

# Arkansas Department of Health, Messaging Guide for Syndromic Surveillance.

ADT MESSAGES A01, A03, A04, and A08  
HL7 Version 2.5.1



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## Introduction

Syndromic surveillance is near real-time surveillance that tracks chief complaints of patients who present to emergency and urgent care settings and allows public health officials to monitor trends and investigate unusual increases in symptom presentations. The purpose of syndromic surveillance is to improve the health of a community by detecting increases in patient visits through earlier detection of emerging public health events. Syndromic surveillance has also proven to be particularly useful to local, state, and federal PHAs for supporting public health situational awareness, emergency response management, and other events that may be worthy of public health investigation.

Arkansas Department of Health (ADH) uses web-based software specifically designed for syndromic surveillance called Electronic Surveillance System for the Early Notification of Community-based Epidemics, also known as ESSENCE. ESSENCE analyzes chief complaint and the other syndromic surveillance data elements of interest to provide awareness of potential public health threats and emergencies. ESSENCE alerts ADH epidemiologists/surveillance team(s) when unusual increases in symptom presentations are detected in the community.

## Purpose

The Arkansas Department of Health (ADH) compiled this guide for Eligible Hospitals (EHs), Urgent Care Centers and Eligible Providers (EPs) who wish to demonstrate meaningful use of certified electronic health record technology by the submission of Syndromic Surveillance data to Public Health. The information in this guide is based on the ***PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care Data*** (April 2015) and provides additional guidance that is specific to reporting of Syndromic Surveillance data in Arkansas. Please send questions about the guide to [ADH.Syndromic.MU@arkansas.gov](mailto:ADH.Syndromic.MU@arkansas.gov).

The minimum data elements requested by ADH to support the current practice of Syndromic Surveillance in Arkansas are listed in [TABLE 1: Minimum Data Element Specifications](#). Users of this guide must be familiar with the details of HL7 message construction and processing. This guide is not intended to be a tutorial on HL7. Information about HL7 structure and formatting, go to [www.hl7.org](http://www.hl7.org).

Please note that not all the information presented in the ***PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent Care, and Ambulatory Data*** is replicated in this document. This document was compiled to assist facilities with understanding what segments, and minimum data elements a 2.5.1 message should contain for Syndromic Surveillance submissions in Arkansas. Please refer to the ***PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent Care, Inpatient and Ambulatory Care Settings*** for additional information.

## Useful Resources

PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent Care, Inpatient and Ambulatory Care Settings: [Syndromic Surveillance Messaging Guide2.pdf](#)

Arkansas Department of Health Meaningful Use website for Syndromic Surveillance: [Healthy Arkansas Programs-Services-Topics](#)

## Data Submission Parameters:

- The Arkansas Department of Health requests that Syndromic Surveillance data be submitted as individual messages. Data submission should occur in real time. If messages cannot be submitted this frequently, at a minimum, they should be sent as early as possible after midnight and contain all visits from the preceding day.
- Facilities should submit data on all visits to the emergency department, hospital or urgent care center with no filtering done prior to submission to ADH. Data on ambulatory care may also be submitted.
- For all coded elements (e.g. CWE.1 and CWE.4), it is strongly recommended that text be sent to accompany any identifier (e.g. CWE.2 and CWE.5). This aids greatly in debugging coding issues and for message validation.
- In MSH.5 and MSH.6, Receiving Application and Receiving Facility, a value of “ADH\_SS” and “ADH” shall be present in all ADT messages.
- The ADH does not accept local codes when a value set is available for data consistency
- PV2-3 shall be provided on Pt. Class’s E & I on A03 and subsequent A08 messages when PV1-36 (Discharge Diagnosis) is a continuation of care code.

## Supported ADT Message Types

Syndromic Surveillance will use information from HL7 Admit-Discharge-Transfer (ADT) messages. Only the following message transaction types will be accepted for emergency department and urgent care Syndromic Surveillance submission:

- ADT^A04 (Registration) – A patient has arrived or checked in as a one-time, or recurring outpatient, and is not assigned to a bed.
- ADT^A08 (Patient Information Update) – Patient information has changed but no other trigger event has occurred. These A08 update messages shall be sent at the time the new or changed information becomes available, whether before or after discharge. The information they contain shall be cumulative, presenting all previously sent information that remains correct and adding the new or changed information.
- ADT^A03 (Discharge/End of Visit) – A patient’s stay in a healthcare facility has ended and their status is changed to discharged or office visit has ended.
- ADT^A01 (Admission) – A patient is undergoing the admission process which assigns the patient to a bed. It signals the beginning of a patient’s stay in a healthcare facility.

## Ambulatory Care Settings

Please Note: When interfacing for an Ambulatory Care Setting, any ADT message type which contains a complete and error free message can be accepted and validated at ADH.

## Supported ADT Message Format

Promoting Interoperability measures of the MIPS (Merit-based Incentive Payment System, use the electronic exchange of health information using certified electronic health record technology (CEHRT) which currently uses HL7 version 2.5.1 standards. In the future other standards may be required for data transmission.

## Sender Usage Requirements:

Data fields of interest for syndromic surveillance have sender usage requirements designated as “R” (Required), “RE” (Required but may be empty), or “O” (Optional).

Sender Usage	Description
<b>R: Required</b>	Data fields marked “R” must be present in all messages transmitted. “R” notates field is required on A04/A01 messages
<b>RE: Required but may be empty</b>	Data fields marked “RE” are required when the data is present in the patient record. “RE”-designated information may legitimately be missing in some circumstances, e.g., information on patient demographics when the patient arrives unconscious. There is an expectation RE fields be completed within 24 hours of patient discharge/end of visit.
<b>O: Optional</b>	ADH is supporting and requesting all “Optional” data fields. These fields are of interest for improving the performance of syndromic surveillance. However, each sender may make their own determination if some “Optional” fields will be excessively burdensome to provide.

## Message Segments

Segment	A01, A03, A04, A08
Message Header (MSH)	R
Event Type (EVN)	R
Patient Identification (PID)	R
Patient Visit (PV1)	R
Patient Visit – Additional Information (PV2)	CE
Observation/Result (OBX)	R
Diagnosis (DG1)	RE
Procedures (PR1)	O
Insurance (IN1)	RE

For questions about Syndromic Surveillance submission to the Arkansas Department of Health, please contact: [ADH.Syndromic.MU@arkansas.gov](mailto:ADH.Syndromic.MU@arkansas.gov).

## Arkansas Syndromic Surveillance HL7 Minimum Data Set

Data Element Name	Usage
Admission Type	R
Admit or Encounter Date/Time	R
Chief Complaint/Reason for Visit	R
Facility Identifier (Treating)	R
Facility Name (Treating)	R
Facility/Visit Type	R
Message (Event) Date/Time	R
Patient Class	R
Treating Facility Address (Street, City, State, Zip, & County)	R
Unique Patient Identifier/Medical Record #	R
Unique Visit Identifier	R
Admit or Encounter Reason	RE
Age/Age Units	RE
Diagnosis Type	RE
Discharge Disposition	RE
Discharge Disposition Date/Time	RE
Ethnicity	RE
Gender	RE
Height	RE
Insurance Coverage	RE
Patient Address (Street, City, State, Zip, & County)	RE
Pregnancy Status	RE
Primary Diagnosis	RE
Race	RE
Smoking Status	RE
Triage Notes	RE
Weight	RE
Admit Source	CE
BMI	O
Clinical Impression	O
Date of onset	O
Initial Acuity	O
Initial Pulse Oximetry	O
Initial Temperature	O
Medication List	O
Patient Country	O
Problem List	O
Procedure Code	O
Provider Type	O
Systolic and Diastolic Blood Pressure (SBP/DBP)	O
Travel History	O
Unique Physician Identifier	O

**TABLE 1: Minimum Data Element Specifications**

The following tables contains a minimum list of defined data elements currently used by the Arkansas Department of Health in addition to the Required (R)/Required Empty (RE) of the PHIN Messaging Guide to conduct Syndromic Surveillance which are not part of this list.

<b>MSH: MESSAGE HEADER SEGMENT</b>				
<p><b>MSH: MESSAGE HEADER SEGMENT</b>                      The MSH segment defines the intent, source, destination, and selected message syntax specifications. This segment includes identification of messages delimiters, sender, receiver, message type, timestamps, etc. The MSH segment is required.  <u>MSH Example:</u>                      MSH ^~\&amp; Multiverse MC^4321^ARCS ADH_SS ADH 202408171230  ADT^A08^ADT_A01 2B4EVERY1 P 2.5.1 AL AL     PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO</p>				
<b>MSH: MESSAGE HEADER SEGMENT</b>				
DATA FIELD	HL7 SEGMENT	USAGE	VALUE SET	DESCRIPTION
Sending Application		O		Sending application name
Namespace ID	MSH-3.1	O		Used for message acknowledgement
Universal ID	MSH-3.2	O		Free text field containing less than 200 characters
Universal ID Type	MSH-3.3	O	HL70300	
Sending Facility		R		
Namespace ID	MSH-4.1	R		Registered Name in ARCS (20-characters limit)
Universal ID	MSH-4.2	R		Sending Facility's assigned ARCS ID (ADH unique ID). Any messages that contain unrecognized numbers are automatically rejected.
Universal ID Type	MSH-4.3	R		ARCS
Namespace ID	MSH-5	R		A value of "ADH_SS" (Moved down one row)
Receiving Facility	MSH-6	R		"ADH"
Processing ID	MSH-11.1	R		P- Production, T- Non-Production/Test
Entity Identifier	MSH-21.1	R		PH_SS_ACK
Universal ID	MSH-21.2	R		2.16.840.1.114222.4.10.3
Universal ID Type	MSH-21.3		HL70300	ISO

<b>EVN: EVENT TYPE SEGMENT</b>				
<p><b>EVN: EVENT TYPE SEGMENT</b>                      The EVN segment is used to communicate trigger event information to receiving applications. The EVN segment is required.  <u>EVN Example:</u>                      EVN A08 201208171230    Multiverse MC^123456789^NPI</p>				
<b>EVN: EVENT TYPE SEGMENT</b>				
DATA FIELD	HL7 SEGMENT	USAGE	VALUE SET	DESCRIPTION
EVN Type Code				<a href="#">PHVS_EventType_SyndromicSurveillance</a>
Namespace ID	EVN-7.1	R		20 Character name from ARCS
Universal ID	EVN-7.2	R		ARCS ID
Universal ID Type	EVN-7.3	R		ARCS



**PID: PATIENT IDENTIFICATION SEGMENT**

The PID segment is used as the primary means of communicating patient identification information. This segment contains patient identifying and demographic information that changes infrequently. The PID segment is required.

**PID Example:**

```
PID|1||AMAZON1^^^^MR||Prince^Diana^^^^L||00240322|F||2106-3^White^CDCREC|1 Castle Ln^
^Themyscira^05^72758^USA^P^^05070||||1234567^^^^AN||||
||2186-5^Not Hispanic or Latino^CDCREC|||||N
```

**PID: PATIENT IDENTIFICATION SEGMENT**

DATA FIELD	HL7 SEGMENT	USAGE	VALUE SET	DESCRIPTION
Identifier Type Code	PID-3.5	R		Use "MR" in PID 3.5
Patient Name	PID-5	R		This field contains the names of the patient; the primary/legal name of the patient
Name Type of Code	PID-5.7	R	HL70200	Must be "L"
Date/Time of Birth	PID-7	RE		<b>Definition:</b> This field contains the patient's date and time of birth
Patient Address	PID-11.3	RE		
State	PID-11.4	RE	FIPs	PHVS_State_FIPS
Zip or Postal Code	PID-11.5	RE	USPS	
County/Parish Code	PID-11.9	R	FIPs	PHVS_County_FIPS
Patient Account Number	PID-18	O		This field contains the patient account number assigned by accounting
Patient Death Date and Time	PID-29	R		Predicated on PID-30 coded "Y"
Patient Death Indicator	PID-30	CE		

**PV1: PATIENT VISIT SEGMENT**

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

PV1 Example:

PV1|1|E|ED^25^7|||||||7|||||22268^^^VN|||||||09|||||201203270000|201203301248

**PV1: PATIENT VISIT SEGMENT**

DATA FIELD	HL7 SEGMENT	USAGE	VALUE SET	DESCRIPTION
Assigned Patient Location	PV1-3	O		<b>Definition:</b> This field contains the patient's initial assigned location or the location to which the patient is being moved.
Admission Type	PV1-4	CE	HL70007	<b>Definition:</b> This field indicates the circumstances under which the patient was or will be admitted.
Prior Patient Location	PV1-6	O		
Attending Doctor	PV1-7	O		Recommend the use of the National Provider Identifier
Admit Source	PV1-14	O	HL70023	This field indicates where the patient was admitted. In the US, this field is used on UB92 FL20 "Source of Admission"
Ambulatory Status	PV1-15	O	HL70009	<b>Definition:</b> This field indicates any permanent or transient handicapped conditions
Identifier Type Code	PV1-19.5	R		PV1-19.5 shall be valued to value of "VN"
Discharge Disposition	PV1-36	R/RE	HL70112	Patient's anticipated location or status following discharge. (Required with ADT^A03) If coded 20, 22-29, 40-42 PID-30 must be "Y" <a href="#">PHVS DischargeDisposition HL7 2x</a>
Patient Death Date and Time	PID-29	R		Predicated on PID-30 coded "Y"
Patient Death Indicator	PID-30	CE		

**PV2: PATIENT ADDITIONAL INFORMATION SEGMENT**

The PV segment is a continuation of visit specific (PV1) information where the Admit Reason passed. The PV2 is a required but may be empty segment, meaning that if the information is available.

PV2 Example:

PV2|||FEVER, CHILLS, UTI or PV2|||274668005^^SCT or PV2|||274668005^Noncardiac chest pain^SCT

**PV2: PATIENT ADDITIONAL INFORMATION SEGMENT**

DATA FIELD	HL7 SEGMENT	USAGE	VALUE SET	DESCRIPTION
Admit Reason	PV2.3	CE	ICD-10, SCT	Definition: This field contains a short description of the providers' reason for patient admission. NOTE: Admit Reason may be coded (CE.1 & CE.3) or Free text (CE.2)
Identifier	PV2.3.1	C		<u>ICD-10</u> or <u>SNOMED</u>
Text	PV2.3.2	C		
Name of Coding System	PV2.3.3	C	I10, SCT	If PV2-3.1 is provided, then PV2-3.3 is valued.

**OBX: OBSERVATION / RESULT SEGMENT**

The OBX Segment in the ADT message is used to transmit observations related to the patient and visit. If the data is carried in an OBX and usage is "Required", the segment and its fields must be populated. The method for reporting age and chief complaint data is through an OBX segment. The OBX segment is required in all message types.

OBX Example's:

OBX|1|CWE|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||123456789^Multiverse MC^NPI|||||F

OBX|2|NM|21612-7^Age - Reported^LN||35|a^^UCUM|||||F

OBX|3|TX|8661-1^Chief complaint^LN||Fever, chills, sore throat|||||F

**OBX: OBSERVATION/RESULT SEGMENT**

DATA FIELD	HL7 SEGMENT	USAGE	VALUE SET	DESCRIPTION
Value Type	OBX-5.2	R	HL70125	<b>Definition:</b> This field contains the encoding of OBX-5 & OBX-6 <b>NOTE:</b> Only CWE, NM, TX and XAD types shall be sent
Observation Identifier	OBX-5.3	R	PHVS Observation Identifier	Value set of acceptable codes and values represented in OBX-5 & OBX-6
Observation Value	OBX.5	R		<b>Definition:</b> This field contains the value observed by the observation producer. The OBX RE's shall be sent to meet visit completeness requirements.
Units	OBX.6	CE	PHVS Age Unit	<b>Definition:</b> The identifier that is used in Syndromic Surveillance for Units of measurement. <b>Background:</b> When an observation's value is measured on a continuous scale (OBX-5), the OBX segment (OBX-6) is required.

**DIAGNOSIS SEGMENT (DG1 Segment)**

The DG1 segment contains various types of patient data. DG1 must be provided for Visit Completeness. The ADH requests a timely submission of the primary diagnosis.

DG1 Example:

DG1|1||R10.30^Lower abdominal pain, unspecified^I10C||201312271700|W^Working^HL70052

**DG1: DIAGNOSIS SEGMENT**

DATA FIELD	HL7 SEGMENT	USAGE	VALUE SET	DESCRIPTION
Diagnosis Code	OBX-5.2	RE	I10, SCT	<b>Definition:</b> This field contains the facility's diagnosis. The first iteration shall contain the Primary diagnosis.
Diagnosis Date/Time	DG1-5	O		<b>Definition:</b> This field contains the date/time of diagnosis.
Diagnosis Type	DG1-6	R	PHVS Diagnosis Type	<b>Definition:</b> The stage of the patient diagnosis. If a diagnosis is provided the DG1-6 is required. <b>Background:</b> When a diagnosis is entered, it can be an initial evaluation and require additional testing/procedures to confirm. This set is either A (Admit), W (Working) or F (Final)

# APPENDICES

## Appendix A: Establish Syndromic Surveillance Reporting with ADH

This Appendix provides an overview of the process used to establish syndromic surveillance submission from the participating provider to ADH. The following steps should be followed.

Provider's not currently submitting data should register with the [Arkansas Reporting and Communication System \(ARCS\)](#) showing their intent to submit syndromic electronic data to public health.

- A.1** Once the participating providers fills in the registration information for Syndromic Surveillance, the provider will receive an automated email response asking the provider to follow the next steps of the on-boarding process.
- A.2** Review the Syndromic Surveillance Local Implementation Guide ([Information above](#)).
  - a.** **Use the certified EHR system to create a set of test messages according to the specifications in the implementation guides.** The set of test messages should include at least one of each Admit, Discharge, Transfer (ADT) Message Trigger Types (A01 and A03) the eligible hospital or professional intends to include in future submissions.
  - b.** **Validate the HL7 message using the National Institute of Standards and Technology (NIST) Syndromic HL7 V2.5.1 Validation Tool.**
    - i.** **NIST Syndromic Web Address:** <https://hl7v2-ss-r2-testing.nist.gov/ss-r2/#/home>
      1. Click on "Context-free Validation" and input message into the Message Content field.  
*The tool is intended for certifying 2014 Edition Meaningful Use EHR technology. DO NOT SUBMIT TEST MESSAGES CONTAINING PERSONALLY IDENTIFIABLE HEALTH INFORMATION.*
      2. Save file as PDF and name the file: *Message Validation Report.pdf*
      3. User will be asked to upload message validation report in the following step (Step 3: Testing).
    - ii.** NIST user instructions can be found under the "Documentation" tab at the [NIST](#).
- A.3** Upload successful test messages into [ARCS](#) Include Syndromic validation reports that indicate test messages are free of errors.  
  

[\\*\\*CLICK HERE FOR INSTRUCTION ON HOW TO UPLOAD A DOCUMENT INTO ARCS\\*\\*](#)
- A.4** ADH will validate the messages for structural and content review and move the provider to an In-Queue status. ADH Program Coordinators work through the queue, giving priority to eligible hospitals, urgent care and ambulatory clinics. Once an eligible hospital or professional reaches the front of the queue, they will be notified by program staff when it is time to move on to Step 5: Validation.
- A.5** Once contacted by ADH, the provider will need to establish connectivity with one of the supported transport options (**Appendix B**). ADH will initiate staging calls with the EHR vendor and provider to begin facilitating submission of electronic messages.  
  
Once a sufficient number of messages have been successfully validated, error free and conforming to the ADH local implementation guide specifications, approval will be granted to move the feed directly to the ADH production system.

## Appendix B: Supported Transport Options for Electronic Data Submission

This Appendix provides information to establish a data submission feed to ADH that provides a secure transport of electronic syndromic surveillance data messages.

### B.1 SOAP Web Service – (Direct to ADH)

Simple Object Access Protocol (SOAP) is a standard protocol specification for message exchange based on XML. Communication between the web service and client happens using XML messages. SOAP defines the rules for communication like what are all the tags that should be used in XML and their meaning.

### B.2 HIE/SHARE - (SHARE)

ADH is capable of receiving provider data through the Health Information Exchange (HIE) or the AR State Health Alliance for Records Exchange (SHARE), which is a service for exchanging information across ADH's health care delivery systems.

### B.3 Virtual Private Network (VPN) Preferred Method

VPN is a secure tunnel between a specific sending and receiving IP Address and Port.

### B.4 Rhapsody-to-Rhapsody

ADH uses Rhapsody, a message broker to receive HL7 messages. A submitting laboratory may use Rhapsody Connector transport technology.

## Appendix C: Sample Messages

This Appendix provides samples of the types of HL7 data messages that can be sent.

### Brief Urgent Care or Emergency Department Visit – ADT A04

This sample of an HL7 message contains the patient registration.

```
MSH|^~\&|RHAP|Multiverse MC^3214^ARCS|ADH_SS|ADH|202408171230-0500||ADT^A01^ADT_A01|2B4EVERY1|P|2.5.1|||AL|AL|||
|PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO
EVN|A01|20240817200210|||Multiverse MC^123456789^NPI
PID|1||AMAZON1^^^^MR^||PRINCE^DIANA^^^^L||00240322|F||2106-3^White^CDCREC|1 Castle Ln^^Themyscira^05^72758^USA^C^^05007|
|||||1234567^^^^AN|||2186-5^Not Hispanic or Latino^CDCREC|||||N
PV1|1|E|080^TR^06|E|||||MED|7|||||22268^^^^VN^|||||20240817110100-0500|
OBX|1|CWE|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||123456789^Multiverse MC^NPI|||||F|||20240817111322
OBX|2|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||890 Fifth Avenue^Manhattan^36^USA^C^^36061|||||F|||20240817111322
OBX|3|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC|||||F|||20240817111322
OBX|4|NM|21612-7^AGE - REPORTED^LN||2000|a^YEAR^UCUM|||||F
OBX|5|CWE|72166-2^Tobacco Smoking Status^LN||266919005^Never smoker^SCT|||||F|||20240817111322
OBX|6|TX|8661-1^Chief Complaint^LN||SICK SOB(EMS)|||||F|||20240817111322
IN1|1|UNK^UNKNOWN^NULLFL|CBM
IN1|2|BC|B
IN1|3|BC|BB
IN1|4|UNK^UNKNOWN^NULLFL|M
IN1|5|UNK^UNKNOWN^NULLFL|MB
```

## Patient Update Message (with Multiple Diagnosis Codes) – ADT A08

This sample of an HL7 message contains the patient update.

```
MSH|^~\&|RHAP|Multiverse MC^4321^ARCS|ADH_SS|ADH|20240817230210-0500||ADT^A08^ADT_A01|GR8HERO|P|2.5.1||AL|AL|||||PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO
EVN|A08|20240824201618|||||Multiverse MC^123456789^NPI
PID|1||AMAZON1^MR^|PRINCE^DIANA^L||00240322|F||2106-3^White^CDCREC|1 Castle Ln^Themyscira^05^72758^USA^C^05007|
|||||1234567^AN^|2186-5^Not Hispanic or Latino^CDCREC|||||N
PV1|1||I|080^TR^06|E|||||MED|||||7|||||22268^VN^|||||09|||||20240817110100-0500|
PV2||6042001^Pulmonary aspergillosis^SCT
OBX|1|CWE|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||123456789^Multiverse MC^NPI|||||F||20240817111322
OBX|2|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||890 Fifth Avenue^Manhattan^36^USA^C^36061|||||F||20240817111322
OBX|3|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC|||||F||20240817111322
OBX|4|NM|21612-7^AGE - REPORTED^LN||2000|a^YEAR^UCUM|||||F
OBX|5|CWE|72166-2^Tobacco Smoking Status^LN||266919005^Never smoked^SCT|||||F||20240817111322
OBX|6|TX|8661-1^Chief Complaint^LN||SICK SOB(EMS)|||||F||20240817171322
OBX|7|CWE|56816-2^PATIENT LOCATION^LN||1069-4^Pulmonary Ward^HSLOC|||||F||20240817221322-0500
OBX|8|NM|8302-2^BODY HEIGHT^LN||74|[in_us]^inch^UCUM|||||F||20240817171322-0500
OBX|9|NM|3141-9^BODY WEIGHT MEASURED^LN||175|[lb_av]^pound^UCUM|||||F||20240817171322-0500
OBX|10|CWE|11449-6^Pregnancy status - reported^LN||N^No^HL70136|||||F||20240817111322-0500
OBX|11|TX|54094-8^Triage Note^LN||pt reports cough and wheezing that began last night. pt has cough and wheezing present.
pt febrile at this time, pt reports taking 200 mg Acetaminophen once at approx 800 this morning.|||||F
OBX|12|TX|44833-2^Diagnosis.preliminary^LN||Viral Infection
OBX|13|NM|11289-6^Body temperature^LN||39.05|Cel^degree Celsius^UCUM|||||F||20240817111322
OBX|14|NM|8480-6^SYSTOLIC BLOOD PRESSURE^LN||127|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM|||||F||20240817171322
OBX|15|NM|8462-4^DIASTOLIC BLOOD PRESSURE^LN||69|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM|||||F||20240817171322
OBX|16|CWE|11450-4^Problem List - Reported^LN||196600005^Acid reflux^SCT|||||F
OBX|17|NM|59408-5^OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY^LN||94|%^percent^UCUM|||||F||20240824105500
OBX|18|TX|10160-0^Medication Use Reported^LN||aspirin 325 mg 1 Tab Tab Oral 1-Time;acetaminophen 650 mg 2 Tab Tab Oral Q4H|
|||||F||20240824
OBX|19|TX|8677-7^History of Medication Use Reported^LN||161^Acetaminophen^RXNORM~1191^Aspirin^RXNORM~1807633
^250 ML Sodium Chloride 9 MG/ML Injection^RXNORM|||||F
IN1|1|UNK^UNKNOWN^NULLFL|CBM
IN1|2|BC|B
IN1|3|BC|BB
IN1|4|UNK^UNKNOWN^NULLFL|M
IN1|5|UNK^UNKNOWN^NULLFL|MB
```

## Patient Discharge/End of Visit Message

This sample of an HL7 message contains the patient discharge with multiple diagnoses.

```
MSH|^~\&|RHAP|Multiverse MC^4321^ARCS|ADH_SS|ADH|20240825211247-0500||ADT^A08^ADT_A01|M8StEv|P|2.5.1||AL|AL|||||PH_SS-Ack^SS
Sender^2.16.840.1.114222.4.10.3^ISO
EVN|A08|202408251403812|||||Multiverse MC^123456789^NPI
PID|1||AMAZON1^MR^|PRINCE^DIANA^L||00240322|F||2106-3^White^CDCREC|1 Castle Ln^Themyscira^05^72758^USA^C^05007|
|||||1234567^AN^|2186-5^Not Hispanic or Latino^CDCREC|||||N
PV1|1||I|080^TR^06|E|||||MED|||||7|||||22268^VN^|||||09|||||20240817110100-0500| 20240825132214-0500
PV2||6042001^Pulmonary aspergillosis^SCT
DG1|1||6042001^Pulmonary aspergillosis^SCT
DG1|2||B34.9^Viral infection, unspecified^I10C||20240820192224.000-0500|F
DG1|3||Z11.52^Encounter for screening for COVID-19^I10C||20240820192224.000-0500|F
DG1|4||B96.89^Other specified bacterial agents as the cause of diseases classified elsewhere^I10C||20240822100100.000-0500|F
OBX|1|CWE|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||123456789^Multiverse MC^NPI|||||F||20240817111322
OBX|2|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||890 Fifth Avenue^Manhattan^36^USA^C^36061|||||F||20240817111322
OBX|3|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC|||||F||20240817111322
OBX|4|NM|21612-7^AGE - REPORTED^LN||2000|a^YEAR^UCUM|||||F
OBX|5|CWE|72166-2^Tobacco Smoking Status^LN||266919005^Never smoked^SCT|||||F||20240817111322
OBX|6|TX|8661-1^Chief Complaint^LN||SICK SOB(EMS)|||||F||20240817171322
OBX|7|CWE|56816-2^PATIENT LOCATION^LN||1069-4^Pulmonary Ward^HSLOC|||||F||20240817221322-0500
OBX|8|NM|8302-2^BODY HEIGHT^LN||74|[in_us]^inch^UCUM|||||F||20240817171322-0500
OBX|9|NM|3141-9^BODY WEIGHT MEASURED^LN||175|[lb_av]^pound^UCUM|||||F||20240817171322-0500
OBX|10|CWE|11449-6^Pregnancy status - reported^LN||N^No^HL70136|||||F||20240817111322-0500
OBX|11|TX|54094-8^Triage Note^LN||pt reports cough and wheezing that began last night. pt has cough and wheezing present.
pt febrile at this time, pt reports taking 200 mg Acetaminophen once at approx 800 this morning.|||||F
OBX|12|TX|44833-2^Diagnosis.preliminary^LN||Viral Infection
OBX|13|NM|11289-6^Body temperature^LN||39.05|Cel^degree Celsius^UCUM|||||F||20240817111322
OBX|14|NM|8480-6^SYSTOLIC BLOOD PRESSURE^LN||127|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM|||||F||20240817171322
OBX|15|NM|8462-4^DIASTOLIC BLOOD PRESSURE^LN||69|mm[Hg]^MilliMeters of Mercury [Blood Pressure Unit]^UCUM|||||F||20240817171322
OBX|16|CWE|11450-4^Problem List - Reported^LN||196600005^Acid reflux^SCT|||||F
OBX|17|NM|59408-5^OXYGEN SATURATION IN ARTERIAL BLOOD BY PULSE OXIMETRY^LN||94|%^percent^UCUM|||||F||20240824105500
OBX|18|TX|10160-0^Medication Use Reported^LN||aspirin 325 mg 1 Tab Tab Oral 1-Time;acetaminophen 650 mg 2 Tab Tab Oral Q4H|
|||||F||20240824
OBX|19|TX|8677-7^History of Medication Use Reported^LN||161^Acetaminophen^RXNORM~1191^Aspirin^RXNORM
~1807633^250 ML Sodium Chloride 9 MG/ML Injection^RXNORM|||||F
IN1|1|UNK^UNKNOWN^NULLFL|CBM
IN1|2|BC|B
IN1|3|BC|BB
IN1|4|UNK^UNKNOWN^NULLFL|M
IN1|5|UNK^UNKNOWN^NULLFL|MB
```

## Appendix D: References and Resources

### D.1 Syndromic Surveillance and Meaningful Use

Overview of syndromic surveillance <http://www.cdc.gov/mmwr/preview/mmwrhtml/su5301a3.htm> CDC

Interoperability <http://www.cdc.gov/ehrmeaningfuluse/>

PHIN – Public Health Information Network <http://www.cdc.gov/phin/index.html>

### D.2 Local Resources

ADH – Arkansas Department of Health Promoting Interoperability <https://www.healthy.arkansas.gov/programs-services/topics/meaningful-use>

SHARE/HIE – State Health Alliance for Records Exchange <http://sharearkansas.com/>

### D.3 HL7 Messaging

PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent Care, Inpatient and Ambulatory Care Settings For HL7 Version 2.5.1, Release 2.0, April 2015,

[http://www.cdc.gov/nssp/documents/guides/syndrsurvmsgguide2\\_messagingguide\\_phn.pdf](http://www.cdc.gov/nssp/documents/guides/syndrsurvmsgguide2_messagingguide_phn.pdf)

PHIN Erratum to The CDC PHIN 2.0 Messaging Guide, April 2015 Release For Syndromic Surveillance: Emergency Department, Urgent Care, Inpatient And Ambulatory Care Settings,

<http://www.cdc.gov/nssp/documents/guides/erratum-to-the-cdc-phin-2.0-implementation-guide-august-2015.pdf>

*Value sets associated with PHIN Messaging Guide for Syndromic Surveillance,*

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

HL7 Data Dictionary - Appendix A, Health Level Seven, Version 2.6 © 2007,

[http://www.hl7.org/special/committees/vocab/V26\\_Appendix\\_A.pdf](http://www.hl7.org/special/committees/vocab/V26_Appendix_A.pdf)

PHIN Vocabulary and Access Distribution System (VADS) Search Tool,

<https://phinvads.cdc.gov/vads/SearchHome.action>

### D.4 HL7 Message Test Tools

NIST (National Institute of Standards and Technology), <http://hl7v2-ss-testing.nist.gov/mu-syndromic/>, web application for HL7 testing

For questions about syndromic surveillance at ADH, please contact: [ADH.SYNDROMIC@arkansas.gov](mailto:ADH.SYNDROMIC@arkansas.gov)