

Arkansas Department of Health Guidance on the
PHIN Messaging Guide for Syndromic Surveillance:
Emergency Departments, Urgent Care Data and
Ambulatory Care Settings

ADT MESSAGES A01, A03, A04, and A08

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(Version 2.3.1 Compatible)

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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 uses (ADH) 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.

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. For more information about HL7 messaging, go to <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 an HL7 2.3.1 or 2.5.1 message should contain for Syndromic Surveillance submission 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: http://www.cdc.gov/nssp/documents/guides/syndrsurvmessagguid2_messagingguide_phn.pdf

PHIN Conformance Clarification for EHR Certification of Electronic Syndromic Surveillance: <http://www.cdc.gov/nssp/documents/guides/erratum-to-the-cdc-phin-2.0-implementation-guide-august-2015.pdf>

Arkansas Department of Health Meaningful Use website for Syndromic Surveillance: <http://www.healthy.arkansas.gov/programsServices/MeaningfulUse/SS/Pages/default.aspx>

Data Submission Parameters

- The Arkansas Department of Health requests that Syndromic Surveillance data be submitted as individual messages. Data submission should occur 24 hours a day. 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 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” should be placed if those data elements are sent.

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

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

While both HL7 versions 2.3.1 and 2.5.1 are supported under Stage 1 of Meaningful Use, ADH is requesting that all Syndromic Surveillance messages conform to HL7 version 2.5.1 standards. 2.5.1 will be the required format for Stage 2 of Meaningful Use (January 1, 2014).

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 |
|---------------------------------------|--|
| R : Required | Data fields marked “R” must be present in all messages transmitted. |
| RE : Required but may be empty | Data fields marked “RE” are required when the data is present in the patient record (expected in the majority of situations.) “RE”-designated information may legitimately be missing in some circumstances, e.g., information on patient demographics when the patient arrives unconscious. |
| O : Optional | 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) | RE |
| Observation/Result (OBX) | R |
| Diagnosis (DG1) | RE |
| Procedures (PR1) | O |
| Insurance (IN1) | O |

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

Arkansas Syndromic Surveillance HL7 Minimum Data Set

| Data Element Name | Usage |
|---|-------|
| Facility Identifier (Treating) | R |
| Facility Name (Treating) | O |
| Treating Facility Address (Street, City, Zip, and County) | O |
| Facility Location (Treating)-City | O |
| Facility Location (Treating)-County | O |
| Facility Location (Treating)-State | O |
| Facility/Visit Type | R |
| Message (Event) Date/Time | R |
| Unique Physician Identifier | O |
| Provider Type | O |
| Unique Patient Identifier/Medical Record # | R |
| Unique Visit Identifier | R |
| Gender | RE |

| | |
|---|----------|
| Race | RE |
| Ethnicity | RE |
| Age/Age Units | RE |
| Patients City/Town | RE |
| Patient Zip Code | RE |
| Patient County/County Code | R |
| Patient State | RE |
| Patient Country | O |
| Chief Complaint/Reason for Visit | R |
| Admit or Encounter Reason | RE |
| Admit or Encounter Date/Time | R |
| Date of onset | O |
| Patient Class | R |
| Admission Type | O |
| Admit Source | O |
| Diagnosis Type | RE |
| Primary Diagnosis | RE |
| Discharge Disposition | RE |
| Discharge Dispositon Date/Time | RE |
| Procedure Code | O |
| Triage Notes | O |
| Clinical Impression | O |
| Pregnancy Status | O |
| Problem List | O |
| Medication List | O |
| Height | O |
| BMI | O |
| Systolic and Diastolic Blood Pressure (SBP/DBP) | O |
| Initial Temperature | O |
| Initial Pulse Oximetry | O |
| Smoking Status | O |
| Initial Acuity | O |
| Insurance Coverage | O |
| Travel History | O |

TABLE 1: Minimum Data Element Specifications

The following table contains a minimum list of data elements currently used by the Arkansas Department of Health to conduct Syndromic Surveillance.

| MSH: MESSAGE HEADER SEGMENT | | | | |
|---|--------------------|--------------|------------------|---|
| 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. | | | | |
| MSH Example: MSH ^~\& 300012^2231237890^NPI ^300012 201208171230 ADT^A04^ADT_A04 NIST-SS-001.12 P 2.5.1 PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO | | | | |
| MSH: MESSAGE HEADER SEGMENT | | | | |
| DATA FIELD | HL7 SEGMENT | USAGE | VALUE SET | DESCRIPTION |
| Field Separator | MSH.1 | R | | Shall be " " ASCII(124) |
| Encoding Characters | MSH.2 | R | | Default values are ^~\& (ASCII 94, 126, 92, and 38, respectively). |
| Sending application | MSH.3 | O | | Sending application name |
| Namespace ID | MSH.3.1 | O | 0300 | 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 | 0301 | Any non-standard values used in this field need to be disclosed prior to first use |
| Sending Facility | MSH.4 | R | | Registered Name in MURCS |
| Namespace ID | MSH.4.1 | RE | HL70362 | |
| Universal ID | MSH.4.2 | R | | Sending Facility's HCFA, NPI Code or assigned MUID (ADH unique ID). Hospitals submitting use a HCFA (reference Appendix F Tables) or hospital provided code. Any messages that contain unrecognized HCFA, NPI or provided MUID (Ambulatory Care Setting) numbers are automatically rejected |
| Universal ID Type | MSH.4.3 | R | HL70301 | Should be "NPI" for Eligible Hospitals Should be "MUID" For Ambulatory Care setting |
| Receiving application | MSH.5 | o | | A value of "ADH_SS" |
| Namespace ID | MSH.5.1 | o | 0300 | All values used in this field need to be disclosed prior to first use |
| Universal ID | MSH.5.2 | o | | Free text field containing less than 200 characters |
| Universal ID Type | MSH.5.3 | o | 0301 | Any non-standard values used in this field need to be disclosed prior to first use |
| Receiving Facility | MSH-6 | O | | Destination system at ADH |
| Date/Time Of Message | MSH.7 | R | | Date/time when HL7 message was created The degree of precision must be at least to the minute and the time zone must be included. Format: YYYYMMDDHHMM[SS] |
| Time | MSH.7 | R | | Message type – Should be the message type for Observation – Result, unsolicited transmission of an |

| | | | | |
|----------------------------|----------|---|--|--|
| | | | | observation message |
| Message Type | MSH.9 | R | | Message type – Should be the message type for Observation – Result, unsolicited transmission of an observation message |
| Message Code | MSH.9.1 | R | | Literal Value: "ADT" or "ACK" (http://phinivads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.6049) |
| Event Type | MSH.9.2 | R | | Literal Value: "A01", "A04", "A08", or "A03" (http://phinivads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.6048) |
| Message Structure | MSH.9.3 | R | | Literal Value: "A01", "ADT_A04", "ADT_A08", "ADT_A03", or "ACK" http://phinivads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.6047 |
| Message Control ID | MSH.10 | R | | Free-text string value used to uniquely identify the message |
| Processing ID | MSH.11 | R | | Used for Message Acknowledgement |
| Processing ID | MSH.11.1 | R | | P - Production T – Non-Production/Test |
| Version ID | MSH.12 | R | | |
| Version ID | MSH.12.1 | R | | HL7 message version (e.g. 2.3.1, 2.5.1) |
| Message Profile Identifier | MSH.21 | R | | Sites may use this field to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages. |
| Entity Identifier | MSH.21.1 | R | | |
| Namespace ID | MSH.21.2 | o | | |
| Universal ID | MSH.21.3 | o | | |
| Universal ID Type | MSH.21.4 | o | | |

EVN: EVENT TYPE SEGMENT

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

The EVN segment is required.

EVN Example

EVN||201208171230|||ELLIOT HOSPITAL^1902996028^NPI

EVN: EVENT TYPE SEGMENT

| DATA FIELD | HL7 SEGMENT | USAGE | VALUE SET | DESCRIPTION |
|--------------------|-------------|-------|-----------|---|
| EVN Type Code | Evn.1 | RE | | PHVS_EventType_SyndromicSurveillance HL7 Table 0003 |
| Recorded Date/Time | EVN.2 | R | | Conformance Statement SS-018: EVN-2 (Recorded Date/Time of Message) SHALL be expressed with a minimum precision of the nearest minute, and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]' |

| | | | | |
|-------------------|---------|----|--|--|
| Event Facility | EVN.7 | R | | This field identifies the location where the patient was actually treated |
| Namespace ID | EVN.7.1 | RE | | Recommend the use of the Organization Name Legal Business Name (LBN) associated with the National Provider Identifier Standard provided by Centers for Medicare and Medicaid Services or State-designated identifier |
| Universal ID | EVN.7.2 | R | | Unique facility identifier of facility where the patient is treated (NPI or Arkansas designated "MUID") |
| Universal ID Type | EVN.7.3 | R | | Use NPI in segment |

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 change infrequently. The PID segment is required.

PID Example:

PID|1||3333^MR||^~^S||19690201|M||2106-3^CDCREC|^MANCHESTER^33^03103^USA^^HILLSBOROUGH
 |||||2186-5^CDCREC

PID: PATIENT IDENTIFICATION SEGMENT

| DATA FIELD | HL7 SEGMENT | USAGE | VALUE SET | DESCRIPTION |
|-------------------------|-------------|-------|-------------------------------|--|
| Set ID - PID | PID.1 | R | | This field contains the number that identifies this transaction. The sequence number shall be one. Conformance Statement SS-019: PID-1 (Set ID) SHALL have the Literal Value of '1'. |
| Patient Identifier List | PID.3 | R | | Definition: PID.3 is a repeating field that can accommodate multiple patient identifiers. |
| ID Number | PID.3.1 | R | | Patient ID or medical record number: Contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, Medicaid number, etc.) |
| 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 or legal name of the patient is reported first |
| Name Type Code | PID.5.7 | R | HL70200 | |
| Date/Time of Birth | PID.7 | O | | Definition: This field contains the patient's date and time of birth. |
| Administrative Sex | PID.8 | RE | PHVS_AdministrativeSex_HL7_2x | http://phinvas.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.3403 Definition: This field contains the patient's sex. Data Element of Interest: Gender |
| Race | PID.10 | RE | | PHVS RaceCategory CDC |

| | | | | |
|-----------------------------|----------|----|---------|--|
| Identifier | PID.10.1 | RE | | Refers to the patient's race (PHVS RaceCategory CDC): 1002-5 – American Indian or Alaska Native 2028-9 – Asian 2054-5 – Black or African American 2076-8 – Native Hawaiian or Other Pacific Islander 2106-3 – White 2131-1 – Other Race |
| Name of Coding System | PID.10.3 | CE | | If PID-10.1 (the identifier) is provided, then PID 10.3 is valued. |
| Patient Address | PID.11 | RE | | Definition: This field contains the mailing address of the patient. Note: Expecting only the patient primary (current) address information in the supported components. Not expecting street address information. |
| Zip or Postal Code | PID.11.5 | RE | USPS | |
| County/Parish Code | PID.11.9 | R | HL70289 | PHVS County FIPS 6-4 |
| Patient Account Number | PID.18 | O | | This field contains the patient account number assigned by accounting to which all charges, payments, etc., are recorded |
| Ethnic Group | PID.22 | RE | | PHVS EthnicityGroup CDC |
| Identifier | PID.22.1 | RE | | |
| Name of Coding System | PID.22.3 | CE | | |
| Patient Death Date and Time | PID.29 | CE | | Predicate on PID 30 |
| Time | PID.29.1 | R | | |
| 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||E|||||||2222000068^^^VN|||||||01|||||201203270000

PV1: PATIENT VISIT SEGMENT

| DATA FIELD | HL7 SEGMENT | USAGE | VALUE SET | DESCRIPTION |
|---------------------------|-------------|-------|-----------|---|
| Set ID - PV1 | PV1.1 | RE | | This field contains the number that identifies this transaction. The sequence number shall be '1'. |
| Patient Class | PV1.2 | R | | Definition: This field is used by systems to categorize patients by site. PHVS PatientClass SyndromicSurveillance |
| Assigned Patient Location | PV1.3 | O | | Definition: This field contains the patient's initial assigned location or the location to which the patient is being moved. The first component may be the nursing station for inpatient locations, or clinic or |

| | | | | |
|------------------------|----------|------|-----------------|--|
| | | | | department, for locations other than inpatient. |
| Admission Type | PV1.4 | O | HL7 table 0007 | Definition: 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 | HL7 table 0023: | 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 | HL7 table 0009: | Definition: This field indicates any permanent or transient handicapped conditions. |
| Visit Number | PV1.19 | R | | Unique number assigned to each patient visit |
| ID Number | PV1.19.1 | R | | |
| 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, Required Empty in ADT^A08) PHVS DischargeDisposition HL7 2x |
| Admit Date/Time | PV1.44 | R | | Admit Date/Time shall be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]' |
| Discharge Date/Time | PV1.45 | R/RE | | Discharge Date/Time shall be expressed with a minimum precision of the nearest minute and be represented in the following format: 'YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]'; not populated in a registration message; Required with ADT^A03, Required Empty in ADT^A08 |

PV2: PATIENT ADDITIONAL INFORMATION SEGMENT

The PV1 segment is a continuation of visit-specific information where the Admit Reason passed. The PV2 is a required but may be empty segment, meaning that if the information is available it must be sent with the message.

PV2 Example:

PV2|||FEVER, CHILLS, UTI^IC9DX

PV2: PATIENT ADDITIONAL INFORMATION SEGMENT

| DATA FIELD | HL7 SEGMENT | USAGE | VALUE SET | DESCRIPTION |
|--------------|-------------|-------|-----------------|---|
| Admit Reason | PV2.3 | RE | I9CDX, I10, SCT | Definition: This field contains the short description of the providers' reason for patient admission. NOTE: Admit Reason may be coded (CE.1 – CE.3) or Free text (CE.2.) |

| | | | | |
|-----------------------|---------|----|--|--|
| Identifier | PV2.3.1 | RE | | ICD-CM, ICD-10CM code (PHVS AdministrativeDiagnosis_CDC_ICD-9CM Or PHVS AdministrativeDiagnosis_ICD-10CM Or PHVS Disease_CDC |
| Text | PV2.3.2 | RE | | |
| Name of Coding System | PV2.3.3 | C | | If PV2-3.1 is provided, then PV2-3.3 is valued. SHALL be valued to one of the Literal Values in the set ('I10', 'I9CDX', 'SCT'). |

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.

OBX Example:

OBX|1|CWE|SS003^^PHINQUESTION||261QU0200X^Urgent Care^HCPTNUCC|||||F

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

OBX|3|TX|8661-1^Chief complaint^LN||Fever, chills, smelly urine with burning during urination|||||F

OBX: OBSERVATION / RESULT SEGMENT

| DATA FIELD | HL7 SEGMENT | USAGE | VALUE SET | DESCRIPTION |
|------------------------|-------------|-------|-----------|--|
| Set ID | OBX.1 | R | | Definition: This field contains the sequence number. Set ID numbers the repetitions of the segments |
| Value Type | OBX.2 | R | HL70125 | Definition: This field contains the format of the observation value in OBX. Note: Identifies the structure of data in observation value (OBX.5) Conformance Statement SS-028: OBX-2 SHALL be valued to the Literal Value in the set ('TS', 'TX', 'NM', 'CWE', 'XAD') from the value set http://phinvads.cdc.gov/vads/ViewValueSet.action?id=2.16.840.1.114222.4.11.6057 |
| Observation Identifier | OBX.3 | R | LN | Definition: This field contains a unique identifier for the observation. These are observation identifiers associated with syndromic surveillance that are contained in the value set: http://phinvads.cdc.gov/vads/ViewValueSet.action?id=2.16.840.1.114222.4.11.3589 . Traditionally this value has been supplied in PV2-3, but is now provided in OBX-5 |
| Identifier | OBX.3.1 | R | | |
| Name of Coding System | OBX.3.3 | R | | |
| Observation Value | OBX.5 | R | | Definition: This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which |

| | | | | |
|---------------------------|---------|---|---------------|--|
| | | | | observation value is formatted. |
| Units | OBX.6 | C | PHVS Age Unit | Definition: The identifier that is used in Syndromic Surveillance for Units of measurement either for age, or temperature or pulse oximetry Background: When an observation's value is measured on a continuous scale (OBX-5), one must report the measurement units within the units field of the OBX segment (OBX-6). |
| Identifier | OBX.6.1 | R | | |
| Name of Coding System | OBX.6.3 | R | | |
| Observation Result Status | OBX.11 | R | HL70085 | Definition: This field contains the observation result status. This field reflects the current completion status of the results for one Observation Identifier. |

DIAGNOSIS SEGMENT (DG1 Segment)

The DG1 segment contains various types of patient data. ADH supports Admitting, Working, and Final Diagnosis types. The DG1 may be sent in addition to or in place if the PV2.

DG1 Example:

DG1|1||78605^Shortness of breath^I9CDX||201312271700|W^Working^HL70052

DG1: DIAGNOSIS SEGMENT

| DATA FIELD | HL7 SEGMENT | USAGE | VALUE SET | DESCRIPTION |
|----------------------|-------------|-------|-----------------|--|
| Set ID - DG1 | DG1.1 | R | | Conformance Statement SS-032: DG1-1 (Set ID) for the first occurrence of a DG1 Segment SHALL have the Literal Value of '1'. Each following occurrence SHALL be numbered consecutively |
| Diagnosis Code - DG1 | DG1.3 | R | I9CDX, I10, SCT | Definition: This contains the diagnosis code assigned to this diagnosis. Data Element of Interest: Diagnosis Condition Predicate: If the DG1 Segment is provided, DG1-3 (Diagnosis) is required to be valued. |
| Identifier | DG1.3.1 | R | | This component contains a code value (concept ID) from one of the following code systems: PHVS AdministrativeDiagnosis CDC ICD-9CM Or PHVS AdministrativeDiagnosis ICD-10CM Or PHVS Disease CDC Conformance Statement SS-011: The implementation SHALL support all 3 value sets. |

| | | | | |
|-----------------------|---------|------|--|--|
| Text | DG1.3.2 | RE | | This component contains a description for the concept identified in DG1-3.1. |
| Name of Coding System | DG1.3.3 | R | | This component contains the coding system identifier (Table 0396 Code System Identifiers) for the concept identified in DG1-3.1. Condition Predicate: If DG1-3.1 (the identifier) is provided then DG1-3.3 is valued. Conformance Statement SS-033: DG1-3.3 SHALL be valued to one of the Literal Values in the set ('I10', 'I9CDX', 'SCT'). |
| Diagnosis Date/Time | DG1.5 | O | | Definition: This field contains the date/time that the diagnosis was determined. |
| Diagnosis Type | DG1.6 | R/RE | | Definition: This field contains a code that identifies the type of diagnosis being sent . Data Element of Interest: Diagnosis type. Condition Predicate: If the DG1 Segment is provided, DG1-6 (Diagnosis Type) is required to be valued. Conformance Statement SS-040 Diagnosis Type SHALL be either A, F or W (Admitting, Final or Working) |

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 [ADH Meaningful Use Registration and Communications System \(MURCS\)](#) showing their intent to submit syndromic electronic data to public health.

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.
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.** Use of HL7 version 2.5.1 is preferred for Stage 1 and is required for Stage 2. The set of test messages should include at least one of each Admit Discharge Transfer (ADT) Message Trigger Type (i.e. A01, A03, A04, A08) 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:** <http://hl7v2-ss-testing.nist.gov/mu-syndromic/>
 1. Click on "Context-free Validation" and input message into the Message Content field.
 - a. **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](#).
3. Upload successful test messages into [MURCS](#). Include Syndromic validation reports that indicate test messages are free of errors.

[CLICK HERE FOR INSTRUCTION ON "HOW TO UPLOAD A DOCUMENT INTO MURCS**](#)**
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.
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.

- a. 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) Preferred Method

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)

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 developed by Orion Health, to receive HL7 messages. A submitting laboratory may use Orion’s Rhapsody Connector transport technology.

Appendix C: Sample Messages

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

c.1 Brief Urgent Care or Emergency Department Visit – ADT A04

This sample of an HL7 message contains the patient registration.

```
MSH|^~\&|300012^2231237890^NPI|^300012||201208171230||ADT^A04^ADT_A04|NIST-SS-001.12|P|2.5.1|||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201208171230|||ELLIOT HOSPITAL^1902996028^NPI
PID|1||2222^MR||^MR||19790505|F||2106-3^White^CDCREC|^Decatur^13^30303^13121|||||2135-2^Hispanic or Latino^CDCREC
PV1|1|E|||||2222_001^VN|||||201208171200
PV2||FEVER, CHILLS, UTI^IC9DX
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||1902996028^ELLIOT HOSPITAL^HCPTNUCC||||F
OBX|2|NM|21612-7^AGE – REPORTED^LN||43|a^YEAR^UCUM||||F||20110217
OBX|3|TX|8661-1^LN||^Fever, chills, smelly urine with burning during urination||||F
Use this OBX format if the patient’s age is unknown.
OBX|4|NM|21612-7^AGE – REPORTED^LN||UNKN^unknown^NULLFL||||F||20110217
Examples OBX Segment:
Coded value -
OBX|3|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||7804^Dizziness and giddiness [780.4]^I9CDX||||F||20110217
Structured field or drop-down menu value -
OBX|3|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN|^Dizziness and giddiness||||F||20110217
Free-text value –
OBX|3|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN|^STOMACH ACHE||||F||20110217153
```

C.2 Patient Update Message (with Multiple Diagnosis Codes)

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

```
MSH|^~\&||300012^2231237890^NPI|^300012||2012080311600||ADT^A08^ADT_A04|NIST-SS-001.12|P|2.5.1|||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201208030230|||ELLIOT HOSPITAL^1902996028^NPI
PID|1||3333^MR||^S||19690201|M||2106-3^CDCREC|^MANCHESTER^33^03103^USA^HILLSBOROUGH|||2186-5^CDCREC
PV1|1|E|||||E|3333_001^VN|||||201208031430
PV2|||SOB^IC9DX
DG1|1||518.81^acute respiratory failure^I9CDX||201208030230|W^Working^2.16.840.1.114222.4.11.827|||||1
DG1|2||518.4^acute pulmonary edema^I9CDX||201208030230|W^Working^2.16.840.1.114222.4.11.827|||||2
OBX|1|CWE|SS003^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC|||||F
OBX|2|NM|21612-7^AGE – REPORTED^LN||43|a^YEAR^UCUM|||||F||20110217
```

C.3 Patient Discharge Message

This sample of an HL7 message contains the patient discharge.

```
MSH|^~\&||300012^2231237890^NPI|^300012||201208171430||ADT^A03^ADT_A03|NIST-SS-001.22|P|2.5.1|||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO
EVN||201208171430|||ELLIOT HOSPITAL^1902996028^NPI
PID|1||2222^MR||^S||19690201|F||2106-3^CDCREC|^MANCHESTER^33^03103^USA^HILLSBOROUGH|||2135-2^CDCREC
PV1|1|E|||||E|2222_001^VN|||||01|||||201208171200
PV2|||ACUTE RESPIRATORY FAILURE ^IC9DX
DG1|1||518.81^acute respiratory failure ^I9CDX|||||F|||||1
OBX|1|CWE|SS003^PHINQUESTION||261QU0200X^Urgent Care^HCPTNUCC|||||F
OBX|2|NM|21612-7^AGE – REPORTED^LN||43|a^YEAR^UCUM|||||F||20110217
OBX|3|CWE|8661-1^LN||^Shortness Of Breath|||||F
```

C.4 Acknowledgement Message

Based upon the agreed upon transport mechanism, ADH will return an acknowledgement message to the system a facility employs to submit data to public health. Below is a sample of that message

```
MSH|^~\&|ADH_SS|ADH|HMS|MCOSA ^1234567890^NPI|20150814171527951-0500||ACK^A08^ACK|790993|P|2.5
MSA|AR|610640
ERR||PV2^1^3^1^1|103^Table value not found^HL70357|E|1014^Admit diagnosis code is not valid (Code: FALL Code System: I9CDX)|PV2/AdmitReason/Identifier
ERR||PV1^1^4^1^1|W|1014^Admission type(1) is not valid.|PV1/AdmitType
```

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 Meaningful Use <http://www.cdc.gov/ehrmmeaningfuluse/>

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

D.2 Local Resources

ADH – Arkansas Department of Health for Meaningful Use <http://www.ADH.GOV/MU>

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

Arkansas Foundation for Medical Care www.afmc.org

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/syndrsurvmessagguide2_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

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

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

D.4 HL7 Message Test Tools

PHIN MQF Message Quality Framework, <https://phinmqf.cdc.gov/>, to test HL7 messages for required format and fields (not content)

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

Appendix E: NH DPHS Contact Information

For questions about syndromic surveillance at ADH, please contact: ADH.SYNDROMIC.MU@arkansas.gov