



ARIZONA DEPARTMENT
OF HEALTH SERVICES

**Arizona Syndromic Surveillance
Implementation Guide (AZSSIG)**

for
Critical Access Hospitals (CAHs)
and
Eligible Hospitals (EHs)

Version 2.0 | November 2018

HL7 2.5.1 Admission, Discharge, and Transfer (ADT) Messaging Specifications for A01, A03, A04, and A08

Health and Wellness for all Arizonans

DOCUMENT HISTORY

Many thanks to the internal and external partners of the Arizona Department of Health Services (ADHS). Your feedback and suggestions have been invaluable throughout the development of this document.

AZ Syndromic Surveillance Implementation Guide – Document History				
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INTRODUCTION

The Arizona Department of Health Services (ADHS) is pleased to release the Arizona Syndromic Surveillance Implementation Guide (AZSSIG). This guide offers standardized specifications to hospitals and emergency departments for the electronic transfer of Syndromic Surveillance (SS) data from hospital Certified Electronic Health Record Technology (CEHRT) to the BioSense Platform for SS reporting. This guide will provide an overview of the type of data being collected, the suppliers of the data, the system collecting the information, and the format needed for successful submission of Syndromic Surveillance data to ADHS. This guide is in line with requirements for the Centers for Medicare and Medicaid Services (CMS) incentive programs, often referred to as Meaningful Use or Promoting Interoperability programs (<http://azdhs.gov/meaningful-use>).

Arizona uses the national BioSense Platform to receive data and conduct Syndromic Surveillance activities. Hospitals send inpatient and emergency department data for all visits to the BioSense Platform in a timely manner so that public health can use pre-diagnostic clinical data to understand what is happening in the community. Syndromic Surveillance data is used to support event detection, increase situational awareness, and focus public health actions. Specifically, Arizona has used the data to monitor health during large public events, understand the severity of influenza and look for patients with emerging diseases such as dengue, chikungunya and Zika. The Arizona BioSense Workgroup convened Fall 2012 and is comprised of statewide representation from Local Public Health Jurisdictions (LPHJs), hospitals, software vendors, and additional community partners. The Arizona BioSense Workgroup provides direction for the collection and use of Syndromic Surveillance data.

BIOSENSE PLATFORM OVERVIEW

What is BioSense Platform?

BioSense Platform is a cloud-enabled web application providing commercial hosting, provisioning, and support for SS Data. The National Syndromic Surveillance Program (NSSP) supports the BioSense Platform and improvements in the national public health surveillance infrastructure's ability to monitor the scope and severity of potential threats to public health. This system ultimately provides a regional and national depiction of multiple health outcomes and syndromes. The BioSense Platform is the reporting method for the State of Arizona to continually receive and maintain SS data reported by hospitals. BioSense Platform is a national system sponsored by the Centers for Disease Control and Prevention (CDC).

Hospitals sign a Data Use Agreement (DUA) with ADHS to submit SS data to the BioSense Platform. Local Public Health Jurisdictions (LPHJs) sign a DUA with ADHS before gaining access to the data reported by hospitals. The signing of DUAs completes the legal and administrative duties associated with SS data exchange. LPHJs and ADHS are granted access to the data in two formats: 1) a Visualization Site; 2) the data stored in the jurisdictional database view. The jurisdictional database view is a state-controlled area which contains all the SS data reported by Arizona hospitals to BioSense Platform. ADHS and LPHJs staff will utilize this information to support fulfillment of the CDC's Ten Essential Public Health Services.

Data Sources and Data Sharing

The data sources for the BioSense Platform are hospitals and emergency departments, also referred to as *Data Providers*, sending patient visit information as a single message. This message summarizes aspects of the patient visit that are useful for Public Health and is sent in the HL7 format to ensure the message is compliant with national standards. Any subsequent visit updates are captured as well and included as updates to the original data submitted. All patient visits are bundled into batches and sent by hospitals and

emergency departments to the BioSense Platform for processing. At the hospital, *Data Managers* are responsible for ensuring the data submissions are occurring daily and are in the proper format. The CDC is permitted by the State of Arizona to view data in the Visualization Site as a collaborator. They are not permitted to remove or publish data without express consent and notification from the Arizona Department of Health Services.

How Data is Stored and Secured

The storage infrastructure is supported by Amazon Web Services (AWS) and meets Federal Information Security Management Act (FISMA) requirements. The Amazon S3 storage maintains multiple copies of data to ensure disaster recovery activities are implementable. In addition, the BioSense Platform information is backed-up nightly and reviewed monthly for completeness and correctness of data. Data is stored in a distributed storage format as a countermeasure against data loss. Authentication mechanisms are deployed to ensure data resources are secured from unauthorized access and only retrievable by data owners. Please consult the Syndromic Surveillance Community of Practice Portal for more information and updates: https://www.syndromicsurveillance.org/biosense/onboarding/guide/data_security/index.html

IMPLEMENTATION GUIDE OVERVIEW

The AZ SS Implementation Guide Version 2.0 is based on these sources:

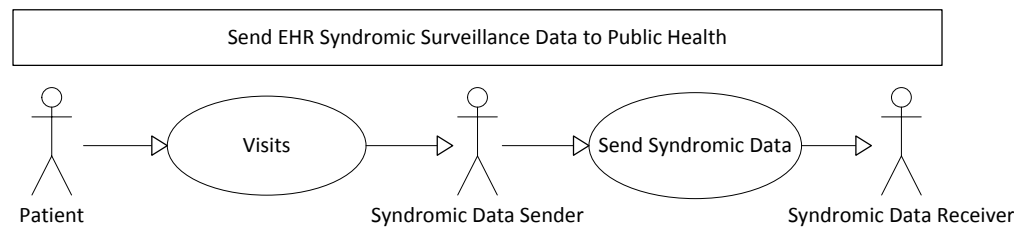
- 1) Arizona Syndromic Surveillance Implementation Guide (AZSSIG) for Critical Access Hospitals (CAHs) and Eligible Hospitals (EHs) Version 1.0, June 2014
- 2) [PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent Care, Inpatient and Ambulatory Care Settings, Release 2.0 , April, 2015](#)
- 3) [Erratum to the CDC PHIN 2.0 Implementation Guide, August 2015](#)
- 4) [NIST Clarifications and Validation Guidelines for Syndromic Surveillance Certification Testing , Version 1.6, October 2017](#)

The guide has been further constrained in conformance with the aforementioned source documents to guide hospitals and emergency room departments in Arizona. The AZ SS Implementation Guide is not intended to replace the PHIN Messaging Guide for Syndromic Surveillance; this guide is a *supplement* to the national sources. For additional information, please refer to the Syndromic Surveillance webpage on the ADHS website: azdhs.gov/meaningful-use/syndromic-surveillance.

USE CASE MODEL

The AZ SS Implementation Guide use case model focuses on the transmission of electronic health data from hospitals (Syndromic data senders) to the BioSense Platform (Syndromic data receiver) on behalf of ADHS, the Public Health Authority (PHA) (see figure 1.1). An inpatient or emergency department patient visit is the trigger for the data being sent from the hospital to the PHA. The health data is captured in an EHR during the patient's visit to the hospital. The health data is then sent by the hospital to the PHA. The hospital must be capable of generating and transmitting HL7 messages containing the patient visit data semantically and syntactically consistent with the syndromic data receiver's requirements. The syndromic data sender may be the aggregator of the data – e.g. the EHR vendor or the hospital. The receiving entity is identified as the BioSense Platform which serves as the SS data receiver and data processor on ADHS's behalf. The goal of the use case is to provide secure, reliable delivery of batches of SS data to PHAs.

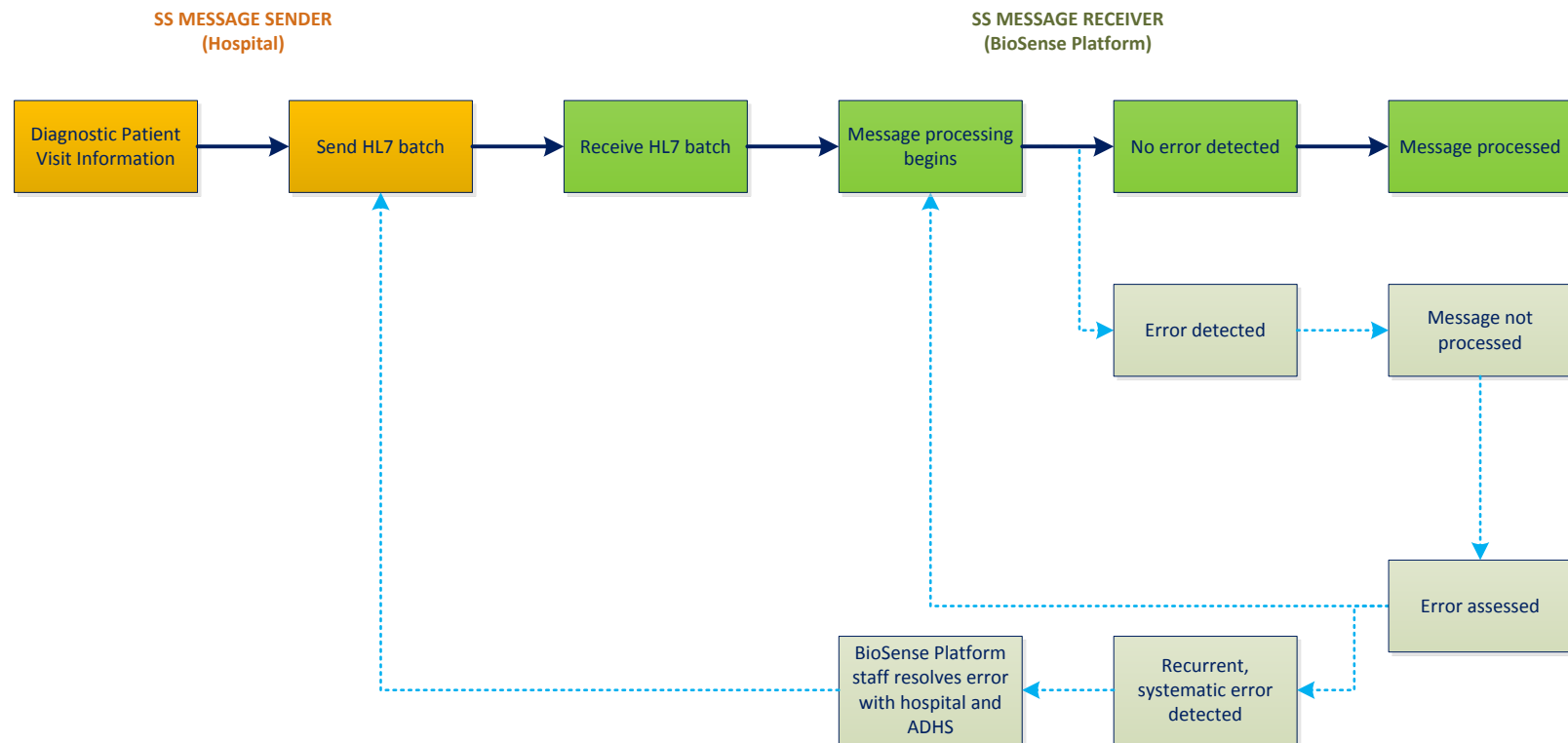
FIGURE 1.1 – AZ SS Implementation Guide Use Case Model



OVERVIEW – INTERACTION DYNAMICS

The AZ SS Implementation Guide supports a regularly monitored, unidirectional batch messaging protocol in which the hospital sender transmits a batch of patient visit information. The batch messaging protocol does not allow acknowledgement messages to be exchanged between the sending and receiving applications. Acknowledgement messages are outside the scope of this document. If the receiving application encounters an error with an incoming HL7 message, the NSSP team and ADHS will examine the source of the error. Recurrent sender errors identified by NSSP or ADHS will be reported to the hospital for root cause analysis. The hospital will make the necessary changes and resubmit the message(s).

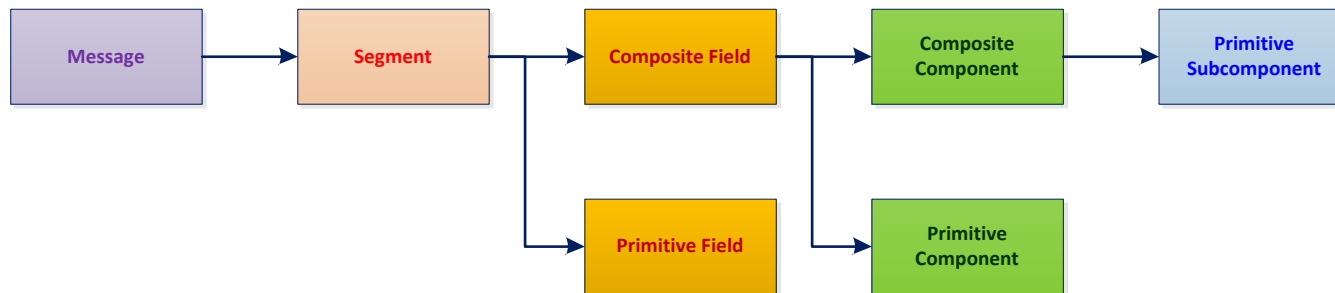
FIGURE 1.2 – Batch Messaging Protocol Interaction Model



HL7 MESSAGE FRAMEWORK

Implementers will benefit from understanding the basics of the HL7 message framework including the way in which information is organized in a **message** (see Figure 1.3). A standard HL7 **message** is comprised of a group of **segments**, which are arranged in a defined sequence. Each **segment** is comprised of a group of **fields** that are also organized in a defined sequence. **Fields** may be divided into **components**, which may be further divided into **subcomponents**, depending on their *data types*. *Data types* are largely divided into two categories: (1) *Primitive* data types are populated as string or numeric values. (2) *Composite* data types are an arranged group of values. For example, fields with composite data types are divided into a group of **components**. **Components** may again be either primitive or composite. **Components** with composite data types consist of **subcomponents**, which are always assigned primitive data types.

FIGURE 1.3 – Data Element Hierarchy in a Standard HL7 Message



When constructing a message, special characters should be designated as delimiter values to separate segments, fields, components and subcomponents. Special characters may also differentiate multiple occurrences of data elements and special formats within a field, where allowed (see Table 1.1). These characters are designated in the first two fields of the message header segment (MSH)—segment beginning a new message—and establish delimitation rules throughout the message. Due to the use of the batch messaging protocol, delimiter values also appear in the first two fields of the file header (FHS) and batch header (BHS) segments. Specific examples on how delimiter values are used, along with detailed explanations, are provided in the subsequent pages of this guide. Standard HL7 delimiters shown in Table 1.1 are required for Arizona SS implementations. Further information on delimiters can be obtained in the full HL7 version 2.5.1 standard.

TABLE 1.1 – HL7 Standard Message Delimiters

Delimiter	Required Value	Description
Segment Terminator	<cr>	ASCII-013 carriage return character used to terminate a segment record. This value cannot be changed by implementers.
Field Separator		Separates two adjacent data fields within a segment. It also separates the segment ID from the first data field in each segment.
Component Separator	^	Separates adjacent components within a field.
Repetition Separator	~	Separates multiple occurrences of a field where allowed.
Escape Character	\	Used in instances where special character formatting is needed.
Subcomponent Separator	&	Separates adjacent subcomponents within a component.

HL7 MESSAGING CONVENTIONS

The HL7 messaging conventions used in this implementation guide strictly adhere to the PHIN Messaging Guide for SS. Table 1.2 provides definitions of the attributes that appear throughout this guide. The descriptions provided below are summarized based on the source document. Please consult the HL7 2.5.1 standard for additional clarifications.

TABLE 1.2 – Message Element Attributes	
Attribute	Definition
SEQ	Sequence of the elements as numbered in the HL7 message element.
Message Structure	Contains three-character code for the segments—e.g. MSH, EVN, PID—and the following abstract syntax: XXX Required [XXX] Optional { XXX } Repeating { { XXX } } Optional and repeating – synonymous with { [XXX] } Segment groups can also be expressed within the braces and brackets.
LEN	Maximum length of the element. Lengths are provided only for primitive data types, and should be considered recommendations, not absolutes.
DT	Data type. Determines the format in which the field, component or subcomponent is to be populated.
Usage	Usage of the segment, segment group or field. R Required RE Required, but can be empty if the information is unavailable. If the sender has the data, it should be sent. C Requirement is conditional on other field(s) – Description/Comments section describes the algorithm defining the conditionality. X Not used in this guide
Cardinality	Minimum and maximum number of times the message element may appear. [0..0] Field never present [0..1] May be omitted or have no more than one occurrence [0..*] May be omitted or repeat an unlimited number of times [1..1] Exactly one occurrence [1..*] At least one occurrence and may repeat an unlimited number of times
TBL#	HL7 defined or external table used for the field.
Element Name	HL7 descriptor of the message element.
Required/Recommended/Literal Value	Value and usage designations for components and subcomponents. Required Element is required for the message to be considered complete. Recommended Element must be populated if the information is available. Literal Absolute value for the element that must appear in the message exactly as shown.
Description/Comments	Context and usage for the element.

ADMISSION, DISCHARGE, AND TRANSFER (ADT) MESSAGE STRUCTURE

This guide is specific to the Admission, Discharge, and Transfer (ADT) use case specifications for the data exchange of core Syndromic Surveillance elements from healthcare providers to Public Health. It has been constructed to highlight data element usage requirements and utilize the color gray to indicate an unused segment or attribute. As shown below, a **file** is comprised of a single **batch** containing an unlimited number of **messages**. Enclosed within each **message** is a series of segments which possess their own attributes. For example, a single message may contain an unlimited number of observations, diagnoses and procedures. Because of this, it is important the message headers are arranged in their respective segment groups.

Also note there are two different ADT message structures, defined by the trigger events. If the hospital is sending an A01 (Admit/Visit Notification), A04 (Register a Patient), or A08 (Update Patient Information) message, the message structure indicated below is required. Please note these trigger events require a different order for the OBX, DG1, and PR1 segments within the message structure when compared to Table 1.4.

TABLE 1.3 – Message Structure for ADT^A01, ADT^A04 and ADT^A08			
Message Structure	Segment Description	Usage	Cardinality
FHS	File Header	R	[1..1]
BHS	Batch Header	R	[1..1]
{	— <i>Message begins</i>	R	[1..*]
MSH	Message Header	R	[1..1]
EVN	Event Type	R	[1..1]
PID	Patient Identification	R	[1..1]
PV1	Patient Visit	R	[1..1]
[PV2]	Patient Visit Additional Information	RE	[0..1]
{ OBX }	Observation/Result	R	[1..*]
{ DG1 }	Diagnosis	RE	[0..*]
{ PR1 }	Procedures	O	[0..*]
{ IN1 }	Insurance	O	[0..*]
}	— <i>Message ends</i>		
BTS	Batch Trailer	R	[1..1]
FTS	File Trailer	R	[1..1]

For trigger events A01 (Admit/Visit Notification), A04 (Register a Patient) and A08 (Update Patient Information), the above ADT message structure is used.

HL7 ADT MESSAGE STRUCTURE (Continued)

If the facility is sending an A03 (Discharge/End Visit) message, the message structure indicated below in Table 1.4 is required. Please note this trigger event requires a different order for the **OBX**, **DG1**, and **PR1** segments within the message structure in comparison to Table 1.3.

TABLE 1.4 – Message Structure for ADT^A03			
Message Structure	Segment Description	Usage	Cardinality
FHS	File Header	R	[1..1]
BHS	Batch Header	R	[1..1]
{	— <i>Message begins</i>	R	[1..*]
MSH	Message Header	R	[1..1]
EVN	Event Type	R	[1..1]
PID	Patient Identification	R	[1..1]
PV1	Patient Visit	R	[1..1]
[PV2]	Patient Visit Additional Information	RE	[0..1]
[{ DG1 }]	Diagnosis	RE	[0..*]
[{ PR1 }]	Procedures	O	[0..*]
{ OBX }	Observation/Result	R	[1..*]
[{ IN1 }]	Insurance	O	[0..*]
}	— <i>Message ends</i>		
BTS	Batch Trailer	R	[1..1]
FTS	File Trailer	R	[1..1]

For trigger event A03 (Discharge/End Visit), the above message structure is used.

HOW TO READ HL7 SEGMENTS

This section provides a quick tutorial for first-time implementers of HL7 on the basics regarding how to read, understand and analyze the contents within HL7 segments.

Figure 1.4 illustrates a sample MSH segment, in which the fields and components are read in sequence. The segment begins with a three-letter segment ID that determines the arrangement of contents throughout the rest of the segment. MSH-1 indicates the field separator and MSH-2 indicates the set of delimiter values. Designating special characters in the first two fields of MSH establishes delimitation rules throughout the message, allowing MSH-3 and all subsequent segments to be separated using the appropriate delimiter values. In the case of batch messaging protocol, delimiter values also appear in the first two fields of the file header (FHS) and batch header (BHS) segments. Special characters must always be be positioned in the fixed order shown below.

FIGURE 1.4 – Sample Message Header Segment

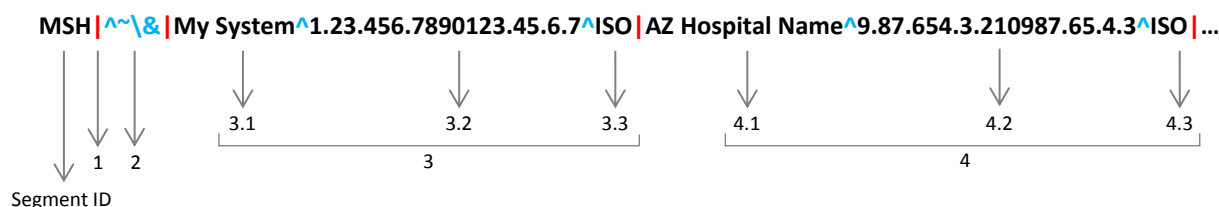
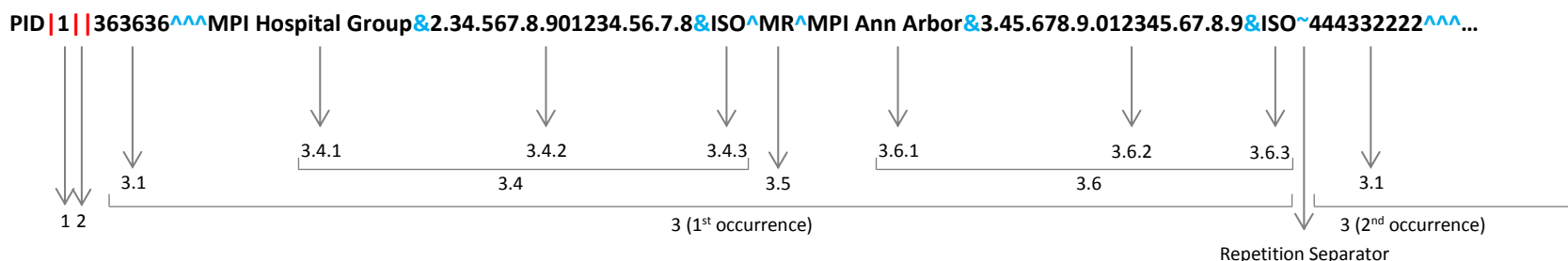


Figure 1.5 demonstrates the process of reading the fields, components and subcomponents within a sample PID segment. It is important to note that PID-1 is the value populated after the first field separator. This is because the delimiter values are already established in the MSH segment, which precedes the PID segment. PID-2 is not present since there is no populated value between the enclosing field separators. PID-3 is a large field comprised of components and subcomponents, all of which are separated by the designated delimiters. PID-3.2 and 3.3 are not present for the same reason that applies to PID-2. PID-3.4 and 3.6 are each divided into three subcomponents. A repetition separator marks the end of the first occurrence of PID-3 as well as the beginning of the second occurrence, which begins with its own first component.

FIGURE 1.5 – Sample Patient Identification Segment



The segment terminator, <cr>, is the ASCII-013 carriage return character used to terminate segments. It is important to note that the segment terminator is not a literal value that visibly appears at the end of segments and therefore *must not be manually entered into a message*. Special formatting is not essential to the use case described in this implementation guide. Therefore examples regarding the use of escape characters are not covered in this section. Implementers who wish to learn more about the escape characters are encouraged to refer to the full HL7 version 2.5.1 standard for detailed explanations and examples.

SEGMENT DESCRIPTIONS

Detailed specifications of the segments used in SS messaging implementations are provided in the subsequent pages. Unsupported data elements in this guide have been shaded gray for distinction. There are notes in the “Description/Comments” field to assist implementers to identify Inpatient Data Elements outlined in the PHIN guide, version 2.0. Example data is provided at each segment for quick reference and guidance. With the exception of values that are specified as literal values, example data should not be used. Implementers are encouraged to refer to the full HL7 version 2.5.1 Standard for comprehensive overview of data types and any additional clarifications.

FHS – FILE HEADER SEGMENT

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

FHS – File Header Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	1	ST	R	[1..1]		File Field Separator		Default Value “ ”.
2	4	ST	R	[1..1]		Encoding Characters	^~\&	^ = Component Separator ~ = Repetition Separator \ = Escape Character & = Subcomponent Separator
3	227	HD	R	[1..1]		File Sending Application	Application Name ^ Application ID ^ ID Type	Sender can use an Object Identifier (OID) or a National Provider Identifier (NPI)
4	227	HD	R	[1..1]		File Sending Facility	Facility Name ^ Facility ID ^ ID Type	
5	227	HD	R	[1..1]		File Receiving Application	BioSense^2.16.840.1.113883.3.1673^ISO	
6	227	HD	R	[1..1]		File Receiving Facility	BioSense^2.16.840.1.113883.3.1673^ISO	
7	26	TS	R	[1..1]		File Creation Date/Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]]+/-ZZZZ	The minimum granularity is to the nearest minute. Include time zone offset.
8	40	ST	X	[0..1]		File Security		Not used.
9	20	ST	RE	[0..1]		File Name/ID		
10	80	ST	RE	[0..1]		File Header Comment		
11	199	ST	RE	[0..1]		File Control ID		
12	20	ST	RE	[0..1]		Reference File Control ID		

Example Data:

FHS| ^~\&| My App^1.23.456.7.890123.45.6.7^ISO| My Facility^9.87.654.3.210987.65.4.3^ISO| BioSense^2.16.840.1.113883.3.1673^ISO| BioSense^2.16.840.1.113883.3.1673^ISO| 20170507174500-0700

BHS – BATCH HEADER SEGMENT

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

BHS – Batch Header Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	1	ST	R	[1..1]		Batch Field Separator		Default Value “ ”.
2	4	ST	R	[1..1]		Batch Encoding Characters	^~\&	^ = Component Separator ~ = Repetition Separator \ = Escape Character & = Subcomponent Separator
3	227	HD	R	[1..1]		Batch Sending Application	Application Name ^ Application ID ^ ID Type	
4	227	HD	R	[1..1]		Batch Sending Facility	Facility Name ^ Facility ID ^ ID Type	
5	227	HD	R	[1..1]		Batch Receiving Application	BioSense^2.16.840.1.113883.3.1673^ISO	
6	227	HD	R	[1..1]		Batch Receiving Facility	BioSense^2.16.840.1.113883.3.1673^ISO	
7	26	TS	R	[1..1]		Batch Creation Date/Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]]/-ZZZZ	The minimum granularity is to the nearest minute. Include time zone offset.
8	40	ST	X	[0..1]		Batch Security		Not used.
9	20	ST	RE	[0..1]		Batch Name/ID		
10	80	ST	RE	[0..1]		Batch Header Comment		
11	20	ST	RE	[0..1]		Batch Control ID		
12	20	ST	RE	[0..1]		Reference Batch Control ID		

Example Data:

BHS| ^~\&| My App^1.23.456.7.890123.45.6.7^ISO| My Facility^9.87.654.3.210987.65.4.3^ISO| BioSense^2.16.840.1.113883.3.1673^ISO| BioSense^2.16.840.1.113883.3.1673^ISO| 20170507174500-0700

MSH – MESSAGE HEADER 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.

MSH – Message Header Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	1	ST	R	[1..1]		Field Separator		Default Value “ ”
2	4	ST	R	[1..1]		Encoding Characters	^~\&	^ = Component Separator ~ = Repetition Separator \ = Escape Character & = Subcomponent Separator
3	227	HD	R	[1..1]	0361	Sending Application	Application Name ^ Application ID ^ ID Type	
4	227	HD	R	[1..1]	0362	Sending Facility	Facility Name ^ Facility ID ^ ID Type	This field uniquely identifies the hospital associated with the application sending the message. National Provider Identifier (NPI) or an Object Identifier (OID) assigned to the facility can be used.
5	227	HD	R	[1..1]	0361	Receiving Application	BioSense^2.16.840.1.113883.3.1673^ISO	
6	227	HD	R	[1..1]	0362	Receiving Facility	BioSense^2.16.840.1.113883.3.1673^ISO	
7	26	TS	R	[1..1]		Date/Time of Message	YYYYMMDDHHMM[SS[.S[S[S[S]]]]]+/-ZZZZ	The minimum granularity is to the nearest minute. Include time zone offset.
8	40	ST	X	[0..0]		Security		Not used.
9	15	MSG	R	[1..1]	0076 0003 0354	Message Type	Message Code^Trigger Event^Message Structure	PHVS_MessageType_SyndromicSurveillance PHVS_EventType_SyndromicSurveillance PHVS_MessageStructure_SyndromicSurveillance
10	199	ST	R	[1..1]		Message Control ID	Message Control ID	This field is a number or other identifier that uniquely identifies the message.

MSH – Message Header Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
11	1	PT	R	[1..1]	0103	Processing ID	Processing ID	PHVS_ProcessingID_HL7_2x
12	5	VID	R	[1..1]		Version ID	2.5.1	HL7 Version number used to interpret format and content of the message.
13	15	NM	X	[0..0]		Sequence Number		Not used.
14	180	ST	X	[0..0]		Continuation Pointer		Not used.
15	2	ID	X	[0..0]	0155	Accept Ack. Type		Not used.
16	2	ID	X	[0..0]	0155	Application Ack. Type		Not used.
17	3	ID	X	[0..0]	0399	Country Code		Not used.
18	16	ID	X	[0..0]	0211	Character Set		Not used.
19	478	CE	X	[0..0]		Principal Language of Message		Not used.
20	20	ID	X	[0..0]	0356	Alternate Character Set		Not used.
21	427	EI	R	[1..1]		Msg. Profile Identifier	PH_SS-Batch^SS Sender^ 2.16.840.1.114222.4.10.3^ISO	Message Profile Identifier shall contain the constant value.

Example Data:

```
MSH|^~\&|My App^1.23.456.7.890123.45.6.7^ISO|My Facility^9.87.654.3.210987.65.4.3^ISO|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO|20170507174500-0700||ADT^A01^ADT_A01|V22147|P|2.5.1|||PH_SS-Batch^SS Sender^2.16.840.1.114222.4.10.3^ISO
```

EVN – EVENT TYPE SEGMENT

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

EVN – Event Type Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	3	ID	R	[1..1]	0003	Event Type Code	Event Type Code	PHVS_EventType_SyndromicSurveillance
2	26	TS	R	[1..1]		Recorded Date/Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]+/-ZZZZ	The minimum granularity is to the nearest minute. Include time zone offset.
3	26	TS	X	[0..0]		Date/Time Planned Event		Not used.
4	3	IS	X	[0..0]	0062	Event Reason Code		Not used.
5	309	XCN	X	[0..0]	0188	Operator ID		Not used.
6	26	TS	X	[0..0]		Event Occurred		Not used.
7	241	HD	R	[1..1]		Event Facility	Facility Name ^ National Provider Identifier ^NPI	Location where the patient was actually treated. PHIN recommends using the Organization Name Legal Business Name (LBN) associated with the National Provider Identifier (NPI) provided by Centers for Medicare and Medicaid Services (CMS). If an NPI is not available, PHIN recommends obtaining a different unique identifier, such as an OID.

Example Data:

EVN|A01|20170507090030-0700|||My Facility^1234567890^NPI

PID – PATIENT IDENTIFICATION SEGMENT

This segment provides basic demographics regarding the subject of the laboratory observation.

PID – Patient Identification Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	4	SI	R	[1..1]		Set ID	1	Only one patient per message is supported.
2	20	CX	X	[0..0]		Patient ID		Do not populate this field.
3	478	CX	R	[1..*]	0203	Patient Identifier List	Identifier ^^^ Assigning Authority Name & ID & ID Type ^MR^ Assigning Facility Name & ID & ID Type	PHVS_IdentifierType_SyndromicSurveillance The Medical Record number is placed in the 1 st component of the CX data type and the Identifier Type Code (MR) in the fifth component. Other patient identifiers may be sent in this field but MRN shall be the first instance.
4	20	CX	X	[0..0]		Alternative Patient ID – PID		Not used.
5	294	XPN	R	[1..*]		Patient Name	~^S	Syndromic Surveillance uses the Patient ID number to uniquely identify the patient, whereas HL7 does require this field even when reporting de-identified data. When the name of the patient is known, but not desired to be sent, use the following: ~^S When the name of the patient is not known, use the following: ~^U
6	294	XPN	X	[0..0]		Mother's Maiden Name		Not used.
7	20	TS	RE	[0..1]		Date/Time of Birth	YYYYMMDDHHMM	Hour and minute should only be sent if they are known.
8	1	IS	R	[1..1]	0001	Administrative Sex	Gender	PHVS_Gender_SyndromicSurveillance
9	294	XPN	X	[0..0]		Patient Alias		Not used.
10	478	CE	RE	[0..*]	0005	Race	Race (TBL# 0005) ^ Description ^CDCREC	PHVS_RaceCategory_CDC

PID – Patient Identification Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
11	513	XAD	RE	[0..1]	0190	Patient Address	Street Address ^ Other Designation ^ City ^ State/Province ^ ZIP/Postal Code ^ Country ^ Address Type (TBL# 0190) ^^ County/Parish Code (PHVS_County_FIPS_6-4)	PHVS_State_FIPS_5-2 PHVS_Country_ISO_3166-1 PHVS_AddressType_HL7_2x PHVS_County_FIPS_6-4
12	4	IS	X	[0..0]	0289	County Code		Not used.
13	250	XTN	X	[0..0]		Phone Number – Home		Not used.
14	250	XTN	X	[0..0]		Phone Number – Business		Not used.
15	478	CE	X	[0..0]		Primary Language		Not used.
16	478	CE	X	[0..0]	0002	Marital Status		Not used.
17	478	CE	X	[0..0]	0006	Religion		Not used.
18	250	CX	RE	[0..1]	0203	Patient Account Number	Identifier^^^ Assigning Authority Name & ID & ID Type ^ Identifier Type (TBL# 0203) ^ Assigning Facility Name & ID & ID Type	PHVS_IdentifierType_SyndromicSurveillance
19	16	ST	X	[0..0]		Social Security No. – Patient		Not used.
20	64	DLN	X	[0..0]		Driver's License No. – Patient		Not used.
21	250	CX	X	[0..0]		Mother's Identifier		Not used.
22	478	CE	RE	[0..1]		Ethnic Group	Ethnicity ^ Description ^CDCREC	PHVS_EthnicityGroup_CDC_Unk
23	250	ST	X	[0..0]		Birth Place		Not used.
24	1	ID	X	[0..0]	0136	Multiple Birth Indicator		Not used.

PID – Patient Identification Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
25	2	NM	X	[0..0]		Birth Order		Not used.
26	478	CE	X	[0..0]	0171	Citizenship		Not used.
27	478	CE	X	[0..0]	0172	Veterans Military Status		Not used.
28	478	CE	X	[0..0]	0212	Nationality		Not used.
29	26	TS	CE (A03) CE (A08) CE (A04) X (A01)	[0..1] (A03) [0..1] (A08) [0..1] (A04) [0..0] (A01)		Patient Death Date/Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]]+/-ZZZZ	This field contains the date and time at which the patient death occurred. If valued, it SHALL be expressed with a minimum precision of the nearest minute. The minimum granularity is to the nearest minute. Include time zone offset. If valued, PID-30 (Patient Death Indicator) SHALL be valued to the Literal Value 'Y'. If PV1-36 is valued with any of the following: '20', '40', '41', '42' then both PID-29 (Patient Death Date and Time) and PID-30 (Patient Death Indicator) SHALL be populated.
30	1	ID	CE (A03) CE (A08) CE (A04) X (A01)	[0..1] (A03) [0..1] (A08) [0..1] (A04) [0..0] (A01)	0136	Patient Death Indicator	Yes/No Indicator	PHVS YesNo HL7 2x If PID-29 is valued, this field must be a Y since the patient is known to be deceased. If PV1-36 is valued with any of the following: '20', '40', '41', '42' then both PID-29 (Patient Death Date and Time) and PID-30 (Patient Death Indicator) SHALL be populated.
31	1	ID	X	[0..0]	0136	ID Unknown Indicator		Not used.

PID – Patient Identification Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
32	20	IS	X	[0..0]	0445	Identity Reliability Code		Not used.
33	26	TS	RE	[0..1]		Last Update Date/Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]]/+/-ZZZZ	This field contains the last update date and time for the patient's identifying and demographic data. If valued, it SHALL be expressed with a minimum precision of the nearest minute. The minimum granularity is to the nearest minute. Include time zone offset.
34	241	HD	RE	[0..1]		Last Update Facility	Facility Name ^ Facility ID ^ ID Type	This field identifies the facility of the last update to a patient's identifying and demographic data, as defined in the PID segment.
35	478	CE	X	[0..0]	0446	Species Code		Not used.
36	478	CE	X	[0..0]	0447	Breed Code		Not used.
37	80	ST	X	[0..0]		Strain		Not used.
38	478	CE	X	[0..0]	0429	Production Class Code		Not used.
39	697	CWE	X	[0..0]		Tribal Citizenship		Not used.

Example Data:

PID|1||1234567^^^^MR||~^^^^^S||19650705|M||2106-3^White^CDCREC|1111 W Anywhere Drive^^PHOENIX^AZ^85035^^^^04019|||||UM1000073^^^^AN||||2186-5^Not Hispanic^CDCREC|||||201703071130-0700|Y||201703071200-0700|My Hospital^5262526282^NPI

PV1 – PATIENT VISIT SEGMENT

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

PV1 – Patient Visit Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	4	SI	RE	[0..1]		Set ID	1	Only one patient per message is supported.
2	1	IS	R	[1..1]	0004	Patient Class	Patient Class	PHVS PatientClass SyndromicSurveillance
3	1220	PL	RE	[0..1]	0305	Assigned Patient Location	Point of Care ^ Room ^ Bed ^ Facility Name & Facility ID & ID Type ^ Location Status ^ Person Location Type & Description &HL70305 ^ Building ^ Floor ^ Location Description	PHVS HealthcareServiceLocation Syndromic
4	2	IS	RE	[0..1]	0007	Admission Type	Admission Type	PHVS AdmissionType HL7 2x
5	250	CX	X	[0..0]		Pre-Admit Number		Not used.
6	1220	PL	RE	[0..1]	0305	Prior Patient Location	Point of Care ^ Room ^ Bed ^ Facility Name & Facility ID & ID Type ^ Location Status ^ Person Location Type & Description &HL70305 ^ Building ^ Floor ^ Location Description	PHVS HealthcareServiceLocation Syndromic
7	309	XCN	RE	[0..*]		Attending Doctor	Person Identifier ^ Family Name ^ Given Name ^^ Suffix ^ Prefix ^ Degree ^^Assigning Authority Name & ID & ID Type ^^^^^ Assigning Authority Name & ID & ID Type	PHIN Guide recommends using the NPI Standard assigned by CMS.
8	309	XCN	X	[0..*]	0010	Referring Doctor		Not used.
9	309	XCN	X	[0..0]	0010	Consulting Doctor		Not used.
10	3	IS	RE	[0..1]	0069	Hospital Service	Hospital Service	HL7 user-defined table #0069
11	1220	PL	X	[0..0]		Temporary Location		Not used.
12	2	IS	X	[0..0]	0087	Pre-Admit Test Indicator		Not used.

PV1 – Patient Visit Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
13	2	IS	X	[0..0]	0092	Re-admission Indicator		Not used.
14	6	IS	RE	[0..1]	0023	Admit Source	Admit Source	PHVS_AdmitSource_HL7_2x
15	2	IS	RE	[0..1]	0009	Ambulatory Status	Ambulatory Status	Field indicates any permanent or transient impairment. HL7 user-defined table #0009
16	2	IS	X	[0..0]	0099	VIP Indicator		Not used.
17	309	XCN	X	[0..0]	0010	Admitting Doctor		Not used.
18	2	IS	X	[0..0]	0018	Patient Type		Not used.
19	478	CX	R	[1..1]	0203	Visit Number	Identifier ^^^ Assigning Authority Name & ID & ID Type ^VN^ Assigning Facility Name & ID & ID Type	PHVS_IdentifierType_SyndromicSurveillance
20	50	FC	X	[0..0]	0064	Financial Class		Not used.
21	2	IS	X	[0..0]	0032	Charge Price Indicator		Not used.
22	2	IS	X	[0..0]	0045	Courtesy Code		Not used.
23	2	IS	X	[0..0]	0046	Credit Rating		Not used.
24	2	IS	X	[0..*]	0044	Contract Code		Not used.
25	8	DT	X	[0..*]		Contract Effective Date		Not used.
26	12	NM	X	[0..*]		Contract Amount		Not used.
27	3	NM	X	[0..*]		Contract Period		Not used.
28	2	IS	X	[0..0]	0073	Interest Code		Not used.

PV1 – Patient Visit Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
29	4	IS	X	[0..0]	0110	Transfer to Bad Debt Code		Not used.
30	8	DT	X	[0..0]		Transfer to Bad Debt Date		Not used.
31	10	IS	X	[0..0]	0021	Bad Debt Agency Code		Not used.
32	12	NM	X	[0..0]		Bad Debt Transfer Amt.		Not used.
33	12	NM	X	[0..0]		Bad Debt Recovery Amt.		Not used.
34	1	IS	X	[0..0]	0111	Delete Account Indicator		Not used.
35	8	DT	X	[0..0]		Delete Account Date		Not used.
36	3	IS	R (A03) RE (A08) X (A04, A01)	[1..1] (A03) [0..1] (A08) [0..0] (A04, A01)	0112	Discharge Disposition	Discharge Disposition	PHVS_DischargeDisposition_HL7_2x Required for ADT_A03 message type; Required for ADT_A08 message type if patient is discharged; Element not supported in ADT_A01 and ADT_A04 messages.
37	47	DLD	X	[0..0]	0113	Discharged to Location		Not used.
38	478	CE	X	[0..0]	0114	Diet Type		Not used.
39	2	IS	X	[0..0]	0115	Servicing Facility		Not used.
40	1	IS	X	[0..0]	0116	Bed Status		Not used.
41	2	IS	X	[0..0]	0117	Account Status		Not used.
42	1220	PL	X	[0..0]		Pending Location		Not used.
43	1220	PL	X	[0..0]		Prior Temp. Location		Not used.
44	26	TS	R	[1..1]		Admit Date/Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]+/-ZZZZ	The minimum granularity is to the nearest minute. Include time zone offset.

PV1 – Patient Visit Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
45	26	TS	RE (A08) X (A01) X (A04) R (A03)	[0..1] (A08) [0..0] (A01) [0..0] (A04) [1..1] (A03)		Discharge Date/Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]]+/-ZZZZ	The minimum granularity is to the nearest minute. Include time zone offset. Required field for a Discharge message (A03).
46	12	NM	X	[0..0]		Current Patient Balance		Not used.
47	12	NM	X	[0..0]		Total Charges		Not used.
48	12	NM	X	[0..0]		Total Adjustments		Not used.
49	12	NM	X	[0..0]		Total Payments		Not used.
50	250	CX	X	[0..0]	0203	Alternate Visit ID		Not used.
51	1	IS	X	[0..0]	0326	Visit Indicator		Not used.
52	309	XCN	X	[0..0]	0010	Other Healthcare Provider		Not used.

Example Data:

PV1|1|E|1027-2^3A^3-106^My Hospital&5262526282^&NPI|E||1108-0^^^My Hospital&5262526282^&NPI
|122338^Goodman^John^^^^MD|||MED|7|A0|||93836182^^^VN|||||||01|||||201705151200-0700|201705171300-0700

PV2 – PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT

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

PV2 – Patient Visit – Additional Information Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	1220	PL	X	[0..0]		Prior Pending Location		Not used.
2	478	CE	X	[0..0]	0129	Accommodation Code		Not used.
3	478	CE	RE	[0..1]		Admit Reason	Identifier ^ Text ^ Coding System	PHVS AdministrativeDiagnosis_ICD-10CM OR PHVS Disease CDC Free text documented in PV2-3.2.
4	478	CE	X	[0..1]		Transfer Reason		Not used.
5	25	ST	X	[0..*]		Patient Valuables		Not used.
6	25	ST	X	[0..1]		Pat. Valuables Location		Not used.
7	2	IS	X	[0..*]	0130	Visit User Code		Not used
8	26	TS	X	[0..1]		Expected Admit Date/Time		Not used.
9	26	TS	X	[0..1]		Expected Discharge D/T		Not used.
10	3	NM	X	[0..1]		Est. Length of Inpatient Stay		Not used.
11	3	NM	X	[0..1]		Act. Length of Inpatient Stay		Not used.
12	50	ST	X	[0..1]		Visit Description		Not used.
13	309	XCN	X	[0..*]		Referral Source Code		Not used.
14	8	DT	X	[0..1]		Previous Service Date		Not used.
15	1	ID	X	[0..1]	0136	Employment Illness Indicator		Not used.

PV2 – Patient Visit – Additional Information Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
16	1	IS	X	[0..1]	0213	Purge Status Code		Not used.
17	8	DT	X	[0..1]		Purge Status Date		Not used.
18	2	IS	X	[0..1]	0214	Special Program Code		Not used.
19	1	ID	X	[0..1]	0136	Retention Indicator		Not used.
20	1	NM	X	[0..1]		Exp. Number of Insurance Plans		Not used.
21	1	IS	X	[0..1]	0215	Visit Publicity Code		Not used.
22	1	ID	X	[0..1]	0136	Visit Protection Indicator		Not used.
23	250	XON	X	[0..*]		Clinic Org. Name		Not used.
24	2	IS	X	[0..1]	0216	Patient Status Code		Not used.
25	1	IS	X	[0..1]	0217	Visit Priority Code		Not used.
26	8	DT	X	[0..1]		Previous Rx Date		Not used.
27	2	IS	X	[0..1]	0112	Exp. Discharge Disposition		Not used.
28	8	DT	X	[0..1]		Signature on File Date		Not used.
29	8	DT	X	[0..1]		First Similar Illness Date		Not used.
30	478	CE	X	[0..1]	0218	Patient Charge Adjustment Cd.		Not used.
31	2	IS	X	[0..1]	0219	Recurring Service Code		Not used.
32	1	ID	X	[0..1]	0136	Billing Media Code		Not used.

PV2 – Patient Visit – Additional Information Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
33	26	TS	X	[0..1]		Exp. Surgery Date and Time		Not used.
34	1	ID	X	[0..1]	0136	Military Partnership Cd.		Not used.
35	1	ID	X	[0..1]	0136	Military Non-Availability Cd.		Not used.
36	1	ID	X	[0..1]	0136	Newborn Baby Indicator		Not used.
37	1	ID	X	[0..1]	0136	Baby Detained Indicator		Not used.
38	478	CE	X	[0..1]	0430	Mode of Arrival Code		Not used.
39	478	CE	X	[0..*]	0431	Recreational Drug Use Code		Not used.
40	478	CE	X	[0..1]	0432	Adm. Level of Care Code		Not used.
41	478	CE	X	[0..*]	0433	Precaution Code		Not used.
42	478	CE	X	[0..1]	0434	Patient Condition Code		Not used.
43	2	IS	X	[0..1]	0315	Living Will Code		Not used.
44	2	IS	X	[0..1]	0316	Organ Donor Code		Not used.
45	478	CE	X	[0..*]	0435	Advance Directive Code		Not used.
46	8	DT	X	[0..1]		Patient Status Effective Date		Not used.
47	26	TS	X	[0..1]		Exp. LOA Return D/T		Not used.
48	26	TS	X	[0..1]		Exp. Pre-Adm. Testing D/T		Not used.
49	20	IS	X	[0..*]	0534	Notify Clergy Code		Not used.

Example Data:

PV2|||K922^Gastrointestinal hemorrhage, unspecified^I10

OBX – OBSERVATION/RESULT SEGMENT

This segment is used to transmit observations related to the patient and visit.

OBX – Observation/Result Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	4	SI	R	[1..1]		Set ID	Set ID	OBX 1 ... OBX 2 ...
2	3	ID	R	[1..1]	0125	Value Type	Value Type	Identifies the structure of data in OBX-5. PHVS Value Type Syndromic Surveillance Supported values: TS, TX, NM, CWE, XAD
3	478	CE	R	[1..1]		Observation Identifier	Identifier (Syndromic Surveillance) ^ Description ^ Coding System ^ Alternate Identifier ^ Alternate Description ^ Alternate Coding Sys.	Identifies the data to be received in the observation value (OBX-5). See OBX-5 for specific values. PHVS Observation Identifier Syndromic Surveillance
4	20	ST	X	[0..1]		Obs. Sub-ID		Not used.
The OBX-5 field is used to transmit a variety of observations related to the patient and the visit. Reportable observations are outlined below based on Data Type.								
5	24	TS	RE	[0..1]		Date of Onset	YYYYMMDDHHMMSS+/-ZZZZ	Date of Onset OBX-3 = 11368-8^IllnessorInjuryOnsetDate andTime^LN OBX-5: Date of Onset For TS , the minimum acceptable precision is to the nearest day.
5	65536	TX	RE	[0..1]		Triage Note	Triage Note	Triage Note OBX-3 = 54094-8^ EmergencyDepartmentTriageNote^LN OBX-5: Triage Note Free Text
5	65536	TX	RE	[0..1]		Clinical Impression	Clinical Impression	Clinical Impression OBX-3 = 44833-2^PreliminaryDiagnosis^LN OBX-5: Clinical Impression Free Text

OBX – Observation/Result Segment (Continued)								
OBX-5 (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
5	65536	TX	RE	[0..*]		Medication List	Medication List	Current Medications Entered As Narrative OBX-3 = 10160-0^MedicationUse^LN OBX-5: Medication List Free Text Coded medication list should be reported using LOINC Code “8677-7” (See Page 34)
5	697	TX	RE	[0..*]		Chief Complaint	Original Text	Chief Complaint Text OBX-3 = 8661-1^ChiefComplaintReported^LN OBX-5: Chief Complaint Text If chief complaint is a coded field, use the text code description in OBX-5.
5	65536	TX	RE	[0..*]		Travel History	Travel History	Travel History As Narrative OBX-3 = 10182-4 ^HistoryOfTravelNarrative^LN OBX-5: Travel History Free Text Travel questions and their responses may be formatted into this text field. Example OBX-5: Travel within the past 30 days: yes;Travel Location: Mexico
5	16	NM	RE	[0..1]		Height	Body Height	Height OBX-3 = 8302-2^BodyHeight^LN OBX-5: Height OBX-6: Height Unit PHVS HeightUnit UCUM
5	16	NM	RE	[0..1]		Weight	Body Weight	Weight OBX-3 = 3141-9^BodyWeight^LN OBX-5: Weight OBX-6: Weight Unit PHVS WeightUnit UCUM

OBX – Observation/Result Segment (Continued)								
OBX-5 (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
5	16	NM	RE	[0..1]		Body Mass Index	Body Mass Index	Body Mass Index OBX-3 = 39156-5^Body Mass Index^LN OBX-5: Body Mass Index If BMI can be calculated within the EHR, then it is preferable to just receive BMI instead of height and weight
5	16	NM	RE	[0..1]		Initial Temperature	Body Temperature	Initial Temperature OBX-3 = 11289-6^BodyTemperature^LN OBX-5: Initial Temperature OBX-6: Temperature Unit PHVS TemperatureUnit UCUM
5	16	NM	RE	[0..1]		Systolic Blood Pressure	Systolic Blood Pressure	Systolic Blood Pressure OBX-3 = 8480-6^SystolicBloodPressure^LN OBX-5: Systolic Blood Pressure OBX-6: Unit of Measure PHVS BloodPressureUnit UCUM
5	16	NM	RE	[0..1]		Diastolic Blood Pressure	Diastolic Blood Pressure	Diastolic Blood Pressure OBX-3 = 8462-4^DiastolicBloodPressure^LN OBX-5: Diastolic Blood Pressure OBX-6: Unit of Measure PHVS BloodPressureUnit UCUM
5	16	NM	RE	[0..1]		Initial Pulse Oximetry	Initial Pulse Oximetry	Initial Pulse Oximetry OBX-3 = 59408-5^ OxygenSaturationinArterialBloodbyPulseOximetry^LN OBX-5: Initial Pulse Oximetry OBX-6: Pulse Oximetry Unit PHVS PulseOximetryUnit UCUM
5	16	NM	RE	[0..1]		Age	Age	Age OBX-3 = 21612-7^AgeReported^LN OBX-5: Age OBX-6: Age Unit PHVS AgeUnit SyndromicSurveillance

OBX – Observation/Result Segment (Continued)								
OBX-5 (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
5	697	CWE	RE	[0..1]		Smoking Status	Identifier ^ Description ^ Coding System ^ Alternate Identifier ^ Alternate Description ^ Alternate Coding Sys. ^ Coding Sys. Ver. ID ^ Alt. Coding Sys. Ver. ID ^ Original Text	Smoking Status OBX-3 = 72166-2^TobaccoSmokingStatus^LN OBX-5: Smoking Status PHVS SmokingStatus MU
5	697	CWE	RE	[0..1]		Pregnancy Status	Pregnancy Status	Pregnancy Status OBX-3 = 11449-6^PregnancyStatus^LN OBX-5: Pregnancy Status PHVS YesNoUnknown CDC
5	697	CWE	RE	[0..1]		Hospital Unit	Identifier ^ Description ^ Coding System ^ Alternate Identifier ^ Alternate Description ^ Alternate Coding Sys. ^ Coding Sys. Ver. ID ^ Alt. Coding Sys. Ver. ID ^ Original Text	Hospital Unit OBX-3 = 56816-2^HospitalUnit^LN OBX-5: Hospital Unit PHVS HealthcareServiceLocation Syndromic
5	697	CWE	RE	[0..1]		Hospital/Visit Type	Identifier ^ Description ^ Coding System ^ Alternate Identifier ^ Alternate Description ^ Alternate Coding Sys. ^ Coding Sys. Ver. ID ^ Alt. Coding Sys. Ver. ID ^ Original Text	Hospital/Visit Type OBX-3 = SS003^HOSPITAL/VISITTYPE^PHINQUESTION OBX-5: Visit Type PHVS FacilityVisitType SyndromicSurveillance
5	697	CWE	RE	[0..*]		Medications Prescribed or Dispensed	Identifier ^ Description ^ Coding System ^ Alternate Identifier ^ Alternate Description ^ Alternate Coding Sys. ^ Coding Sys. Ver. ID ^ Alt. Coding Sys. Ver. ID ^ Original Text	Current Medications Entered As Standardized Codes OBX-3 = 8677-7^MedicationUse^LN OBX-5: RxNorm Medication Code Free text medication list should be reported using LOINC Code “10160-0” (See Page 31)
5	697	CWE	RE	[0..1]		Initial Acuity	Identifier ^ Description ^ Coding System ^ Alternate Identifier ^ Alternate Description ^ Alternate Coding Sys. ^ Coding Sys. Ver. ID ^ Alt. Coding Sys. Ver. ID ^ Original Text	Initial Acuity OBX-3 = 11283-9^InitialAcuity^LN OBX-5: Emergency Severity Index value PHVS EmergencySeverityIndexAcuity CDC

OBX – Observation/Result Segment (Continued)								
OBX-5 (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
5	697	CWE	RE	[0..*]		Problem List	Identifier ^ Description ^ Coding System ^ Alternate Identifier ^ Alternate Description ^ Alternate Coding Sys. ^ Coding Sys. Ver. ID ^ Alt. Coding Sys. Ver. ID ^ Original Text	Problem List Problem List can be sent as SNOMED-CT or ICD-10-CM code. OBX-3 = 11450-4^ProblemList^LN OBX-5: Problem List
5	674	XAD	RE	[0..1]	0190	Facility Address	Street Address ^ Other Designation ^ City ^ State/Province ^ ZIP/Postal Code ^ Country ^ Address Type (TBL# 0190) ^^ County Code	Facility Address OBX-3 = SS002^TREATING FACILITY LOCATION^PHINQUESTION OBX-5: Treating facility physical address PHVS State FIPS 5-2 PHVS Country ISO 3166-1 PHVS AddressType HL7 2x PHVS County FIPS 6-4
OBX-5 ENDS								
6	62	CE	C	[0..1]		Units	Identifier ^ Description ^ Coding System ^ Alternate Identifier ^ Alternate Description ^ Alternate Coding Sys.	Required if OBX-2 is NM . Defines units for pulse oximetry, temperature, age, etc. See OBX-5 details for coding systems.
7	60	ST	X	[0..0]		Reference Range		Not used.
8	5	IS	X	[0..*]	0078	Abnormal Flags		Not used.
9	5	NM	X	[0..1]		Probability		Not used.
10	2	ID	X	[0..*]	0080	Nature of Abnormal Test		Not used.
11	1	ID	R	[1..1]	0085	Observation Result Status	Result Status	PHVS ObservationResultStatus HL7 2x
12	26	TS	X	[0..1]		Effective Date of Ref. Range		Not used.
13	20	ST	X	[0..1]		User-Defined Access Checks		Not used.
14	26	TS	RE	[0..1]		Date/Time of Observation	YYYYMMDDHHMM[SS.S[S[S[S]]]]+/-ZZZZ	The minimum granularity is to the nearest minute include time zone offset

OBX – Observation/Result Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
15	478	CE	X	[0..1]		Producer's ID		Not used.
16	309	XCN	X	[0..*]		Responsible Observer		Not used.
17	478	CE	X	[0..*]		Observation Method		Not used.
18	424	EI	X	[0..*]		Equipment Instance ID		Not used.
19	26	TS	X	[0..1]		Date/Time of Analysis		Not used.

Example Data:

OBX|1|TS|11368-8^Illness or Injury Onset Date and Time^LN||20170505220000-0700||||F||20170507085500-0700

OBX|2|TX|54094-8^Emergency Department Triage Note^LN||Intravenous fluids administered: Emergency Department||||F||20170507085500-0700

OBX|3|NM|21612-7^Age Reported^LN||28|a^Year^UCUM||||F||20170507085500-0700

OBX|4|NM|11289-6^Body Temperature^LN||99.1|[degF]^Fahrenheit^UCUM||||F||20170507085500-0700

OBX|5|TX|8661-1^Chief Complaint Reported^LN||Stomach Ache||||F||20170507085500-0700

OBX|6|CWE|11450-4^Problem_List^L||46635009^Diabetes mellitus type 1^SCT||||F||20170507085500-0700

OBX|7|CWE|11450-4^Problem_List^L||59621000^Essential hypertension^SCT||||F||20170507085500-0700

OBX|8|CWE|SS003^HOSPITAL/VISITTYPE^PHINQUESTION||261QE0002X^EMERGENCYCARE^HCPTNUCC||||F||20170507085500-0700

OBX|9|XAD|SS002^TREATINGFACILITYLOCATION^PHINQUESTION||1234 Anywhere Street^^Doraville^13^30341^USA^C^DEKALB||||F||20170507085500-0700

OBX|10|CWE|8677-7^Medication Use Reported^LN||151679^Serzone^RXNORM||||F||20170507085500-0700

OBX|11|NM|59574-4^Body Mass Index^LN||35|kg/m2^kilogram / (meter squared)^UCUM||||F||20170507085500-0700

OBX|12|XAD|SS002^TREATINGFACILITYLOCATION^PHINQUESTION||1234 Anywhere Street^^Doraville^13^30341^USA^C^DEKALB||||F||20170507085500-0700

OBX|13|TX|10160-0^Medication Use Reported^LN||Lasix 20 mg po bid, Simvastatin 40 mg po qd||||F||20170507085500-0700

OBX|14|TX|10182-4^History Of Travel Narrative^LN||Travel within the past 30 days: yes||||F||20170507085500-0700

OBX|15|CWE|11283-9^INITIAL ACUITY^LN||1^Resuscitation^CDCEDACUITY||||F||20170507085500-0700

DG1– DIAGNOSIS SEGMENT

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

DG1 – Diagnosis Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	4	SI	R	[1..1]		Set ID	Set ID	DG1 1 ... DG1 2 ...
2	2	ID	X	[0..1]	0053	Diagnosis Coding Method		Not used.
3	478	CE	R	[1..1]		Diagnosis Code	Identifier ^ Description ^ Coding System	PHVS AdministrativeDiagnosis_ICD-10CM OR PHVS Disease CDC The first diagnosis code should be the primary, if not, then send diagnosis priority in DG1-15 to identify the primary diagnosis code
4	40	ST	X	[0..0]		Diagnosis Description		Not used.
5	26	TS	RE	[0..1]		Diagnosis Date/Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]+/-ZZZZ	The minimum granularity is to the nearest minute. Include time zone offset
6	2	IS	R	(1..1)	0052	Diagnosis Type	Diagnosis Type	PHVS_DiagnosisType_HL7_2x
7	478	CE	X	[0..0]	0118	Mjr. Diagnostic Category		Not used.
8	478	CE	X	[0..0]	0055	Diagnostic Related Group		Not used.
9	1	ID	X	[0..0]	0136	DRG Approval Indicator		Not used.
10	2	IS	X	[0..0]	0056	DRG Grouper Review Code		Not used.
11	478	CE	X	[0..0]	0083	Outlier Type		Not used.
12	3	NM	X	[0..0]		Outlier Days		Not used.
13	538	CP	X	[0..0]		Outlier Cost		Not used.

DG1 – Diagnosis Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
14	4	ST	X	[0..0]		Grouper Version/Type		Not used.
15	2	ID	RE	[0..1]		Diagnosis Priority	Diagnosis Priority	PHVS DiagnosisPriority HL7 2x Diagnosis Priority = 1 for primary diagnosis
16	309	XCN	X	[0..*]		Diagnosing Clinician		Not used.
17	3	IS	X	[0..1]	0228	Diagnosis Classification		Not used.
18	1	ID	X	[0..1]	0136	Confidential Indicator		Not used.
19	26	TS	X	[0..1]		Attestation Date/Time		Not used.
20	427	EI	X	[0..1]		Diagnosis Identifier		Not used.
21	1	ID	X	[0..1]	0206	Diagnosis Action Code		Not used.

Example Data:

DG1|1||K922^Gastrointestinal hemorrhage, unspecified^I10||20170609085500-0700|A|||||||1

DG1|2||K3580^Unspecified acute appendicitis^I10||20170610122500-0700|W|||||||3

PR1– PROCEDURES SEGMENT

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

PR1 – Procedures Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	4	SI	R	[1..1]		Set ID	Set ID	PR1 1 ... PR2 2 ...
2	3	IS	X	[0..1]	0089	Procedure Coding Method		Not used.
3	478	CE	R	[1..1]	0088	Procedure Code	Identifier ^ Description ^ Coding System	Concept value from CPT OR PHVS AdministrativeProcedure CDC ICD-10PCS
4	40	ST	X	[0..0]		Procedure Description		Not used.
5	26	TS	R	[1..1]		Procedure Date and Time	YYYYMMDDHHMM[SS[.S[S[S[S]]]]]/-ZZZZ	The minimum granularity is to the nearest minute. Include time zone offset
6	2	IS	X	[0..1]	0230	Procedure Functional Type		Not used.
7	4	NM	X	[0..1]		Procedure Minutes		Not used.
8	309	XCN	X	[0..0]	0010	Anesthesiologist		Not used.
9	2	IS	X	[0..1]	0019	Anesthesia Code		Not used.
10	4	NM	X	[0..1]		Anesthesia Minutes		Not used.
11	309	XCN	X	[0..0]	0010	Surgeon		Not used.
12	309	XCN	X	[0..0]	0010	Procedure Practitioner		Not used.
13	478	CE	X	[0..1]	0059	Consent Code		Not used.
14	2	ID	X	[0..1]	0418	Procedure Priority		Not used.

PR1 – Procedures Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
15	478	CE	X	[0..1]	0051	Associated Diagnosis Code		Not used.
16	478	CE	X	[0..*]	0340	Procedure Code Modifier		Not used.
17	20	IS	X	[0..1]	0416	Procedure DRG Type		Not used.
18	478	CE	X	[0..*]	0417	Tissue Type Code		Not used.
19	427	EI	X	[0..1]		Procedure Identifier		Not used.
20	1	ID	X	[0..1]	0206	Procedure Action Code		Not used.

Example Data:

PR1|1||0HQ0XZZ^Repair Scalp Skin, External Approach^I10||20170903083500-0700

IN1– INSURANCE SEGMENT

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

IN1 – Insurance Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	4	SI	R	[1..1]		Set ID	Set ID	IN1 1 ... IN2 2 ...
2	478	CE	R	[1..1]	0072	Insurance Plan ID	Identifier ^ Description ^ Coding System	User defined table #0072 If Information is unavailable then use UNK^UNKNOWN^NULLFL
3	250	CX	R	[1..*]	0203	Insurance Company ID	Identifier ^^^ Assigning Authority Name & ID & ID Type ^ Identifier Type ^ Assigning Facility Name & ID & ID Type	PHVS UniversalIDTypeSyndromicSurveillance If Information is unavailable then use UNKNOWN^^^UNKNOWN
4	250	XON	X	[0..*]		Ins. Company Name		Not used.
5	513	XAD	X	[0..*]		Ins. Company Address		Not used.
6	294	XPN	X	[0..*]		Ins. Company Contact Person		Not used.
7	250	XTN	X	[0..*]		Ins. Company Phone Number		Not used.
8	12	ST	X	[0..1]		Group Number		Not used.
9	250	XON	X	[0..*]		Group Name		Not used.
10	250	CX	X	[0..*]		Insured's Group Emp. ID		Not used.
11	250	XON	X	[0..*]		Insured's Group Emp. Name		Not used.
12	8	DT	X	[0..1]		Plan Effective Date		Not used.
13	8	DT	X	[0..1]		Plan Expiration Date		Not used.
14	239	AUI	X	[0..1]		Authorization Information		Not used.

IN1 – Insurance Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
15	3	IS	RE	[0..1]	0086	Plan Type	Plan Type	Coding structure of plan types, Medicare, Medicaid, Blue Cross, etc. PHVS SourceOfPaymentTypology PHDSC
16	294	XPN	X	[0..*]		Name of Insured		Not used.
17	478	CE	X	[0..1]	0063	Insured's Rel. to Patient		Not used.
18	26	TS	X	[0..1]		Insured's Date of Birth		Not used.
19	513	XAD	X	[0..*]		Insured's Address		Not used.
20	2	IS	X	[0..1]	0135	Assignment of Benefits		Not used.
21	2	IS	X	[0..1]	0173	Coordination of Benefits		Not used.
22	2	ST	X	[0..1]		Coordination of Benefit Priority		Not used.
23	1	ID	X	[0..1]	0136	Notice of Admission Flag		Not used.
24	8	DT	X	[0..1]		Notice of Admission Date		Not used.
25	1	ID	X	[0..1]	0136	Report of Eligibility Flag		Not used.
26	8	DT	X	[0..1]		Report of Eligibility Date		Not used.
27	2	IS	X	[0..1]	0093	Release Info. Code		Not used.
28	15	ST	X	[0..1]		Pre-Admit Cert (PAC)		Not used.
29	26	TS	X	[0..1]		Verification Date/Time		Not used.
30	309	XCN	X	[0..*]		Verification By		Not used.
31	2	IS	X	[0..1]	0098	Type of Agreement Cd.		Not used.

IN1 – Insurance Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
32	2	IS	X	[0..1]	0022	Billing Status		Not used.
33	4	NM	X	[0..1]		Lifetime Reserve Days		Not used.
34	4	NM	X	[0..1]		Delay Before L. R. Day		Not used.
35	8	IS	X	[0..1]	0042	Company Plan Code		Not used.
36	15	ST	X	[0..1]		Policy Number		Not used.
37	538	CP	X	[0..1]		Policy Deductible		Not used.
38	538	CP	X	[0..0]		Policy Limit – Amount		Not used.
39	4	NM	X	[0..1]		Policy Limit – Days		Not used.
40	538	CP	X	[0..0]		Room Rate – Semi-Private		Not used.
41	538	CP	X	[0..0]		Room Rate – Private		Not used.
42	478	CE	X	[0..1]	0066	Insured – Emp. Status		Not used.
43	1	IS	X	[0..1]	0001	Insured – Admin. Sex		Not used.
44	513	XAD	X	[0..*]		Insured Employer Add.		Not used.
45	2	ST	X	[0..1]		Verification Status		Not used.
46	8	IS	X	[0..1]	0072	Prior Insurance Plan ID		Not used.
47	3	IS	X	[0..1]	0309	Coverage Type		Not used.
48	2	IS	X	[0..1]	0295	Handicap		Not used.

IN1 – Insurance Segment (Continued)								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
49	250	CX	X	[0..*]		Insured's ID Number		Not used.
50	1	IS	X	[0..1]	0535	Signature Code		Not used.
51	8	DT	X	[0..1]		Signature Code Date		Not used.
52	250	ST	X	[0..1]		Insured's Birth Place		Not used.
53	2	IS	X	[0..1]	0099	VIP Indicator		Not used.

Example Data:

IN1|1|T71^4353875^L|12345^^^Insurance com&2.34.567.8.901234.56.7.8&ISO^MCD^Facility&3.45.678.9.012345.67.8.9&ISO^HC|||||||35^BlackLung^PHDSC

BTS – BATCH TRAILER SEGMENT

This segment defines the end of a batch (group of messages).

BTS – Batch Trailer Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	10	NM	R	[1..1]		Batch Message Count	Batch Message Count	Total number of messages contained in the batch. This guide supports an unlimited number of messages in a single batch.
2	80	ST	RE	[0..1]		Batch Comment		
3	100	NM	X	[0..*]		Batch Totals		Not used.

Example Data:

BTS|354

FTS – FILE TRAILER SEGMENT

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

FTS – File Trailer Segment								
SEQ	LEN	DT	Usage	Cardinality	TBL#	Element Name	Required/Recommended/Literal Value	Description/Comments
1	10	NM	R	[1..1]		File Batch Count	1	Total number of batches contained in the file. One batch is allowed in a single file in this implementation guide.
2	80	ST	RE	[0..1]		File Trailer Comment		

Example Data:

FTS|1

SYNDROMIC SURVEILLANCE MESSAGING EXAMPLES

Two (2) case scenarios have been presented to illustrate how this Guide should be used for messaging syndromic surveillance information about a patient visit.

Case 1 - Emergency Department Visit:

On March 25th 2018, at 4:30 AM, a 78-year-old White, non-Hispanic male walked into Miracle Care Medical Center's Emergency Department (Facility Identifier: 2231237890). The patient was complaining of fever, cough and difficulty breathing. At 5:01 AM, A nurse assistant registered the patient into the ED registration system. She recorded the patient's name, date of birth, race, ethnicity, and residence and insurance information. She also entered the patient's chief complaint as, 'fever, cough, difficulty breathing.' At 9:38 AM, the attending physician examined the patient and ordered diagnostic lab tests for influenza infection. She updated the patient's medical record with working ICD-10-CM diagnosis codes of J10.1(Influenza due to other identified influenza virus with other respiratory manifestations) and J45.40(Moderate persistent asthma with acute exacerbation). J10.1 was the primary diagnosis code for this visit. Lab results later confirmed that the patient had type B flu. The patient was treated for influenza infection and asthma, over the course of the next 3 days, began to recover from the respiratory complications of his influenza infection. On March 28th 2018, at 1:00 PM the patient was discharged from the hospital to his home. After 3 days, all the final diagnosis codes and procedure codes were entered by a coder for services received by the patient during the visit.

The facility's electronic health record module for syndromic surveillance data assembles and transmits all the messages to Arizona Department of Health Services about this visit.

Patient visit at ED for treatment

On March 25, 2018 at 4:30 AM a 78 year-old White, non-Hispanic male walked into Miracle Care Medical Center's Emergency Department. At 5:01 AM the patient was registered by a nurse assistant. She recorded that the patient's reason for visit was "fever, cough, difficulty breathing."



A04

ADT A04 message is generated for patient registration.

See Example 1.1 below for sample registration message.

Diagnosis

At 9:38 AM the attending physician examined the patient and ordered diagnostic tests for influenza infection. The patient's medical record was updated with working ICD-10 diagnosis codes of J10.1 (Influenza due to other identified influenza virus with other respiratory manifestations) and J45.40 (Moderate persistent asthma with acute exacerbation). J10.1 was the primary diagnosis code for the visit.



A08

ADT A08 message is generated for updates during patient visit.

See Example 1.2 below for sample update message.

Discharge

The patient was treated for influenza infection and asthma over the course of the next 3 days and began to recover from the respiratory complications of his influenza infection.

On March 28, 2018 at 1:00 PM the patient was discharged from the hospital to his home.



A03

ADT A03 message is generated for hospital discharge.

See Example 1.3 below for sample discharge message.

Coding of final diagnosis

On March 31, 2018 the final diagnosis codes and procedure codes were entered by coders for services received by the patient during the visit.



A08

ADT A08 message is generated for updates after patient discharge.

See Example 1.4 below for sample update message.

1.1 A04 Event Type (ED Registration)

MSH|^~\&|App^1.23.456.7.890123.45.6.7^ISO|MiracleCareMC^2231237890^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO|20180325050100-0700||ADT^A04^ADT_A01|X123451111|P|2.5.1|||||PH_SS-Batch^SS Sender^2.16.840.1.114222.4.10.3^ISO|EVN|A04|20180325050100-0700||||MiracleCareMC^2231237890^NPI|PID|1||22236716^^^MiracleCareMC&2231237890&NPI^MR||~^S||19400216|M||2106-3^White^CDCREC|1111 W South Park|Dr^^PHOENIX^AZ^85035^^^04019|||||UM1000073^^^AN|||2186-5^Not Hispanic^CDCREC|||||20180325050100-0700|MiracleCareMC^2231237890^NPI|PV1|1|E|1108-0^^MiracleCareMC&2231237890&NPI|E||122338^Dixonderson^Sussane|||||222359^^MiracleCareMC&2231237890&NPI^VN|||||20180325050100-0700|OBX|1|TX|8661-1^ChiefComplaint^LN||Fever, Cough, difficulty breathing since 2130 last night.||||F||20180325050100-0700|OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^EmergencyCare^HCPTNUCC||||F||20180325050100-0700|OBX|3|NM|21612-7^Age-Reported^LN||78|a^^UCUM||||F||20180325050100-0700|OBX|4|NM|11289-6^BodyTemperature^LN||101.1|[degF]^Fahrenheit^UCUM||||F||20180325050100-0700|OBX|5|NM|59574-4^BodyMassIndex^LN||35|kg/m2^kilogram / (meter squared)^UCUM||||F||20180325050100-0700|OBX|6|NM|59408-5^OxygenSaturationinArterialBloodbyPulseOximetry^LN||94|%^Percent^UCUM||||F||20180325050100-0700|OBX|7|NM|8480-6^SystolicBloodPressure^LN||128|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180325050100-0700|OBX|8|NM|8462-4^DiastolicBloodPressure^LN||92|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180325050100-0700|OBX|9|TS|11368-8^IllnessorInjuryOnsetDateandTime^LN||20180324213000-0700||||F||20180325050100-0700|OBX|10|CWE|11283-9^InitialAcuity^LN||3^Urgent^CDCEDACUITY||||F||20180325050100-0700|OBX|11|CWE|56816-2^HospitalUnit^LN||1108-0^EmergencyDepartment^HSLOC||||F||20180325050100-0700|PR1|1||400084^BILEVEL VENT^L||20180325050100-0700|||||PR1|2||400114^MEDS CONTINUOUS^L||20180325050100-0700|||||PR1|3||NURS0886^INITIATE CARDIAC BIOMARKER PROCEDURE^L||20180325050100-0700|||||IN1|1|1234567^ABC123^L|99996666^^^WeCareUHIG&2.34.567.8.956.7.8&ISO^HC|||||92^Other(Non-government)^PHDSC

1.2 A08 Event Type (Update)

MSH|^~\&|App^1.23.456.7.890123.45.6.7^ISO|MiracleCareMC^2231237890^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO|20180325093800-0700||ADT^A08^ADT_A01|X123452222|P|2.5.1|||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO|EVN|A08|20180325093800-0700||||MiracleCareMC^2231237890^NPI|PID|1||22236716^^^MiracleCareMC&2231237890&NPI^MR||~^S||19400216|M||2106-3^White^CDCREC|1111 W South Park|Dr^^PHOENIX^AZ^85035^^^04019|||||UM1000073^^^AN|||2186-5^Not Hispanic^CDCREC|||||20180325093800-0700|MiracleCareMC^2231237890^NPI|PV1|1|E|1108-0^^MiracleCareMC&2231237890&NPI|E||122338^Dixonderson^Sussane|||||222359^^MiracleCareMC&2231237890&NPI^VN|||||20180325050100-0700|OBX|1|TX|8661-1^ChiefComplaint^LN||Fever, Cough, difficulty breathing since 2130 last night.||||F||20180325050100-0700

OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^EmergencyCare^HCPTNUCC||||F|||20180325050100-0700
 OBX|3|NM|21612-7^Age-Reported^LN||78|a^^UCUM||||F|||20180325050100-0700
 OBX|4|NM|11289-6^BodyTemperature^LN||101.1|[degF]^Fahrenheit^UCUM||||F|||20180325050100-0700
 OBX|5|NM|59574-4^BodyMassIndex^LN||35|kg/m2^kilogram / (meter squared)^UCUM||||F|||20180325050100-0700
 OBX|6|NM|59408-5^OxygenSaturationinArterialBloodbyPulseOximetry^LN||94|%%^Percent^UCUM||||F|||20180325050100-0700
 OBX|7|NM|8480-6^SystolicBloodPressure^LN||128|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F|||20180325050100-0700
 OBX|8|NM|8462-4^DiastolicBloodPressure^LN||92|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F|||20180325050100-0700
 OBX|9|TS|11368-8^IllnessorInjuryOnsetDateandTime^LN||20180324213000-0700||||F|||20180325050100-0700
 OBX|10|CWE|11283-9^InitialAcuity^LN||3^Urgent^CDCEDACUITY||||F|||20180325050100-0700
 OBX|11|CWE|56816-2^HospitalUnit^LN||1108-0^EmergencyDepartment^HSLOC||||F|||20180325050100-0700
 DG1|1||J101^Influenza due to other identified influenza virus with other respiratory manifestations^I10||20180325093800-0700|W||||||1
 DG1|2||J4541^Moderate persistent asthma with (acute) exacerbation^I10||20180325093800-0700|W||||||2
 PR1|1||400084^BILEVEL VENT^L||20180325050100-0700||||||
 PR1|2||400114^MEDS CONTINUOUS^L||20180325050100-0700||||||
 PR1|3||NURS0886^INITIATE CARDIAC BIOMARKER PROCEDURE^L||20180325050100-0700||||||
 PR1|4||LABRPPCR^RESPIRATORY PANEL BY PCR^L||20180325093800-0700||||||
 PR1|5||LABBLDC^BLOOD CULTURE^L||20180325093800-0700||||||
 PR1|6||LABPROCT^PROCALCITONIN^L||20180325093800-0700||||||
 PR1|7||80076^HEPATIC PANEL^L||20180325093800-0700||||||
 PR1|8||LABTRPTB^TROPONIN T^L||20180325093800-0700||||||
 PR1|9||400206^BLOOD GAS (ARTERIAL)^L||20180325093800-0700||||||
 PR1|10||87081^MRSA CULTURE^L||20180325093800-0700||||||
 IN1|1|1234567^ABC123^L|99996666^^^WeCareUHIG&2.34.567.8.956.7.8&ISO ^HC|||||||92^Other(Non-government)^PHDSC

1.3 A03 Event Type (Discharge)

MSH|^~\&|App^1.23.456.7.890123.45.6.7^ISO|MiracleCareMC^2231237890^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO
 |201803281300-0700||ADT^A03^ADT_A03|X123453333|P|2.5.1|||||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO
 EVN|A03|201803281300-0700||||MiracleCareMC^2231237890^NPI
 PID|1||22236716^^^MiracleCareMC&2231237890&NPI^MR||~^S||19400216|M||2106-3^White^CDCREC|1111 W South Park
 Dr^^PHOENIX^AZ^85035^^^04019|||||UM1000073^^^AN|||2186-5^Not Hispanic^CDCREC|||||||201803281300-0700|MiracleCareMC^2231237890^NPI
 PV1|1|E|1108-
 0^^^MiracleCareMC&2231237890&NPI|E||122338^DixonAnderson^Sussane|||||||222359^^^MiracleCareMC&2231237890&NPI^VN|||||||01|||||20180
 325050100-0700|201803281300-0700
 DG1|1||J101^Influenza due to other identified influenza virus with other respiratory manifestations^I10||20180325093800-0700|F||||||1
 DG1|2||J4541^Moderate persistent asthma with (acute) exacerbation^I10||20180325093800-0700|F||||||2

PR1|1||400084^BILEVEL VENT^L||20180325050100-0700|||||||
 PR1|2||400114^MEDS CONTINUOUS^L||20180325050100-0700|||||||
 PR1|3||NURS0886^INITIATE CARDIAC BIOMARKER PROCEDURE^L||20180325050100-0700|||||||
 PR1|4||LABRPPCR^RESPIRATORY PANEL BY PCR^L||20180325093800-0700|||||||
 PR1|5||LABBLDC^BLOOD CULTURE^L||20180325093800-0700|||||||
 PR1|6||LABPROCT^PROCALCITONIN^L||20180325093800-0700|||||||
 PR1|7||80076^HEPATIC PANEL^L||20180325093800-0700|||||||
 PR1|8||LABTRPTB^TROPONIN T^L||20180325093800-0700|||||||
 PR1|9||400206^BLOOD GAS (ARTERIAL)^L||20180325093800-0700|||||||
 PR1|10||87081^MRSA CULTURE^L||20180325093800-0700|||||||
 OBX|1|TX|8661-1^ChiefComplaint^LN||Fever, Cough, difficulty breathing since 2130 last night.||||F||20180325050100-0700
 OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^EmergencyCare^HCPTNUCC||||F||20180325050100-0700
 OBX|3|NM|21612-7^Age-Reported^LN||78|a^^UCUM||||F||20180325050100-0700
 OBX|4|NM|11289-6^BodyTemperature^LN||101.1|[degF]^Fahrenheit^UCUM||||F||20180325050100-0700
 OBX|5|NM|59574-4^BodyMassIndex^LN||35|kg/m^2^kilogram / (meter squared)^UCUM||||F||20180325050100-0700
 OBX|6|NM|59408-5^OxygenSaturationinArterialBloodbyPulseOximetry^LN||94|%^Percent^UCUM||||F||20180325050100-0700
 OBX|7|NM|8480-6^SystolicBloodPressure^LN||128|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180325050100-0700
 OBX|8|NM|8462-4^DiastolicBloodPressure^LN||92|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180325050100-0700
 OBX|9|TS|11368-8^IllnessorInjuryOnsetDateandTime^LN||20180324213000-0700||||F||20180325050100-0700
 OBX|10|CWE|11283-9^InitialAcuity^LN||3^Urgent^CDCEDACUITY||||F||20180325050100-0700
 OBX|11|CWE|56816-2^HospitalUnit^LN||1108-0^EmergencyDepartment^HSLOC||||F||20180325050100-0700
 IN1|1|1234567^ABC123^L|99996666^^^WeCareUHIG&2.34.567.8.956.7.8&ISO ^HC|||||||92^Other(Non-government)^PHDSC

1.4 A08 Event Type (Coding of Final Diagnosis)

MSH|^~\&|App^1.23.456.7.890123.45.6.7^ISO|MiracleCareMC^2231237890^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO
 |201803311645-0700||ADT^A08^ADT_A01|X123454444|P|2.5.1|||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO
 EVN|A08|201803311645-0700||||MiracleCareMC^2231237890^NPI
 PID|1||22236716^^^MiracleCareMC&2231237890&NPI^MR||~^S||19400216|M||2106-3^White^CDCREC|1111 W South Park
 Dr^^PHOENIX^AZ^85035^^^04019||||UM1000073^^^AN||2186-5^Not Hispanic^CDCREC||||||201803311645-0700|MiracleCareM^2231237890^NPI
 PV1|1|E|1108-
 0^^^MiracleCareMC&2231237890&NPI|E||122338^Dixonderson^Sussane||||||222359^^^MiracleCareMC&2231237890&NPI^VN|||||||01|||||20180
 325050100-0700|201803281300-0700
 OBX|1|TX|8661-1^ChiefComplaint^LN||Fever, Cough, difficulty breathing since 2130 last night.||||F||20180325050100-0700
 OBX|2|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^EmergencyCare^HCPTNUCC||||F||20180325050100-0700
 OBX|3|NM|21612-7^Age-Reported^LN||78|a^^UCUM||||F||20180325050100-0700

OBX|4|NM|11289-6^BodyTemperature^LN||101.1|[degF]^Fahrenheit^UCUM||||F||20180325050100-0700
 OBX|5|NM|59574-4^BodyMassIndex^LN||35| kg/m2^kilogram / (meter squared)^UCUM||||F||20180325050100-0700
 OBX|6|NM|59408-5^OxygenSaturationinArterialBloodbyPulseOximetry^LN||94|%^Percent^UCUM||||F||20180325050100-0700
 OBX|7|NM|8480-6^SystolicBloodPressure^LN||128|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180325050100-0700
 OBX|8|NM|8462-4^DiastolicBloodPressure^LN||92|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180325050100-0700
 OBX|9|TS|11368-8^IllnessorInjuryOnsetDateandTime^LN||20180324213000-0700||||F||20180325050100-0700
 OBX|10|CWE|11283-9^InitialAcuity^LN||3^Urgent^CDCEDACUITY||||F||20180325050100-0700
 OBX|11|CWE|56816-2^HospitalUnit^LN||1108-0^EmergencyDepartment^HSLOC||||F||20180325050100-0700
 DG1|1||J101^Influenza due to other identified influenza virus with other respiratory manifestations^I10||20180325093800-0700|F|||||||1
 DG1|2||J4541^Moderate persistent asthma with (acute) exacerbation^I10||20180325093800-0700|F|||||||2
 DG1|3||I509^Heart failure, unspecified^I10||201803311645-0700|F|||||||3
 DG1|4||E871^Hypo-osmolality and hyponatremia^I10||201803311645-0700|F|||||||4
 DG1|5||R739^Hyperglycemia, unspecified^I10||201803311645-0700|F|||||||5
 PR1|1||400084^BILEVEL VENT^L||20180325050100-0700|||||||
 PR1|2||400114^MEDS CONTINUOUS^L||20180325050100-0700|||||||
 PR1|3||NURS0886^INITIATE CARDIAC BIOMARKER PROCEDURE^L||20180325050100-0700|||||||
 PR1|4||LABRPPCR^RESPIRATORY PANEL BY PCR^L||20180325093800-0700|||||||
 PR1|5||LABBLDC^BLOOD CULTURE^L||20180325093800-0700|||||||
 PR1|6||LABPROCT^PROCALCITONIN^L||20180325093800-0700|||||||
 PR1|7||80076^HEPATIC PANEL^L||20180325093800-0700|||||||
 PR1|8||LABTRPTB^TROPONIN T^L||20180325093800-0700|||||||
 PR1|9||400206^BLOOD GAS (ARTERIAL)^L||20180325093800-0700|||||||
 PR1|10||87081^MRSA CULTURE^L||20180325093800-0700|||||||
 IN1|1|1234567^ABC123^L|99996666^^^WeCareUHIG&2.34.567.8.956.7.8&ISO ^HC|||||||92^Other(Non-government)^PHDSC

Case 2 – Inpatient Visit:Case 2 - Inpatient Visit:

On April 6th, 2018 at 11:15 AM, a White, Hispanic, 55-year-old female showed up at South Mountain Hospital's Emergency Department (Facility Identifier: 2231231234). She stated that she had had diarrhea for 5 days and her primary care physician advised her to come to the hospital. At 12:30 PM, the patient was admitted to the 24-Hour observation area for further evaluation. During the admission process, patient's name, date of birth, race, ethnicity, residence and insurance information, current medications and chronic medical problems, vitals, smoking status and travel history were all captured into the hospital's electronic medical record system. The admit reason was assigned with ICD-10-CM code R19.7 (Diarrhea, unspecified). At 2:19 PM, the attending physician updated patient's medical record with a few working ICD-10-CM diagnosis codes after reviewing patient's medical history. The primary diagnosis code was K52.9 (Noninfective gastroenteritis and colitis, unspecified). On April 7th, 2018 at 5:36 PM, the patient was discharged from the hospital after certain high risk conditions had been ruled out. On April 9th 2018, all the final diagnosis codes were entered by a coder for services received by the patient during the visit.

The facility's electronic health record module for syndromic surveillance data assembles and transmits all the messages to Arizona Department of Health Services about this visit.

Patient visit at hospital for treatment

On April 6, 2018 at 12:30 PM a 55 year-old White, non-Hispanic female was admitted to South Mountain Hospitals' 24-hour observation unit with admit reason R19.7 (Diarrhea, unspecified). During the admission process the patient's name, date of birth, race, ethnicity, residence, and insurance information, current medications and chronic medical problems, vitals, smoking status, and travel history were captured in the hospital's electronic medical record system.


A01

ADT A01 message is generated for inpatient admission.

See Example 2.1 below for sample admission message.

Diagnosis

At 2:19 PM the attending physician updated the patient's medical record with a few working ICD-10 diagnosis codes after reviewing the patient's medical history. The primary diagnosis code was K52.9 (Noninfective gastroenteritis and colitis, unspecified).


A08

ADT A08 message is generated for updates during inpatient stay.

See Example 2.2 below for sample update message.

Discharge

On April 7, 2018 at 5:36 PM the patient was discharged from the hospital after certain high risk conditions had been ruled out.


A03

ADT A03 message is generated for hospital discharge.

See Example 2.3 below for sample discharge message.

Coding of final diagnosis

On April 9, 2018 all the final diagnosis codes were entered by a coder for services received by the patient during the visit.


A08

ADT A08 message is generated for updates after patient discharge.

See Example 2.4 below for sample update message.

2.1 A01 Event Type (Inpatient Admission)

MSH|^~\&|App^1.23.456.7.890123.45.6.7^ISO|SouthMountainHP^2231231234^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO|20180406123000-0700||ADT^A01^ADT_A01|ZZ001010001|P|2.5.1|||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO
EVN|A01|20180406123000-0700||||SouthMountainHP^2231231234^NPI
PID|1||2222^^^SouthMountainHP&2231231234&NPI^MR||~^S|19630321|F|2106-3^White^CDCREC|99999 X 99XX
XXXXXX^^MESA^AZ^85202^USA^C^04013|||||2135-2^Hispanic or Latino^CDCREC|||||20180406123000-0700|SouthMountainHP^2231231234^NPI
PV1|1||1162-7^^^SouthMountainHP&2231231234&NPI|U||1108-
0^^SouthMountainHP&2231231234&NPI|||||2222_001^^^SouthMountainHP&2231231234&NPI^VN|||||20180406123000-0700
PV2||R197^Diarrhea, unspecified^I10
OBX|1|TX|8661-1^ChiefComplaint^LN||Diarrhea since Sunday,advised by PCP to go to ED due to DHN,recent travel to Bahamas||||F||20180406123000-0700
OBX|2|NM|21612-7^AGE TIME PATIENT REPORTED^LN||55|a^YEAR^UCUM||||F||20180406123000-0700
OBX|3|NM|59408-5^OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY^LN||97|%^Percent^UCUM||||F||20180406123000-0700
OBX|4|NM|11289-6^Initial Temperature^LN||36.6|Cel^degree Celsius^UCUM||||F||20180406123000-0700
OBX|5|NM|8480-6^SystolicBloodPressure^LN||116|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180406123000-0700
OBX|6|NM|8462-4^DiastolicBloodPressure^LN||74|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180406123000-0700
OBX|7|CWE|11283-9^Initial ED Acuity^LN||3^Urgent^CDCEDACUITY||||F||20180406123000-0700
OBX|8|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^EmergencyCare^HCPTNUCC||||F||20180406123000-0700
OBX|9|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||666 Garden Street^^Phoenix^AZ^85019^^^04013||||F||20180406123000-0700
OBX|10|NM|3141-9^BODY WEIGHT MEASURED^LN||58.1|kg^Kilogram^UCUM||||F||20180406123000-0700
OBX|11|CWE|56816-2^PATIENT LOCATION^LN||1162-7^24-Hour Observation Area^HSLOC||||F||20180406123000-0700
OBX|12|CWE|72166-2^SmokingStatus^LN||8517006^Ex-Smoker^SCT||||F||20180406123000-0700
OBX|13|TS|11368-8^IllnessorInjuryOnsetDate^LN||20180401||||F||20180406123000-0700
OBX|14|CWE|11450-4^ProblemList^LN||1|47372000^Adjustment disorder with anxious mood^SCT||||F||20180406123000-0700
OBX|15|CWE|11450-4^ProblemList^LN||3|195967001^Asthma (disorder)^SCT||||F||20180406123000-0700
OBX|16|CWE|11450-4^ProblemList^LN||5|K2970^Gastritis, unspecified, without bleeding^I10||||F||20180406123000-0700
OBX|17|CWE|11450-4^ProblemList^LN||6|104931000119100^Chronic kidney disease due to hypertension (disorder)^SCT||||F||20180406123000-0700
OBX|18|CWE|11450-4^ProblemList^LN||7|13644009^Hypercholesterolemia (disorder)^SCT||||F||20180406123000-0700
OBX|19|TX|10182-4^HistoryOfTravelNarrative^LN||Travel within the past 30 days:yes~Travel outside the United States:yes~Country/Region Visited: Bahamas~Length of Stay: 7 days||||F||20180406123000-0700
OBX|20|TX|10160-0^MedicationList^LN||Lasix 20 mg po bid; Simvastatin 40 mg po qd||||F||20180406123000-0700
IN1|1|M45612^0192819^L|123456^^^MCD|||||312^PPO^PHDSC

2.2 A08 Event Type (Update)

MSH|^~\&|App^1.23.456.7.890123.45.6.7^ISO|SouthMountainHP^2231231234^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO|20180406141930-0700||ADT^A08^ADT_A01|ZZ001011111|P|2.5.1|||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO
EVN|A08|20180406141930-0700||||SouthMountainHP^2231231234^NPI
PID|1||2222^^^SouthMountainHP&2231231234&NPI^MR||~^^^^^S||19630321|F||2106-3^White^CDCREC|99999 X 99XX
XXXXXX^^MESA^AZ^85202^USA^C^^04013|||||||2135-2^Hispanic or Latino^CDCREC|||||||20180406123000-0700|SouthMountainHP^2231231234^NPI
PV1|1||1162-7^^^SouthMountainHP&2231231234&NPI|U||1108-
0^^^SouthMountainHP&2231231234&NPI|||||||2222_001^^^SouthMountainHP&2231231234&NPI^VN|||||||20180406123000-0700
PV2||R197^Diarrhea, unspecified^I10
OBX|1|TX|8661-1^ChiefComplaint^LN||Diarrhea since Sunday,advised by PCP to go to ED due to DHN,recent travel to Bahamas||||F||20180406123000-0700
OBX|2|NM|21612-7^AGE TIME PATIENT REPORTED^LN||55|a^YEAR^UCUM||||F||20180406123000-0700
OBX|3|NM|59408-5^OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY^LN||97|%^Percent^UCUM||||F||20180406123000-0700
OBX|4|NM|11289-6^Initial Temperature^LN||36.6|Cel^degree Celsius^UCUM||||F||20180406123000-0700
OBX|5|NM|8480-6^SystolicBloodPressure^LN||116|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180406123000-0700
OBX|6|NM|8462-4^DiastolicBloodPressure^LN||74|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180406123000-0700
OBX|7|CWE|11283-9^Initial ED Acuity^LN||3^Urgent^CDCEDACUITY||||F||20180406123000-0700
OBX|8|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^EmergencyCare^HCPTNUCC||||F||20180406123000-0700
OBX|9|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||666 Garden Street^^Phoenix^AZ^85019^^^04013||||F||20180406123000-0700
OBX|10|NM|3141-9^BODY WEIGHT MEASURED^LN||58.1|kg^Kilogram^UCUM||||F||20180406123000-0700
OBX|11|CWE|56816-2^PATIENT LOCATION^LN||1162-7^24-Hour Observation Area^HSLOC||||F||20180406123000-0700
OBX|12|CWE|72166-2^SmokingStatus^LN||8517006^Ex-Smoker^SCT||||F||20180406123000-0700
OBX|13|TS|11368-8^IllnessorInjuryOnsetDate^LN||20180401||||F||20180406123000-0700
OBX|14|CWE|11450-4^ProblemList^LN||1|47372000^Adjustment disorder with anxious mood^SCT||||F||20180406123000-0700
OBX|15|CWE|11450-4^ProblemList^LN||3|195967001^Asthma (disorder)^SCT||||F||20180406123000-0700
OBX|16|CWE|11450-4^ProblemList^LN||5|K2970^Gastritis, unspecified, without bleeding^I10||||F||20180406123000-0700
OBX|17|CWE|11450-4^ProblemList^LN||6|104931000119100^Chronic kidney disease due to hypertension (disorder)^SCT||||F||20180406123000-0700
OBX|18|CWE|11450-4^ProblemList^LN||7|13644009^Hypercholesterolemia (disorder)^SCT||||F||20180406123000-0700
OBX|19|TX|10182-4^HistoryOfTravelNarrative^LN||Travel within the past 30 days:yes~Travel outside the United States:yes~Country/Region Visited: Bahamas~Length of Stay: 7 days||||F||20180406123000-0700
OBX|20|TX|10160-0^MedicationList^LN||Lasix 20 mg po bid; Simvastatin 40 mg po qd||||F||20180406123000-0700
DG1|1||D64.9^Anemia, unspecified^I10||20180406141930-0700|W||||||2
DG1|2||I10^Essential (primary) hypertension^I10||20180406141930-0700|W||||||4
DG1|3||N17.9^Acute kidney failure, unspecified^I10||20180406141930-0700|W||||||2
DG1|4||K52.9^Noninfective gastroenteritis and colitis, unspecified^I10||20180406141930-0700|W||||||1
IN1|1|M45612^0192819^L|123456^^^MCD|||||||312^PPO^PHDSC

2.3 A03 Event Type (Discharge)

MSH|^~\&|App^1.23.456.7.890123.45.6.7^ISO|SouthMountainHP^2231231234^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO|20180407173600-0700||ADT^A03^ADT_A03|ZZ001012221|P|2.5.1||||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO

EVN|A03|20180407173600-0700|||||SouthMountainHP^2231231234^NPI

PID|1||2222^^^SouthMountainHP&2231231234&NPI^MR||~^^^^^S||19630321|F||2106-3^White^CDCREC|99999 X 99XX

XXXXXX^^MESA^AZ^85202^USA^C^^04013|1162-7^^^SouthMountainHP&2231231234&NPI|U||1108-0^^^SouthMountainHP&2231231234&NPI|2222_001^^^

SouthMountainHP&2231231234&NPI^VN|01|||20180406123000-0700|20180407173600-0700

PV2||R197^Diarrhea, unspecified^I10

DG1|1||D649^Anemia, unspecified^I10||20180406141930-0700|F|||||2

DG1|2||I10^Essential (primary) hypertension^I10||20180406141930-0700|F|||||4

DG1|3||N17.9^Acute kidney failure, unspecified^I10||20180406141930-0700|F|||||2

DG1|4||K52.9^Noninfective gastroenteritis and colitis, unspecified^I10||20180406141930-0700|F|||||1

OBX|1|TX|8661-1^Chief Complaint^LN||Diarrhea since Sunday, advised by PCP to go to ED due to DHN, recent travel to Bahamas|F|||20180406123000-0700

OBX|2|NM|21612-7^AGE TIME PATIENT REPORTED^LN||55|a^YEAR^UCUM|||F||20180406123000-0700

OBX|3|NM|59408-5^OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY^LN||97|%^Percent^UCUM|||F||20180406123000-0700

OBX|4|NM|11289-6^Initial Temperature^LN||36.6|Cel^degree Celsius^UCUM|||F||20180406123000-0700

OBX|5|NM|8480-6^Systolic Blood Pressure^LN||116|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM|||F||20180406123000-0700

OBX|6|NM|8462-4^Diastolic Blood Pressure^LN||74|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM|||F||20180406123000-0700

OBX|7|CWE|11283-9^Initial ED Acuity^LN||3^Urgent^CDCEDACUITY|||F||20180406123000-0700

OBX|8|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC|||F||20180406123000-0700

OBX|9|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||666 Garden Street^^Phoenix^AZ^85019^^^04013|||F||20180406123000-0700

OBX|10|NM|3141-9^BODY WEIGHT MEASURED^LN||58.1|kg^Kilogram^UCUM|||F||20180406123000-0700

OBX|11|CWE|56816-2^PATIENT LOCATION^LN||1162-7^24-Hour Observation Area^HSLOC|||F||20180406123000-0700

OBX|12|CWE|72166-2^Smoking Status^LN||8517006^Ex-Smoker^SCT|||F||20180406123000-0700

OBX|13|TS|11368-8^Illness or Injury Onset Date^LN||20180401|||F||20180406123000-0700

OBX|14|CWE|11450-4^Problem List^LN||1|47372000^Adjustment disorder with anxious mood^SCT|||F||20180406123000-0700

OBX|15|CWE|11450-4^Problem List^LN||3|195967001^Asthma (disorder)^SCT|||F||20180406123000-0700

OBX|16|CWE|11450-4^Problem List^LN||5|K2970^Gastritis, unspecified, without bleeding^I10|||F||20180406123000-0700

OBX|17|CWE|11450-4^Problem List^LN||6|104931000119100^Chronic kidney disease due to hypertension (disorder)^SCT|||F||20180406123000-0700

OBX|18|CWE|11450-4^Problem List^LN||7|13644009^Hypercholesterolemia (disorder)^SCT|||F||20180406123000-0700

OBX|19|TX|10182-4^History of Travel Narrative^LN||Travel within the past 30 days: yes~Travel outside the United States: yes~Country/Region Visited: Bahamas~Length of Stay: 7 days|||F||20180406123000-0700

OBX|20|TX|10160-0^Medication List^LN||Lasix 20 mg po bid; Simvastatin 40 mg po qd|||F||20180406123000-0700

IN1|1|M45612^0192819^L|123456^^^MCD|||312^PPO^PHDSC

2.4 A08 Event Type (Coding of Final Diagnosis)

MSH|^~\&|App^1.23.456.7.890123.45.6.7^ISO|SouthMountainHP^2231231234^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSense^2.16.840.1.113883.3.1673^ISO|20180409093700-0700|ADT^A08^ADT_A01|ZZ0010133331|P|2.5.1|||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO

EVN|A08|20180409093700-0700|||||SouthMountainHP^2231231234^NPI

PID|1||2222^^^SouthMountainHP&2231231234&NPI^MR||~^~~~~^S||19630321|F||2106-3^White^CDCREC|99999 X 99XX

XXXXXX^^MESA^AZ^85202^USA^C^^04013|||||||2135-2^Hispanic or Latino^CDCREC|||||||201408171200-0700|SouthMountainHP^2231231234^NPI

PV1|1||1162-7^^^SouthMountainHP&2231231234&NPI|U||1108-0^^^SouthMountainHP&2231231234&NPI|||||||2222_001^^^

SouthMountainHP&2231231234&NPI^VN|||||||01|||||20180409093700-0700|20180407173600-0700

PV2|||R197^Diarrhea, unspecified^I10

OBX|1|TX|8661-1^ChiefComplaint^LN||Diarrhea since Sunday, advised by PCP to go to ED due to DHN, recent travel to Bahamas||||F||20180406123000-0700

OBX|2|NM|21612-7^AGE TIME PATIENT REPORTED^LN||55|a^YEAR^UCUM||||F||20180406123000-0700

OBX|3|NM|59408-5^OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY^LN||97|%^Percent^UCUM||||F||20180406123000-0700

OBX|4|NM|11289-6^Initial Temperature^LN||36.6|Cel^degree Celsius^UCUM||||F||20180406123000-0700

OBX|5|NM|8480-6^SystolicBloodPressure^LN||116|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180406123000-0700

OBX|6|NM|8462-4^DiastolicBloodPressure^LN||74|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM||||F||20180406123000-0700

OBX|7|CWE|11283-9^Initial ED Acuity^LN||3^Urgent^CDCEDACUITY||||F||20180406123000-0700

OBX|8|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^EmergencyCare^HCPTNUCC||||F||20180406123000-0700

OBX|9|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||666 Garden Street^^Phoenix^AZ^85019^^^04013||||F||20180406123000-0700

OBX|10|NM|3141-9^BODY WEIGHT MEASURED^LN||58.1|kg^Kilogram^UCUM||||F||20180406123000-0700

OBX|11|CWE|56816-2^PATIENT LOCATION^LN||1162-7^24-Hour Observation Area^HSLOC||||F||20180406123000-0700

OBX|12|CWE|72166-2^SmokingStatus^LN||8517006^Ex-Smoker^SCT||||F||20180406123000-0700

OBX|13|TS|11368-8^Illness or Injury Onset Date^LN||20180401||||F||20180406123000-0700

OBX|14|CWE|11450-4^ProblemList^LN||1|47372000^Adjustment disorder with anxious mood^SCT||||F||20180406123000-0700

OBX|15|CWE|11450-4^ProblemList^LN||3|195967001^Asthma (disorder)^SCT||||F||20180406123000-0700

OBX|16|CWE|11450-4^ProblemList^LN||5|K2970^Gastritis, unspecified, without bleeding^I10||||F||20180406123000-0700

OBX|17|CWE|11450-4^ProblemList^LN||6|104931000119100^Chronic kidney disease due to hypertension (disorder)^SCT||||F||20180406123000-0700

OBX|18|CWE|11450-4^ProblemList^LN||7|13644009^Hypercholesterolemia (disorder)^SCT||||F||20180406123000-0700

OBX|19|TX|10182-4^HistoryOfTravelNarrative^LN||Travel within the past 30 days:yes~Travel outside the United States:yes~Country/Region Visited: Bahamas~Length of Stay: 7 days||||F||20180406123000-0700

OBX|20|TX|10160-0^MedicationList^LN||Lasix 20 mg po bid; Simvastatin 40 mg po qd||||F||20180406123000-0700

DG1|1||D649^Anemia, unspecified^I10||20180406141930-0700|F|||||||2

DG1|2||I10^Essential (primary) hypertension^I10||20180406141930-0700|F|||||||4

DG1|3||N17.9^Acute kidney failure, unspecified^I10||20180406141930-0700|F|||||||2

DG1|4||K52.9^Noninfective gastroenteritis and colitis, unspecified^I10||20180406141930-0700|F|||||||1

IN1|1|M45612^0192819^L|123456^^^MCD|||||||312^PPO^PHDSC

TOOLS AND RESOURCES

ADHS Meaningful Use/Promoting Interoperability Website <http://www.azdhs.gov/meaningful-use>

Contains general information on:

- *Meaningful Use/Promoting Interoperability objective and measure for Syndromic Surveillance reporting to public health (SS2PH)*
- *Message and vocabulary standards (HL7 Implementation Guide, LOINC, SNOMED-CT)*
- *Syndromic Surveillance implementation and Meaningful Use/Promoting Interoperability active engagement steps for hospitals*
- *Tools for vocabulary mapping and message validation*

Health Level Seven International Website <http://www.hl7.org>

Official HL7 website containing news and resources related to HL7

Logical Observation Identifiers Names and Codes (LOINC) Search Engine <http://search.loinc.org>

Browser engine for Logical Observation Identifiers Names and Codes (LOINC)

CDC PHIN Vocabulary Access and Distribution System (VADS) <https://phinvads.cdc.gov>

Vocabulary tool containing coded values for:

- *HL7 and user-defined tables*
- *LOINC*
- *SNOMED-CT*
- *ICD-10-CM*

National Institute for Standards and Technology (NIST) HL7 V2.5.1 Syndromic Surveillance Validation Tool – ONC 2015 Edition <https://hl7v2-ss-r2-testing.nist.gov/ss-r2/#/cf>

HL7 Version 2.5.1 Syndromic Surveillance Message Receiver Profile Validation Tool released by NIST

GLOSSARY

ADHS	Arizona Department of Health Services	LPHJ	The Local Public Health Jurisdiction or entity providing Public Health Services (as defined by the National Public Health Performance Standards Program (NPHPSP) ten essential services) within a geographic area in the State of Arizona.
ADT	An HL7 message type specific to an Admission, Discharge, and Transfer activity within a medical hospital or facility.	Meaningful Use	The adoption and use of Certified Electronic Health Record Technology (CEHRT) for increased interoperability to improve patient care and create better integration between public health and healthcare. Also refers to the CMS incentive programs now known as Promoting Interoperability.
Assigning Authority	Identifies the system, application, or organization that assigns the identifier.	Message	An atomic unit of data comprised of a group of segments in a defined sequence.
Assigning Facility	Identifies the place where the identifier is assigned.	NIST	National Institute for Standards and Technology
Batch	A group of messages.	NIST Validation Tool	A message validation tool released by NIST to help Promoting Interoperability candidates prepare for certification.
Cardinality	Minimum and maximum number of times the data element may appear.	NSSP	National Syndromic Surveillance Program
CDC	Centers for Disease Control and Prevention	OID	Object Identifier. A globally unique ISO identifier.
CEHRT	Certified Electronic Health Record Technology, certified by the ONC.	ONC	Office of the National Coordinator for Health Information Technology
CLIA	Clinical Laboratory Improvement Amendments	PHIN	Public Health Information Network
Component	Data element within a field.	Primitive	A data type that consists of a series of characters.
Component Separator	Separates adjacent components or data elements within a field.	Promoting Interoperability	CMS incentive programs that promote the meaningful use of CEHRT and create better integration between public health and healthcare.
Composite	A data type made up of a series of components that are themselves assigned a data type.	Repetition Separator	Separates multiple occurrences of a field where allowed.
CMS	Centers for Medicare and Medicaid Services	Segment	A logical grouping of data fields.
Database View	The cloud-enabled, web-based platform where ADHS and LPHJs view and analyze patient-level data.	Segment Group	A logical unit of two or more segments.
Data Type (DT)	The basic building block used to construct or restrict the contents of a data field.	Segment Terminator	Ends a segment record. This value cannot be changed by implementers.
DUA	Data Use Agreement	Sequence (SEQ)	Ordinal position of the field within the segment.
ED	Emergency Department	Subcomponent	Data element within a component.
EHR	Electronic Health Record – The systematic collection of elements which comprise a health-related record about an individual or populations.	Subcomponent Separator	Separates adjacent subcomponents within a component.
Escape Character	Used to signal certain special characteristics of portions of the text field.	Usage	Indicates whether the message element is required, required but can be empty, conditional, or not used.
Facility	A general reference to a hospital or hospital setting.	UCUM	Unified Code for Units of Measure
Field	A string of characters.	User Manager	The person from a LPHJ, also referred to as the BioSense Local Liaison, who functions as a Security Steward for their jurisdiction authorizing and deactivating user access to BioSense.
Field Separator	Separates two adjacent data fields within a segment. It also separates the segment ID from the first data field in each segment.		
File	Contains one or more batches.		
HL7	An international messaging standard used to exchange electronic health information.		
ISO	International Organization for Standardization		
Length (LEN)	The number of characters that one occurrence of the data field or component may occupy.		

TABLE OF CHANGES

Summary Table of Changes from Version 1.0 dated June 2014 to Version 2.0 dated November 2018

Change #	Global Change
1	Background information related to ESSENSE/BioSense data processing and Meaningful Use/Promoting Interoperability reporting updated to reflect changes made since last revision
2	All links for external table value sets updated to ensure latest concept codes are being referenced in this guide
3	Time zone offset now required for all TS data types that have minimum granularity to the nearest minutes
4	Example data listed at the end of each segment and sample case scenarios revised to meet new data requirements
5	Formatting and other cosmetic changes not related to the technical content of this document

Change #	Section	Page(s)	Change/Revision	Rationale
6	ADMISSION, DISCHARGE, AND TRANSFER (ADT) MESSAGE STRUCTURE	10,11	Usage for OBX segment listed in Table 1.3 and Table 1.4 changed from "RE" to "R"	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
7	MSH – MESSAGE HEADER SEGMENT	16	MSH-1: Default value added under Description/Comments	Ensure document consistency
8	MSH – MESSAGE HEADER SEGMENT	16	MSH-7: LEN changed from "7" to "26"	Typographical error correction
9	MSH – MESSAGE HEADER SEGMENT	16	MSH-9: References to external value sets added under Description/Comments for each component	Ensure document consistency
10	MSH – MESSAGE HEADER SEGMENT	17	MSH-21: Literal value changed from "PH_SS-Batch^SS Receiver^2.16.840.1.114222.4.10.3^ISO" to "PH_SS-Batch^SS Sender^2.16.840.1.114222.4.10.3^ISO"	Ensure document consistency
11	EVN – EVENT TYPE SEGMENT	18	EVN-1: Usage changed from "X" to "R"; Cardinality changed from "[0..0]" to "[1..1]"; TBL# changed from "003" to "0003"; "Event Type Code" added under Required/Recommended/Literal Value; "Not used" replaced with external reference to event type value set under Description/Comments	New data field added in PHIN Messaging Guide For Syndromic Surveillance Release 2.0 Typographical error correction
12	EVN – EVENT TYPE SEGMENT	18	ENV-7: LEN changed from "80" to "241"	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0

Change #	Section	Page(s)	Change/Revision	Rationale
13	PID – PATIENT IDENTIFICATION SEGMENT	19	PID-3: LEN changed from "80" to "478"; Cardinality changed from "[1..1]" to "[1..*]"; Element Name changed from "Medical Record Number" to "Patient Identifier List"; Additional clarification added under Description/Comments	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
14	PID – PATIENT IDENTIFICATION SEGMENT	19	PID-5: Expected literal value "~^~^~^~^S" added under Required/Recommended/Literal Value	Ensure document consistency
15	PID – PATIENT IDENTIFICATION SEGMENT	19	PID-10: LEN changed from "80" to "478"	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
16	PID – PATIENT IDENTIFICATION SEGMENT	20	PID-11: LEN changed from "295" to "513"	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
17	PID – PATIENT IDENTIFICATION SEGMENT	20	PID-22: LEN changed from "80" to "478"	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
18	PID – PATIENT IDENTIFICATION SEGMENT	21	PID-29: Usage changed from "RE" to "CE" or "X" based on message type; Cardinality updated based on message type; Additional clarification added under Description/Comments	Provide additional clarification
19	PID – PATIENT IDENTIFICATION SEGMENT	21	PID-30: LEN changed from "20" to "1"; Usage changed from "C" to "CE" or "X" based on message type; Cardinality updated based on message type; Additional clarification added under Description/Comments	Provide additional clarification Typographical error correction
20	PID – PATIENT IDENTIFICATION SEGMENT	22	PID-33: Usage changed from "X" to "RE"; Cardinality changed from "[0..0]" to "[0..1]"; New content added under Required/Recommended/Literal Value; "Not used" replaced with field description and data requirement under Description/Comments	New data field added in PHIN Messaging Guide For Syndromic Surveillance Release 2.0
21	PID – PATIENT IDENTIFICATION SEGMENT	22	PID-34: Usage changed from "X" to "RE"; Cardinality changed from "[0..0]" to "[0..1]"; New content added under Required/Recommended/Literal Value; "Not used" replaced with field description under Description/Comments	New data field added in PHIN Messaging Guide For Syndromic Surveillance Release 2.0
22	PV1 – PATIENT VISIT SEGMENT	23	PV1-3: Required component changed from "Person Location Type" (6th component) to "Point of Care" (1st component) under Required/Recommended/Literal Value	Required by NSSP data processing rules

Change #	Section	Page(s)	Change/Revision	Rationale
23	PV1 – PATIENT VISIT SEGMENT	23	PV1-4: Usage changed from "R" to "RE"; Cardinality changed from "[1..1]" to "[0..1]"	Ensure document consistency
24	PV1 – PATIENT VISIT SEGMENT	23	PV1-6: : Usage changed from "X" to "RE"; Cardinality changed from "[0..0]" to "[0..1]"; new value "0305" added under TBL#; New content added under Required/Recommended/Literal Value; "Not used" replaced with reference to external value set under Description/Comments	New data field added in PHIN Messaging Guide For Syndromic Surveillance Release 2.0
25	PV1 – PATIENT VISIT SEGMENT	23	PV1-12: DT changed from "PL" to "IS"	Typographical error correction
26	PV1 – PATIENT VISIT SEGMENT	24	PV1-15: New content "Ambulatory Status" added under Required/Recommended/Literal Value	Ensure document consistency
27	PV1 – PATIENT VISIT SEGMENT	24	PV1-25: Value "0136" removed from TBL#	Typographical error correction
28	PV1 – PATIENT VISIT SEGMENT	25	PV1-36: Usage changed from "RE" to "R" , "RE" or "X" based on message type; Cardinality updated based on message type; Additional clarification added for A08 type message under Description/Comments	Provide additional clarification
29	PV1 – PATIENT VISIT SEGMENT	26	PV1-45: Usage changed from "RE" to "R" , "RE" or "X" based on message type; Cardinality updated based on message type	Provide additional clarification
30	PV2 – PATIENT VISIT – ADDITIONAL INFORMATION SEGMENT	27	PV2-3: Reference to ICD-9 code system removed from Description/Comments	ICD-9 codes no longer being supported in this guide
31	OBX – OBSERVATION/RESULT SEGMENT	30	OBX-1: Usage changed from "RE" to "R"; Cardinality changed from "[0..1]" to "[1..1]"	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
32	OBX – OBSERVATION/RESULT SEGMENT	31,32, 33	OBX-5: The scope of the following data elements expanded from IP or ED only to all patient types "Height", "Weight", "Body Mass Index", "Smoking Status", "Hospital Unit", "Hospital/Visit Type"	Ensure data consistency
33	OBX – OBSERVATION/RESULT SEGMENT	31	OBX-5: New TX data element "Medication List" (OBX-3 = 10160-0^MedicationUse^LN) added to the table	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0

Change #	Section	Page(s)	Change/Revision	Rationale
34	OBX – OBSERVATION/RESULT SEGMENT	31	OBX-5: DT changed from "CWE" to "TX" for "Chief Complaint "	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0 Ensure document consistency
35	OBX – OBSERVATION/RESULT SEGMENT	31	OBX-5: New TX data element "Travel History" (OBX-3 = 10182-4 ^HistoryOfTravelNarrative^LN) added to the table	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
36	OBX – OBSERVATION/RESULT SEGMENT	32	OBX-5: New NM data element "Body Mass Index" (OBX-3 = 39156- 5^Body Mass Index^LN) added to the table	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
37	OBX – OBSERVATION/RESULT SEGMENT	32	OBX-5: LOINC code "11289-6" replaced code "8310-5" as the new observation ID for "Initial Temperature"	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
38	OBX – OBSERVATION/RESULT SEGMENT	33	OBX-5: New CWE data element "Pregnancy Status" (OBX-3 = 11449- 6^PregnancyStatus^LN) added to the table	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
39	OBX – OBSERVATION/RESULT SEGMENT	33	OBX-5: Updated suggested value set for "Hospital/Visit Type" under Description/Comments	Ensure data consistency
41	OBX – OBSERVATION/RESULT SEGMENT	33	OBX-5: New CWE data element "Medications Prescribed or Dispensed " (OBX-3 = 8677-7 ^MedicationUse^LN) added to the table	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
42	OBX – OBSERVATION/RESULT SEGMENT	33	OBX-5: New CWE data element "Initial Acuity" (OBX- 3 = 11283-9 ^InitialAcuity^LN) added to the table	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
43	OBX – OBSERVATION/RESULT SEGMENT	34	OBX-5: LOINC code "11450-4" replaced "DataOverflow" as the new observation ID for "Problem List". Suggested value sets removed to expand usage of this field	Ensure better reporting
44	OBX – OBSERVATION/RESULT SEGMENT	35	OBX-15/OBX-16/OBX-17/OBX-18/OBX-19: Added missing values under LEN	Ensure data consistency

Change #	Section	Page(s)	Change/Revision	Rationale
45	DG1 – DIAGNOSIS SEGMENT	36	DG1-3: Cardinality changed from "[1..*]" to "[1..1]"; Reference to ICD-9 code system removed from Description/Comments	Typographical error correction ICD-9 codes no longer being supported in this guide
46	DG1 – DIAGNOSIS SEGMENT	36	DG1-3: Additional clarification added under Description/Comments in regards to sending primary diagnosis code	Provide additional clarification
47	DG1 – DIAGNOSIS SEGMENT	36	DG1-6: Cardinality changed from "[1..*]" to "[1..1]"	Typographical error correction
48	DG1 – DIAGNOSIS SEGMENT	37	DG1-15: Usage changed from "X" to "RE"; Cardinality changed from "[0..0]" to "[0..1]"; "Not used" replaced with external reference to suggested diagnosis priority value set (PHVS_DiagnosisPriority_HL7_2x) under Description/Comments	Providing an alternative method for identifying primary diagnosis code
49	PR1 – PROCEDURES SEGMENT	38	PR1-3: Additional value set (ICD-10-PCS) added under Description/Comments	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
50	IN1– INSURANCE SEGMENT	40	IN1-2: Usage changed from "RE" to "R"; Cardinality changed from "[0..1]" to "[1..1]"; NULL flavor added under Description/Comments to be used when information is unavailable	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
51	IN1– INSURANCE SEGMENT	40	IN1-3: Usage changed from "RE" to "R"; Cardinality changed from "[0..1]" to "[1..1]"; NULL flavor added under Description/Comments to be used when information is unavailable	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0
52	IN1– INSURANCE SEGMENT	41	IN1-15: New value set (PHVS_SourceOfPaymentTypology_PHDSC) added under Description/Comments as preferred concept codes	Required by PHIN Messaging Guide For Syndromic Surveillance Release 2.0



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