - apartment
number] Puerto Juarez [village] 77520 CANCUN, Q. ROO [postcode +
locality name, province abbreviation MEXICO [country name]
```

Example PID Segment - Mexico Address, Case 7:

```
PID|1||MX01059711||~^^^^^^S|||M||||Super Manzana 3 - 403^Puerto
Juarez^CANCUN^Q. ROO^77520^MEX
```

Canada

```
111 FAIRFORD STREET EAST MOOSE JAW SK S6H 2X1 CANADA
```

Example PID Segment - Canada Address, Case 7:

```
PID|1||CA01059711||~^^^^^^S|||M||||111 FAIRFORD STREET EAST^^MOOSE
JAW^SK^S6H 2X1^CAN
```

7 APPENDIX C – CONFORMANCE STATEMENTS

Please note that some of the previous conformance statements no longer applied with some of the recent clarifications. The existing conformance statements were left as intact as possible, but may have been reworded for specificity.

Conformance Statement SS-001: ALL messages constrained by this guide that are produced as a result of a single patient encounter for the purpose of syndromic surveillance, **SHALL** have the same value for PV1-19.1 (Visit ID).

Conformance Statement SS-002: Messages constrained by this guide that are produced as a result of **different** patient encounters for the purpose of syndromic surveillance, **SHALL NOT** have the same value for PV1-19.1 (Visit ID).

Conformance Statement SS-003: Laboratory results should be sent as soon as they are available with a minimum delay. They shall be sent within a maximum 24 hours of receipt by the data center. There is no need to delay either ADT or laboratory messages, and this should not be done.

Conformance Statement SS-004: MSH-9 (Message Type) **SHALL** be the literal value: 'ADT^A04^ADT_A01' for Registration Messages.

Conformance Statement SS-005: The patient's chief complaint **SHALL** be captured only as an unstructured, free-text note, valued in OBX- 5, TX.1. This method includes chief complaint captured from a coding system or captured as a structured field in the source system.

Conformance Statement SS-009: The implementation **SHALL** support all 3 value sets for PV2-3 (Admit Reason): ICD-9 CM Administrative Diagnosis Codes; ICD-10 codes; SNOMED Disease or Disorder - 64572001 Domain Codes.

Conformance Statement SS-010: PV1-44 (Admit Date/Time) **SHALL** be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'

Conformance Statement SS-011: The implementation **SHALL** support all 3 value sets for DG1-3 (Diagnosis Code): PHVS_AdministrativeDiagnosis_CDC_ICD-9CM, PHVS_CauseOfDeath_ICD-10_CDC and PHVS_Disease_CDC for Primary and Additional Diagnosis data elements.

Conformance Statement SS-012: If present, PV1-45 (Discharge Date/Time) **SHALL** be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'

Conformance Statement SS-013: MSH-7 (Date/Time of Message) **SHALL** be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'

Conformance Statement SS-014: MSH-9 (Message Type) **SHALL** be the literal value: 'ADT^A01^ADT_A01' for Admission Messages

Conformance Statement SS-015: MSH-11 (Processing ID) **SHALL** have a value in the set of literal values: "P" for Production, "D" for Debug or "T" for Training.

Conformance Statement SS-016: MSH-12 (Version ID) **SHALL** have a value '2.5.1' for version 2.5.1 messages.

Conformance Statement SS-017: An instance of MSH-21 (Message Profile Identifier) **SHALL** contain the constant value:

PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO
or
PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO
PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO
or
PH_SS-NoAck^SS Receiver^2.16.840.1.114222.4.10.3^ISO
or
PH_SS-Batch^SS Sender^2.16.840.1.114222.4.10.3^ISO
or
PH_SS-Batch^SS Receiver^2.16.840.1.114222.4.10.3^ISO

Conformance Statement SS-018: EVN-2 (Recorded Date/Time of Message) **SHALL** be expressed with a minimum precision of the nearest minute, and be represented in the following format:

'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'

Conformance Statement SS-019: PID-1 (Set ID) **SHALL** have the Literal Value of '1'

Conformance Statement SS-023: PID-5 (Patient Name) **SHALL** be valued with only the constant value "S" or "U" in PID-5.7 Name Type (i.e., PID-5 shall be valued as |~^^^^^^S| or |~^^^^^^U|).

Conformance Statement SS-024: PV1-1 (Set ID) **SHALL** have the Literal Value of '1'.

Conformance Statement SS-025: PV1-19.5 (Identifier Type Code) **SHALL** be valued to the Literal Value 'VN'.

Conformance Statement SS-026: PV2-3.3 (Admit Reason Code System Name) **SHALL** be valued to

one of the Literal Values in the set 'I10', 'I9CDX', 'SCT'.

Conformance Statement SS-027: For the first repeat of the OBX segment, the sequence number **SHALL** be one (1), for the second repeat, the sequence number shall be two (2), etc.

Example:
OBX|1|….
OBX|2|….
OBX|3|….

Conformance Statement SS-028: OBX-2 (Value Type) **SHALL** be valued to the Literal Value in the set ('TS', 'TX', 'NM', 'CWE', 'XAD') PHVS_ValueType_SyndromicSurveillance.

Conformance Statement SS-029: If OBX 3.1 (Observation Identifier) is valued with 21612-7, then OBX-6.1 (Unit Identifier) **SHALL** be valued to a member of the set: PHVS_AgeUnit_SyndromicSurveillance.

Conformance Statement SS-030: If OBX 3.1 (Observation Identifier) is valued with 11289-6 then OBX-6.1 (Identifier) **SHALL** be valued to a member of the set: PHVS_TemperatureUnit_UCUM

Conformance Statement SS-031: If OBX 3.1 (Observation Identifier) is valued with 59408-5 then OBX-6.1 (Identifier) **SHALL** be valued to a member of the set: PHVS_PulseOximetryUnit_UCUM

Conformance Statement SS-032: DG1-1 (Set ID) for the first occurrence of a DG1 Segment **SHALL** have the Literal Value of '1'. Each following occurrence **SHALL** be numbered consecutively

Conformance Statement SS-033: DG1-3.3 **SHALL** be valued to one of the Literal Values in the set ('I10', 'I9CDX', 'SCT'). (2.5.1 version only)

Conformance Statement SS-034: For the first occurrence of the segment the sequence number shall be 1, for the second occurrence it shall be 2, etc.

Conformance Statement SS-035: MSH-9 (Message Type) **SHALL** be the literal value: 'ADT^A08^ADT_A01' For Update transactions

Conformance Statement SS-036: If valued, PID-29 (Patient Death and Time), **SHALL** be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'

Conformance Statement SS-037: If valued, PID-30 (Patient Death Indicator) **SHALL** be valued to the Literal Value 'Y'.

Conformance Statement SS-038: MSH-9 (Message Type) **SHALL** be the literal value: 'ADT^A03^ADT_A03' (2.5.1 version) for Patient Discharge transactions.

Conformance Statement SS-039: MSH-9 (Message Type) for Acknowledgements **SHALL** be constrained to be a value in the set:

'ACK^A01^ACK',
'ACK^A03^ACK',
'ACK^A04^ACK',
'ACK^A08^ACK'

Conformance Statement SS-040 Syndromic surveillance Diagnosis Type value **SHALL** be either A, F or W (Admitting, Final or Working).

Conformance Statement SS-041: MSH-9 (Message Type) **SHALL** be constrained to be a value in the set: (This is in 2.3.1 section only)

'ADT^A01^ADT_A01',
'ADT^A03^ADT_A03',
'ADT^A04^ADT_A01',
'ADT^A08^ADT_A01',
'ACK^A01^ACK',
'ACK^A03^ACK',
'ACK^A04^ACK',
'ACK^A08^ACK''

Conformance Statement SS-042: MSH-12 (Version ID) for a 2.3.1 messages **SHALL** have a value '2.3.1'. (This is in 2.3.1 section only)

Conformance Statement SS-043 no matches

Conformance Statement SS-044 no matches

Conformance Statement SS-045: PV1-45 (Discharge Date/Time) **SHALL** be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'

,

8   APPENDIX D – FUTURE DATA ELEMENTS OF INTEREST

This appendix presents data elements that have potential value to syndromic surveillance in ED, UC and inpatient settings but are not technically feasible or of high enough utility for most PHAs at this time. As public health practice and health information technologies continue to evolve these data elements will likely be important to public health in the future.

APPENDIX D: FUTURE DATA ELEMENTS						
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RECEIVER USAGE**	**CARDINALITY**	**VALUE SET /VALUE DOMAIN**	**IMPLEMENTATION NOTES** / **RECOMMENDED HL7 LOCATION**
Industry	Patient's Industry of employment	O		[0..*]	U.S. Census bureau Industry Codes	Occupation and Industry are currently under consideration as certification data elements for the EHR (Demographics). ISDS recommendations for these data elements will be revisited as Meaningful Use Requirements change. — TBD
Occupation	Patient's occupation	O		[0..*]	U.S. Census bureau Occupation Codes	Occupation and Industry are currently under consideration as certification data elements for the EHR (Demographics). ISDS recommendations for these data elements will be revisited as Meaningful Use Requirements change. — TBD
Observation, symptoms, and clinical findings	Data element(s) describing the observation, symptoms, and clinical findings for a patient's condition	O	O	[0..1]		ED/UC/AC DATA ELEMENT OF INTEREST ONLY The individual data elements related to observation, symptoms, and clinical findings have not been determined. If used, the specific data elements should be specified and agreed upon by individual jurisdictions and their data sharing partners. — OBX Segment

9   APPENDIX E – TRANSLATION OF DATA BETWEEN HL7 2.5.1 AND 2.3.1

This guide follows the HL7 Standard rules to ensure backward-compatibility of interfaces. As a result, properly implemented version 2.3.1 interfaces for syndromic surveillance should be able to accept without producing errors. Section 5.1 DATA ELEMENTS OF INTEREST FOR SYNDROMIC SURVEILLANCE describes the Data Elements of Interest. The format of this section has been designed to accommodate only the differences of HL7 versions 2.3.1 and 2.5.1. The reader is referred to the full HL7 version 2.3.1 Standard for complete information and details of this background.

In HL7 version 2.5.1, the recommended HL7 Location for Facility Identifier and Facility Name data elements are in the Event Type segment, 7th field. However, this field was not defined as part of version 2.3.1 for an Event Type segment. These differences are specified in the following tables:

- Table 9: HL7 2.3.1 Data Elements of Interest That Changed HL7 Location for 2.5.1
- Table 9.1 Message Header (MSH) Segment for 2.3.1 Implementations (Version ID in MSH-12)
- Table 9.2 Event Type (EVN) Segment for 2.3.1 Implementations (7th field did not exist for use with Treating Facility)
- Table 9.3 Observation/Result (OBX) Segment for 2.3.1 Implementations used for Facility Identifier and Facility Name observations

TABLE 9: 2.3.1 DATA ELEMENTS OF INTEREST THAT CHANGED HL7 LOCATION FOR 2.5.1						
DATA ELEMENT NAME	DESCRIPTION OF FIELD	RECEIVER USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	RECOMMENDED HL7 LOCATION
Facility Identifier (Treating)	Unique facility identifier of facility where the patient is treated (original provider of the data)	R	[1..1]	Recommend the use of the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services. For more information about NPI, search for, or to apply for a NPI, click here. The NPI Final Rule (2004) establishing NPI as standard unique health identifier for health care providers NPI Final Rule	This number should be specific for each facility location (not a number representing an umbrella business) It is recommended that National Provider Identifier (NPI) be used for the Facility Identifier. National Provider Identifier. (10-digit identifier) **Note:** The use of 'NPI' should be discussed during the implementation process as local jurisdictions may differ on their use of identifiers for this field	**HL7 Version 2.3.1:** OBX Segment (HD Data Type, 2nd Component of 5th field) with PHINQUESTION Code (SS001) Observation Identifier **Example OBX Segment:** OBX|2|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER_REG_MEDCTR^1234567890^**NPI**|||||F|||201102171531

TABLE 9: 2.3.1 DATA ELEMENTS OF INTEREST THAT CHANGED HL7 LOCATION FOR 2.5.1						
Facility Name (Treating)	Name of the treating facility where the patient is treated	RE	[0..1]	The use of Organization Legal Name is recommended Business Name (LBN) associated with the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services. For more information about NPI, search for, or to apply for a NPI, click here. The NPI Final Rule (2004) establishing NPI as standard unique health identifier for health care providers NPI Final Rule	If this data element is captured and maintained as part of the facility registration process, it may not be sent with every message. See ISDS recommendations, section 4.2, on Facility Registration ISDS.	HL7 Version 2.3.1: OBX Segment (HD Data Type, 1st Component, 5th field) with PHINQUESTION Code (SS001) Observation Identifier Example OBX Segment: OBX|2|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED CTR^1234567890^NPI||||||F|||201102171531

9.1 MESSAGE HEADER (MSH) SEGMENT FOR 2.3.1 IMPLEMENTATIONS

The MSH Segment is used to define the intent, source, destination, and some specifics of the syntax of the message. This segment includes identification of message delimiters, sender, receiver, message type, timestamp, etc.

TABLE 9.1: MESSAGE HEADER SEGMENT (MSH) FOR 2.3.1 IMPLEMENTATIONS						
FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUES / VALUE SET
Field Separator	1	ST	1	R	R	[1..1]	Default Value "|" (ASCII 124).
Encoding Characters	2	ST	4	R	R	[1..1]	Default Values "^~\&" (ASCII 94,126, 92, and 38).
Sending Application	3	HD	227	O	O	[0..1]	

TABLE 9.1: MESSAGE HEADER SEGMENT (MSH) FOR 2.3.1 IMPLEMENTATIONS						
FIELD NAME	**SEQ**	**DT**	**LEN**	**SENDER USAGE**	**RCVR USAGE**	**CARDINALITY**	**VALUES / VALUE SET**
Sending Facility	4	HD	227	R	R	[1..1]	Field that uniquely identifies the facility associated with the application that sends the message If Acknowledgements are in use, this facility will receive any related Acknowledgement message. National Provider Identifier. (10-digit identifier) **Note:** The use of 'NPI' should be discussed during the implementation process as local jurisdictions may differ on their use of identifiers for this field
Namespace ID	4.1	IS	20	RE	RE	[0..1]	HL7 table 0362: User-defined: Facility
Universal ID	4.2	ST	199	R	R	[1..1]	
Universal ID Type	4.3	ID	6	R	R	[1..1]	PHVS_UniversalIDType_SyndromicSurveillance
Receiving Application	5	HD	227	O	O	[0..1]	HL7 table 0361: User-defined: Application
Receiving Facility	6	HD	227	O	O	[0..1]	HL7 table 0362: User-defined: Facility
Date/Time Of Message	7	TS	26	R	R	[1..1]	**Conformance Statement SS-013:** MSH-7 (Date/Time of Message) **SHALL** be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S]]]] [+/-ZZZZ]' **Definition**: This field contains the date/time that the sending system created the message. If the time zone is specified, it will be used throughout the message as the default time zone. **Note**: MSH-7 (Date/Time of Message) does not have to equal EVN-2 (Message Date/Time)
Security	8	ST	40	X	X	[0..1]	

TABLE 9.1: MESSAGE HEADER SEGMENT (MSH) FOR 2.3.1 IMPLEMENTATIONS							
FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINA LITY	VALUES / VALUE SET
Message Type	9	MSG	15	R	R	[1..1]	**Note:** All messages will be Admit-Discharge-Transfer (ADT) or General acknowledgment message (ACK) message types. The triggering event is a real-world circumstance causing the message to be sent.
							Supported trigger events are A01 (Inpatient Admission), A04 (Emergency Department Registration) and A08 (Update) and A03 (Discharge).
							Conformance Statement SS-041: MSH-9 (Message Type) **SHALL** be constrained to be a value in the set:
							'ADT^A01^ADT_A01',
							'ADT^A03^ADT_A03',
							'ADT^A04^ADT_A01',
							'ADT^A08^ADT_A01',
							'ACK^A01^ACK',
							'ACK^A03^ACK',
							'ACK^A04^ACK',
							'ACK^A08^ACK'
Message Code	9.1	ID	3	R	R	[1..1]	Literal Value 'ADT' or 'ACK' PHVS_MessageType_SyndromicSurveillance
Trigger Event	9.2	ID	3	R	R	[1..1]	One of the following literal values: 'A01', 'A03', 'A04', or 'A08' PHVS_EventType_SyndromicSurveillance
Message Structure	9.3	ID	7	R	R	[1..1]	Trigger events A01, A04, and A08 share the same 'ADT_A01' Message Structure. Valid values are: 'ADT_A01' or 'ADT_A03' or 'ACK' PHVS_MessageStructure_SyndromicSurveillance
Message Control ID	10	ST	199	R	R	[1..1]	**Definition**: This field contains a number or other identifier that uniquely identifies the message. The receiving system echoes this ID back to the sending system in the Message acknowledgment segment (MSA). **Note**: This field is a number or other identifier that uniquely identifies the message.

FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINA LITY	VALUES / VALUE SET
							TABLE 9.1: MESSAGE HEADER SEGMENT (MSH) FOR 2.3.1 IMPLEMENTATIONS
Processing ID	11	PT	3	R	R	[1..1]	**Conformance Statement SS-015:** MSH-11 (Processing ID) **SHALL** have a value in the set of literal values: "P" for Production, "D" for Debug or "T" for Training. **Definition**: This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules. **Note**: Indicates how to process the message as defined in HL7 processing rules
Version ID	12	VID	5	R	R	[1..1]	**Conformance Statement SS-042:**MSH-12 (Version ID) **SHALL** have a value '2.3.1' **Definition**: This field is matched by the receiving system to its own version to be sure the message will be interpreted correctly. For this message the value shall be 2.3.1 **Note**: HL7 version number used to interpret format and content of the message.
Sequence Number	13	NM	15	X	X	[0..1]	
Continuation Pointer	14	ST	180	X	X	[0..1]	
Accept Acknowledgement Type	15	ID	2	CE	CE	[0..1]	HL7 table 0155: HL7 defined: Accept/application acknowledgment conditions Condition Rule: For MSH-21 Message Profile ID PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO, the ADT and ORU message must be valued with the literal value "AL". Must be left empty for the Accept Acknowledgment.
Application Acknowledgement Type	16	ID	2	CE	CE	[0..1]	HL7 table 0155: HL7 defined: Accept/application acknowledgment conditions Condition Rule: For MSH-21 Message Profile ID PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO, the ADT and ORU message should be populated from *HL7 Table 0155 – Accept/Application Acknowledgment Conditions.* Must be left empty for the Accept Acknowledgment.
Country Code	17	ID	3	X	X	[0..1]	HL7 table 0399: HL7 defined: Country code
Character Set	18	ID	16	X	X	[0..*]	HL7 table 0211: HL7 defined: Alternate character sets

TABLE 9.1: MESSAGE HEADER SEGMENT (MSH) FOR 2.3.1 IMPLEMENTATIONS							
FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUES / VALUE SET
Principal Language Of Message	19	CE	478	X	X	[0..1]	
Alternate Character Set Handling Scheme	20	ID	20	X	X	[0..1]	HL7 table 0356: HL7 defined: Alternate character set handling scheme

9.2 EVENT TYPE (EVN) SEGMENT FOR 2.3.1 IMPLEMENTATIONS

The EVN segment is used to communicate trigger event information to receiving applications.

TABLE 9.2: EVENT TYPE SEGMENT (EVN) FOR 2.3.1 IMPLEMENTATIONS							
FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUES / VALUE SET
Event Type Code	1	ID	3	X	X	[0..0]	PHVS_EventType_SyndromicSurveillance
Recorded Date/Time	2	TS	26	R	R	[1..1]	**Conformance Statement SS-018:** EVN-2 (Recorded Date/Time of Message) **SHALL** be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]' **Note:** EVN-2 (Recorded Date/Time) does not have to equal MSH-7 (Date/Time of Message) **Note:** Most systems default to the system Date/Time when the transaction was entered. Data Element of Interest: Message Date/Time
Date/Time Planned Event	3	TS	26	X	X	[0..1]	
Event Reason Code	4	IS	3	X	X	[0..1]	HL7 table 0062: User defined: Event reason

TABLE 9.2: EVENT TYPE SEGMENT (EVN) FOR 2.3.1 IMPLEMENTATIONS							
FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINA LITY	VALUES / VALUE SET
Operator ID	5	XCN	309	X	X	[0..*]	HL7 table 0188: User defined: Operator ID
Event Occurred	6	TS	26	X	X	[0..1]	

9.3   OBSERVATION/RESULT (OBX) SEGMENT FOR 2.3.1 IMPLEMENTATIONS

The OBX Segment in the ADT Message is used to transmit observations related to the patient and visit. In Section 5, DATA ELEMENTS OF INTEREST FOR SYNDROMIC SURVEILLANCE, if the data element is carried in an OBX and usage is 'Required', the segment and its fields must be populated. The data elements from Section 5 that use OBX segments are not expected to utilize any specified Set ID number within a message. However, the Set IDs are required to be sequential.

TABLE 9.3: OBSERVATION / RESULT SEGMENT (OBX) FOR 2.3.1 IMPLEMENTATIONS							
FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINA LITY	VALUES / VALUE SET
Set ID - OBX	1	SI	4	R	R	[1..1]	**Definition**: This field contains the sequence number. **Note:** Set ID numbers the repetitions of the segments **Conformance Statement SS-027:** For the first repeat of the OBX segment, the sequence number **SHALL** be one (1), for the second repeat, the sequence number shall be two (2), etc. Example: OBX|1|…. OBX|2|…. OBX|3|….

TABLE 9.3: OBSERVATION / RESULT SEGMENT (OBX) FOR 2.3.1 IMPLEMENTATIONS						
FIELD NAME	**SEQ**	**DT**	**LEN**	**SENDER USAGE**	**RCVR USAGE**	**CARDINALITY**	**VALUES / VALUE SET**
Value Type	2	ID	3	R	R	[1..1]	**Definition**: This field contains the format of the observation value in OBX. **Conformance Statement SS-028:** OBX-2 **SHALL** be valued to the Literal Value in the set ('TS', 'TX', 'NM', 'CWE', 'XAD') PHVS_ValueType_SyndromicSurveillance Note: Identifies the structure of data in observation value (OBX.5)
Observation Identifier	3	CE	478	R	R	[1..1]	**Note:** Identifies data to be received in observation value (OBX.5) PHVS_ObservationIdentifier_SyndromicSurveillance
Identifier	3.1	ST	20	R	R	[1..1]	
Text	3.2	ST	199	O	O	[0..1]	
Name of Coding System	3.3	ID	20	R	R	[1..1]	**Condition Predicate:** If OBX-3.1 (the identifier) is provided then OBX-3.3 is valued.
Alternate Identifier	3.4	ST	20	X	X	[0..1]	
Alternate Text	3.5	ST	199	X	X	[0..1]	
Name of Alternate Coding System	3.6	ID	20	X	X	[0..1]	
Observation Sub-ID	4	ST	20	X	X	[0..1]	
Observation Value	5	varies	99999	RE	RE	[0..*]	**Note:** Values received in observation value are defined by value type (OBX.2) and observation identifier (OBX.3).
Units	6	CE	62	C	C	[0..1]	**Condition Predicate:** If OBX.2 (Value Type) is valued "NM"

FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUES / VALUE SET
							TABLE 9.3: OBSERVATION / RESULT SEGMENT (OBX) FOR 2.3.1 IMPLEMENTATIONS
Identifier	6.1	ST	20	R	R	[1..1]	**Conformance Statement SS-029:** If OBX 3.1 is valued with 21612-7, then OBX-6.1 (Identifier) **SHALL** be valued to a member of the set: PHVS_AgeUnit_SyndromicSurveillance **Conformance Statement SS-030:** If OBX 3.1 = is valued with 11289-6 then OBX-6.1 (Identifier) **SHALL** be valued to a member of the set: PHVS_TemperatureUnit_UCUM **Conformance Statement SS-031:** If OBX 3.1 is valued with 59408-5 then OBX6.1 (Identifier) **SHALL** be valued to a member of the set PHVS_PulseOximetryUnit_UCUM
Text	6.2	ST	20	O	O	[0..1]	
Name of Coding System	6.3	ID	20	R	R	[1..1]	**Condition Predicate:** If OBX-6.1 (the identifier) is provided then OBX-6.3 is valued.
Alternate Identifier	6.4	ST	20	X	X	[0..1]	
Alternate Text	6.5	ST	199	X	X	[0..1]	
Name of Alternate Coding System	6.6	ID	20	X	X	[0..1]	
References Range	7	ST	60	X	X	[0..1]	
Abnormal Flags	8	IS	5	X	X	[0..*]	
Probability	9	NM	5	X	X	[0..1]	
Nature of Abnormal Test	10	ID	2	X	X	[0..*]	
Observation Result Status	11	ID	1	R	R	[1..1]	

TABLE 9.3: OBSERVATION / RESULT SEGMENT (OBX) FOR 2.3.1 IMPLEMENTATIONS							
FIELD NAME	SEQ	DT	LEN	SENDER USAGE	RCVR USAGE	CARDINALITY	VALUES / VALUE SET
Effective Date of Reference Range	12	TS	26	X	X	[0..1]	
User Defined Access Checks	13	ST	20	X	X	[0..1]	
Date/Time of the Observation	14	TS	26	O	O	[0..1]	
Producer's ID	15	CE	478	X	X	[0..1]	
Responsible Observer	16	XCN	309	X	X	[0..*]	
Observation Method	17	CE	478	X	X	[0..*]	
Equipment Instance Identifier	18	EI	424	X	X	[0..*]	
Date/Time of the Analysis	19	TS	26	X	X	[0..1]	

9.4 2.3.1 EXAMPLES

A minimal amount of data was intentionally used to provide emphasis on the syndromic surveillance data elements of interest.

9.4.1 A04 EMERGENCY DEPT REGISTRATION; A01 INPATIENT ADMISSION; A03 DISCHARGE INCLUDING PATIENT DEATH

In the next example, a non-Hispanic white female, 43 year old, visits the Other Regular Medical Center emergency department with a chief complaint of a stomachache. The chief complaint was sent as free text.

```
MSH|^~\&||OTHER REG MED
CTR^1234567890^NPI|||201102171531||ADT^A04^ADT_A01|201102171531956|P|2.3.1
EVN||201102171531
PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821|||||||||||||2186-
5^Not Hispanic^CDCREC
PV1||E||E|||||||||||7|||||V20220217-00274^^^^VN|||||||||||||||||||||||||||||201102171522
PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX
OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED
 CTR^1234567890^NPI|||||||F|||201102171531
OBX|2|TX|8661-1^CHIEF COMPLAINT ^LN||STOMACH ACHE||||||F|||201102171531
OBX|3|NM|21612-7^Age - Reported^LN||43|a^YEAR^UCUM|||||F|||201102171531
OBX|4|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^Emergency Care^
HCPTNUCC|||||||F|||201102091114
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A
```

Continuing the example, the same non-Hispanic white female, 43 year old, visits the Other Regular Medical Center emergency department with a chief complaint of a stomach ache. The patient is suspect for appendicitis and is admitted as an inpatient. The patient has also reported that she has had a stomach ache since the 15th of February. The patient class (PV1.2) is changed to Inpatient. Admit Date/Time (PV1.44) is updated with the admission date and time.

In this particular case, visit number (PV1.19) has remained the same. However, it is recognized that some insurance companies require the visit number to be changed when a patient is admitted from the Emergency Department.

```
MSH|^~\&||OTHER REG MED
CTR^1234567890^NPI|||201102171658||ADT^A01^ADT_A01|201102171658076|P|2.3.1
EVN||201102171658
PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821||||||||||||2186-
5^Not Hispanic^CDCREC
PV1||I||E|||||||||7|||||V20220217-00274^^^^VN|||||||||||||||||||09||||||||201102171656
PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX
OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED
 CTR^1234567890^NPI|||||||F|||201102171531
OBX|2|TX|8661-1^CHIEF COMPLAINT ^LN||STOMACH ACHE||||||F|||201102171531
OBX|3|NM|21612-7^Age - Reported^LN||43|a^YEAR^UCUM|||||F|||201102171531
OBX|4|NM|11289-6^BODY
TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||20110217165
8
OBX|5|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE
OXIMETRY^LN||95|%^PERCENT^UCUM||A|||F|||201102171658
OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND
TIME:TMSTP:PT:PATIENT:QN^LN||20110215||||||F|||201102171658
OBX|7|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION|| 261QP2300X^Primary Care^
HCPTNUCC|||||||F|||201102091114
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A
DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX|||W
```

_____

Continuing the example, the same non-Hispanic white female, 43 year old, visits the Other Regular Medical Center emergency department with a chief complaint of a stomach ache. The patient has expired and this is indicated in PV1.36 (Code=20). A final diagnosis is also sent. It is also indicated by the "Y" in PID-30 and the Date and Time of Death in PID-29. The discharge date/time (PV1.45) is sent with the A03 message type.

```
MSH|^~\&||OTHER REG MED
```

```
CTR^1234567890^NPI|||201102172334||ADT^A03^ADT_A03|201102172334640|P|2.3.1
EVN||201102172334
PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821|||||||||||||2186-
5^Not Hispanic^CDCREC||||||||201102172334|Y
PV1||I||E|||||||||||7|||||V20220217-
00274^^^^VN||||||||||||||||||||20|||||||||201102171656|201102172334
PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A
DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX|||W
DG1|3||5400^AC APPEND W PERITONITIS^I9CDX|||F
OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED
CTR^1234567890^NPI|||||||F|||201102171531
OBX|2|TX|8661-1^CHIEF COMPLAINT ^LN||STOMACH ACHE||||||F|||201102171531
OBX|3|NM|21612-7^Age - Reported^LN||43|a^YEAR^UCUM|||||F|||201102171531
OBX|4|NM|11289-6^BODY
TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||20110217165
8
OBX|5|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE
OXIMETRY^LN||95|%^PERCENT^UCUM||A|||F|||201102171658
OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND
TIME:TMSTP:PT:PATIENT:QN^LN||20110215||||||F|||201102171658
OBX|7|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION|| 261QP2300X^Primary Care^
HCPTNUCC||||||F|||201102091114
```

9.4.2 A01 INPATIENT ADMISSION; NO UPDATES

In the following example, a Hispanic white male, age currently 20, is admitted as an inpatient to the Mid-Co Health Center emergency department after falling down the stairs. The Medical Record Number is sent for the patient identifier and the patient account number is sent for the visit number.

```
MSH|^~\&||MID-CO HLTH CTR^9876543210^NPI|||201110090314||ADT^A01^ADT_A01|201110090314-
```

```
0017|P|2.3.1
EVN||201110090314
PID|1||MD01059711^^^ADMITTING^MR^MID-CO HLTH CTR^9876543210^NPI||~^^^^^^U|||M||2106-
3^White^CDCREC|^^^24^21502|||||||||||||2135-2^**Hispanic or Latino**^CDCREC
PV1||**I**||E|||||||||||**6**|||||20111009_0034^^^^AN^MID-CO HLTH CTR&9876543210&NPI
||||||||||||||||||||||||||20111009025915
OBX|1|NM|21612-7^Age - Reported^LN||2**0**|a^YEAR^UCUM|||||F|||201102171531
OBX|2|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||MID-CO HLTH
 CTR^9876543210^NPI||||||F|||201102171531
OBX|3|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION|| 261QP2300X^Primary Care^
 HCPTNUCC||||||F|||201102091114
DG1|1||E8809^FALL ON STAIR/STEP NEC^I9CDX|||A
```

10 APPENDIX F – USEFUL RESOURCES[10]

Syndromic surveillance messaging standards referenced by the 2014 edition of the ONC Certification Criteria for EHR Technology:

PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care (Release 1.1, August 2014)

http://www.cdc.gov/phin/library/guides/PHIN_MSG_Guide_for_SS_ED_and_UC_Data_v1_1.pdf

PHIN Conformance Clarification for EHR Certification of Electronic Syndromic Surveillance: Addendum (August 2014)
http://www.cdc.gov/phin/library/guides/SS%20Addendum_v1_1.pdf

PHIN Conformance Clarification for EHR Certification of Electronic Syndromic Surveillance: Testing Clarification (February 2013)

http://www.cdc.gov/phin/library/guides/SS_MU-TestingClarification_R1_2_02152013.pdf

Newest national standard for syndromic surveillance messaging:

PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent Care, Inpatient and Ambulatory Care Settings (Release 2.0, January 2015)

http://www.cdc.gov/phin/library/guides/SyndrSurvMessagGuide2_MessagingGuide_PHN.pdf

All versions of the PHIN Messaging Guide for Syndromic Surveillance are posted at:

http://www.cdc.gov/phin/library/resources/PHINguides.html

Current national standard for laboratory results (basis for ORU messages in syndromic surveillance):

HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1

http://www.hl7.org/implement/standards/product_brief.cfm?product_id=98

HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 2 (US Realm) Draft Standard for Trial Use, Release 1.1, May 2014

Messaging and terminology standards and validation:

10

National Institute of Standards and Technology (NIST) Syndromic Surveillance validation tool

http://hl7v2-ss-testing.nist.gov/mu-syndromic/

Health Level Seven International (HL7) standards development organization http://www.hl7.org/

PHIN Vocabulary Access and Distribution System (VADS) http://phinvads.cdc.gov/

International Classification of Diseases, Ninth Revision (ICD9) http://icd9.chrisendres.com/

International Classification of Diseases, Tenth Revision (ICD10) http://www.icd10data.com/

Logical Observation Identifiers Names and Codes (LOINC) resource http://loinc.org/

Systematized Nomenclature of Medicine-Clinical Terms (SNOMED CT) http://www.ihtsdo.org/snomed-ct/

American Medical Association Current Procedural Terminology (CPT)

http://www.ama-assn.org/ama/pub/physician-resources/solutions-managing-your-practice/coding-billing-insurance/cpt.page

ISDS Meaningful Use resources:

The International Society for Disease Surveillance (ISDS) is a 501(c)3 nonprofit organization founded in 2005 with a mission to improve population health by advancing the science and practice of disease surveillance. ISDS's 430+ membership represents the public health surveillance community, including:
   • Local, state, federal, and global public health practitioners and policymakers
   • Government agencies
   • Academic researchers
   • Non-profit associations
   • Clinical health care providers
   • For-profit organizations
   • Graduate students
   • Other stakeholders in disease surveillance

http://www.syndromic.org

Electronic Syndromic Surveillance Using Hospital Inpatient and Ambulatory Clinical Care Electronic Health Record Data. Recommendations from the ISDS Meaningful Use Workgroup. November 2014.

11 APPENDIX G – DISCHARGE DISPOSITION VALUE SET FOR SYNDROMIC SURVEILLANCE

The proposed update to the Discharge Disposition Value Set for Syndromic Surveillance is included here. It contains the original value set as posted in HL7 plus any extra that were in PHIN VADS, plus additional values derived from the Joint Commission guidance.[11]

11.1 DISCHARGE DISPOSITION VALUE SET

Code System OID: 2.16.840.1.113883.12.112
Code System Name: Discharge disposition (HL7)
Code System Code: PH_DischargeDisposition_HL7_2x
Code System Version: HL7 v2.5.1
HL7 Table 0396 Code: HL70112

TABLE 11.1 DISCHARGE DISPOSITION CODE SYSTEM FOR SYNDROMIC SURVEILLANCE	
CONCEPT CODE	**CONCEPT NAME**
01	Discharged to home care or self care (routine discharge)
02	Discharged/transferred to a short term general hospital for inpatient care
03	Discharged/transferred to skilled nursing facility (SNF) with Medicare certification in anticipation of covered skilled care
04	Discharged/transferred to a facility that provides custodial or supportive care
05	Discharged/transferred to a designated cancer center or children's hospital
06	Discharged/transferred to home under care of organized home health service organization in anticipation of covered skilled care
07	Left against medical advice or discontinued care
08	Discharged/transferred to home under care of a Home IV provider
09	Admitted as an inpatient to this hospital
10-19	Discharge to be defined at state level, if necessary
20	Expired
21	Discharged/transferred to court/law enforcement
21-29	Expired to be defined at state level, if necessary
30	Still Patient
31-39	Still patient to be defined at state level, if necessary (i.e. still a patient)
40	Expired (i.e. died) at home
41	Expired (i.e. died) in a medical facility; e.g., hospital, SNF, ICF, or free standing hospice
42	Expired - place unknown
43	Discharged/transferred to a federal health care facility
44-49	Reserved for national assignment

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[11] https://manual.jointcommission.org/releases/TJC2012B/DataElem0247.html

TABLE 11.1 DISCHARGE DISPOSITION CODE SYSTEM FOR SYNDROMIC SURVEILLANCE	
CONCEPT CODE	**CONCEPT NAME**
50	Hospice - home
51	Hospice - medical facility (certified) providing hospice level of care
52-60	Reserved for national assignment
61	Discharged/transferred to hospital-based Medicare approved swing bed
62	Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital
63	Discharged/transferred to a Medicare certified long term care hospital (LTCH)
64	Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare
65	Discharged/transferred to a psychiatric hospital or psychiatric distinct part unit of a hospital
66	Discharged/transferred to a Critical Access Hospital (CAH)
67-70	Reserved for national assignment
70	Discharged/transferred to another type of health care institution not defined elsewhere in this code list
71	Reserved for national assignment (Discontinued effective 4/1/03)
72	Reserved for national assignment (Discontinued effective 4/1/03)
73-99	Reserved for national assignment
100	Discharged for Other Reasons
101	Discharged to Care of Family/Friend(s)
102	Discharged to Care of Paid Caregiver
103	Discharged to Court/ Law Enforcement/Jail
104	Discharged to Other Facility per Legal Guidelines
105	Discharge required by Carrier Change
106	Internal Transfer per Legal Guidelines
107	Other Home Care
108	Regular Discharge with Follow-up
109	Return Transfer

11.2   DISCHARGE DISPOSITION CROSSWALK

Note: This chart provides the supportive clarification from Joint Commission of the Allowable Values listed in the data element Discharge Status.

TABLE 11.2 DISCHARGE DISPOSITION CODE SYSTEM CROSSWALK TO SETTING	
CONCEPT CODE	**CONCEPT NAME**
01	Homeless shelter

TABLE 11.2 DISCHARGE DISPOSITION CODE SYSTEM CROSSWALK TO SETTING	
CONCEPT CODE	CONCEPT NAME
01	Personal care home
01	Residential care
01	Partial hospitalization - A nonresidential treatment modality which includes psychiatric, psychological, social and vocational elements under medical supervision. It is designed for patients with moderate to severe mental or emotional disorders. Partial hospitalization patients require less than 24-hour care, but more intensive and comprehensive services than are offered in outpatient treatment programs. Partial hospitalization is provided on a planned and regularly scheduled basis for a minimum of 3 hours, but less than 24 hours in any 1day.
01	Physician's office
02	Short term general hospital
02	Tertiary care
03	Skilled nursing facility (SNF)
03	Skilled nursing facility with hospice referral only (has not accepted hospice care by a hospice organization)
03	SNF rehabilitation unit (a unit within the SNF)
03	Sub-Acute Care
03	Transitional Care Unit (TCU)
04	Assisted Living Facility
04	ECF (Extended Care Facility)
04	ICF (Intermediate Care Facility)
04	Nursing Home
04	Nursing facility for non-skilled/custodial/residential level of care
04	Nursing facility with hospice referral only (has not accepted hospice care by a hospice organization)
05	Children's hospital
05	Designated cancer centers
06	Home under care of organized home health services with oxygen
06	Foster care facility with home care
06	Home under care of organized home health service organization
06	Home with home health agency with DME
06	Home with therapy services (PT/OT) provided by home health service organization
06	Home with written plan of care for home care services – whether home attendant, nursing aides, certified attendants, etc.
07	Left against medical advice or discontinued care
20	Expired
21	Jail
21	Prison
21	Other Detention Facilities
30	Leave of absence days
30	Interim bills
43	Federal health care facility (VA, DOD)
43	Department of Defense hospital (DOD)
43	Veteran's Administration hospital (VA)

TABLE 11.2 DISCHARGE DISPOSITION CODE SYSTEM CROSSWALK TO SETTING	
CONCEPT CODE	**CONCEPT NAME**
43	Veteran's Administration nursing facility
43	Psych unit within VA hospital
43	Transfer to VA hospital
50	Discharged to home or an alternative setting that is the patient's "home," such as a nursing facility, and will receive in-home hospice services
51	Discharged from acute care hospital but remains at the same hospital under hospice care
51	General Inpatient Hospice care
51	General Inpatient Respite Hospice care
51	SNF with hospice care
51	Residential with hospice care
51	Non-skilled level of care outside the hospice benefit for conditions unrelated to the terminal illness
61	Discharged from an acute hospital to a Critical Access Hospital swing bed
61	SNF level of care within hospital's approved swing bed arrangement
61	Swing bed
62	Inpatient rehabilitation facility including rehabilitation distinct part units of a hospital
63	Long-term care hospital (long-term care facilities provide acute inpatient care with an average length of stay greater than 25 days)
63	LTCH
64	Nursing facility certified under Medicaid but not certified under Medicare
65	Psychiatric hospital or psychiatric distinct part unit of hospital
66	Discharged/transferred to a Critical Access Hospital
70	Another type of health care institution not defined elsewhere in the code list
70	Chemical dependency treatment facility that is not part of a hospital (if the chemical dependency treatment facility is not a psychiatric hospital or psychiatric distinct part/unit of a hospital

12 APPENDIX H – A08 MESSAGE TRIGGERS

	TABLE H: A08 MESSAGE TRIGGERS					
DATA ELEMENT NAME	**DESCRIPTION OF FIELD**	**SENDER USAGE**	**RCVR USAGE**	**CARDIN ALITY**	**RECOMMENDED HL7 LOCATION**	**TRIGGERS AN A08 TRANSACTION**
Basic Message Information						
Facility Identifier (Treating)	Unique facility identifier where the patient was treated (original provider of the data)	R	R	[1..1]	EVN-7.2 Event Facility - Facility Identifier	Would not trigger a new A08 - already included with all the ADT messages
Facility Name (Treating)	Name of the treating facility where the patient is treated	RE	O	[0..1]	EVN-7.1 Event Facility - Facility Name	Would not trigger a new A08 - already included with all the ADT messages
Treating Facility Address (Street address, City, State, ZIP, and County)	Address of treating facility location: Street Address, City, ZIP Code, County, State	RE	O	[0..1]	OBX Segment with OBX-3 Observation Identifier of SS002 Treating Facility Location (PHINQUESTION) and OBX-2 Value Type of XAD.	Would not trigger a new A08 - already included with all the ADT messages
Facility/Visit type	Type of facility that the patient visited for treatment	R	R	[1..1]	OBX Segment with OBX-3 Observation Identifier SS003^FACILITY/VISIT TYPE	Yes, if visit type changes during a specific encounter
Message (Event) Date/Time	Date and time that the report is created / generated from original source (from treating facility)	R	R	[1..1]	EVN-2 Event Date/Time	This field is a by-product of the trigger and when it occurred
Unique Physician Identifier	Unique identifier for the physician providing care	O	O	[0..1]	PV1-7 Attending Doctor	Yes, if physician assignment changes for a specific encounter Specific transactions that would translate to A08: CHANGE ATTENDING DOCTOR (EVENT A54)

TABLE H: A08 MESSAGE TRIGGERS						
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDIN ALITY	RECOMMENDED HL7 LOCATION	TRIGGERS AN A08 TRANSACTION
Unique Patient Identifier / Medical Record Number	Unique identifier for the patient or visit	R	R	[1..*]	PID-3 Patient Identifier List	Yes, if the Medical Record # or whatever identifier is being used in PID-3 changes for a specific patient. PID-3 Patient Identifier value will be the only means of identifying a patient longitudinally. Potential transactions that would translate to A08: MERGE PATIENT INFORMATION (EVENT A18) MERGE PERSON INFORMATION (EVENT A30) UPDATE PERSON INFORMATION (EVENT A31) MERGE PATIENT INFORMATION - PATIENT ID ONLY (EVENT A34) CHANGE PATIENT ID (EVENT A46) MERGE PATIENT INFORMATION - PATIENT ID & ACCOUNT NUMBER (EVENT A36) MERGE PERSON - PATIENT ID (EVENT A39) MERGE PATIENT - PATIENT IDENTIFIER LIST (EVENT A40) CHANGE PATIENT ID (EVENT A46) CHANGE PATIENT IDENTIFIER LIST (EVENT A47)

TABLE H: A08 MESSAGE TRIGGERS					
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDIN ALITY	RECOMMENDED HL7 LOCATION	TRIGGERS AN A08 TRANSACTION
Unique Visit Identifier	Unique identifier for the visit/encounter	R	R	[1..*]	PV1-19 Visit ID	Yes, if the Visit identifier is changed for a specific encounter Potential transactions that would translate to A08: CHANGE AN OUTPATIENT TO AN INPATIENT (EVENT A06) CHANGE AN INPATIENT TO AN OUTPATIENT (EVENT A07) MERGE PATIENT INFORMATION (EVENT A18) MERGE PERSON INFORMATION (EVENT A30) UPDATE PERSON INFORMATION (EVENT A31) MERGE PATIENT INFORMATION - ACCOUNT NUMBER ONLY (EVENT A35) MERGE PATIENT INFORMATION - PATIENT ID & ACCOUNT NUMBER (EVENT A36) MERGE VISIT - VISIT NUMBER (EVENT A42) MOVE VISIT INFORMATION - VISIT NUMBER (EVENT A45)
Age/Age Units	Numeric value of patient age at time of visit	RE	RE	[0..1]	OBX Segment with OBX-3 Observation Identifier of 21612-7 AGE – REPORTED (LOINC) and OBX-2 Value Type of NM	Yes, when a new **21612-7 AGE REPORTED (LOINC)** observation becomes available in the EHR
Gender	Stated gender of patient	RE	RE	[0..1]	PID-8 Administrative Sex	Yes, when PID-8 is added or updated
Race	Race of patient	RE	RE	[0..*]	PID-10 Race	Yes, when PID-10 is added or updated
Ethnicity	Ethnicity of patient	RE	RE	[0..*]	PID-22 Ethnicity	Yes, when PID-22 is added or updated
Patient City/Town	City or town of patient residence	RE	RE	[0..1]	PID-11.3 Patient Address City	Yes, when PID-11.3 is added or updated
Patient ZIP Code	ZIP Code of patient residence	RE	RE	[0..1]	PID-11.5 Patient Address Postal Code	Yes, when PID-11.5 is added or updated
Patient County	County of patient residence	RE	RE	[0..1]	PID-11.9 Patient Address County	Yes, when PID-11.9 is added or updated

TABLE H: A08 MESSAGE TRIGGERS						
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDIN ALITY	RECOMMENDED HL7 LOCATION	TRIGGERS AN A08 TRANSACTION
Patient State	State of patient residence	RE	O	[0..1]	PID-11.4 Patient Address State	Yes, when PID-11.4 is added or updated
Patient Country	Country of patient residence	RE	O	[0..1]	PID-11.6 Patient Address Country	Yes, when PID-11.6 is added or updated
Chief Complaint / Reason for Visit	Patient's self-reported chief complaint or reason for visit	RE	RE	[0..*]	OBX Segment with OBX-3 Observation Identifier of 8661-1 Chief Complaint – Reported (LOINC) of TX. Free text chief complaint is entered as OBX-5 Observation Value.	Yes, when a new **8661-1 Chief Complaint – Reported (LOINC)** observation becomes available in the EHR
Admit or Encounter Reason	Short description of the provider's reason for admitting the patient	RE	RE	[0..1]	PV2-3 Admit Reason	Yes, if **PV2-3 Admit or Encounter Reason** value changes
Admit or Encounter Date / Time	Date and Time of encounter or admission	R	R	[1..1]	PV1-44 Admit Date	Yes, if **PV1-44 Admit or Encounter Date/Time** changes
Date of onset	Date that the patient began having symptoms of condition being reported	O	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 11368-8 Illness or Injury Onset Date (LOINC) and OBX-2 Value Type of TS	Yes, when a new **11368-8 Illness or Injury Onset Date (LOINC)** observation becomes available in the EHR
Patient Class	Patient classification within facility	R	R	[1..1]	PV1-2 Patient Class	Yes, if **PV1-2 Patient Class** value changes
Admission Type	This field indicates the circumstances under which the patient was or will be admitted	O	O	[0..1]	PV1-4 Admission Type	Yes, if **PV1-4 Admission Type** value is added or updated
Admit Source	This field indicates where the patient was admitted	O	O	[0..1]	PV1-14 Admit Source	Yes, if **PV1-14 Admit Source** value is added or updated
Hospital Unit	Hospital unit where patient is at the time the message is sent (admission and discharge)	RE	RE	[0..1]	OBX Segment with OBX-3 Observation Identifier of 56816-2 Patient Location (LOINC) and OBX-2 Value Type of CWE	Yes, if **PV1-3 Assigned Patient Location** value is added or updated

TABLE H: A08 MESSAGE TRIGGERS						
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDIN ALITY	RECOMMENDED HL7 LOCATION	TRIGGERS AN A08 TRANSACTION
Previous Hospital Unit	Hospital unit where patient was prior to the current transaction	O	RE	[0..1]	PV1-6 Prior Patient Location	No
Diagnosis Type	Qualifier for Diagnosis / Injury Code specifying type of diagnosis	RE	RE	[0..*]	DG1-6 Diagnosis Type	Yes, any time diagnosis information is updated, the DG1 requires an Admitting, Working or Final designation in DG1-6 Diagnosis Type
Primary Diagnosis Additional Diagnosis	Primary diagnosis of the patient's condition Additional diagnoses of the patient's condition(s)	RE	RE	[0..*]	DG1-3 Diagnosis Code – DG1	Yes, any time diagnosis information is added or updated, such as in BAR/ACK - UPDATE DIAGNOSIS/PROCEDURE (EVENT P12)
Discharge Disposition	Patient's anticipated location or status following discharge	RE (A03 only)	RE	[0..1]	PV1-36 Discharge Disposition	Required element for the A03 Discharge Transaction but it is allowable in an A08 if **PV1-36** is updated
Discharge or Disposition Date/Time	Date and time of discharge	RE (A03 only)	RE	[0..1]	PV1-45 Discharge Date/Tim	Required element for the A03 Discharge Transaction but it is allowable in an A08 if **PV1-45** is updated
Procedure Code	Procedures administered to the patient	O	O	[0..1]	PR1-3 Procedure Code	Yes, any time procedure information is added or updated,such as in BAR/ACK - UPDATE DIAGNOSIS/PROCEDURE (EVENT P12)
Triage Notes	Triage notes for the patient visit	O	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 54094-8 Emergency Department Triage Notes (LOINC) and OBX-2 Value Type of TX to allow free text input only in OBX-5 Observation Value.	Yes, when a new **54094-8 Emergency Department Triage Notes (LOINC)** observation becomes available in the EHR

TABLE H: A08 MESSAGE TRIGGERS					
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDINALITY	RECOMMENDED HL7 LOCATION	TRIGGERS AN A08 TRANSACTION
Clinical Impression	Clinical impression (free text) of the diagnosis	O	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 44833-2 Preliminary Diagnosis (LOINC) and OBX-2 Value Type of TX to allow free text input only in OBX-5 Observation Value.	Yes, when a new **44833-2 Preliminary Diagnosis (LOINC)** observation becomes available in the EHR
Height	Height of the patient	RE	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 8302-2 Body Height (LOINC) and OBX-2 Value Type of NM.	Yes, when a new **8302-2 Body Height (LOINC)** observation becomes available in the EHR (but not every time height is entered)
Weight	Weight of the patient	RE	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 3141-9 Body Weight Measured (LOINC) and OBX-2 Value Type of NM.	Yes, when a **3141-9 Body Weight Measured (LOINC)** observation becomes available in the EHR (but not every time a weight is entered)
BMI	Body Mass Index	O	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 59574-4 Body Mass Index (LOINC) and OBX-2 Value Type of NM.	Yes, when **39156-5 Body Mass Index (LOINC)** observation becomes available in the EHR
Systolic and Diastolic Blood Pressure (SBP/DBP) – Most recent	Most recent Systolic and Diastolic Blood Pressure of the patient.	O	O	[0..1]	Blood Pressure is communicated using 2 different data elements for Systolic and Diastolic Blood Pressure.	Only if a **8480-6 BP Systolic (LOINC)** and/or **8462-4 BP Diastolic (LOINC)** observation becomes available in the EHR (only expecting one set per encounter)
Initial Temperature	Initial temperature of the patient	O	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 11289-6 Body temperature:Temp:Enctr:First (LOINC) and OBX-2 Value Type of NM.	Yes, when a **11289-6 Body Temperature Initial (LOINC)** observation becomes available in the EHR

TABLE H: A08 MESSAGE TRIGGERS					
DATA ELEMENT NAME	DESCRIPTION OF FIELD	SENDER USAGE	RCVR USAGE	CARDIN ALITY	RECOMMENDED HL7 LOCATION	TRIGGERS AN A08 TRANSACTION
Initial Pulse Oximetry	1st recorded pulse oximetry value	O	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 59408-5 OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY (LOINC) and OBX-2 Value Type of NM.	Yes, when a **59408-5 Initial Pulse Oximetry (LOINC)** observation becomes available in the EHR
Smoking Status	Smoking status of patient	RE	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 72166-2 Tobacco Smoking Status LOINC) and OBX-2 Value Type of CWE.	Yes, when a **72166-2 Tobacco Smoking Status (LOINC)** observation becomes available in the EHR
Initial Acuity	Assessment of the intensity of medical care the patient requires.	O	O	[0..1]	OBX Segment with OBX-3 Observation Identifier 11283-9 Initial Acuity (LOINC) and OBX-2 Value Type of CWE.	Yes, when a **11283-9 Initial Acuity (LOINC)** observation becomes available in the EHR
Insurance Coverage	Health insurance coverage of the patient	O	O	[0..*]	IN1-15 Insurance Plan ID	Yes, when **Insurance Plan** information changes, which may be occurring in other message types such as: BAR/ACK - ADD PATIENT ACCOUNT (EVENT P01) DFT/ACK - POST DETAIL FINANCIAL TRANSACTIONS (EVENT P03) BAR/ACK - UPDATE ACCOUNT (EVENT P05) DFT/ACK - POST DETAIL FINANCIAL TRANSACTIONS - EXPANDED (EVENT P11)

13 APPENDIX I - REVISION HISTORY

The table below catalogs the revisions/resolutions that were done to satisfy the comments from the letter dated April 28, 2014 that contained **ATTACHMENT – ISDS Comments on RIN 0991-AB92 Typos and errors to correct prior to referencing the *PHIN Messaging Guide for Syndromic Surveillance, Release 1.9* in the Voluntary 2015 Edition EHR Certification Criteria**, in addition to other changes that are documented for this re-worked version.

Item #	Location/Field Name Reference	Comment/Change	Revision
1	Initial Temperature	There are two different values OBX-3.1 for initial temperature. One is 11289-6 (from the Observation Identifier (Syndromic Surveillance) value set. Elsewhere, the guide references 8610-5 from Vital Sign Result Value Set. Need to clarify which one should be used.	All references to temperature use 11289-6 Body temperature:Temp:Enctrfirst:Patient:Qn since it is more specific to timing than the 8310-5 and it's already built in the SS value set. 5 instances of 8310-5 replaced with 11289-6.
2	Example Message	M&V Correction: Sample messages do not look consistent	Removed <cr> at the end of each segment in the example messages for 2.3.1
3	Example Message	M&V Correction to ICD-9 CM code system reference in examples	Corrected ICD-9CM references in PV2-3 Admit reason in the examples from 'IC9DX' to use the correct table 0396 value 'I9CDX'
4	Copyrights and Trademarks Section	M&V Correction	Added reference to SNOMED in the Copyrights and Trademarks Section: T This material includes SNOMED Clinical Terms ® (SNOMED CT®) which is used by permission of the International Health Terminology Standards Development Organization (IHTSDO). All rights reserved. SNOMED CT was originally created by The College of American Pathologists. "SNOMED ®" and "SNOMED CT ®" are registered trademarks of the IHTSDO.
5	Copyrights and Trademarks Section	M&V Correction	Added reference to LOINC in the Copyrights and Trademarks Section: This material contains content from LOINC® (http://loinc.org). The LOINC table, LOINC codes, and LOINC panels and forms file are copyright (c) 1995-2011, Regenstrief Institute, Inc. and the Logical Observation Identifiers Names and Codes (LOINC) Committee and available at no cost under the license at http://loinc.org/terms-of-use.
6	DG1 segment	M&V Correction	Corrected the value set OID 2.16.840.1.114222.4.11.827 to be the code system reference HL70052 anywhere Diagnosis Type is used (DG1 segments). Later removed the ones in the 2.5.1 example messages because it is an IS

Item #	Location/Field Name Reference	Comment/Change	Revision
			datatype, which does not support a code system. Left these references in the old 2.3.1 examples.
7	Table 2-4 Key to the Data Elements of Interest	Table 2-4 Key to the Data Elements of Interest for 2.5.1: Broke up the "Usage" into Sender Usage and Receiver Usage descriptions to align with the table. The new Receiver Usage row reads "Refers to how the receiver may treat the element. The Usage codes are the same as for the sender."	This is now Section 5.1 Column Headings
8	MSH Segment Definition MSH-15	M&V Correction	MSH-15 Accept Acknowledgement Type detail in all segments was updated from "not supported" to include the following verbiage: Condition Rule: For MSH-21 Message Profile ID PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO, the ADT and ORU message must be valued with the literal value "AL". Must be left empty for the Accept Acknowledgment.MSH-16 Application Acknowledgement Type detail in all segments was updated from "not supported" to include the following verbiage: Condition Rule: For MSH-21 Message Profile ID PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO, the ADT and ORU message should be populated from *HL7 Table 0155 – Accept/Application Acknowledgment Conditions.* Must be left empty for the Accept Acknowledgment.
9	MSH Segment Definition MSH-16	M&V Correction	MSH-16 Application Acknowledgement Type detail in all segments was updated from "not supported" to include the following verbiage: Condition Rule: For MSH-21 Message Profile ID PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SS Receiver^2.16.840.1.114222.4.10.3^ISO, the ADT and ORU message should be populated from *HL7 Table 0155 – Accept/Application Acknowledgment Conditions.* Must be left empty for the Accept Acknowledgment.

Item #	Location/Field Name Reference	Comment/Change	Revision
10	Segment Definitions repeated for each message type (X4)	M&V for this document only	Removed the 4 segment definition sections that were specified under each message type and created the segments once in Section 3.11 – Segment Profile Attributes. The few differences between the segments are in line with the field in the segment (e.g., MSH-9 Message Type, PV1-36 Discharge Disposition, PV1-45 Discharge Date/time are different usages for the different messages).
11	DEOI Entire Table	M&V for this document only	Data Elements of Interest are now Section 5.
12	Segment Definition Table MSH-9	Needed a new Conformance Statement number for A04 message type literal, as it was the same as the A01 (SS-014).	Used SS-004 as it was not being used in the document (see Appendix 6, Conformance Statements List)
13	Segment Definition Table DG1-5	Added a new Conformance Statement Diagnosis Type	**Added Conformance Statement SS-040** Syndromic surveillance Diagnosis Type value **SHALL** be either A, F or W (Admitting, Final or Working).
14	DEOI Primary and Additional Diagnosis	Completed the conformance statement for clarity	**Conformance Statement SS-011**: The implementation **SHALL** support all 3 value sets: PHVS_AdministrativeDiagnosis_CDC, _ICD-9CM, PHVS_CauseOfDeath_ICD-10_CDC and PHVS_Disease_CDC for Primary and Additional Diagnosis data elements.
15	Segment Definitions Section 3.11		Now Section 3.11: Added some detail and rearranged the Description/Comments to be consistent.
16	Example Message Section 7- Appendix B	A03 Message Example: PID-29: Time of patient death does not match what was given in the narrative.	PID-29 time of death corrected to be 201408030855 as described in the scenario
17	IN1 segment/DEOI Payor Information	Needed to restore the IN1 segment that was removed in the first draft since insurance was not mentioned as a DEOI	Added back the IN1 Insurance Information segment and promoted the Insurance information from Future to Current DEOI
18	Message Structures IN1 segment	Needed to restore the IN1 segment that was removed in the first draft.	Changed the notation on IN1 segment in A01, A04, A08, A03 messages so that it was no longer highlighted as Not Supported. Changed the Usage to O (optional) and Cardinality to [0..*] since the segment is allowed to repeat.
19	DEOI - Initial Acuity	Add Initial Acuity to assess how sick the patient is – may help to sort through messages	Added to the DEOI as LOINC concept 11283-9 Acuity Assessment First Encounter
20	DEOI - Entire table	Adding support for Ambulatory care transactions	Added 'AC 'for Ambulatory Care the places where a data element was described as needed for AC.

Item #	Location/Field Name Reference	Comment/Change	Revision
21	PR1 Segment PR1-3 Procedure Code	Page 84: ICD9 and ICD10 code should also be added apart from CPT4 code.	Added references to ICD9 and ICD10 Procedure codes in PR1-3.1 and the code system identifier in PR1-3.3 that is appropriate for each.
22	ER Patient Admissions – need to add clarification	There are some ER patients who are not discharged from the ED upon admission; the patient class is just changed. We discussed on the 8/26/14 call how the ADT^A06 Outpatient to Inpatient Transfer may be useful to capture this to filter patients.	Rather than adding ability to capture the ADT^A06 Outpatient to Inpatient Transfer, added some comments about how the Discharge A03 message could be created in the absence of an actual discharge transaction.
23	Use Case	Added AC notation to the Business Rules in the Use Case	Notated the exceptions for emergency department (ED), urgent care (UC), Ambulatory Care (AC) and inpatient settings (Inpatient
24	DEOI Table	It could be made more clear that there are some variables that are readily available from the ADT interface and some that have to be gotten from the Electronic Health Record.	Re-ordered the DEOI list according to the ISDS_2014 Syndromic Surveillance MUse-Recommendations.pdf – with these exceptions: 1) combined all the Treating Facility Address rows into one variable, since they are passed as one address observation 2) Added Insurance information Added Initial Patient Acuity
25	DEOI Table	Make it clear that while a DEOI may be 'RE', it must be present for NIST testing	Added this comment to each RE Sender Usage as well "R for NIST Validation"
26	Segment Definition PV2-3 Admit Reason	Need to clarify what happens with drop-down Admit Reason – added the following to the PV2-3.2 Description column	If only Free Text is used, it is communicated in this component. If a drop-down menu of canned admit reason text is used, it is communicated in this component.
27	DEOI – Added more variables	For AC support or to address problems with filtering patients, these Data Elements of Interest were added	Added PV1-4 Admission Type Added PV1-14 Admit Source as optional item on the DEOI list Added Pregnancy Status as optional item on the DEOI list Added Insurance Type and IN1 segment attribute table as optional item on the DEOI list Added Body Mass Index as optional item on the DEOI list Marked all DEOI elements with the exceptions for Ambulatory Care only or AC not used
28	PID-3 Patient Identifier List	Arizona Comment #10 Page 122: Medical record number should be merged with unique patient Identifier (page 105) since they are using the same HL7 field. Preference	DONE – see DEOI list for rework

Item #	Location/Field Name Reference	Comment/Change	Revision
		should be given to medical record number since this is the ID public health most often uses to communicate with the healthcare facility. Medical record number should not be listed as ED/UC only. It is widely used by public health for inpatient inquiries as well. In our implementations we ensure MRN is located in the first repeat of PID-3 so that it is visible and usable in BioSense. Unique visit identifier should be broken out from unique patient identifier since they are different concepts and stored in different HL7 locations.	
29	DEOI	Arizona Comment: Page 119: Observation, symptoms, and clinical findings should have more detail possibly an example to explain better.	Moved to Future DEOI list
30		Arizona Comment: Page 127: Batch protocol should be present after other segment table not after data element of interest.	Moved Batch Protocol into Section 3 Messaging Infrastructure
31		Arizona Comment Page 140: Facility name in MSH.4.1 in example should match with Midtown urgent care instead of DownTownProcessing.	Corrected
32		Arizona Comment Page 24: "Recommend the use of the Organization Name Legal" should be written as The use of Organization Legal Name is recommended.	Corrected
33		Need to improve the laboratory Message optional usage	Broke the Laboratory DEOI into a separate table and notated that the data elements that overlap are found in the same segment in the ORU^R01. Aligned the value sets with the latest ELR reference messaging guide.
34	Use Case Actors	Patient - A person with symptoms of a health problem who seeks treatment.	Patient - A person receiving or registered to receive medical treatment.
35	Clarification on when to send the A08 Update messages	For inpatient setting **only**: • At minimum, syndromic surveillance inpatient data providers should: • Provide syndromic surveillance data for all new hospital inpatient admissions (a.k.a., syndromic surveillance admission records) • Provide syndromic surveillance data at least once for all hospital discharges (a.k.a., syndromic surveillance post-	For inpatient setting **only**: • At minimum, syndromic surveillance inpatient data providers should: • Provide syndromic surveillance data for all new hospital inpatient admissions (a.k.a., syndromic surveillance admission records) • Provide syndromic surveillance data at least once for all hospital discharges (a.k.a., syndromic surveillance post-discharge records)

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		discharge records) • Provide with each syndromic surveillance admission and post-discharge record de-identified data that can be used to join records for the same visit, and securely used to lookup additional information about a patient visit of public health concern.	• **Provide syndromic surveillance data when the data changes in the electronic record** • Provide with each syndromic surveillance admission and post-discharge record de-identified data that can be used to join records for the same visit, and securely used to lookup additional information about a patient visit of public health concern.
36	DEOI List	May add Problem List as an optional data element of interest	Added Problem List as two separate line items: one that expects "narrative text" and one that was promoted from the Future Data Elements of Interest that uses the problem coding systems (ICD9-CM, ICD10 or SNOMED)
37	DEOI List	May add Medication List as an optional data element of interest	Added Medication List as two separate line items: one that expects "narrative text" and one that was promoted from the Future Data Elements of Interest that uses the standard for Medications (RxNorm)
38	PID Segment PID-5 Patient Name	Previously implied that Patient Name was optional.	Changed the conformance statements to only allow a pseudonymizing literal in this required field. Continues to allow '~^^^^^^S' or '~^^^^^^U' as were previously described.
39	PID Segment PID-11 Patient Address	**Note**: Expecting only the patient primary (current) address information in the supported components.	Clarified the **Note**: Expecting only the patient primary (current) address information in the supported components. **Not expecting street address information.**
40	ADT^A01 Admit / Visit Notification Description	A patient is undergoing the admission process which assigns the patient to a bed for inpatient care. It signals the beginning of a patient's stay in a healthcare facility.	Added: NOTE: ED/UC may also use the A01 transaction even if the patient is ultimately never assigned to an inpatient bed.
41	3.8 ADT^A08 Update Patient Information Introduction	ADT^A08 messages are used to communicate syndromic surveillance data to PHAs in the event of an update to a patient's record during an encounter.	Added: These updates are specifically triggered when a change is made to an item listed in the Data Elements of Interest table for the ADT messages.
42	3.4 Data Type Definitions	Previously, the HL7 datatype table and text was repeated.	Reworked the Datatypes section to be a more efficient table format with less repetitive text.
43	Segment Profile Attributes table Message Profile Attributes table Datatype Profile	Previously, there was repetitive information in these tables.	Removed these tables and replaced with the one Message Element Attributes table, as seen in more recent HL7 implementation guides.

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	Attributes Table		
44	Section 3 Messaging Infrastructure	Silent on Usage Conformance testing recommendations	Added Section 3.8 USAGE CONFORMANCE TESTING RECOMMENDATIONS that is a boilerplate section adopted in ELR and other implementation guides in recent updates.
45	Patient Class user-defined value set	Request to add "Observation" and "Direct Admit" concepts.	PHVS_PatientClass_SyndromicSurveillance was updated to support these new values.
46	Discharge Disposition PV1-36	Discharge Disposition value set in PHIN VADS needs to be updated.	Have provided in Appendix H a new value set specific to Syndromic Surveillance that is the join of the old value set directly from HL7 2.5.1 (stops at 42), plus some from the PHIN VADS version of the value set that is attributed to HL7, plus the new Joint Commission guidance (no codes removed).
47	DEOI Attributes	"Recommended HL7 Location" column implies that the mapping is optional	Changed "Recommended HL7 Location" to "HL7 Location Mapping" in the header for both DEOI tables (4.2 and 4.3)
48	Use Case Business Rules	p. 16 – Maybe this is too high of an expectation, but it would be nice if we could get data within 24 hours of the patient visit/admission rather than within 24 hours of the data center receiving the data. As the specifications are stated currently, there are some vendors whose processing results in public health receiving the data 48+ hours after a visit. The EHR vendor does not get the data until the provider "closes" the record (could be 24+ hours after the visit) and then their processing takes 24+ hours.	Added verbiage in red to the Business Rules: Data must be timely for syndromic surveillance. Therefore, data transmission frequency should be at least once every 24 hours; preferably within 24 hours of the patient visit/admission rather than within 24 hours of the data center receiving the data.
49	EVN Segment Detail	NC Feedback doc: p. 52 – There is a syndromic value set named for EVN-1, but the usage is X. This same value set is named in MSH-9.2.!	Corrected usage to RE in EVN-1
50	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 98 – Facility visit/type – For consistency purposes, it would be nice to name an inpatient value as well? It seems odd to have a value for all other care settings.	Added to Implementation Notes: An example of using NUCC for an inpatient acute care hospital facility type, if passed in the message: `OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION|| 282N00000X^General Acute Care Hospital^HCPTNUCC||||||F|||201 102091114`
51	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 108 – Encounter reason: This is currently listed for all settings except Urgent Care. Why is this	Removed the setting comment so it applies to all. Corrected the PV1 typo in the HL7 location Mapping column.

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		a data element of interest in ambulatory care settings, but not Urgent Care? -HL7 location mapping column references both PV1 and PV2 for admit/encounter reason.	
52	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 109 – onset date is of interest in ambulatory care settings as well. People often visit ambulatory care settings for acute illnesses (e.g., influenza).	Removed the setting comment so it applies to all.
53	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 114 – Clinical impression may be of interest in AC settings too	Added AC
54	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 118 – Height is of interest in all settings (for calculation of BMI)	Struck the setting comment so it applies to all
55	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 119 – Weight of interest in all settings (for calculation of BMI)	Struck the setting comment so it applies to all
56	DEOI – Settings where data elements are relevant	NC Feedback doc: BMI is of interest in all settings – it is a risk factor for severe complications of some acute illnesses	Struck the setting comment so it applies to all
57	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 120 – Blood pressure is of interest in all settings	Struck the setting comment so it applies to all
58	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 121 – Initial temperature is of interest in ambulatory care settings too	Struck the setting comment so it applies to all
59	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 122 – Pulse oximetry is of interest in AC settings too (for acute illnesses)	Struck the setting comment so it applies to all
60	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 123 – Smoking status is of interest in all care settings as it can be a risk factor for some acute illnesses	Struck the setting comment so it applies to all
61	DEOI – Settings where data elements are relevant	NC Feedback doc: p. 124 – Travel history guidance does not appear to be complete	Switched out to a different LOINC concept ID suggested in the AZ feedback
62	DEOI – Settings where data elements are relevant	NC Feedback doc: Might want to consider listing categories of lab results that are potentially interesting	No action at this time but if someone has a suggestion for a list, it can be embedded
63	DEOI – Settings where data elements are relevant	NC Feedback doc: A value set is named for pregnancy status, but it is not listed as a data element of interest. It was named in previous version, but was later dropped off.	Added Pregnancy status back to the Data Elements of Interest table
64	Example 2.5.1 Scenarios and Messages	NC Feedback doc: p. 151 - Step 2, Case 4: Should PV1-45 be the date of discharge (i.e. 6/15)?	Added date to PV1-45
65	Example 2.5.1 Scenarios and Messages	NC Feedback doc: p. 152 – Step 1, Case 5: Should PV1-45 be 8/17 instead of 9/17?	Corrected date in message

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66	Example 2.5.1 Scenarios and Messages	Sara Imholte (AZ) Feedback: Case 5 -	Replaced the narrative problem list example with a coded example.
67	DEOI – Clinical Impressions	Sara Imholte (AZ) Feedback: This code allows either the name of the diagnosis (maybe better to use ST data type?) or the code (CWE). I would recommend including the CWE option since many systems may have this coded. This code does not allow for narrative free text. Also see triggers table on p.185 if changes are made.	I had not done anything with this data element for 2.0 and did not want to change anything without a discussion of this data element.
68	OBX Segment Detail for the XAD datatype where Facility Address is sent as an observation	The ISDS recommendations allow free text County designations. Is this just for facility? FIPS is listed for county in patient address.	Removed the comments about the ISDS recommendation that was in opposition to the patient address use of FIPS.
69	DEOI - Travel History (newly added)	Sara Imholte (AZ) Feedback: Text (TX) may be the best option for travel history because of how EHRs collect the information. Special coding will need to be done by vendors to bring the highly varied travel questions and their responses into a single travel history response for public health. For example, some hospitals collect information on the time period for travel, but have different categories (past 30 days, past 21 days, etc). For the location of travel, hospitals may have a drop down list, check boxes, free text or a combination of these to list the country or region of travel. If they use a drop down they may have standard ISO codes for country. I think it is less likely that this could be a coded response, but we could allow that option.	Changed LOINC to 10182-4 (History of travel Narrative)
70	3.4 Datatype Definition	Sara Imholte (AZ) Feedback: Multiple suggested edits to the usage and datatypes	Edits made as suggested, except instead of adopting the ID datatype for components where there is a value set, used the IS datatype
71	DEOI Table – Newly added Problem List – had added both Problem List as coded and problem list as text	Sara Imholte (AZ) Feedback: Problem List as Text in the DEOI table: We don't think it is necessary to include a text option. It seems EHRs have well developed problem list functionality with multiple coding systems. The ones we've worked with have SNOMED-CT, ICD-9 and ICD-10 in place for all problems.	Struck the problem list as text option.

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72	DEOI Table – Newly added Problem List As Coded	Sara Imholte (AZ) Feedback – Comment on Problem List as a coded variable: There are many pieces of information associated with a problem. Not all are needed for syndromic surveillance purposes and would complicate the transaction. In Arizona we decided to limit it to active problems (do not include problems that are resolved such as a healed leg fracture). Dates associated with the problem may be of interest but we decided to accept all active problems, regardless of start/add date or date of last verification.	(no revision)
72	Example Messages	Order of OBX and DG1 segments is wrong in several messages.	Moved DG1 segments after the OBX segments
73	3.5.3, 3.5.4, 3.5.5, 3.5.6 ADT message structure detail	From P. Nkwocha: (OBX segment) Consider adding "Chief Complaint" in the description because chief complaint is one of bases for SS ED data; suggestion: "Information regarding chief complaint, age temperature, and other information"	OBX segment description updated to include "chief complaint"
74	3.5.3, 3.5.4, 3.5.5 ADT message structure detail	From P. Nkwocha: (IN1 segment) NYC DOH made this segment "RE" because many EH's tends to not populate optional segments. Consider making it "RE" for A01, A04, and A08 and "O" for A03 only. The cardinality remains the same.	Insurance segment changed from Optional to RE (required but may be empty)
75	1.1 Background	March 2, 2015: Updated content provided by Sanjeev Tandon regarding Meaningful Use.	Updated the Background section.
76	DEOI Table – Newly added Medications List as narrative	Sara Imholte (AZ) Feedback – While we should be flexible enough to accept what EHRs can send, if there are requirements for EHRs to record medications in a coded manner, we should standardize by only accepting CWE. If there are only a small percentage of meds recorded in a non coded manner, CWE could accommodate the free text in the ninth component.	Struck this option and left only the Medication History as coded.
77	Background Section	Content update provided by Sanjeev Tandon added 3/3/15.	

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78	Forward Section	No acknowledgements section	Pulled the 1.1 version of the document and added 2.0 participants.
79	DEOI Table / Facility Type	Need a way to express "inpatient" as facility type.	**4/9/2015:** There is no NUCC code for this, so the Healthcare Service Location code **1021-5 Inpatient Care Setting** was added to the value set and to the examples on the DEOI table.
80	DEOI Table / Unique Physician Identifier	Example not notated correctly Example using the NPI: `|1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO|`	**4/9/2015:** (Changed caret to ampersand before ISO) Example using the NPI: `|1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6&ISO|`
81	303 Message Element Attributes table	Formerly did not describe X, C, CE usages	**4/15/2015:** Added X, C, CE usage definitions
82	3.6.2 EVN Segment Definition	**Data Element of Interest**: Facility Identifier (Treating) (EVN-7.1) **Note**: For implementation of Treating Facility Identifier in HL7 v.2.3.1 see details in Appendix E, Section 10.3. **Data Element of Interest**: Facility Name (Treating) (EVN-7.2)	**4/15/2015:** **Data Element of Interest**: Facility Identifier (Treating) (EVN-7.2) **Note**: For implementation of Treating Facility Identifier in HL7 v.2.3.1 see details in Appendix E, Section 9.2. **Data Element of Interest**: Facility Name (Treating) (EVN-7.1)
83	DEOI table: Unique Physician Identifier	**ED/UC/AC DATA ELEMENT ONLY**	Removed this stipulation
84	Background		Updated Background section per Sanjeev Tandon's edits 4/15/2014
86	Use Case	Data must be timely for syndromic surveillance. Therefore, data transmission frequency should be at least once every 24 hours; preferably within 24 hours of the patient visit/admission rather than within 24 hours of the data center receiving the data.	4/21/2015 changed to: Data must be timely for syndromic surveillance. Therefore, data must be submitted at least within 24 hours of the date and time of the patient's initial encounter. Any subsequent updates to a patient's record must also be submitted within 24 hours of the information (transaction) being added to the patient record. Real time data transmission, or very frequent batch data transmission, is preferred. If batch transmission mode is utilized, batches must be transmitted at least once every 6 hours.