PHIN MESSAGING GUIDE FOR SYNDROMIC SURVEILLANCE: EMERGENCY DEPARTMENT AND URGENT CARE DATA

ADT MESSAGES A01, A03, A04, and A08

HL7 Version 2.5.1

(Version 2.3.1 Compatible)

Release 1.1

August 2012

Centers for Disease Control and Prevention

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REVISION HISTORY

Release #	Changed By	Published Date	Reason
1.0	Adam Browning	10/2011	Initial 1.0 Guide
1.1	Mary Hamilton	07/2012	In the segment tables, these HL7 fields were inadvertently highlighted in yellow but are actually supported. The yellow highlighting in the table was removed. Section 3.6.4, Table 3-6C, PID Segment (page 40) PID-33 Last Update Date/Time (page 49) PID-34 Last Update Facility (page 49) Section 3.6.5, Table 3-6D, PV1 Segment (page 51) PV1-15 Ambulatory Status (page 52)
1.1	Mary Hamilton	07/2012	One of the examples of values in the Namespace is missing a '_' between PH and SS. Section 3.6.2, Table 3-6A, MSH Segment (page 33) MSH-21 Message Profile Identifier (page 37) Updated the literal from 'PHSS-Batch^SSReceiver^2.16.840.1.114222.4.10.3^ISO' to 'PH_SS-Batch^SSReceiver^2.16.840.1.114222.4.10.3^ISO'
1.1	Mary Hamilton	07/2012	Data Elements of Interest for Syndromic Surveillance Section 4.2, Table 4.2.1, Minimum Data Set (page 93) Incorrect Value Set OID #9 Unique Patient Identifier (page 99) #10 Medical Record # (page 99) #21 Unique Visiting ID (page 103) Value Set/value Domain column: Updated value set OID from 2.16.840.1.114222.4.11.3405 to 2.16.840.1.114222.4.11.3597
1.1	Mary Hamilton	07/2012	Data Elements of Interest for Syndromic Surveillance Section 4.2, Table 4.2.1, Minimum Data Set (page 93) Corrected a typographical error #23 Date of onset (page 105) Value Set/value Domain column: Updated the literal words from 'For PBX-3 Please use:' to 'For OBX-3 Please use:'

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Acknowledgements

This guide was produced and developed through the efforts of a project designed to specify a messaging guide for the Syndromic Surveillance. A list of core data elements for Syndromic Surveillance was developed by the International Society for Disease Surveillance (ISDS) in collaboration with the Centers for Disease Control and Prevention (CDC), Office of Surveillance, Epidemiology and Laboratory Services (OSELS), Public Health Surveillance Program Office (PHSPO). The BioSense Program in PHSPO has provided funding to support these activities.

The CDC, OSELS, Public Health Informatics and Technology Program Office (PHITPO) have been the principal author in the development of this messaging guide. A draft of the messaging specification was reviewed by many national and state public health organizations, standard development organizations and vendors, including the Joint Public Health Informatics Taskforce (JPHIT), Public Health Data Standards Consortium (PHDSC), Health Level 7 (HL7), and the American Health Information Management Association (AHIMA).

The contributing editors would also like to express gratitude to these reviewers for their thoughtful comments and support during development of this guide. In addition, a special thank you goes to those who provided comments during the public comment period. The comments provided beneficial input that has led to an improved guide.

In addition, special thanks needs to be expressed to the following groups:

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Table of Contents

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 released the following: Medicare and Medicaid Programs; Electronic Health Record Incentive Program; Final Rule, July 28, 2010

This final rule specifies the initial criteria that eligible providers, eligible hospitals and critical access hospitals must meet in order to qualify for an incentive payment, e.g., demonstrate meaningful use of certified EHR technology. Stage 1 criterion for meaningful use focus on electronically capturing health information in a coded format, using that information to track key clinical conditions, communicating that information for care coordination purposes, and initiating the reporting of clinical quality measures and public health information.

In addition, The Office of the National Coordinator for Health Information Technology (ONC) released a companion regulation that defined standards, specifications, and certification criteria to be used to meet the Meaningful Use objectives defined in the rule above. This rule can be found at Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology: Final Rule July 28, 2010

The ONC final rule initially included an implementation specification for the Syndromic Surveillance meaningful use objective that would not support data exchange for Syndromic Surveillance. Based on public health feedback, ONC agreed to retract the standard while retaining the objective. [1] Although there was not an implementation specification available as a replacement immediately, public health was encouraged to develop data recommendations and implementation specification that can be available to inform the implementation of Syndromic Surveillance in Stage 1. It was therefore deemed necessary to define EHR requirements that will support the core of contemporary public health Syndromic Surveillance practice.

In September 2010, the CDC supported the International Society for Disease Surveillance (ISDS) to recommend EHR requirements for core Syndromic Surveillance business practices. As the prominent resource for current evidence, best practices, and lessons learned in Syndromic Surveillance, ISDS works to improve population health by advancing surveillance science and practice to support timely and effective prevention and response.

ISDS used a community consensus-driven process to develop its recommendation. 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). Workgroup members represented key public health stakeholder professional organizations (e.g., Council of State and Territorial Epidemiologists, Association of State and Territorial Health Officials, National Association of County and City Health Officials, Joint Public Health Informatics Taskforce). Input from all Meaningful Use stakeholders on the provisional

[1] **45 CFR Part 170 RIN 0991–AB76, II. Discussion of the Interim Final Rule, A. Public Health Surveillance Implementation Specifications:**
"For all of these reasons, we are revising 45 CFR 170.205(d)(2) to remove these particular adopted implementation specifications. We are also removing from 45 CFR 170.302(l) the text ''(and applicable implementation specifications)'' to provide additional clarity and to remove the unnecessary and unwarranted burden on ONC–ATCBs and perhaps ONC–ACBs. In addition, we are removing the reference to the implementation specifications in 45 CFR 170.299(g) where it is incorporated by reference.**,** 45 CFR 170.205(d)(2)"

recommendation document was collected during a public comment period. Stakeholder input then informed ISDS's, "Final Recommendation: The Core Processes & EHR Requirements of Public Health Syndromic Surveillance", published in January 2011. To learn more about ISDS and the ISDS Meaningful Use Syndromic Surveillance Workgroup activities and documents, refer to ISDS Meaningful Use Recommendation: Emergency Department and Urgent Care Data.

In general, CDC is working to facilitate inclusion of Syndromic Surveillance standards in the national health IT efforts including:

- ***Harmonization*** of Syndromic Surveillance standards with standards from other public health domains (such as laboratory reporting);
- ***Expansion of existing testing tools for validation of Syndromic Surveillance messages and participation in*** nationally recognized HIT testing laboratories (events), e.g., the Integrating the Healthcare Enterprise (IHE) Connectathon;
- ***Develop processes and criteria for certifications of public health systems that support Syndromic Surveillance;***
- ***Enable technical assistance*** to local, state, territorial and tribal public health agencies ***to deploy*** standards-based IT solutions for Syndromic Surveillance

As the ISDS workgroup developed recommendations, CDC translated the business requirement recommendations to technical specifications. On May 5, 2011, the CDC published a Federal Register Notice Public Health Information Network (PHIN) Messaging Guide for Syndromic Surveillance and supporting materials for public comment. A draft of the same document was also published for public comments through the CDC PHIN website

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2 INTRODUCTION

The Public Health Information Network (PHIN) is defined as a national initiative to increase the capacity of public health to exchange data and information electronically across organizational and jurisdictional boundaries by promoting the use of standards and defining functional and technical requirements. A PHIN compliant messaging allows for the consistent exchange of response, health, and disease tracking data between public health and healthcare partners. To learn more about PHIN activities, refer to CDC PHIN website

Public Health Syndromic Surveillance is the regular and systematic collection and analysis of near "real-time" patient data for timely assessments of population health. In conjunction with other core public health functions,[2] PHSS assists in event detection, situation awareness, and response management.

The PHIN Syndromic Surveillance Messaging Guide meets a national need for health data exchange standards among healthcare providers and U.S. public health authorities. The Guide provides the HL7 technical specifications necessary for exchanging health data elements that are core to public health Syndromic Surveillance practice in accordance with the ISDS Final Recommendations: Core Processes and EHR Requirements for Public Health Syndromic Surveillance.[3]

By retracting the proposed implementation specification for Syndromic Surveillance data in the ONC final rule, an urgent need exists for implementation guidance for the Syndromic Surveillance (SS). To fulfill this need and lay a foundation for future work, ISDS, a resource for Syndromic Surveillance best practices and lessons learned, with the support of the CDC, convened a workgroup of public health surveillance experts to recommend guidelines.

[2] Committee for the Study of the Future of Public Health. The Future of Public Health: Summary & Recommendations. (1988) pg. 7

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

Specifically, this Meaningful Use Workgroup (MUWG) worked to:

- Describe the core business processes, inputs and critical task sets of contemporary Syndromic Surveillance practice
- Define the core EHR requirements for a Syndromic Surveillance message to a local or state public health authority

As ISDS developed its recommendations, CDC was concurrently developing messaging guidance to expedite the translation of ISDS's recommendations to technical specifications. This document is a product of that collaboration.

2.1 PURPOSE

This PHIN Messaging Guide for Syndromic Surveillance contains the necessary specifications for data exchange from healthcare to public health for elements that are core to Syndromic Surveillance practice. Note that this guide does not contain specifications for the collective data elements needed to support current practice of Syndromic Surveillance across all public health jurisdictions. In particular, this guide is based on Health Level Seven (HL7) version 2.5.1 messaging structures and vocabulary content and dynamics as described by ISDS in their document titled "Final Recommendation: The Core Processes and EHR Requirements of Public Health Syndromic Surveillance," available at: ISDS Meaningful Use Recommendation: Emergency Department and Urgent Care Data.

This messaging guide is intended to meet the anticipated needs and requirements for implementation guidance in clinical care entities that will be described in the future stages of Health Information Technology (HIT) Meaningful Use legislation. In addition, this document addresses the needs of public health authorities for receiving core data Syndromic Surveillance data in accordance with the HIT Meaningful Use legislation, replacing the previous documentation regarding Case Reporting. This guide ***does not*** replace the need for documentation of the constraints of specific implementations.

2.2 AUDIENCE

This guide is designed for healthcare and public health information systems, data exchange, and data management staff and public health data analysts, who require

guidance on Syndromic Surveillance data elements and messaging specifications. Users of this guide must be familiar with the details of HL7 message construction and processing. This guide is NOT intended to be a tutorial on HL7. In addition, this document is NOT a substitute for the on-going business process documentation and requirements development process lead by CDC and ISDS.

2.3 SCOPE

The ISDS Final Recommendations, Section 1.2.1 defines the following most important data sources for syndromic surveillance: emergency department (ED) and urgent care (UC) patient visits captured by health information system and sent to a public health authority. These data sources are in scope of the ISDS Recommendations and provide the foundation for the PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care Data. In the future, ISDS will extend the scope of data sources including ambulatory providers for syndromic surveillance and a subsequent PHIN Messaging Guide for Syndromic Surveillance: Ambulatory Data will be published.

The current state business processes defined by the ISDS workgroup are primarily based on point-to-point data exchange of Admit Discharge Transfer (ADT) messages between healthcare and public health. Applicability of candidate HL7 messages in other data exchange scenarios has yet to be determined and may vary by public health jurisdiction and data exchange partner.

The decision to use ADT message constructs instead of the ORU message construct was reviewed and approved by ISDS, Public Health Data Standards Consortium (PHDSC), and other CDC partners. Compared to ORU structure, the ADT structure provides more flexibility for message exchange that captures data from emergency department (ED) and urgent care (UC) patient visits, by health information systems, sending to a public health authority in the scope of the ISDS recommendation. Health Information Systems (HIS) transmit ADT messages as part of their normal operation and configuration; they generally lack any function enabling transmission of observation related data through ORU messages. HIS systems typically are recipients of such messages.[4]

[4] *Requirements of Public Health Syndromic Surveillance.* Page 53, International Society for

2.4 COMPATIBILITY

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 reporting should be able to accept and process version 2.5.1 messages without producing errors. Section 4.2 describes the Minimum Data Elements. The format of this section has been designed to accommodate differences of HL7 versions 2.3.1 and 2.5.1.

For instance, the Facility Identifier data element (Section 4.2.1, element #1) in HL7 version 2.5.1 is best presented as follows the Event Type segment, 7th field. However, this field was not defined as part of version 2.3.1 for an Event Type segment. Therefore, this guide provides, in Section 4.2, a separate description of the Facility Identifier for versions 2.3.1 and 2.5.1. The flexibility of data element location defined in this guide may be considered to be fully compatible, in both format and data, with both 2.3.1 and 2.5.1 systems.

2.5 EXTENSIBILITY

This guide has been developed using the business approach that potentially allows adding:

- Optional data elements by state and local public health surveillance systems (see Section 4.2.2)
- Future data elements (see Section 4.2.3)

The current data element requirements and data sources, as presented by ISDS, are best satisfied with the Admission and Discharge Transfer (ADT) messages described in this guide. Future versions of this message guide will be able accommodate needs of our partners for adding new and additional data elements (i.e., laboratory orders and results, additional diagnostic procedures and more detailed demographic information, etc.). Additional requirements gathering will be undertaken to determine the best strategy for new message types to meet new requirements. As the Meaningful Use regulations mature and further recommendations for new requirements emerge, it may become necessary to include additional data sources, messaging events and structures that are not currently defined in this release of this guide.

Disease Surveillance, Brighton, MA (January 2011);

2.6 QUALIFICATIONS AND CAVEATS

The guidelines, information flow, and required / recommended data elements for the Meaningful Use regulations were under active development and revision by ISDS in parallel with the development of this guide.

A number of compromises were made in the determination of the message definition for this guide. Although clinical information is of utmost importance for Syndromic Surveillance, the majority of outbound messages containing patient demographic and history information that are currently generated in the healthcare system in the US for every patient are administrative messages, sent mostly by hospital information systems. In order to produce a guide widely implementable by most systems in the US, without significant and substantial cost for new development, the most common ADT messages were constrained and enhanced to support the surveillance needs.

3 HL7 MESSAGING FOR SYNDROMIC SURVEILLANCE

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 reporting, 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.
Datatype	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:

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

3.2 SUPPORTED DATA TYPES FOR SYNDROMIC SURVEILLANCE

The HL7 Standards define a large number of datatypes 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 andspecified further in the table below.

TABLE 3-2: 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
PT	Processing Type

TABLE 3-2: DATA TYPES UTILIZED IN SYNDROMIC SURVEILLANCE	
DATA TYPE	**DATA TYPE NAME**
SI	Sequence Identifier
ST	String Data
TX[5]	Text Data
TS	Timestamp
VID	Version Identifier
XAD	Extended Address
XPN	Extended Person Name

3.3 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 "<cr>". 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|

[5] 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\).

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

MSH|^~\&||Facillity_NPI^0131191934^NPI|||201009221330||
ADT^A04^ADT_A011|P|2.3.1|||||||<cr>

MSH|^~\&||Facillity_NPI^0131191934^NPI|||201009221330||
ADT^A04^ADT_A01|1|P|2.5.1|||||||<cr>

is equal to

MSH|^~\&||Facility_NPI^0131191934^NPI|||201009221330||
ADT^A04^ADT_A01|1|P|2.3.1<cr>

MSH|^~\&||Facility_NPI^0131191934^NPI|||201009221330||
ADT^A04^ADT_A01|1|P|2.5.1<cr>

- The Receiver should ignore undocumented segments that are sent and conform to the HL7 message structure.

3.4 USE CASE MODEL

The use case model is derived from the ISDS Final Recomendation, Section 4.1, Transmission and Reception of Data.

TABLE 3-4: USE CASE: ELECTRONIC EMERGENCY DEPARTMENT AND URGENT 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 reception by Public Health authorities (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, 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 are state and local public health authorities, or a designated third party. A public health authority (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

TABLE 3-4: USE CASE: ELECTRONIC EMERGENCY DEPARTMENT AND URGENT CARE HEALTH RECORD SYNDROMIC DATA TO PUBLIC HEALTH	
ITEM	**DETAIL**
	Surveillance data to public health. 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 with symptoms of a health problem that seeks 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 state or local jurisdiction 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 Limitations	The following assumptions are preconditions for the use of this profile: Syndromic Surveillance data senders are responsible for the setup of their system with the code systems deemed appropriate to its jurisdiction. Both sender and receiver of Syndromic data must agree to a facility registration process, allowing for transmission of data, prior to message transmission. The scope of data exchange is limited to emergency department (ED) and urgent care (UC) patient visits captured by electronic health record systems and sent to a public health authority
Business Rules	The following Business Rule applies to the use of this profile: 1. Data must be timely for syndromic surveillance. Therefore, data transmission frequency should be at least once every 24 hours. 2. When data elements are updated in the provider's system, the entire record (i.e., all specified elements) should be resent. Message receivers will use unique identifiers to match and reconcile records. 3. Batch processing may optionally be used as described in section 3.7.

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 3.4 below.

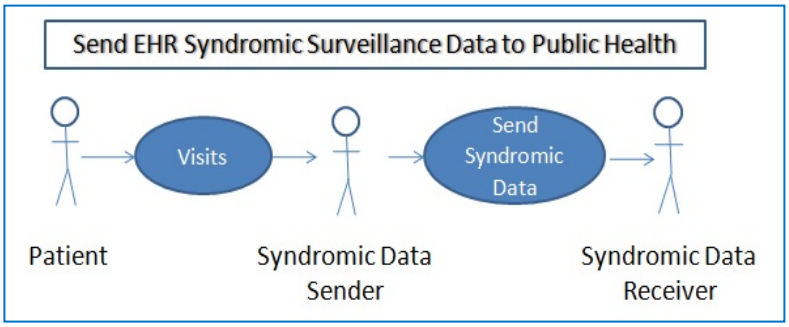

Figure 3.4 – Send Syndromic Surveillance Data Use Case Model

3.4.1 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 either 2.3.1 or 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.

3.4.2 DYNAMIC INTERACTION MODELS

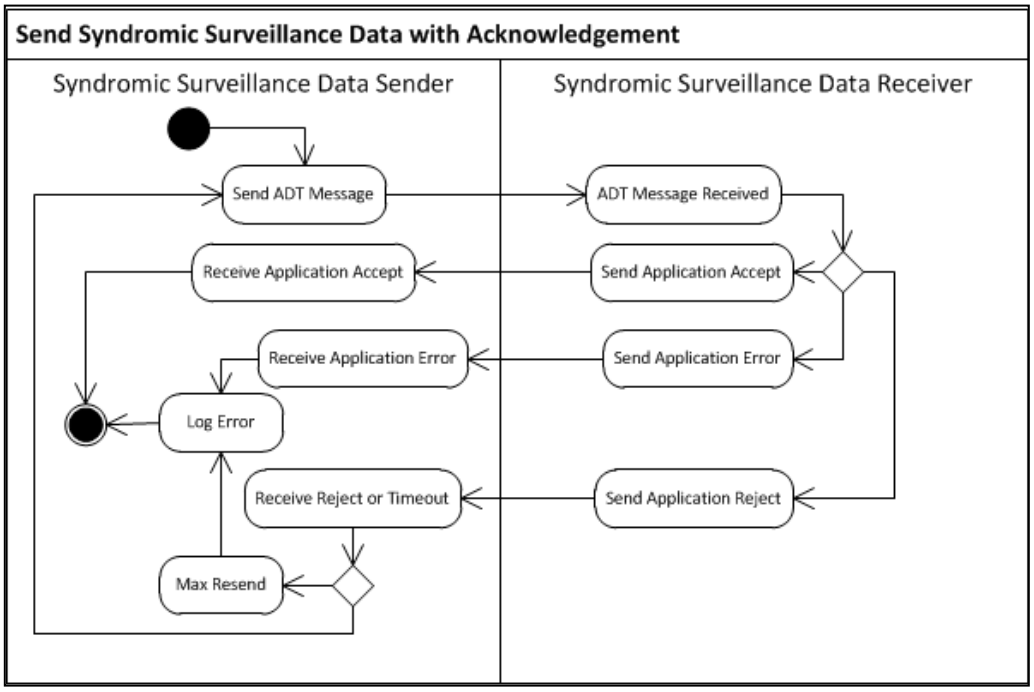

Figure 3.4.2.1 Activity Diagram for Send Syndromic Surveillance Data Use Case - Acknowledgement Required

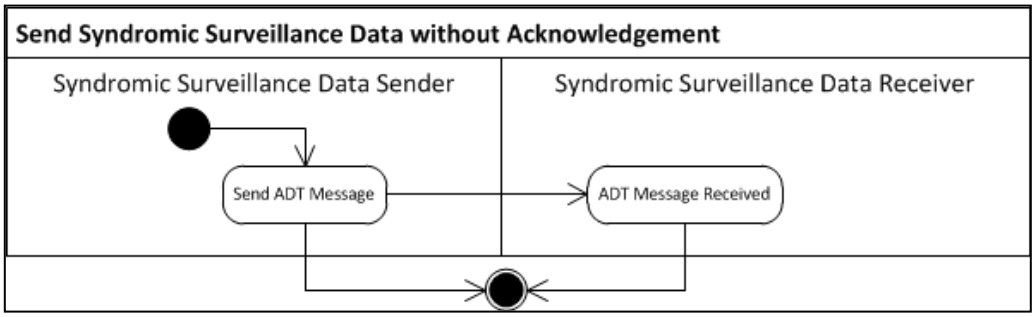

Figure 3.4.2.2 Activity Diagram for Send Syndromic Surveillance Data Use Case – Without Acknowledgement

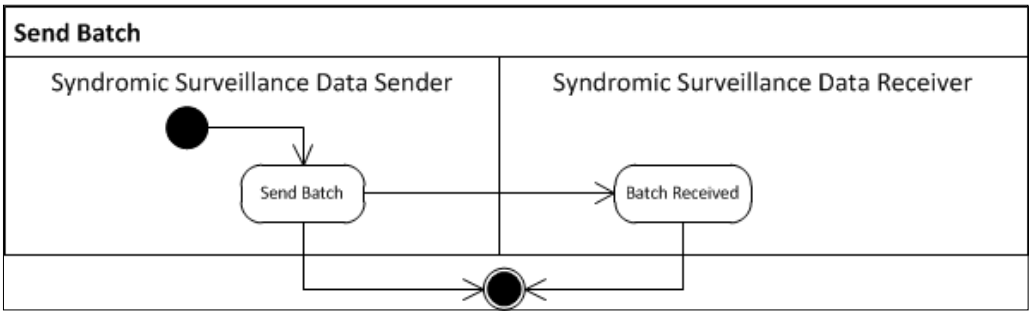

Figure 3.4.2.3 Activity Diagram for Send Syndromic Surveillance Data Use Case – Batch

3.4.3 INTERACTIONS

TABLE 3-4A: 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”
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”
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 3-4B: INTERACTIONS - INDIVIDUAL TRANSACTION WITHOUT ACKNOWLEDGEMENTS / 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”

TABLE 3-4B: INTERACTIONS - INDIVIDUAL TRANSACTION WITHOUT ACKNOWLEDGEMENTS / BATCH				
EVENT	**MESSAGE TYPE**	**RECEIVER ACTION**	**SENDER**	**DATA VALUES**
Patient is discharged from facility	ADT^A03^ADT_A03	None	SS Data Sender	MSH-9 = “ADT^A03^ADT_A03”
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”

3.5 STATIC MODEL - MESSAGE STRUCTURE

3.5.1 HL7 MESSAGE STRUCTURE ATTRIBUTES

The structure of the supported messages in this guide are described in tabular format (refer to the following section). The columns of those tables are used as described in the table below.

TABLE 3-5. MESSAGE STRUCTURE ATTRIBUTES	
ABBREVIATION	**DEFINITION**
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] Optional • { XXX } Repeating • XXX Required • [{ XXX }] Optional and Repeating
Name	Name of the segment
Description	Explanation of the use of the segment
Usage	Use of the segment for Syndromic Surveillance Indicates if the segment is required, optional, or conditional in a message Legal values are: R – Required, Must always be populated RE – Required, but may be empty (segment is not sent). If the Sender has data,

TABLE 3-5. MESSAGE STRUCTURE ATTRIBUTES	
ABBREVIATION	**DEFINITION**
	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. O – Optional There is 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] Segment may be omitted and can have, at most, one occurrence. [1..1] Segment must have exactly one occurrence. [0..*] Segment may be omitted or repeat an unlimited number of times. [1..*] Segment must appear at least once, and may repeat unlimited number of times.

3.5.2 CONSTRAINED MESSAGE TYPES

The following HL7 ADT Messages have been identified for Syndromic Surveillance reporting:

- ADT^A01 Admit / Visit Notification
- ACK^A01 General Acknowledgement
- ADT^A03 Discharge / End Visit
- ACK^A03 General Acknowledgement
- ADT^A04 Register a Patient
- ACK^A04 General Acknowledgement
- ADT^A08 Update Patient Information
- ACK^A08 General Acknowledgement

Message types that are NOT documented in this guide are considered NOT SUPPORTED. For more information on receiver usage of not supported, please refer to table 3-6.

The HL7 message formats sent to public health agencies will be constrained versions of the 2.5.1 abstract message (with backward compatibility to 2.3.1) formats. Only the

segments necessary for carrying the Syndromic data, and certain structural message segments, are included. Because the message structure for the message types is similar, one table (Table 3-5A) was used to define the message structure for the ADT A01, A04, and A08 messages. Another table (Table 3-5B) was used for the A03 message structure, as per the HL7 Standard. All of the General Acknowledgement (ACK) messages have the same structure. All of the General Acknowledgement (ACK) messages were placed in the final table (Table 3-5C).

3.5.3 CONSTRAINED MESSAGE STRUCTURE ADT_A01

The abbreviated terms and their definitions used to describe the Message Profile are detailed in the following tables.

TABLE 3-5A: SIMPLE MESSAGE STRUCTURE: A01, A04, AND A08

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 the 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	O	[0..*]

3.5.4 CONSTRAINED MESSAGE STRUCTURE ADT_A03

TABLE 3-5B: SIMPLE MESSAGE STRUCTURE: A03

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	O	[0..*]

3.5.5 CONSTRAINED MESSAGE STRUCTURE ACK

Note that the same Message Structure is used for ACK^A01, ACK^A03, ACK^A04, and ACK^A08.

TABLE 3-5C. SIMPLE MESSAGE STRUCTURE: ACK

SEG	NAME	DESCRIPTION	USAGE	CARDINALITY
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]

3.6 STATIC MODEL – MESSAGE SEGMENTS

3.6.1 SEGMENT PROFILE ATTRIBUTES

Fields or components that are NOT documented in this guide are considered NOT SUPPORTED. Inclusion of any field or component that is not supported should not result in failure of the entire message by the receiver, as per recommended receiver behaviors as defined in HL7.

The abbreviated terms and segment definitions used in the constrained message formats are detailed in the following table.

TABLE 3-6: SEGMENT PROFILE ATTRIBUTES

ABBREVIATION	DEFINITION
Field Name	Descriptive name of the data element
Sequence (Seq)	Sequence of the elements as they are numbered in the HL7 segment
Datatype (DT)	Data type used for HL7 element
Length (Len)	Length of an element is calculated using the following rules: *Field length* = (Sum of all supported component lengths) + (component number of the last-supported component) – 1. *Component length* = (Sum of all supported sub-component lengths) + (sub-component number of the last-supported component) – 1.
Sender Usage Receiver 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

[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 3-6: SEGMENT PROFILE ATTRIBUTES	
ABBREVIATION	**DEFINITION**
	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'. 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.
Values / Value Set	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 3-6: SEGMENT PROFILE ATTRIBUTES	
ABBREVIATION	**DEFINITION**
	Table. Contains the name and/or the PHIN Value Set (accessible through PHIN VADS) when relevant as well as notes, condition rules (2.5.1 vs. 2.3.1) and recommendations

- Fields shaded in yellow denote unsupported fields. The usage is also marked ‘X’.
- Components and subcomponents of a single field are noted as a dotted decimal number.

3.6.2 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 3-6A: MESSAGE HEADER SEGMENT (MSH)

Field Name	Seq	DT	Length	Sender Usage	Receiver 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]	
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]	0362

TABLE 3-6A: MESSAGE HEADER SEGMENT (MSH)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Universal ID	4.2	ST	199	R	R	[1..1]	
Universal ID Type	4.3	ID	6	R	R	[1..1]	0301
Receiving Application	5	HD	227	O	O	[0..1]	0361
Receiving Facility	6	HD	227	O	O	[0..1]	0362
Date/Time Of Message	7	TS	26	R	R	[1..1]	**Note:** Date/Time the sending system created the message in the following format: YYYYMMDDHHMMSS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.
Security	8	ST	40	X	X	[0..1]	

TABLE 3-6A: MESSAGE HEADER SEGMENT (MSH)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Message Type	9	MSG	15	R	R	[1..1]	**Note:** All messages will be Admit-Discharge-Transfer (ADT) 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).
Message Code	9.1	ID	3	R	R	[1..1]	Literal Value “ADT” or “ACK”
Trigger Event	9.2	ID	3	R	R	[1..1]	One of the following literal values: “A01”, “A03”, “A04”, or “A08”
Message Structure	9.3	ID	7	R	R	[1..1]	Trigger events A01, A04, and A08 share the same “ADT_A01” Message Structure One of the following literal values: “ADT_A01” or “ADT_A03”, or “ACK”
Message Control ID	10	ST	199	R	R	[1..1]	**Note:** This field is a number or other identifier that uniquely identifies the message.

TABLE 3-6A: MESSAGE HEADER SEGMENT (MSH)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Processing ID	11	PT	3	R	R	[1..1]	**Note:** Indicates how to process the message as defined in HL7 processing rules Literal values: “P” for Production, “D” for Debug or “T” for Training.
Version ID	12	VID	5	R	R	[1..1]	**Note:** HL7 version number used to interpret format and content of the message. Literal value: “2.3.1” or “2.5.1”
Sequence Number	13	NM	15	X	X	[0..1]	
Continuation Pointer	14	ST	180	X	X	[0..1]	
Accept Acknowledgement Type	15	ID	2	X	X	[0..1]	0155
Application Acknowledgement Type	16	ID	2	X	X	[0..1]	0155
Country Code	17	ID	3	X	X	[0..1]	0399
Character Set	18	ID	16	X	X	[0..*]	0211
Principal Language Of Message	19	CE	478	X	X	[0..1]	

TABLE 3-6A: MESSAGE HEADER SEGMENT (MSH)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Alternate Character Set Handling Scheme	20	ID	20	X	X	[0..1]	0356
Message Profile Identifier	21	EI	427	O	O	[0..*]	PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Ack^SSReceiver^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^SSReceiver^2.16.840.1.114222.4.10.3^ISO PH_SS-Batch^SSR Sender^2.16.840.1.114222.4.10.3^ISO or PH_SS-Batch^SSReceiver^2.16.840.1.114222.4.10.3^ISO

3.6.3 EVENT TYPE (EVN) SEGMENT

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

TABLE 3-6B: EVENT TYPE SEGMENT (EVN)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Event Type Code	1	ID	3	X	X	[0..0]	0003
Recorded Date/Time	2	TS	26	R	R	[1..1]	**Note:** Most systems default to the system Date/Time when the transaction was entered. YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds and microseconds are desirable; the Coordinated Universal Time (UTC) offset is not required.
Date/Time Planned Event	3	TS	26	X	X	[0..1]	
Event Reason Code	4	IS	3	X	X	[0..1]	0062
Operator ID	5	XCN	309	X	X	[0..*]	0188
Event Occurred	6	TS	26	X	X	[0..1]	
Event Facility	7	HD	241	R	R	[1..1]	Required, if using HL7 version 2.5.1 For HL7 version 2.3.1, use an OBX segment with a

TABLE 3-6B: EVENT TYPE SEGMENT (EVN)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
							HD data type. **Note:** This is the location where the patient was actually treated.
Namespace ID	7.1	IS	20	RE	RE	[0..1]	Name of originating facility
Universal ID	7.2	ST	199	R	R	[1..1]	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
Universal ID Type	7.3	ID	6	R	R	[1..1]	Expecting Value "NPI"

3.6.4 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.

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Set ID - PID	1	SI	4	O	RE	[0..1]	**Note:** This Set ID numbers the repetitions of the segments. Only one patient per message is supported. Literal value: “1”
Patient ID	2	CX	20	X	X	[0..0]	
Patient Identifier List	3	CX	478	R	R	[1..*]	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.

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
ID Number	3.1	ST	15	R	R	[1..1]	**Note:** A Unique Patient Identifier is required (such as Patient Account number or MPI Number). In addition, it is strongly recommended to submit the patient medical record number to facilitate identification of the patient in the event of a required follow-up investigation. Without it, the work required to follow up on the data provider is greatly increased.
Check Digit	3.2	ST	1	X	X	[0..1]	
Check Digit Scheme	3.3	ID	3	X	X	[0..1]	0061
Assigning Authority	3.4	HD	227	O	RE	[0..1]	0363
Identifier Type Code	3.5	ID	5	R	R	[1..1]	Identifier Type (Syndromic Surveillance) **Note:** Use the Identifier Type Code that corresponds to the type of ID Number specified in PID-3.1. For Medical Record Number, use literal value “MR”.
Assigning Facility	3.6	HD	227	O	RE	[0..1]	
Effective Date	3.7	DT	8	X	X	[0..1]	

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Expiration Date	3.8	DT	8	X	X	[0..1]	
Assigning Jurisdiction	3.9	CWE	705	X	X	[0..1]	
Assigning Facility	3.10	CWE	705	X	X	[0..1]	
Alternate Patient ID - PID	4	CX	20	X	X	[0..0]	
Patient Name	5	XPN	294	R	R	[1..*]	**Note:** Syndromic Surveillance does not require the patient name. The Patient ID number will be used to identify uniquely the patient. HL7 does require the patient name field for a PID segment. The patient name field must still be populated even when reporting de-identified data. The first field name contains the primary or legal name of the patient. Therefore, the name type code (PID.5.7) should be “L “(Legal), when populated. When the name of the patient is known, but not desired to be sent, HL7 recommends the following: |~^^^^^^S|. The "S" for the name type code (PID.5.7) in the second name field indicates that it is a pseudonym. When the name of the patient is not known, HL7 recommends the following: |~^^^^^^U|. The "U" for the name type code (PID.5.7) in the second name

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
							field indicates that it is unspecified.
Family Name	5.1	FN	194	O	RE	[0..1]	
Given Name	5.2	ST	30	O	RE	[0..1]	
Second Given Name or Initials	5.3	ST	30	O	RE	[0..1]	
Suffix	5.4	ST	20	O	RE	[0..1]	
Prefix	5.5	ST	20	O	RE	[0..1]	
Degree	5.6	IS	6	X	X	[0..0]	0360
Name Type Code	5.7	ID	1	R	R	[1..1]	0200 Expected Values: “L” (Legal) – used for patient legal name “S” (Pseudonym) – used for de-identification of patient name “U” (Unspecified) – used when patient name is not known
Name Representation Code	5.8	ID	1	X	X	[0..1]	

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Name Context	5.9	CE	483	X	X	[0..1]	
Name Validity Range	5.10	DR	53	X	X	[0..0]	
Name Assembly Order	5.11	ID	1	X	X	[0..1]	0444
Effective Date	5.12	TS	26	X	X	[0..1]	
Expiration Date	5.13	TS	26	X	X	[0..1]	
Professional Suffix	5.14	ST	199	X	X	[0..1]	
Mother's Maiden Name	6	XPN	294	X	X	[0..*]	
Date/Time of Birth	7	TS	26	O	O	[0..1]	
Administrative Sex	8	IS	1	RE	RE	[0..1]	Administrative Sex (HL7)
Patient Alias	9	XPN	294	X	X	[0..0]	
Race	10	CE	478	RE	RE	[0..*]	Race Category (CDC) **Note:** Patient could have more than one race defined.

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Identifier	10.1	ST	20	RE	RE	[0..1]	**Note:** Standardized code for patient race category
Text	10.2	ST	199	O	RE	[0..1]	**Note:** Standardized description associated with code in PID-10.1
Name of Coding System	10.3	ID	20	CE	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.
Alternate Identifier	10.4	ST	20	X	X	[0..1]	
Alternate Text	10.5	ST	199	X	X	[0..1]	
Name of Alternate Coding System	10.6	ID	20	X	X	[0..1]	
Patient Address	11	XAD	513	RE	RE	[0..1]	**Note:** Expecting only the patient primary (current) address information in the supported components
Street Address	11.1	SAD	184	O	O	[0..1]	
Other Designation	11.2	ST	120	O	O	[0..1]	
City	11.3	ST	50	O	O	[0..1]	

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
State or Province	11.4	ST	50	O	O	[0..1]	FIPS 5-2
ZIP or Postal Code	11.5	ST	12	RE	RE	[0..1]	USPS
Country	11.6	ID	3	O	O	[0..1]	ISO 3166-1
Address Type	11.7	ID	3	O	O	[0..1]	0190 Expecting value: 'C'
Other Geographic Designation	11.8	ST	50	O	O	[0..1]	
County/Parish Code	11.9	IS	20	RE	RE	[0..1]	
Census Tract	11.10	IS	20	X	X	[0..1]	
Address Representation Code	11.11	ID	1	X	X	[0..1]	
Address Validity Range	11.12	DR	53	X	X	[0..0]	
Effective Date	11.13	TS	26	X	X	[0..1]	
Expiration Date	11.14	TS	26	X	X	[0..1]	

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
County Code	12	IS	4	X	X	[0..0]	0289
Phone Number - Home	13	XTN	250	X	X	[0..*]	
Phone Number - Business	14	XTN	250	X	X	[0..*]	
Primary Language	15	CE	478	X	X	[0..1]	0296
Marital Status	16	CE	478	X	X	[0..1]	0002
Religion	17	CE	478	X	X	[0..1]	0006
Patient Account Number	18	CX	250	O	O	[0..1]	
SSN Number - Patient	19	ST	16	X	X	[0..0]	
Driver's License Number - Patient	20	DLN	64	X	X	[0..0]	
Mother's Identifier	21	CX	250	X	X	[0..*]	
Ethnic Group	22	CE	478	RE	RE	[0..1]	Ethnicity Group (CDC)
Identifier	22.1	ST	20	RE	RE	[0..1]	**Note:** Standardized code for patient ethnic group.

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Text	22.2	ST	199	O	O	[0..1]	**Note:** Standardized description associated with code in PID-22.1.
Name of Coding System	22.3	ID	20	CE	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.
Alternate Identifier	22.4	ST	20	X	X	[0..1]	
Alternate Text	22.5	ST	199	X	X	[0..1]	
Name of Alternate Coding System	22.6	ID	20	X	X	[0..1]	
Birth Place	23	ST	250	X	X	[0..1]	
Multiple Birth Indicator	24	ID	1	X	X	[0..1]	0136
Birth Order	25	NM	2	X	X	[0..1]	
Citizenship	26	CE	478	X	X	[0..*]	0171
Veterans Military Status	27	CE	478	X	X	[0..1]	0172

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Nationality	28	CE	478	X	X	[0..0]	0212
Patient Death Date and Time	29	TS	26	CE	CE	[0..1]	**Condition Rule:** If the patient expired, this field should contain the patient death date and time. (PV1-36 denotes patient expiration) The minimum acceptable precision is to the nearest minute; seconds are desirable. (meaning if you have/know it send it) If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.
Patient Death Indicator	30	ID	1	CE	CE	[0..1]	**Condition Rule:** If the patient expired, this field should contain the patient death indicator. (PV1-36 denotes patient disposition)
Identity Unknown Indicator	31	ID	1	X	X	[0..1]	0136
Identity Reliability Code	32	IS	20	X	X	[0..*]	0445
Last Update Date/Time	33	TS	26	O	O	[0..1]	
Last Update Facility	34	HD	241	O	O	[0..1]	

TABLE 3-6C. PATIENT IDENTIFICATION SEGMENT (PID)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Species Code	35	CE	478	X	X	[0..1]	0446
Breed Code	36	CE	478	X	X	[0..1]	0447
Strain	37	ST	80	X	X	[0..1]	
Production Class Code	38	CE	478	X	X	[0..1]	0429
Tribal Citizenship	39	CWE	697	X	X	[0..*]	0171

3.6.5 PATIENT VISIT (PV1) SEGMENT

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

TABLE 3-6D: PATIENT VISIT SEGMENT (PV1)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Set ID - PV1	1	SI	4	RE	RE	[0..1]	**Note:** Set ID numbers the repetitions of the segments Only one patient per message is supported. Literal value: “1”
Patient Class	2	IS	1	O	O	[0..1]	Patient Class (Syndromic Surveillance)
Assigned Patient Location	3	PL	1220	O	O	[0..1]	
Admission Type	4	IS	2	O	O	[0..1]	0007
Pre-admit Number	5	CX	250	X	X	[0..1]	
Prior Patient Location	6	PL	1220	X	X	[0..1]	
Attending Doctor	7	XCN	309	X	X	[0..*]	0010
Referring Doctor	8	XCN	309	X	X	[0..*]	0010

TABLE 3-6D: PATIENT VISIT SEGMENT (PV1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Consulting Doctor	9	XCN	309	X	X	[0..0]	0010
Hospital Service	10	IS	3	O	O	[0..1]	0069
Temporary Location	11	PL	1220	X	X	[0..1]	
Preadmit Test Indicator	12	IS	2	X	X	[0..1]	0087
Re-admission Indicator	13	IS	2	X	X	[0..1]	0092
Admit Source	14	IS	6	O	O	[0..1]	0023
Ambulatory Status	15	IS	2	O	O	[0..*]	0009
VIP Indicator	16	IS	2	X	X	[0..1]	0099
Admitting Doctor	17	XCN	309	X	X	[0..*]	0010
Patient Type	18	IS	2	X	X	[0..1]	0018
Visit Number	19	CX	478	R	R	[1..1]	
ID Number	19.1	ST	15	R	R	[1..1]	**Note:** Unique identifier for a patient visit

TABLE 3-6D: PATIENT VISIT SEGMENT (PV1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Check Digit	19.2	ST	1	X	X	[0..1]	
Check Digit Scheme	19.3	ID	3	X	X	[0..1]	0061
Assigning Authority	19.4	HD	227	O	RE	[0..1]	0363
Identifier Type Code	19.5	ID	5	R	R	[1..1]	Identifier Type **Note:** Use the Identifier Type Code that corresponds to the type of ID Number specified in PV1-19.1.
Assigning Facility	19.6	HD	227	O	RE	[0..1]	
Effective Date	19.7	DT	8	X	X	[0..1]	
Expiration Date	19.8	DT	8	X	X	[0..1]	
Assigning Jurisdiction	19.9	CWE	705	X	X	[0..1]	
Assigning Facility	19.10	CWE	705	X	X	[0..1]	
Financial Class	20	FC	50	X	X	[0..*]	0064

TABLE 3-6D: PATIENT VISIT SEGMENT (PV1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Charge Price Indicator	21	IS	2	X	X	[0..1]	0032
Courtesy Code	22	IS	2	X	X	[0..1]	0045
Credit Rating	23	IS	2	X	X	[0..1]	0046
Contract Code	24	IS	2	X	X	[0..*]	0044
Contract Effective Date	25	DT	8	X	X	[0..*]	
Contract Amount	26	NM	12	X	X	[0..*]	
Contract Period	27	NM	3	X	X	[0..*]	
Interest Code	28	IS	2	X	X	[0..1]	0073
Transfer to Bad Debt Code	29	IS	4	X	X	[0..1]	0110
Transfer to Bad Debt Date	30	DT	8	X	X	[0..1]	
Bad Debt Agency Code	31	IS	10	X	X	[0..1]	0021
Bad Debt Transfer Amount	32	NM	12	X	X	[0..1]	

TABLE 3-6D: PATIENT VISIT SEGMENT (PV1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Bad Debt Recovery Amount	33	NM	12	X	X	[0..1]	
Delete Account Indicator	34	IS	1	X	X	[0..1]	0111
Delete Account Date	35	DT	8	X	X	[0..1]	
Discharge Disposition	36	IS	3	RE	RE	[0..1]	Discharge Disposition (HL7)
Discharged to Location	37	DLD	47	X	X	[0..1]	0113
Diet Type	38	CE	478	X	X	[0..1]	0114
Servicing Facility	39	IS	2	X	X	[0..1]	0115
Bed Status	40	IS	1	X	X	[0..0]	0116
Account Status	41	IS	2	X	X	[0..1]	0117
Pending Location	42	PL	1220	X	X	[0..1]	
Prior Temporary Location	43	PL	1220	X	X	[0..1]	
Admit Date/Time	44	TS	26	R	R	[1..1]	**Note:** Date and time of the patient presentation.

TABLE 3-6D: PATIENT VISIT SEGMENT (PV1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
							YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. (meaning if you have/know it send it) If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.
Discharge Date/Time	45	TS	26	O	O	[0..1]	**Note:** Date and time of the patient discharge. YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. (meaning if you have/know it send it) If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.
Current Patient Balance	46	NM	12	X	X	[0..1]	
Total Charges	47	NM	12	X	X	[0..1]	
Total Adjustments	48	NM	12	X	X	[0..1]	
Total Payments	49	NM	12	X	X	[0..1]	
Alternate Visit ID	50	CX	250	X	X	[0..1]	0203

TABLE 3-6D: PATIENT VISIT SEGMENT (PV1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Visit Indicator	51	IS	1	X	X	[0..1]	0326
Other Healthcare Provider	52	XCN	309	X	X	[0..0]	0010

3.6.6 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.

TABLE 3-6E: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Prior Pending Location	1	PL	1220	X	X	[0..1]	
Accommodation Code	2	CE	478	X	X	[0..1]	0129
Admit Reason	3	CE	478	RE	RE	[0..1]	ICD-9 Clinical Modification diagnosis code (including E-codes and V-codes) **Or** ICD-10 Clinical Modification diagnosis code **Or** SNOMED Disorder/ Disease domain
Identifier	3.1	ST	20	RE	RE	[0..1]	
Text	3.2	ST	199	RE	RE	[0..1]	It is strongly recommended that text be sent to accompany any identifier.
Name of Coding System	3.3	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.

TABLE 3-6E: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
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]	
Transfer Reason	4	CE	478	X	X	[0..1]	
Patient Valuables	5	ST	25	X	X	[0..*]	
Patient Valuables Location	6	ST	25	X	X	[0..1]	
Visit User Code	7	IS	2	X	X	[0..*]	0130
Expected Admit Date/Time	8	TS	26	X	X	[0..1]	
Expected Discharge Date/Time	9	TS	26	X	X	[0..1]	
Estimated Length of Inpatient Stay	10	NM	3	X	X	[0..1]	
Actual Length of Inpatient Stay	11	NM	3	X	X	[0..1]	

TABLE 3-6E: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Visit Description	12	ST	50	X	X	[0..1]	
Referral Source Code	13	XCN	309	X	X	[0..*]	
Previous Service Date	14	DT	8	X	X	[0..1]	
Employment Illness Related Indicator	15	ID	1	X	X	[0..1]	0136
Purge Status Code	16	IS	1	X	X	[0..1]	0213
Purge Status Date	17	DT	8	X	X	[0..1]	
Special Program Code	18	IS	2	X	X	[0..1]	0214
Retention Indicator	19	ID	1	X	X	[0..1]	0136
Expected Number of Insurance Plans	20	NM	1	X	X	[0..1]	
Visit Publicity Code	21	IS	1	X	X	[0..1]	0215
Visit Protection Indicator	22	ID	1	X	X	[0..1]	0136

TABLE 3-6E: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Clinic Organization Name	23	XON	250	X	X	[0..*]	
Patient Status Code	24	IS	2	X	X	[0..1]	0216
Visit Priority Code	25	IS	1	X	X	[0..1]	0217
Previous Treatment Date	26	DT	8	X	X	[0..1]	
Expected Discharge Disposition	27	IS	2	X	X	[0..1]	0112
Signature on File Date	28	DT	8	X	X	[0..1]	
First Similar Illness Date	29	DT	8	X	X	[0..1]	
Patient Charge Adjustment Code	30	CE	478	X	X	[0..1]	0218
Recurring Service Code	31	IS	2	X	X	[0..1]	0219
Billing Media Code	32	ID	1	X	X	[0..1]	0136
Expected Surgery Date and Time	33	TS	26	X	X	[0..1]	
Military Partnership Code	34	ID	1	X	X	[0..1]	0136

TABLE 3-6E: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Military Non-Availability Code	35	ID	1	X	X	[0..1]	0136
Newborn Baby Indicator	36	ID	1	X	X	[0..1]	0136
Baby Detained Indicator	37	ID	1	X	X	[0..1]	0136
Mode of Arrival Code	38	CE	478	X	X	[0..1]	0430
Recreational Drug Use Code	39	CE	478	X	X	[0..*]	0431
Admission Level of Care Code	40	CE	478	X	X	[0..1]	0432
Precaution Code	41	CE	478	X	X	[0..*]	0433
Patient Condition Code	42	CE	478	X	X	[0..1]	0434
Living Will Code	43	IS	2	X	X	[0..1]	0315
Organ Donor Code	44	IS	2	X	X	[0..1]	0316
Advance Directive Code	45	CE	478	X	X	[0..*]	0435
Patient Status Effective Date	46	DT	8	X	X	[0..1]	

TABLE 3-6E: PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT (PV2)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Expected LOA Return Date/Time	47	TS	26	X	X	[0..1]	
Expected Pre-admission Testing Date/Time	48	TS	26	X	X	[0..1]	
Notify Clergy Code	49	IS	20	X	X	[0..*]	0534

3.6.7 OBSERVATION/RESULT (OBX) SEGMENT

The OBX Segment in the ADT Message is used to transmit observations related to the patient and visit. In Section 4.2.1 if the data element is carried in an OBX and usage is 'Required', the segment and its fields must be populated.

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Set ID - OBX	1	SI	4	O	RE	[0..1]	**Note:** Set ID numbers the repetitions of the segments 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	R	[1..1]	0125 **Note:** Identifies the structure of data in observation value (OBX.5).
Observation Identifier	3	CE	478	R	R	[1..1]	Observation Identifier (Syndromic Surveillance) **Note:** Identifies data to be received in observation

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
							value (OBX.5)
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	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.
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). Listed below are the supported fields for each of the supported value types.

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Beginning of OBX-5 Observation Value Usage Based on Data Type in OBX-2							
HD Data Type (2.3.1 Messaging Only)							
Namespace ID	5.1	IS	20	RE	RE	[0..1]	Name of originating facility.
Universal ID	5.2	ST	199	R	R	[1..1]	National Provider Identifier. (10 digit identifier)
Universal ID	5.3	ID	6	R	R	[1..1]	Expecting Value “NPI”.
TS Data Type							
Time	5.1	DTM	24	RE	RE	[0..1]	**Note:** The minimum acceptable precision is to the nearest day.
Degree of Precision	5.2	ST	1	X	X	[0..0]	
TX Data Type							
Text Data	5.1	TX	65536	RE	RE	[0..1]	**Note:** The TX data type is used to carry string data intended for display purposes. It can contain leading blanks (space characters).

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
NM Data Type							
Numeric Value	5.1	ST	16	RE	RE	[0..1]	**Note:** A numeric data type is a number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.
CWE Data Type							
Identifier	5.1	ST	20	RE	RE	[0..1]	**Note:** Implementers should check with their local jurisdiction for version of adopted coding system.
Text	5.2	ST	199	RE	RE	[0..1]	It is strongly recommended that text be sent to accompany any identifier.
Name of Coding System	5.3	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.
Alternate Identifier	5.4	ST	20	RE	RE	[0..1]	
Alternate Text	5.5	ST	199	RE	RE	[0..1]	It is strongly recommended that text be sent to

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
							accompany any identifier.
Name of Alternate Coding System	5.6	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 4.
Coding System Version ID	5.7	ST	10	O	O	[0..1]	
Alternate Coding System Version ID	5.8	ST	10	O	O	[0..1]	
Original Text	5.9	ST	199	RE	RE	[0..1]	Provide the richest text available in this field.
XAD Data Type							
Street Address	5.1	SAD	184	O	O	[0..1]	
Street or Mailing Address	5.1.1	ST	120	O	O	[0..1]	**Note:** This is the first subcomponent of the SAD data type. This has the same effect as being the first component of the field, while limiting the length based on other subcomponents that are not supported.
Street Name	5.1.2	ST	50	O	O	[0..1]	

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)							
Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Dwelling Number	5.1.3	ST	12	O	O	[0..1]	
Other Designation	5.2	ST	120	O	O	[0..1]	
City	5.3	ST	50	O	O	[0..1]	
State or Province	5.4	ST	50	O	O	[0..1]	FIPS 5-2
ZIP or Postal Code	5.5	ST	12	O	O	[0..1]	USPS
Country	5.6	ID	3	O	O	[0..1]	ISO 3166-1
Address Type	5.7	ID	3	O	O	[0..1]	0190
Other Geographic Designation	5.8	ST	50	O	O	[0..1]	
County/Parish Code	5.9	IS	20	O	O	[0..1]	
Census Tract	5.10	IS	20	X	X	[0..1]	
Address Representation Code	5.11	ID	1	X	X	[0..1]	
Address Validity Range	5.12	DR	53	X	X	[0..0]	

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Effective Date	5.13	TS	26	X	X	[0..1]	
Expiration Date	5.14	TS	26	X	X	[0..1]	
End of OBX-5 Observation Value Usage Based on Data Type in OBX-2							
Units	6	CE	62	C	C	[0..1]	Pulse Oximetry Unit Temperature Unit Age unit (Syndromic Surveillance) **Note:** Units are a conditional field. If numeric data is sent, the units field must define the units of the value used in observation value (OBX.5)
Identifier	6.1	ST	20	R	R	[1..1]	
Text	6.2	ST	20	O	O	[0..1]	Standardized description associated with code in OBX-6.1.
Name of Coding System	6.3	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.
Alternate Identifier	6.4	ST	20	X	X	[0..1]	

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
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..*]	0078
Probability	9	NM	5	X	X	[0..1]	
Nature of Abnormal Test	10	ID	2	X	X	[0..*]	0080
Observation Result Status	11	ID	1	R	R	[1..1]	0085 Expected value: 'F'
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]	

TABLE 3-6F: OBSERVATION / RESULT SEGMENT (OBX)							
Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
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]	

3.6.8 DIAGNOSIS (DG1) SEGMENT

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

TABLE 3-6G: DIAGNOSIS SEGMENT (DG1)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Set ID - DG1	1	SI	4	R	R	[1..1]	**Note:** Numbers the repetitions of the segments
Diagnosis Coding Method	2	ID	2	X	X	[0..1]	0053
Diagnosis Code - DG1	3	CE	478	R	R	[1..1]	ICD-9 Clinical Modification diagnosis code (including E-codes and V-codes) **Or** ICD-10 Clinical Modification diagnosis code **Or** SNOMED Disorder/ Disease domain
Identifier	3.1	ST	20	R	RE	[0..1]	**Note:** Standardized code for diagnosis.
Text	3.2	ST	199	RE	RE	[0..1]	**Note:** Standardized description associated with code in DG1-3.1.
Name of Coding System	3.3	ID	20	C	C	[0..1]	**Condition Rule:** Required if an identifier is provided in component 1.

TABLE 3-6G: DIAGNOSIS SEGMENT (DG1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
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]	
Diagnosis Description	4	ST	40	X	X	[0..0]	
Diagnosis Date/Time	5	TS	26	O	O	[0..1]	
Diagnosis Type	6	IS	2	R	R	[1..1]	Diagnosis Type (HL7) **Note:** Identifies the type of diagnosis being sent. Literal values: “A” for Admitting diagnosis, “W” for Working diagnosis or “F” for Final diagnosis.
Major Diagnostic Category	7	CE	478	X	X	[0..0]	0118
Diagnostic Related Group	8	CE	478	X	X	[0..0]	0055
DRG Approval Indicator	9	ID	1	X	X	[0..0]	0136
DRG Grouper Review Code	10	IS	2	X	X	[0..0]	0056

TABLE 3-6G: DIAGNOSIS SEGMENT (DG1)							
Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Outlier Type	11	CE	478	X	X	[0..0]	0083
Outlier Days	12	NM	3	X	X	[0..0]	
Outlier Cost	13	CP	538	X	X	[0..0]	
Grouper Version And Type	14	ST	4	X	X	[0..0]	
Diagnosis Priority	15	ID	2	X	X	[0..1]	0359
Diagnosing Clinician	16	XCN	309	X	X	[0..*]	
Diagnosis Classification	17	IS	3	X	X	[0..1]	0228
Confidential Indicator	18	ID	1	X	X	[0..1]	0136
Attestation Date/Time	19	TS	26	X	X	[0..1]	
Diagnosis Identifier	20	EI	427	X	X	[0..1]	
Diagnosis Action Code	21	ID	1	X	X	[0..1]	0206

3.6.9 PROCEDURES (PR1) SEGMENT

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

TABLE 3-6H. PROCEDURES SEGMENT (PR1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Set ID – PR1	1	SI	4	R	R	[1..1]	**Note:** Numbers the repetitions of the segments
Procedure Coding Method	2	IS	3	X	X	[0..1]	0089
Procedure Code	3	CE	478	R	R	[1..1]	0088
Procedure Description	4	ST	40	X	X	[0..0]	
Procedure Date/Time	5	TS	26	R	R	[1..1]	
Procedure Functional Type	6	IS	2	X	X	[0..1]	0230
Procedure Minutes	7	NM	4	X	X	[0..1]	
Anesthesiologist	8	XCN	309	X	X	[0..0]	0010
Anesthesia Code	9	IS	2	X	X	[0..1]	0019
Anesthesia Minutes	10	NM	4	X	X	[0..1]	

TABLE 3-6H. PROCEDURES SEGMENT (PR1)							
Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Surgeon	11	XCN	309	X	X	[0..0]	0010
Procedure Practitioner	12	XCN	309	X	X	[0..0]	0010
Consent Code	13	CE	478	X	X	[0..1]	0059
Procedure Priority	14	ID	2	X	X	[0..1]	0418
Associated Diagnosis Code	15	CE	478	X	X	[0..1]	0051
Procedure Code Modifier	16	CE	478	X	X	[0..*]	0340
Procedure DRG Type	17	IS	20	X	X	[0..1]	0416
Tissue Type Code	18	CE	478	X	X	[0..*]	0417
Procedure Identifier	19	EI	427	X	X	[0..1]	
Procedure Action Code	20	ID	1	X	X	[0..1]	0206

3.6.10 INSURANCE (IN1) SEGMENT

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

TABLE 3-6I: INSURANCE SEGMENT (IN1)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Set ID – PR1	1	SI	4	R	R	[1..1]	**Note:** SET ID numbers the repetitions of the segments.
Insurance Plan ID	2	CE	478	R	R	[1..1]	0072
Insurance Company ID	3	CX	250	R	R	[1..*]	
Insurance Company Name	4	XON	250	X	X	[0..*]	
Insurance Company Address	5	XAD	513	X	X	[0..*]	
Insurance Co Contact Person	6	XPN	294	X	X	[0..*]	
Insurance Co Phone Number	7	XTN	250	X	X	[0..*]	
Group Number	8	ST	12	X	X	[0..1]	
Group Name	9	XON	250	X	X	[0..*]	

TABLE 3-6I: INSURANCE SEGMENT (IN1)							
Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Insured_s Group Emp ID	10	CX	250	X	X	[0..*]	
Insured_s Group Emp Name	11	XON	250	X	X	[0..*]	
Plan Effective Date	12	DT	8	X	X	[0..1]	
Plan Expiration Date	13	DT	8	X	X	[0..1]	
Authorization Information	14	AUI	239	X	X	[0..1]	
Plan Type	15	IS	3	O	O	[0..1]	0086
Name Of Insured	16	XPN	294	X	X	[0..*]	
Insured_ Relationship To Patient	17	CE	478	X	X	[0..1]	0063
Insured_ Date Of Birth	18	TS	26	X	X	[0..1]	
Insured_ Address	19	XAD	513	X	X	[0..*]	
Assignment Of Benefits	20	IS	2	X	X	[0..1]	0135
Coordination Of Benefits	21	IS	2	X	X	[0..1]	0173

TABLE 3-6I: INSURANCE SEGMENT (IN1)							
Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Coord Of Ben. Priority	22	ST	2	X	X	[0..1]	
Notice Of Admission Flag	23	ID	1	X	X	[0..1]	0136
Notice Of Admission Date	24	DT	8	X	X	[0..1]	
Report Of Eligibility Flag	25	ID	1	X	X	[0..1]	0136
Report Of Eligibility Date	26	DT	8	X	X	[0..1]	
Release Information Code	27	IS	2	X	X	[0..1]	0093
Pre-Admit Cert (PAC)	28	ST	15	X	X	[0..1]	
Verification Date/Time	29	TS	26	X	X	[0..1]	
Verification By	30	XCN	309	X	X	[0..*]	
Type Of Agreement Code	31	IS	2	X	X	[0..1]	0098
Billing Status	32	IS	2	X	X	[0..1]	0022
Lifetime Reserve Days	33	NM	4	X	X	[0..1]	

TABLE 3-6I: INSURANCE SEGMENT (IN1)							
Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Delay Before L.R. Day	34	NM	4	X	X	[0..1]	
Company Plan Code	35	IS	8	X	X	[0..1]	0042
Policy Number	36	ST	15	X	X	[0..1]	
Policy Deductible	37	CP	538	X	X	[0..1]	
Policy Limit - Amount	38	CP	538	X	X	[0..0]	
Policy Limit - Days	39	NM	4	X	X	[0..1]	
Room Rate - Semi-Private	40	CP	538	X	X	[0..0]	
Room Rate - Private	41	CP	538	X	X	[0..0]	
Insured_ Employment Status	42	CE	478	X	X	[0..1]	0066
Insured_ Administrative Sex	43	IS	1	X	X	[0..1]	0001
Insured_ Employer_s Address	44	XAD	513	X	X	[0..*]	
Verification Status	45	ST	2	X	X	[0..1]	

TABLE 3-6I: INSURANCE SEGMENT (IN1)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Prior Insurance Plan ID	46	IS	8	X	X	[0..1]	0072
Coverage Type	47	IS	3	X	X	[0..1]	0309
Handicap	48	IS	2	X	X	[0..1]	0295
Insured_ ID Number	49	CX	250	X	X	[0..*]	
Signature Code	50	IS	1	X	X	[0..1]	0535
Signature Code Date	51	DT	8	X	X	[0..1]	
Insured_ Birth Place	52	ST	250	X	X	[0..1]	
VIP Indicator	53	IS	2	X	X	[0..1]	0099

3.6.11 MESSAGE ACKNOWLEDGEMENT (MSA) SEGMENT

In order to acknowledge a correct receipt of a message, message receivers use the MSA segment.

TABLE 3-6J: MESSAGE ACKNOWLEDGEMENT SEGMENT (MSA)

Field Name	Seq	DT	Len	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Acknowledgement Code	1	ID	2	R	R	[1..1]	0008
Message Control ID	2	ST	20	R	R	[1..1]	Specifies the value in MSH-10 of the message being acknowledged
Text Message	3	ST	80	X	X	[0..1]	
Expected Sequence Number	4	NM	15	X	X	[0..1]	
Delayed Acknowledgement Type	5			X	X	[0..0]	Note: The MSA-5 was deprecated as of v2.2 and the detail was withdrawn and removed from the standard as of version 2.5.
Error Condition	6	CE	250	RE	RE	[0..1]	0357

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: 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 3-7A: FILE HEADER SEGMENT (FHS)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
File Field Separator	1	ST	1	R	R	[1..1]	Default Value "|" (ASCII 124).
File Encoding Characters	2	ST	4	R	R	[1..1]	Default Values "^~\&" (ASCII 94, 126, 92, and 38).
File Sending Application	3	HD	227	O	O	[0..1]	
File Sending Facility	4	HD	227	O	RE	[0..1]	
File Receiving Application	5	HD	227	O	O	[0..1]	
File Receiving Facility	6	HD	227	O	O	[0..1]	
File Creation Date/Time	7	TS	26	O	RE	[0..1]	
File Security	8	ST	40	X	X	[0..1]	
File Name/ID	9	ST	20	O	RE	[0..1]	

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
File Header Comment	10	ST	80	O	O	[0..1]	
File Control ID	11	ST	199	O	RE	[0..1]	
Reference File Control ID	12	ST	20	O	RE	[0..1]	

Example: FHS|^~\&<cr>

3.7.3 FILE TRAILER (FTS) SEGMENT

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

TABLE 3-7B. FILE TRAILER SEGMENT (FTS)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
File Batch Count	1	NM	10	R	RE	[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	O	[0..1]	

Example: FTS|1<cr>

3.7.4 BATCH HEADER (BHS) SEGMENT

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

TABLE 3-7C: BATCH HEADER SEGMENT (BHS)

Field Name	Seq	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Batch Field Separator	1	ST	1	R	R	[1..1]	Default Value "|" (ASCII 124).
Batch Encoding Characters	2	ST	4	R	R	[1..1]	Default Values "^~\&" (ASCII 94,126,92, and 38).
Batch Sending Application	3	HD	227	R	R	[1..1]	
Batch Sending Facility	4	HD	227	R	R	[1..1]	
Batch Receiving Application	5	HD	227	R	R	[1..1]	
Batch Receiving Facility	6	HD	227	R	R	[1..1]	
Batch Creation Date/Time	7	TS	26	R	R	[1..1]	
Batch Security	8	ST	40	X	X	[0..1]	
Batch Name/ID	9	ST	20	O	RE	[0..1]	

TABLE 3-7C: BATCH HEADER SEGMENT (BHS)							
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Receiver Usage**	**Cardinality**	**Values / Value Set**
Batch Header Comment	10	ST	80	O	RE	[0..1]	
Batch Control ID	11	ST	20	O	RE	[0..1]	
Reference Batch Control ID	12	ST	20	O	RE	[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<cr>

3.7.5 BATCH TRAILER (BTS) SEGMENT

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

TABLE 3-7D: BATCH TRAILER SEGMENT (BTS)

Field Name	Sequence	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values / Value Set
Batch Message Count	1	NM	10	R	RE	[0..1]	The number of messages contained in the preceding batch.
Batch Comment	2	ST	80	O	RE	[0..1]	
Batch Totals	3	NM	100	X	X	[0..*]	

Example: BTS|100|Facility reporting for 2-1-2011<cr>

4 DATA ELEMENTS OF INTEREST

4.1 COLUMN DEFINITIONS FOR ELEMENTS OF INTEREST TABLE

Table 4-1 contains the preliminary minimum set of data elements commonly used for public health Syndromic Surveillance.

This section describes the definitions of the table columns in Table 4-1.

TABLE 4-1: SYNDROMIC SURVEILLANCE COLUMN HEADINGS

COLUMN NAME	DEFINITION
#	Number of the core data set element as provided by ISDS
Data Element Name	Name of the core data set element as provided by ISDS
Description of Field	Description of the data element
Usage	Refers to whether an element must appear in the message. The Usage codes are: • R – Required Indicates that the field is a required field. A value must be present in the field in order for the message to be accepted. • RE – Required, but can be empty: Indicates that the field is a required field. However, if there is no data captured in the field due to the setting (e.g. no chief complaint data for a trauma patient) and the field is blank, the message may be sent with the field containing no data. • O – Optional: Optional for data to be sent in a message. Local jurisdictions must further constrain these elements for implementation.
Cardinality	Minimum and maximum number of times the element may appear

TABLE 4-1: SYNDROMIC SURVEILLANCE COLUMN HEADINGS	
COLUMN NAME	**DEFINITION**
Value Set OID / Name	Value Set OID and Name of value set containing the values that define the data element. These may be used to populated the tables from which coded message fields are drawn
Notes	Describes additional notes that are relevant to the rules and/or processing of the data element field
Recommended HL7 Location	Recommended location of Data Element for HL7 message population

4.2 DATA ELEMENTS OF INTEREST FOR SYNDROMIC SURVEILLANCE

The following section is derived from the ISDS *Final Recommendation: The Core Processes and EHR Requirements of Public Health Syndromic Surveillance,* Section 4, discussing data sets for core EHR requirements. In the following tables, columns 1-5 are defined by the ISDS recommendations and columns 6-8 are provided to assist implementers of HL7 messaging.

4.2.1 MINIMUM DATA SET

The following table contains a minimum list of data elements commonly used by public health authorities to conduct Syndromic Surveillance. This list does not represent the entire list of data elements needed to support the current practice of Syndromic Surveillance across all public health jurisdictions. Therefore, the actual data elements and their specifications are subject to change in accordance with applicable state and local laws and practices.

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
Treatment Facility Identifiers							
1	Facility Identifier (Treating)	Unique facility identifier of facility where the patient originally presented (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. Final Rule 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 2.5.1:** EVN-7.2 Example EVN-7: |OTH_REG_MEDCTR^1234567890^NPI| **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

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
							IDENTIFIER^PHINQUESTION||OTHER_REG_MEDCTR^1234567890^**NPI**|||||F|||201102171531<cr>
2	Facility Name (Treating)	Name of facility where the patient originally presented (original provider of the data)	O	[0..1]	Recommend the use of the Organization Name Legal 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. Final Rule 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 2.5.1:** EVN-7.1 Example EVN-7: |OTH_REG_MEDCTR^1234567890^NPI| **HL7 Version 2.3.1:** OBX Segment (HD Data Type, 1st Component, 5th field) with PHINQUESTION Code (SS001) Observation Identifier

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
							Example OBX Segment: OBX|2|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED CTR^1234567890^NPI||||||F|||201102171531<cr>
3	Facility Location (Treating) – Street Address	Street address of treating facility location	O	[0..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 ISDS.	OBX Segment (XAD Data Type) with PHINQUESTION Code (SS002) Observation Identifier 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.
4	Facility Location (Treating) - City	City of treating facility location	O	[0..1]	The ISDS recommendations recommend free text City/Town designations.	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	

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
						4.2, on Facility Registration ISDS.	Example OBX segment: OBX|1|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||^^^13^30341^USA^C^^DEKALB|||||F|||20110209 1114<cr> This data can also be accommodated in the Facility Registration process as defined by ISDS.
5	Facility Location (Treating) – County	County of treating facility location	O	[0..1]	The ISDS recommendations allow free text County designations.	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.	
6	Facility Location (Treating) – State	State of treating facility location	O	[0..1]	2.16.840.1.114222.4.11.830 PHVS_State_FIPS_5-2	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.	
7	Facility / Visit Type	Type of facility that the patient visited for	R	[1..1]	2.16.840.1.114222.4.11.3401 PHVS_FacilityVisitType_Syndro	Relevant facility/visit type values are defined in value	OBX Segment (CWE Data Type) with PHINQUESTION Code

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
		treatment			micSurveillance	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.	(SS003) Observation Identifier Example OBX segment: OBX|2|CWE|SS003^FACILITY / VISIT TYPE^PHINQUESTION||1108-0^EMERGENCY DEPARTMENT^HSLOC|||||F|||201102091114<cr>
8	Report Date/Time	Date and time of report transmission from original source (from treating facility)	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 Example Report Date/Time: 1:01:59 AM EST on July 4, 2011 |20110704010159-0500|
Patient Demographics							

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
9	Unique Patient Identifier	Unique identifier for the patient	R	[1..*]	2.16.840.1.114222.4.11.3597 PHVS_IdentifierType_SyndromicSurveillance	Unique Patient Identifiers related to individual identifiers based on HL7 Table 0203.	PID-3 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. Example PID-3 Fields: Internal Identifier (PI) |95101100001^^^^PI| External Identifier (PT) |E95101100001^^^^PT|
10	Medical Record #	Patient medical record number	O	[0..1]	2.16.840.1.114222.4.11.3597 PHVS_IdentifierType_SyndromicSurveillance	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	PID-3 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,

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
						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.	defines the identifier as the Medical Record # (MR). Example PID-3 Field: |MR101100001^^^^MR|
11	Age	Numeric value of patient age	R	[1..1]	For OBX-3, please use : 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance	This element is represented by the LOINC code: 21612-7 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.	OBX Segment (NM Data Type, 1st Component, 5th field) with LOINC Code (21612-7) Observation Identifier Example OBX Segment: OBX|4|NM|21612-7^AGE TIME PATIENT REPORTED^LN||**43**|a^YEA

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
						Data providers and receivers should determine specific data restrictions for their jurisdiction. Age units correspond to numeric value of patient age (e.g. Days, Month or Years) is populated in OBX-6	R^UCUM|||||F|||201102171531<cr>
12	Age units	Unit corresponding to numeric value of patient age (e.g. Days, Month or Years)	R	[1..1]	For OBX-6 Please use: 2.16.840.1.114222.4.11.3402 PHVS_AgeUnit_SyndromicSurveillance	Relevant Age Unit values are defined in value set. Unknown has been added to the value set to allow for instances where the patient age may not be obtainable. OBX-6 Age units correspond to numeric value of patient age (e.g. Days, Month or Years) used in OBX-5	OBX Segment (CE Data Type, 6th field) Example OBX Segment: OBX|4|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|**a^YEAR^UCUM**||||F|||201102171531<cr>

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
13	Gender	Gender of patient	RE	[0..1]	2.16.840.1.114222.4.11.3403 PHVS_Gender_SyndromicSurveillance	Relevant Gender values are defined in value set.	PID-8
14	City/Town	City/Town of patient residence	O	[0..1]	The ISDS recommendations allow free text City/Town designations.		PID-11.3
15	ZIP Code	ZIP Code of patient residence	RE	[0..1]		Provide a minimum of 5 digits for domestic ZIP codes. Foreign postal codes should be supported.	PID-11.5
16	State	State of patient residence	O	[0..1]	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.	PID-11.4
17	Country	Country of patient	O	[0..1]	2.16.840.1.114222.4.11.828	It is recommended that the 3-character country codes	PID-11.6

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
		residence			PHVS_Country_ISO_3166-1	be used for Country of the patient home address.	
18	Race	Race of patient	RE	[0..*]	2.16.840.1.114222.4.11.836 PHVS_RaceCategory_CDC	Relevant Race Category values are defined in value set.	PID-10
19	Ethnicity	Ethnicity of patient	RE	[0..*]	2.16.840.1.114222.4.11.837 PHVS_EthnicityGroup_CDC	Relevant Ethnicity values are defined in value set.	PID-22
20	County	County/Parish Code	RE	[0..1]	2.16.840.1.114222.4.11.829 PHVS_County_FIPS_6-4	Patient's residence County	PID-11.9
Patient Health Indicators							
	Unique Visiting ID	Unique identifier for a	R	[1..1]	2.16.840.1.114222.4.11.3597 PHVS_IdentifierType_Syndromi	A visit is defined as a discrete or unique clinical	PV1-19 The Unique Visiting ID

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
21		Patient visit			cSurveillance	Encounter within a service department or location.[7]	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|
22	Visit Date / Time	Date/Time of patient presentation	R	[1..1]		HL7 Date/Time Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]	PV1-44 Example Visit Date/Time: 2:06:59 PM EST on April 1, 2011 |20110401140659-0500|

[7] The definition of a unique visit in this provisional recommendation differs from BioSense. BioSense rolls multiple visits within a 24-hour period into one visit.

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
23	Date of onset	Date that patient began having symptoms of condition being reported	O	[0..1]	For OBX-3 Please use: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_ Syndromic Surveillance	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 (TS Data Type, 1st Component, 5th field) with LOINC Code (11368-8) Observation Identifier Example OBX Segment: OBX|7|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME:TMSTP:PT:PATIENT :QN^LN||20110215|||||F|||201102171658<cr>
24	Patient Class	Patient classification within facility	O	[0..1]	2.16.840.1.114222.4.11.3404 PHVS_PatientClass_Syndromic Surveillance	Relevant Patient Class values are defined in value set.	PV1-2 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

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
25	Chief Complaint / Reason for visit	Short description of the chief complaint or reason of patient's visit, recorded when seeking care	RE	[0..*]	For OBX-3 Please use: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance For OBX-5 Please use: Free text **Or** 2.16.840.1.114222.4.11.856 PHVS_AdministrativeDiagnosis_CDC_ICD-9CM **Or** 2.16.840.1.114222.4.11.3593 PHVS_CauseOfDeath_ICD-10_CDC **Or** 2.16.840.1.114222.4.11.909 PHVS_Disease_CDC	This element is represented by the LOINC code: 8661-1 in the OBX observation identifier. The actual data value occurs in the 5th field of the same OBX segment and is Coded with Exception as defined by the OBX Data Type CWE. Using the CWE allows for the possibility of free text, while also allowing for the coded values listed. If data flows through an intermediary or third party, the intermediary **must** keep the original text (CWE-9) of the transmission. **Note:** Implementers should check with their local	OBX Segment (CWE Data Type, 5th field) with LOINC Code (8661-1) Observation Identifier Example OBX Segment (free text): OBX|3|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^STOMACHACHE|||||F|||20110217153 1<cr> Example OBX Segment (coded and free text): OBX|3|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||7804^Dizziness and

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
					(SNOMED Based Valueset) For further guidance refer to the column – 'Recommended HL7 Location'	jurisdiction for version of adopted coding system.	giddiness [780.4]^I9CDX^^^^^^DIZZY |||||F|||201102171531<cr>
26	Triage Notes	Triage notes for the patient visit	O	[0..1]	For OBX-3 Please use: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance For OBX-5 Please use: Free text For further guidance refer to the column – 'Recommended HL7 Location'	This element is represented by the LOINC code: 54094-8 in the OBX observation identifier. The actual data value occurs in the 5th field of the same OBX segment and is Text as defined by the OBX Data Type TX. Triage Notes should be sent as free text. Triage notes may benefit from additional processing (e.g. negation processing,	OBX Segment (TX Data Type, 5th field) with LOINC Code (54094-8) Observation Identifier Example OBX Segment: OBX|1|TX|54094-8^TRIAGE NOTE:FIND:PT:EMERGENCY DEPARTMENT:DOC^LN||Pain a recurrent cramping sensation.|||||F|||201102091114<cr>

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
						natural language processing, etc.) in order to maximize the utility of the data.	
27	Diagnosis / Injury Code	Diagnosis or injury code of patient condition	RE	[0..*]	2.16.840.1.114222.4.11.856 PHVS_AdministrativeDiagnosis_CDC_ICD-9CM **Or** 2.16.840.1.114222.4.11.3593 PHVS_CauseOfDeath_ICD-10_CDC **Or** 2.16.840.1.114222.4.11.909 PHVS_Disease_CDC (SNOMED Based Valueset)	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. Include V-codes and E-codes This field is a repeatable field; multiple codes may be sent. The first diagnosis code should be the primary / diagnosis.	DG1-3
28	Clinical Impression	Clinical impression	O	[0..1]	For OBX-3 Please use :	This element is represented by the LOINC code: 44833-	OBX Segment (TX Data Type, 5th field) with LOINC

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
		(free text) of the diagnosis			2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance For OBX-5 Please use: Free text For further guidance refer to the column – 'Recommended HL7 Location'	2 in the OBX observation identifier. The actual data value occurs in the 5th field of the same OBX segment and is Text as defined by the OBX Data Type TX.	Code (44833-2) Observation Identifier Example OBX Segment: OBX|1|TX|44833-2^DIAGNOSIS.PRELIMINARY:IMP:PT:PATIENT:NOM:^LN||Pain consist with appendicitis|||||F|||20110202091114<cr>
29	Diagnosis Type	Qualifier for Diagnosis / Injury Code specifying type of diagnosis	R	[1..*]	2.16.840.1.114222.4.11.827 PHVS_DiagnosisType_HL7_2x	It is critical to be able to distinguish among the diagnosis types when the syndromic system is receiving messages in real-time.	DG1-6
30	Discharge Disposition	Patient's anticipated location or status following	RE	[0..1]	2.16.840.1.114222.4.11.915 PHVS_Discharge Disposition_HL7_2x	It is expected that this field will update with multiple submissions.	PV1-36

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
		ED/UC visit			The disposition of the patient at time of discharge (i.e., discharged to home, expired, etc.). Uses User-defined Table 0112 - Discharge Disposition; this field is used on UB92 FL22.		
31	Disposition Date / Time	Date and time of disposition	O	[0..1]		HL7 Date/Time Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] Send this field as empty if the patient has not been discharged. Do not wait to send data until patient is discharged.	PV1-45 Example Disposition Date/Time: 4:45:12 PM EST on January 13, 2011 |20110113164512-0500|
32	Initial Temp-erature	1st recorded temperature, including units	O	[0..1]	For OBX-3 Please use: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance	This element is represented by the LOINC code: 11289-6 in the OBX observation identifier.	OBX Segment (NM Data Type, 1st Component, 5th field) with LOINC Code (11289-6) Observation Identifier

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
					OBX-6 Please use: 2.16.840.1.114222.4.11.919 PHVS_TemperatureUnit_UCUM	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 the temperature must also be included. Fahrenheit and Celsius units of measure are included in the value set.	Example OBX Segment: OBX|3|NM|11289-6^BODY TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||100.1|[degF]^FARENHEIT^UCUM||A|||F|||20110217145139<cr> Units of measure (OBX-6, (CE Data Type) must be included defining the numeric value.
33	Initial Pulse Oximetry	1st recorded pulse oximetry value	O	[0..1]	For OBX-3 Please use: 2.16.840.1.114222.4.11.3589 PHVS_ObservationIdentifier_SyndromicSurveillance For OBX-6 Please use: 2.16.840.1.114222.4.11.3590	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 Segment (NM Data Type, 1st Component, 5th field) with LOINC Code (59408-5) Observation Identifier Example OBX Segment: OBX|4|NM|59408-

TABLE 4-2-1: MINIMUM DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
					PHVS_PulseOximetryUnit_UCUM	OBX Data Type NM. Units of measure must also be included. Percentage is the only value included in the value set.	5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE OXIMETRY^LN||**91|%^PERCENT^UCUM**||A|||F|||20110217145139<cr> Units of measure (OBX-6, (CE Data Type) must be included defining the numeric value.

4.2.2 EXTENDED DATA ELEMENTS FOR FURTHER CONSIDERATION

Identified as Appendix A in the ISDS Final Recommendation, the extended data elements are fields that are recognized as currently in use by some jurisdictions, but not widespread enough to be included as part of the core minimum data set. These data elements are considered an optional extension of the core minimum data set for jurisdictions that wish to include them for implementation.

TABLE 4-2-2: EXTENDED DATA ELEMENTS

#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
34	Pregnancy Status	Pregnancy status of the patient	O		TBD	Pregnancy status helps determine the risk factor for certain diseases or conditions, such as H1N1 influenza, Arboviral, Brucellosis, gastroenteritis, Acute Hepatitis B, Acute Hepatitis C, Hepatitis D & E, Listeriosis, Lyme disease, Malaria, Q Fever, Relapsing Fever, Rubella, West Nile Virus, Yellow Fever	OBX Segment
35	Initial ED Acuity	Assessment of the severity of	O		TBD	This data element helps determine the severity of the	OBX Segment

TABLE 4-2-2: EXTENDED DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
	Assess-ment	the patient's condition				patient's condition. The triage nurse assesses the severity of the patient's condition and how many resources are required. An example of the assessment may be to use a scale of 1 to 5 to indicate a range of severity.	
36	Laboratory Order data set	Data elements related to the ordering of laboratory tests for the patient	O			The individual data elements related to laboratory orders have not yet been determined. If used, the specific data elements should be specified and agreed upon by individual jurisdictions and their data sharing partners. Laboratory order data elements help identify possible health conditions of interest to public	Recommendation requires further analysis and has not yet been determined

TABLE 4-2-2: EXTENDED DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
						health. Due to the possible high volume of data, jurisdictions may wish to limit the type of laboratory order data that is transmitted.	
37	Laboratory Results data set	Data elements related to the results of laboratory tests conducted on the patient	O			The individual data elements related to laboratory results have not been determined. If used, the specific data elements should be specified and agreed upon by individual jurisdictions and their data sharing partners. Laboratory results data elements help determine the proportion of positive results (denominator data) and the amount of testing being conducted at a given time. It may help in the ability to	Recommendation requires further analysis and has not yet been determined. However, please reference the following: HL7 Version 2.5.1 ELR Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm**)** is available on the HL7 website. The guide can be found in the HL7 Standards Listed in HHS' Final Rule section of the HL7 website accessed via the following link.

TABLE 4-2-2: EXTENDED DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
						differentiate when a signal is due to procedural change or an outbreak. Due to the possible high volume of data, jurisdictions may wish to limit the type of laboratory results data that is transmitted.	Health Level Seven (HL7) Store

4.2.3 FUTURE DATA ELEMENTS FOR FURTHER CONSIDERATION

In the the final recommendation, ISDS also identified data elements that may become core to standard syndromic surveillance in the future. As of January 2011, the public health utility of these elements is largely unknown. In the future, their value will be better understood, and surveillance community will be better able to recommend appropriate EHR implementation guidelines.

TABLE 4-2-3: FUTURE DATA ELEMENTS							
#	Data Element Name	Description of Field	Usage	Cardinality	Value Set /Value Domain	Implementation Notes	Recommended HL7 Location
38	Patient Street Address	Patient's street address of residence	O				PID-11.1
39	Patient Date of Birth (DOB)	Patient's date of birth	O				PID-7
40	Insurance Coverage	Patient's type of insurance coverage	O		TBD	This data element is to capture a high-level description of insurance, such as Medicare, Medicaid, Private Insurance, and Self-pay.	IN1-15
41	Diagnosis Date/Time	Date/Time associated with the Diagnosis / Injury Code	O				DG1-5
	Vital Sign-related	Data elements that	O		TBD	Vital sign elements for consideration are heart	OBX Segment(s)

TABLE 4-2-3: FUTURE DATA ELEMENTS							
#	DATA ELEMENT NAME	DESCRIPTION OF FIELD	USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	RECOMMENDED HL7 LOCATION
42	DATA ELEMENTS	ARE RELATED TO THE PATIENT'S VITAL SIGN MEASUREMENTS				RATE, RESPIRATORY RATE, BLOOD PRESSURE (SBP/DBP), BMI, PULSE RATE, HEIGHT, AND WEIGHT.	
43	OBSERVATION, SYMPTOMS, AND CLINICAL FINDINGS	DATA ELEMENT(S) DESCRIBING THE OBSERVATION, SYMPTOMS, AND CLINICAL FINDINGS FOR A PATIENT'S CONDITION	O		TBD	THIS DATA ELEMENT(S) HAS THE POTENTIAL TO BE LARGE SINCE IT MAY BE A FULL NURSE / PHYSICIAN DICTATION. THIS MAY BE A GROUP OF DATA ELEMENTS RATHER THAN A SINGLE DATA ELEMENT.	OBX SEGMENT(S)
44	SEVERITY OF ILLNESS RELATED DATA ELEMENTS	DATA ELEMENTS THAT ARE USED TO ASSESS THE SEVERITY OF	O		TBD	DATA ELEMENTS FOR CONSIDERATION INCLUDE VENTILATED INDICATORS, INTUBATED INDICATORS, AND DESATURATION.	OBX SEGMENT(S)

TABLE 4-2-3: FUTURE DATA ELEMENTS							
#	DATA ELEMENT NAME	DESCRIPTION OF FIELD	USAGE	CARDINALITY	VALUE SET /VALUE DOMAIN	IMPLEMENTATION NOTES	RECOMMENDED HL7 LOCATION
		THE PATIENT'S ILLNESS					
45	HIGHEST TEMPERATURE	HIGHEST RECORDED TEMPERATURE, INCLUDING UNITS	O		TBD	HIGHEST TEMPERATURE MAY PROVIDE A MORE ACCURATE VALUE IN CLASSIFYING CERTAIN CONDITIONS, SUCH AS PANDEMIC FLU. UNITS OF THE TEMPERATURE SHOULD ALSO BE INCLUDED.	OBX SEGMENT UNITS OF MEASURE (IN THE OBX-6) SHOULD BE INCLUDED DEFINING THE NUMERIC VALUE.
46	PROCEDURE CODE	PROCEDURE CODE TO IDENTIFY THE HEALTH INTERVENTION PROVIDED TO THE PATIENT	O		TBD	PROCEDURE CODE IS USEFUL IN DISTINGUISHING WHETHER THE PATIENT RECEIVED A VACCINATION FOR A DISEASE OR TREATMENT FOR THE ACTUAL DISEASE. THIS IS APPLICABLE TO PRIMARY CARE SETTINGS.	PR1-3

5 EXAMPLES

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

5.1 A04 EMERGENCY DEPARTMENT REGISTRATION; NO UPDATES; ACKNOWLEDGEMENT REQUESTED

In the following example, a non-Hispanic white female, Ann A. Everyperson, 67 years old, visits the Midland Health Center emergency department with an infected abrasion on her forearm. The Medical Record Number, 20060012168, is sent for the patient identifier. Since this is an Emergency Department visit, PV1-44 reflects the time the patient registered in the Emergency Department. The Admit Reason is coded in ICD-9. The original provider of the data, Midland Health Center, is captured in the EVN-7. The facility location and visit type was provided by Midland Health Center.

Midland Health Center has requested acknowledgement of the message by the State Public Health. A sample acknowledgement is included.

MSH|^~\&||MIDLAND HLTH CTR^9876543210^NPI|State_SS|State_Public_Health|201102091114||ADT^**A04^ADT_A01**|201102091114-0078|P|2.5.1<cr>

EVN||201102091114|||||MIDLAND HLTH CTR^9876543210^NPI<cr>

PID|1||**20060012168^^^^MR**^MIDLAND HLTH CTR&9876543210&NPI||EVERYPERSON^ANN^A^^^^L|||**F**||2106-3^**White**^CDCREC|^^^13^30341^USA^C||||||||||2186-5^**Not Hispanic**^CDCREC<cr>

PV1||E||E|||||||||1|||||20110209_0064^^^^VN|||||||||||||||||||||||20110217144208<cr>

PV2|||9131^ABRASION FOREARM-INFECT^I9CDX<cr>

OBX|1|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||^^^13^30341^USA^C||||||F|||201102091114<cr>

OBX|2|CWE|SS003^FACILITY / VISIT TYPE^PHINQUESTION||1108-0^EMERGENCY DEPARTMENT^HSLOC||||||F|||201102091114<cr>

OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||**67|a^YEAR^UCUM**|||||F|||201102091114<cr>

Continuing the example above, State Public Health needs to acknowledge successful receipt (AA – Application Accept) of the above message (Message ID - 201102091114-0078) from Midland Health Center.

MSH|^~\&|State_SS|State_Public_Health||MIDLAND HLTH

CTR^9876543210^NPI|201102091119||**ACK^A04^ACK**|ACK-201102091119-0001|P|2.5.1<cr>

MSA|**AA**|**201102091114-0078**<cr>

5.2 A04 EMERGENCY DEPARTMENT REGISTRATION FOLLOWED BY A08 UPDATE

In the next example, a non-Hispanic black male, 52 years old, visits the City General Hospital emergency department with cough and ear pain. City General Hospital does not transmit Medical Record Number, so it uses a unique patient identifier of 95101100001, in PID-3. The chief complaint was sent as free text and an admitting diagnosis was sent in the DG1 segment, coded in ICD-9.

MSH|^~\&||CITY GENL HOSP^0133195934^NPI|||20110217144317||ADT^**A04^ADT_A01**|E100648329|P|2.5.1<cr>

EVN||20110217144317|||||CITY GENL HOSP^0133195934^NPI<cr>

PID|1||95101100001^^^^PI||~^^^^^^U|||M||2054-5^**Black or African American**^CDCREC|^^^29^65101||||||||||2186-5^**Not Hispanic**^CDCREC<cr>

PV1||E||E|||||||||1|||||8399193^^^^VN|||||||||||||||||||||||||20110217144208<cr>

OBX|1|NM|21612-7^AGE TIME PATIENT REPORTED^LN||52|a^YEAR^UCUM|||||F|||201102171443<cr>

OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^**HEADACHE FOR 2 DAYS**<cr>

DG1|1||**4739^CHRONIC SINUSITIS NOS^I9CDX**||A<cr>

Continuing the example above, a non-Hispanic black male, 52 years old, visits the City General Hospital emergency department with cough and ear pain. City General Hospital wants to update the receiving system with new information about the same patient and the same visit.

The Visit Number and Admit Date/Time have not changed; but, the Message Date/Time and Message Control ID have. So, an A08 message is used to transmit the additional information:

Temperature, Blood Oxygen Level, and Final Diagnosis.

MSH|^~\&||CITY GENL HOSP^0133195934^NPI|||**20110217145139**||ADT^**A08^ADT_A01**|**E100648353**|P|2.5.1<cr>

EVN||20110217144317|||||CITY GENL HOSP^0133195934^NPI<cr>

PID|1||95101100001^^^^PI^CITY GENL HOSP&0133195934&NPI||~^^^^^^U|||M||2054-5^Black or African American^CDCREC|^^^29^65101|| ||||||||2186-5^**Not Hispanic**^CDCREC<cr>

PV1||E||E|||||||||1|||||8399193^^^^VN|||||||||||||||||||||||||20110217144208<cr>

OBX|1|NM|21612-7^AGE TIME PATIENT REPORTED^LN||52|a^YEAR^UCUM|||||F|||20110217145139<cr>

OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^HEADACHE FOR 2 DAYS<cr>

OBX|3|NM|11289-6^BODY TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||100.1|[degF]^FARENHEIT^UCUM||A|||F|||20110217145139<cr>

OBX|4|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE OXIMETRY^LN||91|%^PERCENT^UCUM||A|||F|||20110217145139<cr>

DG1|1||4739^CHRONIC SINUSITIS NOS^I9CDX|||A<cr>

DG1|2||04100^STREPTOCOCCUS UNSPECF^I9CDX|||F<cr>

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

In the next example, a non-Hispanic white female, 43 years 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<cr>

EVN||201102171531<cr>

PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821||||||||||2186-5^**Not**

Hispanic^CDCREC<cr>

PV1||E||E|||||||||7|||||V20220217-00274^^^^VN|||||||||||||||||||||||201102171522<cr>

PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>

OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED CTR^1234567890^NPI||||||F|||201102171531<cr>

OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^**STOMACH ACHE|||||F|||201102171531**<cr>

OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM|||||F|||201102171531<cr>

DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>

Continuing the example, the same non-Hispanic white female, 43 years 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<cr>

EVN||201102171658<cr>

PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821||||||||||2186-5^Not Hispanic^CDCREC<cr>

PV1||**I**||E|||||||||7|||||**V20220217-00274**^^^^VN|||||||||||||||**09**|||||||**201102171656**<cr>

PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>

OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED CTR^1234567890^NPI||||||F|||201102171531<cr>

OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^STOMACH ACHE|||||F|||201102171531<cr>

OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM|||||F|||201102171531<cr>

OBX|4|NM|11289-6^BODY TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||201102171658<cr>

OBX|5|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE OXIMETRY^LN||95|%^PERCENT^UCUM||A|||F|||201102171658<cr>

OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME:TMSTP:PT:PATIENT:QN^LN||20110215|||||F|||201102171658<cr>

DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>

DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX|||W<cr>

Continuing the example, the same non-Hispanic white female, 43 years 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<cr>

EVN||201102172334

PID|1||FL01059711^^^^PI||~^^^^^^U|||F||2106-3^White^CDCREC|^^^12^33821||||||||||2186-5^Not Hispanic^CDCREC|||||||**201102172334|Y**<cr>

PV1|||I||E|||||||||7|||||V20220217-00274^^^^VN|||||||||||||||**20**|||||||201102171656|**201102172334**<cr>

PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>

DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>

DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX|||W<cr>

DG1|3||5400^AC APPEND W PERITONITIS^I9CDX|||F<cr>

OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED CTR^1234567890^NPI||||||F|||201102171531<cr>

OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^STOMACH ACHE|||||F|||201102171531<cr>

OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM|||||F|||201102171531<cr>

OBX|4|NM|11289-6^BODY TEMPERATURE:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||201102171658<cr>

OBX|5|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE OXIMETRY^LN||95|%^PERCENT^UCUM||A|||F|||201102171658<cr>

OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME:TMSTP:PT:PATIENT:QN^LN||20110215|||||F|||201102171658<cr>

5.4 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<cr>

EVN||201110090314<cr>

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<cr>

PV1||**I**||E|||||||||**6**|||||20111009_0034^^^^AN^MID-CO HLTH CTR&9876543210&NPI ||||||||||||||||||||||||20111009025915<cr>

OBX|1|NM|21612-7^AGE PATIENT QN REPORTED^LN||2**0|**a^YEAR^UCUM|||||F|||201102171531<cr>

OBX|2|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||MID-CO HLTH CTR^9876543210^NPI||||||F|||201102171531<cr>

DG1|1||E8809^FALL ON STAIR/STEP NEC^I9CDX|||A<cr>

5.5 BATCH EXAMPLE

In the following example, 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.

FHS|^~\&<cr>

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|20110123123558<cr>

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<cr>

… (Continue 240 messages)…

BTS|240|Mid-Co reporting 1-23-2011: 0000 – 1200 hrs<cr>

FTS|1<cr>

5.6 SAMPLE INTERNATIONAL ADDRESS FORMATS: CONVERTED TO PID SEGMENTS

5.6.1 COUNTRIES BORDERING THE UNITED STATES

5.6.1.1 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:

PID|1||MX01059711||~^^^^^^U|||M|||Super Manzana 3 - 403^Puerto Juarez^CANCUN^Q. ROO^77520^MEX<cr>

5.6.1.2 Canada

111 FAIRFORD STREET EAST

MOOSE JAW SK S6H 2X1

CANADA

Example PID Segment:

PID|1||CA01059711||~^^^^^^U|||M|||111 FAIRFORD STREET EAST^^MOOSE JAW^SK^S6H 2X1^CAN<cr>

6 MISCELLANEOUS

6.1 PHIN VOCABULARY SERVICES

Public Health Information Network (PHIN) Vocabulary Services seek to promote the use of standards-based vocabulary within PHIN systems and foster the use and exchange of consistent information among public health partners. The PHIN Vocabulary Access and Distribution System (VADS) and the PHIN Message Quality Framework (MQF) support these standards.

PHIN MQF and PHIN VADS will be integrated to support the real time validation of electronic messages supporting Syndromic Surveillance Meaningful Use Measures.

The vocabulary codes that are carried in CE and CWE fields in the HL7 message have their terminology indicated by the appropriate HL7 Table 0396 entry, the complete list of which may be accessed at HL7 Table 0396. Vocabulary that is carried in fields of datatype IS and ID does not have a code system carried in the message instance; these codes are intended to be populated in the identified tables. In order to facilitate the maintenance of these tables, PHIN VADS may be used for the content of these tables, each of which is associated with a PHIN value set. The names of these value sets are included in the data element references above.

6.1.1 PHIN VOCABULARY AND DISTRIBUTION SYSTEM

PHIN VADS is a Web-based enterprise vocabulary system for accessing, searching, and distributing value sets associated with HL7 implementation guides. Vocabulary associated with Syndromic Surveillance messaging guide can be downloaded from PHIN VADS.
A link is provided for the Syndromic Surveillance view here: PHIN VADS Syndromic Surveillance

6.1.2 PHIN MESSAGE QUALITY FRAMEWORK

The Message Quality Framework, MQF, is a flexible framework of services and utilities designed to assist public health partners with preparing and communicating quality, standard electronic messages as defined by the applicable messaging, vocabulary, and programmatic standards. MQF is an automated testing tool that ensures messages, including syndromic surveillance messages, are adhering to standards defined in the messaging guides by:

1. Validating the structure of the message,
2. Validating that the messages are following the business rules defined for the message,
3. Verifying that the vocabulary defined for the message is utilized.

MQF supports implementers in the pretesting of sample messages against the defined Message Specification prior to submitting messages to another provider. In the past a sender would code the message, submit a test message to the receiver, and await feedback. Then the receiving resource would test the submitted message and provide issue and error feedback. This process was labor intensive and required prioritization and coordination between many organizations in order to confirm a test message success or failure. Use of the MQF tool allows senders the capability to test HL7 messages on their own prior to submitting them to other health partners or the CDC, therefore, decreasing the cost and time to implement integrated systems. The same message may be submitted as many times as necessary to certify the message is free from error.

MQF also provides the capability for implementers, who have interface engines such as Rhapsody, Mirth, Cloverleaf/Quovadx, etc, to download the national conformance profiles developed based on the message specifications. The formats available for download are XML and Rhapsody S3D. This conformance profile contains the structural and constraint validation used to validate the messages; therefore, providing 95% of the implementable profile solution. Profiles can be downloaded from the following site: MQF Downloads.

In order to learn more about the features and work flow of the MQF tool, access the User Documentation located in the MQF left navigation panel under the User Links section. Additional guidance on how to use the tool can be found in the MQF dynamic instruction panel located on the right panel. The right column is dynamic and provides you with instructional information as you navigate through the system.