Commonwealth of Virginia
Syndromic Surveillance Submission Guide:
Emergency Department and Urgent Care Data
(April 2014)

HL7 version 2.5.1

Prepared by:

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VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Introduction

Virginia Department of Health (VDH) compiled this guide for eligible hospitals and urgent care centers who wish to demonstrate meaningful use of certified electronic health record technology by the submission of syndromic surveillance data. The information in this implementation guide is based on the *PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care Data* release 1.0 (October 2011) with VDH-specific amplifications and constraints. The HL7 2.5.1 data elements requested by VDH for syndromic surveillance submission are listed below by message segment.

Please note that not all the information presented in the *PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care Data* is replicated in this document. For example, all unsupported fields have been excluded from this document. VDH compiled this guide to assist facilities with understanding what data elements an HL7 2.5.1 message should contain for syndromic surveillance submission in Virginia. Please refer to *PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care Data* for additional information.

Useful Resources

PHIN Messaging Guide for Syndromic Surveillance: Emergency Department and Urgent Care-
http://www.cdc.gov/ehrmeaningfuluse/Docs/PHIN%20MSG%20Guide%20for%20SS%20ED%20and%20UC%20Data%20Release%201.pdf

PHIN VADS value sets for syndromic surveillance date elements-
http://phinvads.cdc.gov/vads/ViewView.action?name=Syndromic Surveillance

Virginia Department of Health Meaningful Use website-
http://www.vdh.virginia.gov/meaningfuluse/

Syndromic Surveillance in Virginia

Syndromic surveillance is near real-time surveillance that tracks chief complaints of patients who present to health 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 through earlier detection of emerging public health events**.** VDH uses a syndromic surveillance system called Electronic Surveillance System for the Early Notification of Community-based Epidemics, also known as ESSENCE. ESSENCE provides near real-time situational awareness of potential public health threats and emergencies by alerting VDH epidemiologists when unusual increases in symptom presentations are detected in the community.

Data Submission Parameters

- Syndromic surveillance data can be submitted to VDH by either batched or real-time messages. Real-time messages are preferred.
- If batching is selected, messages should be sent at 6 hour intervals no later than the following times: 2am, 8am, 2pm, and 8pm EST.
- Preferred transport mechanism is HTTPS but other options are supported if a facility cannot support HTTPS. More information about transport options for public health reporting can be found on the ConnectVirginia website- https://www.connectvirginia.org/services/public-health-reporting/
- Facilities should submit **all visits** to the emergency department or urgent care center with no filtering done prior to submission to VDH.

Supported ADT Message Types

Four message transaction types can be accepted for 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 location.

ADT^A01 (Admit/Visit Notification) **–** A patient undergoes the admission process and is assigned to a location.

ADT^A08 (Patient Information Update) – Patient information has changed but no other trigger event has occurred.

ADT^A03 (Discharge) – A patient's stay in a healthcare facility has ended and their status is changed to discharged.

Supported ADT Message Format

While both HL7 versions 2.3.1 and 2.5.1 are supported under Stage 1 of Meaningful Use, VDH is requesting that all syndromic surveillance messages conform to HL7 version 2.5.1 standards. HL7 version 2.5.1 is the required message format for Stage 2 of Meaningful Use.

Required Message Segments

The message segments requested for syndromic surveillance submission are the same for each message transaction type; however the order of segments does differ by message type. It is important to note the segment order for an A03 differs from the segment order of A01, A04, and A08 messages types.

R = Required to be sent
RE = Required to be sent but can be empty if information is not available

Segment Order	ADT^A04	ADT^A01	ADT^A08
Message Header (MSH)	R	R	R
Event Type (EVN)	R	R	R
Patient Identification (PID)	R	R	R
Patient Visit (PV1)	R	R	R
Observation/Result (OBX)	R	R	R
Diagnosis (DG1)	RE	RE	RE

Segment Order	ADT^A03
Message Header (MSH)	R
Event Type (EVN)	R
Patient Identification (PID)	R
Patient Visit (PV1)	R
Diagnosis (DG1)	RE
Observation/Result (OBX)	R

Data Element Sender Usage

The data elements that are requested for syndromic surveillance submission are not the same for each message transaction type. Each data element is denoted as required, optional, or conditional to be sent by the data submitter.

R = Required to always be sent
RE = Required to be sent but can be empty if information is not available
O = Optional – Information will be accepted if sent
C = Conditional – Required to always be sent when another data element is present
CE = Required to be sent when another data element is present but can be empty if information is not available

Data Element Specifications

The tables below outline the data elements by message segment that are requested for syndromic surveillance submission.

MESSAGE HEADER SEGMENT (MSH)					
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Notes/Value Set**
Field Separator	1	ST	1	R	Default value "|"
Encoding Characters	2	ST	4	R	Default values "^~\&"
Sending Facility	4	HD	100	R	Identifies the facility location where the patient was treated.
Namespace ID	4.1	IS	20	R	Full name of facility where patient presented for treatment. No acronyms or abbreviations will be accepted.
Universal ID	4.2	ST	199	R	National Provider Identifier (10 digit identifier).
Universal ID Type	4.3	ID	6	R	Literal Value: "NPI"
Receiving Application	5	HD	227	O	Literal Value: "SYNDSURV"
Receiving Facility	6	HD	227	O	
Namespace ID	6.1	IS	20	O	Literal Value: "VDH"
Universal ID	6.2	ST	199	O	Literal Value: "2.16.840.1.114222.4.1.184"
Universal ID Type	6.3	ID	6	O	Literal Value: "ISO"
Date/Time of Message	7	TS	26	R	Date/Time the sending system created the message in the following format: *YYYYMMDDHHMMSS*
Message Type	9	MSG	15	R	All messages will be Admit-Discharge-Transfer (ADT) message types. The triggering event is a real-world circumstance causing the message to be sent. Supported trigger events are A04 (Registration), A01 (Admission), A08 (Update), and A03 (Discharge).
Message Code	9.1	ID	3	R	Literal Value: "ADT"
Trigger Event	9.2	ID	3	R	One of the following Literal Values: "A01", "A03", "A04", or "A08"

Message Structure	9.3	ID	7	R	One of the following Literal Values: “ADT_A01” or “ADT_A03” Trigger events A01, A04 and A08 share the same “ADT_A01” Message structure.
Message Control ID	10	ST	199	R	A number or other identifier that uniquely identifies the individual message.
Processing ID	11	PT	3	R	Indicates how to process the message. Literal Values: “P” for production data or “D” for development (test) data.
Version ID	12	VID	5	R	Literal Value: “2.5.1”
Message Profile Identifier	21	EI	427	O	Literal Value: “PH_SS-Ack^SS Sender^2.16.840.1.114222.4.10.3^ISO” or “PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO”

EVENT TYPE SEGMENT (EVN)					
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Notes/Value Set**
Recorded Date/Time	2	TS	26	R	Most systems default to the system Date/Time when the transaction was entered. Format: *YYYYMMDDHHMMSS*
Event Facility	7	HD	241	R	Location where the patient was treated; should be the same as information sent in MSH-4.
Namespace ID	7.1	IS	20	R	Full name of facility where patient presented for treatment. No acronyms or abbreviations will be accepted.
Universal ID	7.2	ST	1999	R	National Provider Identifier (10 digit identifier).
Universal ID Type	7.3	ID	6	R	Literal Value: “NPI”

PATIENT IDENTIFICATION SEGMENT (PID)					
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Notes/Value Set**
Set ID	1	SI	4	R	Literal Value: “1”
Patient Identifier List	3	CX	478	R	PID.3 is a repeating field that can accommodate multiple patient identifiers. Patient’s unique identifier(s) from the facility that is submitting this report to public health. Different jurisdictions use different identifiers and may use a combination of identifiers to produce a unique patient identifier. Patient identifiers should be strong enough to remain a unique identifier across different data provider models, such as a networked data provider or State HIE.
ID Number	3.1	ST	15	R	Use patient medical record (MR) number or equivalent such as master patient index (MPI) identifier. The identifier provided should allow the facility to retrieve information on the patient if additional information is requested by VDH.
Identifier Type Code	3.5	ID	5	R	Value Set: *Identifier Type (Syndromic Surveillance)* Use the Identifier Type Code that corresponds to the type of ID Number specified in PID-3.1. For Medical Record Number, use literal value: “MR”.
Patient Name	5	XPN	294	R	Patient name should not be sent. The patient name field must still be populated even when reporting de-identified data.
Name Type Code	5.7	ID	1	R	When the name of the patient is known, but not being sent, HL7 recommends the following: |~^^^^^^S|. The "S" for the name type code (PID-5.7) in the second name field indicates that it is a pseudonym.
Date/Time of Birth	7	TS	26	RE	Format: *YYYYMMDD*
Administrative Sex	8	IS	1	RE	Value Set: *Gender (Syndromic Surveillance)*
Race	10	CE	478	RE	Value Set: *Race Category (CDC)* Race should be submitted if known.
Identifier	10.1	ST	20	RE	Standardized code for patient race category. If unknown, use literal value: “UNK”.
Text	10.2	ST	199	RE	Standardized text description that corresponds with code in PID-10.1. If unknown, use literal value: “Unknown”.
Name of Coding System	10.3	ID	20	CE	Literal Value: “CDCREC”

Patient Address	11	XAD	513	RE	This field should only include patient's residential zip code and FIPS code.
ZIP or Postal Code	11.5	ST	12	RE	5-digit zip code of patient's primary residence.
County/Parish Code	11.9	IS	20	RE	County/independent city FIPS code of patient's primary residence.
Ethnic Group	22	CE	478	RE	Value Set: *Ethnicity Group (CDC)* Ethnicity should be submitted if known.
Identifier	22.1	ST	20	RE	Standardized code for patient ethnicity category. If unknown, use literal value: "UNK"
Text	22.2	ST	199	RE	Standardized text description that corresponds with code in PID-22.1. If unknown, use literal value: "Unknown".
Name of Coding System	22.3	ID	20	CE	Literal Value: "CDCREC"

PATIENT VISIT SEGMENT (PV1)					
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Notes/Value Set**
Patient Class	2	IS	1	R	Literal Values: "E" for emergency department visits, or "O" for outpatient visits to urgent care facility.
Visit Number	19	CX	478	R	
ID Number	19.1	ST	15	R	Unique identifier for a patient visit.
Identifier Type Code	19.5	ID	227	R	Literal Value: "VN"
Discharge Disposition	36	IS	3	RE	Value Set: *Discharge Disposition (HL7)* Should be sent upon patient's departure from facility (A03) and all subsequent updates (A08). Disposition provides the outcome of patient's visit (i.e. Discharged to home, Expired, Admitted as inpatient).
Admit Date/Time	44	TS	26	R	Date and time the patient presented to facility for treatment. Format: *YYYYMMDDHHMMSS*

OBSERVATION/RESULT SEGMENT (OBX)					
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Notes/Value Set**
Set ID	1	SI	4	R	The first occurrence of segment must have the literal value of “1”. Only a single OBX segment should be sent containing chief complaint text.
Value Type	2	ID	3	R	Literal Value: “CWE”
Chief Complaint	3	CWE	478	R	Description of the patient’s self-reported chief complaint or reason for visit.
Identifier	3.1	ST	20	R	Literal Value: “8661-1”
Text	3.2	ST	199	R	Literal Value: “Chief complaint:Find:Pt:Patient:Nom:Reported”
Name of Coding System	3.3	ID	20	R	Literal Value: “LN”
Chief Complaint Text	5.9	ST	199	R	**Free text describing the chief complaint or reason for visits should be used.** If multiple fields such as chief complaint, reason for visit, and clinical impression are available these should be concatenated into a single field.

According to HL7 standards, the Diagnosis Segment (DG1) precedes the Observation/Result Segment (OBX) in A03 messages only. In A01, A04, and A08 messages, the DG1 segment should follow the OBX segment as per this guide’s order.

DIAGNOSIS SEGMENT (DG1)					
Field Name	**Seq**	**DT**	**Length**	**Sender Usage**	**Notes/Value Set**
Set ID	1	SI	4	R	The first occurrence of segment must have the literal value of “1”. Each following occurrence should be numbered consecutively
Diagnosis Code	3	CE	478	R	Should be sent upon patient’s departure from facility. Values from standards code sets: ICD-9, ICD-10, or SNOMED.
Identifier	3.1	ST	20	R	Standardized code value for diagnosis. Decimals should be included in ICD-9 and 10, if possible.
Text	3.2	ST	199	R	Standardized text description that corresponds to the code provided in 3.1.
Name of Coding System	3.3	ID	20	C	Literal Values: “I9CDX”, “I10”, or “SCT”
Diagnosis Type	6	IS	2	R	If segment is provided this field is required to be valued. Literal Values: “A” for Admitting diagnosis, “W” for Working diagnosis, or “F” for Final diagnosis.

A04 Message Example - Patient X is registered at the emergency department

MSH|^~\&||HOSPITALNAME^999999999^NPI|SYNDSURV|VDH^2.16.840.1.114222.4.1.184^ISO|201203300000||ADT^A04^ADT_A01|1234567890|D|2.5.1

EVN||201203270000|||||HOSPITALNAME^999999999^NPI

PID|1||9999000000^^^^MR||~^^^^^^S||19700115|M||2106-3^White^CDCREC|^^^^20105||||||||||2186-5^Not Hispanic or Latino^CDCREC

PV1||E|||||||||||||||2222000068^^^^VN|||||||||||||||||||||||201203270000

OBX|1|CWE|8661-1^Chief complaint:Find:Pt:Patient:Nom:Reported^LN||^^^^^^^^Headache Fell Down Hit Head|||||F

A03 Message Example - Patient X is discharged to home from the emergency department

The additional information included and the different segment order in the A03 message compared to the previous A04 message is highlighted.

MSH|^~\&||HOSPITALNAME^999999999^NPI|SYNDSURV|VDH^2.16.840.1.114222.4.1.184^ISO|201203300000||ADT^A03^ADT_A03|1234567890|D|2.5.1

EVN||201203270000|||||HOSPITAL NAME^999999999^NPI

PID|1||9999000000^^^^MR||~^^^^^^S||19700115|M||2106-3^White^CDCREC|^^^^20105||||||||||2186-5^Not Hispanic or Latino^CDCREC

PV1||E|||||||||||||||2222000068^^^^VN|||||||||||||||01|||||||201203270000

DG1|1||959.01^HEAD INJURY NOS^I9CDX|||A

DG1|2||959.01^HEAD INJURY NOS^I9CDX|||F

DG1|3||784.0^HEADACHE^I9CDX|||F

DG1|4||E888.9^FALL NOS^I9CDX|||F

OBX|1|CWE|8661-1^Chief complaint:Find:Pt:Patient:Nom:Reported^LN||^^^^^^^^Headache Fell Down Hit Head|||||F

****Please note: Subsequent ADT messages should contain all fields submitted in previous messages for a single visit with the addition of any updated fields. Notice in the examples above, the A03 message contains every field previously submitted in the A04 message with additional fields relevant to discharge****

For questions about syndromic surveillance submission to Virginia Department of Health, please contact:

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