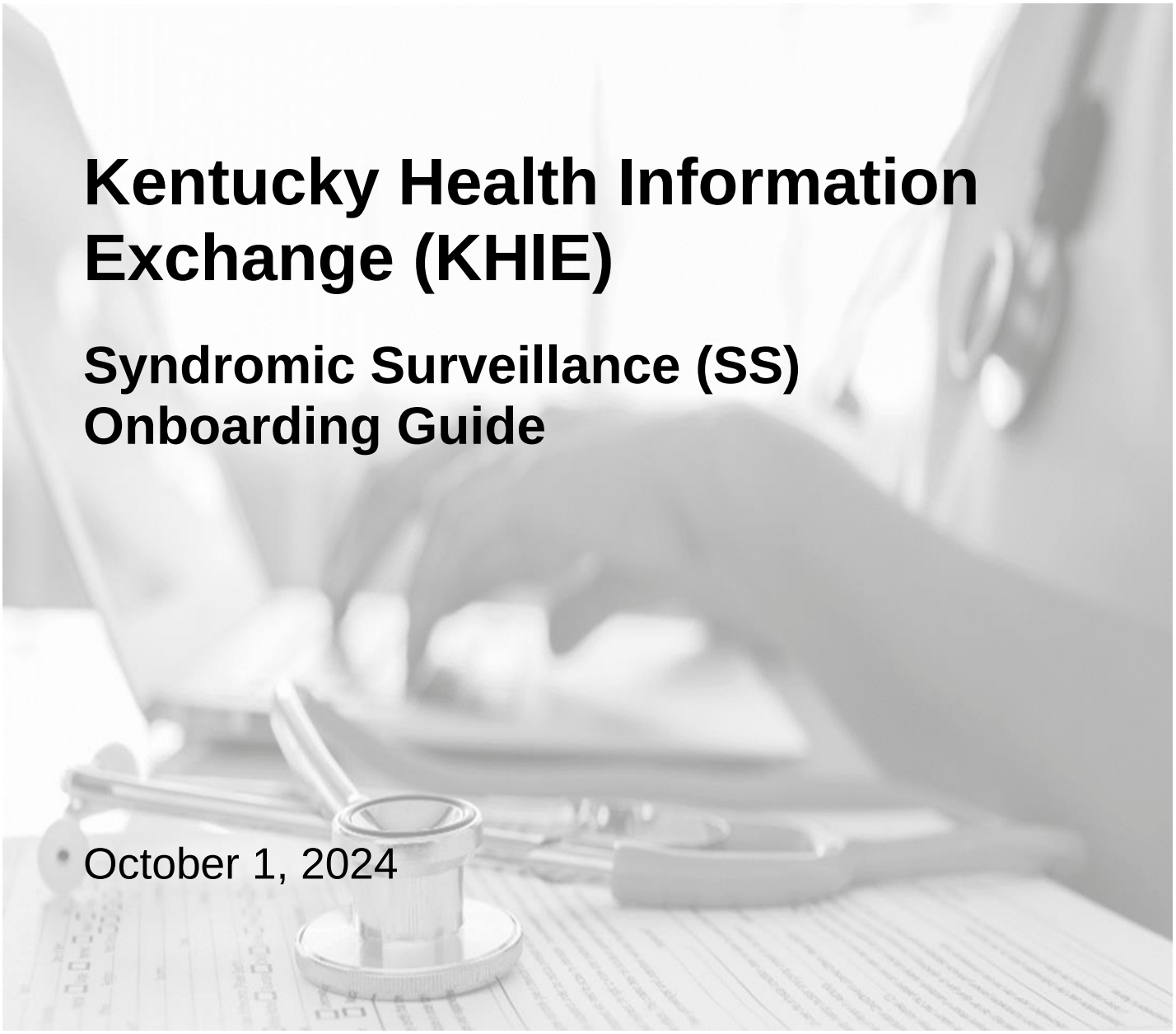

Kentucky Health Information Exchange (KHIE)

Syndromic Surveillance (SS) Onboarding Guide

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Contents

1. Introduction

The Syndromic Surveillance (SS) onboarding guide provides an overview of Kentucky's processes for new and current facilities submitting syndromic surveillance data to the Centers for Disease Control and Prevention (CDC) National Syndromic Surveillance Program (NSSP) BioSense Platform.

This document contains information on all required data elements, formatting of HL7 messages, resources and best practices for a successful onboarding and submission to the Kentucky Health Information Exchange (KHIE) and the Kentucky Department for Public Health (KDPH). This guide serves as a companion to the Health Level 7 (HL7) Version 2.5.1 Implementation Guide provided by HL7.org as well as other resource guides listed in Resource Section 11.0.

In this onboarding guide, the use of the words 'facility, facilities, organization, organizations, provider, and providers' is interchangeable with KHIE Participant.

2. Onboarding and Data Validation with SS

Participants shall onboard and validate SS data when they are a new participant (unique MSH 4.1 and MSH 4.2 value) and have never submitted SS data previously or are an existing SS participant that has undergone an EHR/EMR vendor change.

Participants currently submitting SS data to the CDC BioSense platform shall inform KHIE's SS Team at KHIESupport@ky.gov if any of following occur in association with the connection to KHIE: EHR version or upgrade change, interface change or upgrade, interface connection is or has been down; cyber incident occurs; there is a chance of interruption of mapping within the EHR or other system(s) that could impact the data quality of the SS messages; or any regulatory change(s) regarding reportable conditions that impact SS reporting. These outlined conditions can impact the SS data quality. KHIE and KDPH SS teams may request a meeting to determine next steps to ensure the SS data quality remains intact.

Participants may be notified by KHIE SS team of persistent data quality issues, failures in the CDC BioSense platform, or other unresolved issues, and upon recommendation by KDPH or CDC, KHIE reserves the right to request the Participant to return to the test environment for data revalidation.

On behalf of KDPH, KHIE reserves the right to request the Participant to onboard and validate SS for any reason deemed to negatively impact data quality or any other issue within the KHIE or CDC BioSense platform.

3. Basic Onboarding Process Overview

Facilities that have a geographic location in Kentucky are eligible to submit data to the Kentucky syndromic surveillance program. Hospitals and urgent treatment centers are priority facilities for SS onboarding. All facilities must connect to KHIE's test environment and send production or live patient data for the data quality validation process.

Facilities actively onboarding will participate in a ½ hour per week onboarding and data validation meeting with the KHIE SS team. The purpose of the weekly meeting is to provide feedback and guidance until the data validation and message volume targets are met and permission is granted from the CDC and KDPH for the facility to onboard to the BioSense platform.

Once the facility has met the 80% target goal for all priority 1 elements and has met message volume standards, the KHIE SS team will request a review from the CDC. The CDC review will provide feedback to the KHIE SS team to relay to the facility for correction. If the facility passes the CDC review, the KDPH SS team will review and provide permission for onboarding to the CDC BioSense platform. KHIE SS team will provide the facility with the configuration information for the KHIE production environment. The facility can begin submitting syndromic surveillance messages to the BioSense platform.

4. KHIE Connectivity Resource

KHIE enables the electronic submission of SS data via two methods of connectivity options:

- Virtual Private Network (VPN) - Health Language 7 (HL7) messaging
- Web Services (WS) - HL7 messaging

The KHIE Participant Connectivity Guide focuses on the process of onboarding Participants, the KHIE connectivity capabilities, and the information related to the exchange of data with KHIE. This guide is used along with HL7 Global Healthcare Messaging Standard v2.5.1, to exchange information between KHIE, healthcare organizations, and Public Health Registries.

4.1 VPN

VPN connectivity establishes a secure IPSec VPN tunnel between the source of the data on the Participant or vendor's network and a KHIE Edge Server. Data is transmitted over a TCP/IP socket connection to a server that is logically dedicated to that Participant.

KHIE will share a VPN Form that lays out the configurations needed to successfully setup an IPSec tunnel and send messages securely over to KHIE.

4.2 Web Services

Web Services connectivity transports messages to a KHIE web services endpoint over the internet. Messages are encrypted and signed using an X509 security certificate to provide privacy and provider authentication.

The Participant must provide the public key certificate and trust chain for the X509 certificate issued by a public trusted certificate authority. No self-signed certificates are accepted.

5. Facility Identification

KHIE utilizes the HL7 MSH segment as the primary means of identifying facilities. The MSH 4.1 is the "Sending Facility Name" and is a KHIE assigned facility code. The MSH 4.2 is the "Sending Facility ID" which is the facility NPI. The NPI value(s) are usually provided by the participant. Both MSH 4.1 and MSH 4.2 values must be appropriately populated for messages to process into KHIE.

The CDC BioSense platform utilizes the EVN segment as the primary identifier for each facility. The EVN 7.2 is the "Treating Facility ID" which is the unique facility identifier and reflects the facility where the patient is treated. KHIE will issue a pseudo value that will be used as the main identifier in the EVN 7.2 field. This EVN 7.2 pseudo value is registered along with the MSH 4.1 and MSH 4.2 values within the CDC BioSense platform to denote each facility.

KHIE will provide the information in the chart below to each participant for each of the facility(s) and/or location(s) which are onboarding to the SS feed. This will ensure alignment between facility information systems, KHIE, and the CDC BioSense platform.

MSH 4.1	MSH 4.2	EVN 7.2
Sending Facility	Sending Facility ID usually NPI	Treating Facility ID - pseudo value - issued by KHIE

An **example** of an EVN segment:

EVN|A08|20221207114353|||||MSW Medical Center Southwest^1588290993^NPI

6. Message Types

The HL7 message formats sent to public health agencies will be constrained versions of the 2.5.1 abstract message types listed below. Only the segments necessary for carrying the syndromic data and certain structural message segments are included.

Patient Care Setting	**ADT**				**ORU**
Message Trigger Types	**A04**	**A08**	**A03**	**A01**	**R01**
Eligible hospitals providing inpatient care	R	R	R	R	O*
Eligible hospitals ONLY providing emergency care	R	R	R	C	O*
Eligible professionals (urgent and non-urgent ambulatory care)	R	R	C	C	O*

- R = Required
- C = Required only if used during the normal flow of business
- O* = Optional but strongly requested

7. Admit-Discharge-Transfer (ADT) Messages

The SS program will use information from HL7 Admit-Discharge-Transfer (ADT) messages. The following HL7 ADT messages are utilized within the program. Additional ADT trigger events not noted in this section may occur within the normal workflow of an EHR. Resource information can be found for the Public Health Information Network (PHIN) messaging guide in the Resource Section 11.1 of this guide.

7.1 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.

A01 – Admit

MSH|^~\&|EPIC|Hospital^6868012945^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSen
se^2.16.840.1.113883.3.1673^ISO
|20180110101830||ADT^A01^ADT_A01|12345678|P|2.5.1|||NE||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO|| EVN||20120110101830|||||Hospital^6868012945^NPI
PID|1||E123456^^^ORGENTITY&NPI&ISO^MR||^^^^^^~^^^^^^S||19680922|M||2106-
3^White^CDCREC|^^Chatham^55^53206^USA^^^55079|||||||12345678||||2186-5^NOT HISPANIC
OR LATINO^CDCREC||||||||||
PV1|1|E|G.ER|E|||||||||||7|||||G0000471^^^MPI&2.16.840.1.114222.4.1.3657&ISO^VN^D
GH&2.16.840.1.114222.4.1.3657&ISO|||||||||||||||||||||||||20140620113859|||||||
PV2|||J1100^Influenza due to unidentified influenza virus with unspecified type of pneumonia^I10C
OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^Emergency Care
^HCPTNUCC||||||F|||201612272000-0500 OBX|2|NM|21612-7^Age-
Reported^LN||10|a^^UCUM|||||F|||201612272000-0500 OBX|3|TX|8661-
1^CHIEFCOMPLAINT^LN||fever, cough, difficulty breathing|||||F|||201612272000-0500
OBX|4|TS|11368-8^ILLNESSORINJURYONSETDATEANDTIME^LN||201612262200-
0500|||||F|||201612272000-0500 OBX|5|CWE|56816-2^HOSPITALUNIT^LN||1047-
0^PediatricRespiratoryCriticalCare^HSLOC|||||F|||201612272000-0500 DG1|1||J1100^INFLUENZA
DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH UNSPECIFIED TYPE OF
PNEUMONIA^I10C||201612272000-0500|A
IN1|1|1234567|12345678|InsuranceGroup||||||||||92^Other(Non-government)^PHDSC

7.2 ADT^A03 (Discharge)

A patient's stay in a healthcare facility has ended and the patient status is changed to discharged.

A03 – Discharge

MSH|^~\&|EPIC|Hospital^6868012945^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSen
se^2.16.840.1.113883.3.1673^ISO
|20180110101830||ADT^A03^ADT_A03|12345678|P|2.5.1|||NE||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO|| EVN||20120110101830|||||Hospital^6868012945^NPI
PID|1|| E123456^^^ORGENTITY&NPI&ISO^MR||^^^^^^~^^^^^^S||19680922|F||2028-
9^Asian^CDCREC|^^Chatham^55^53703^USA^^^55025|||||||12345678||||2186-5^NOT HISPANIC OR

LATINO^CDCREC|||||||||||
PV1|1|E|G.ER|E||unit|1234567898|||MED||||7|||||12345678^^^12345678&NPI&ISO^^||
|||||||||||||||01|||||||20180109171536|20180109201000|||||||| PV2|||S82.3^FRACTURE OF
LOWER END OF TIBIA^I10C OBX|1|NM|21612-7^AGE-
REPORTED^LN||50|a^^UCUM|||||F|||||||||||||| OBX|2|NM|11289-6^BODY
TEMPERATURE^LN||97.5|[degF]^FAHRENHEIT^UCUM|||||F|||20180115112500||||||||||
OBX|3|NM|59408-5^OXYGEN SATURATION:PULSE
OXIMETRY^LN||95|%^PERCENT^UCUM|||||F|||20180115112500|||||||||| OBX|4|TX|8661-
1^CHIEF COMPLAINT^LN||broken ankle||||||F|||||||||||||| OBX|5|CWE|SS003^FACILITY / VISIT
TYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC||||||F|||||||||||||
OBX|6|TX|11450-4^ANKLE PAIN^LN||ankle pain||||||F|||||||||||||

7.3 ADT^A04 (Registration)

A patient has arrived or checked in as a one-time, or recurring outpatient, and is not assigned to a bed.

A04 – Registration

MSH|^~\&|EPIC|Hospital^6868012945^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|BioSen
se^2.16.840.1.113883.3.1673^ISO
|20180110101830||ADT^A04^ADT_A01|12345678|P|2.5.1|||NE||||||PH_SS-NoAck^SS
Sender^2.16.840.1.114222.4.10.3^ISO|| EVN||20120110101830|||||Hospital^6868012945^NPI
PID|1|| E123456^^^ORGENTITY&NPI&ISO^MR||^^^^^^~^^^^^^S||19680922|M||2054- 5^BLACK OR
AFRICAN AMERICAN^CDCREC|^^Chatham^55^53206^USA^^^55079|||||||12345678||||2186-5^NOT
HISPANIC OR LATINO^CDCREC||||||||||
PV1|1|E|G.ER|E||||||||||7|||||G0000471^^^MPI&2.16.840.1.114222.4.1.3657&ISO^VN^D
GH&2.16.840.1.114222.4.1.3657&ISO|||||||||||||||||||||||||20140620113859|||||||
PV2|||J1100^Influenza due to unidentified influenza virus with unspecified type of pneumonia^I10C
OBX|1|CWE|SS003^FACILITY / VISIT TYPE^PHINQUESTION||261QE0002X^EMERGENCY
CARE^HCPTNUCC||||||F|||20140620|||||||||| OBX|2|NM|21612-7^AGE-
REPORTED^LN||29|a^^UCUM|||||F|||||||||||||| OBX|3|NM|8302-
2^BODYHEIGHT^LN||45|[in_us]^inch^UCUM|||||F|||201612272000-0500 OBX|4|NM|3141-
9^BODYWEIGHTMEASURED^LN||768|[oz_av]^ounce^UCUM|||||F|||||||||||||| OBX|5|TX|8661-
1^CHIEFCOMPLAINT^LN||fever, cough, difficulty breathing||||||F|||201612272000-0500

7.4 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 the update messages contain shall be cumulative, presenting all previously sent information that remains correct and adding the new or changed information.

A08 –Patient Update

A08 –Patient Update
MSH|^~\&|EPIC|HospitalName^6868012945^NPI|BioSense^2.16.840.1.113883.3.1673^ISO|B
ioSense^2.16.840.1.113883.3.1673^ISO|20180110101830||ADT^A08^ADT_A01|12345678|P|

2.5.1|||NE||||||PH_SS-NoAck^SS Sender^2.16.840.1.114222.4.10.3^ISO||
EVN||20120110101830|||||HospitalName^6868012945^NPI
PID|1||E123456^^^ORGENTITY&NPI&ISO^MR||^^^^^^~^^^^^^S||19680922|F||2106-3^White^CDCREC|^^Chatham^55^53206^USA^^^55079|||||||12345678||||2135- 2^HISPANIC OR LATINO^CDCREC||||||||||
PV1|1|E|G.ER|E||unit|1234567898|||MED||||7|||||12345678^^^12345678&NPI&ISO^^||
||||||||||||||01|||||||20180109171536|20180109201000|||||||||
PV2|||B34.9^INFECTION^I10C OBX|1|NM|21612-7^AGE-REPORTED^LN||50|a^^UCUM|||||F|||||||||||||| OBX|2|TX|8661-1^CHIEF COMPLAINT^LN||abdominal pain||||||F||||||||||||||
OBX|3|CWE|SS003^FACILITY/VISITTYPE^PHINQUESTION||261QE0002X^Emergency Care^HCPTNUCC||||||F||||||||||||||

8. HL7 Priority Elements

The CDC National Syndromic Surveillance Program (NSSP) has assigned priority levels to data elements within syndromic HL7 messages. The KDPH SS program utilizes these data standards to facilitate onboarding to the CDC BioSense platform. Priority levels help guarantee data quality in the production environment and are used when onboarding new facilities or re-onboarding existing facilities. There are three different levels of priority elements. In Kentucky, the priority 1 elements are used as a benchmark for data quality standards.

The key can be used for the data elements listed below.

- R = Required
- RE = Required but may be empty
- CRE = Calculated and required but may be empty
- CR = Calculated and required
- O = Optional

8.1 Priority 1 Data Elements

Priority 1 data elements are the minimum required to perform surveillance activities. These elements must be met at 80% or greater. Shown below are the required fields for maintaining a minimum level of completeness and validity so that a facility can achieve and maintain production status.

Processed Column	Priority	Required	HL7
Admit_Date_Time	1	R	PV1-44.1
Admit_Reason_Description	1	RE	PV2-3.2, PV2-3
C_Chief_Complaint	1	CRE	OBX or PV2-3
C_Death	1	CRE	PID.30.1
C_Facility_ID	1	CR	EVN-7.2, MSH-4.2 or MSH-4.1
C_FacType_Patient_Class	1	CR	OBX-2,3,5
C_Patient_Age	1	CRE	OBX-2,3,5

C_Patient_Age_Years	1	CRE	OBX-2,3,5
C_Patient_Class	1	CR	PV1.2.1 or calculate
C_Unique_Patient_ID	1	CR	PID.3.1
Chief_Complaint_Text	1	RE	OBX-2,3,5
Diagnosis_Code	1	RE	DG1-3.1, DG1-3.4
Diagnosis_Description	1	RE	DG1-3.2, DG1-3.5
Facility_Type_Code	1	R	OBX-2,3,5
Patient_Class_Code	1	R	PV1.2.1
Patient_Zip	1	RE	PID.11.5
Processing_ID	1	R	MSH.11.1
Sending_Facility_ID	1	R	MSH-4.2 or MSH-4.1
Treating_Facility_ID	1	R	EVN.7.2
Trigger_Event	1	R	MSH.9.2
Visit_ID	1	R	PV1.19.1

8.2 Priority 2 Data Elements

Priority 2 data elements are also useful for surveillance activities. The NSSP requires these data elements meet minimum standards of completeness and validity within 12 months of a facility achieving production status.

Processed Column	Priority	Required	HL7
First_Patient_ID	2	R	PID-3.1
Medical_Record_Number	**2**	R	PID-3.1
Sending_Facility_ID_Source	2	R	MSH-4.1
Message_Date_Time	2	R	MSH.7.1
Recorded_Date_Time	2	R	EVN.2.1
Discharge_Disposition	2	RE	PV1.36.1
Discharge_Date_Time	2	RE	PV1.45.1
Administrative_Sex	2	RE	PID.8.1
Age_Reported	2	RE	OBX.5.1
Age_Units_Reported	2	RE	OBX.6.2
C_Patient_Age_Units	2	C	OBX.6.2
Race_Code	2	RE	PID-10.1
Ethnicity_Code	2	RE	PID-22.1
Ethnicity_Description	2	RE	PID-22.2
Patient_City	2	RE	PID.11.3
Patient_State	2	RE	PID.11.4
C_Patient_County	2	CRE	PID-11.9
Patient_Country	2	RE	PID.11.6
Admit_Reason_Code	2	RE	PV2-3.1, PV2-3
Chief_Complaint_Code	2	RE	OBX-2,3,5
Diagnosis_Type	2	RE	DG1.6.1
Version_ID	2	R	MSH.12.1

8.3 Priority 3 Data Elements

Priority 3 data elements are mostly optional data elements; they are still useful for surveillance activities but are not required. Currently, the NSSP does not require these fields be populated in incoming data.

Processed Column	Priority	Required	HL7
First_Patient_ID_Type_Code	3	O	PID-3.5
First_Patient_ID_Assigning_Authority	3	O	PID-3.4
First_Patient_ID_Assigning_Facility	3	O	PID-3.6
Medical_Record_Number_Assigning_Authority	3	O	PID.3.1
Medical_Record_Number_Assigning_Facility	3	O	PID.3.1
Visit_ID_Assigning_Authority	3	O	PV1.19.4
Visit_ID_Assigning_Facility	3	O	PV1.19.6
Patient_Account_Number	3	O	PID.18.1
Alternate_Visit_ID	3	O	PV1.50
Facility_Type_Description	3	O	OBX-2,3,5
Receiving_Facility	3	O	MSH.6.1
Diagnosis_Date_Time	3	O	DG1.5.1
Procedure_Date_Time	3	O	PR1.5
Observation_Date_Time	3	O	OBX.14.1
Onset_Date	3	O	OBX.5.1
Patient_Death_Indicator	3	O	PID.30.1
Death_Date_Time	3	O	PID.29.1
Admission_Type	3	O	PV1.4
Admit_Source	3	O	PV1.14
Ambulatory_Status	3	O	PV1.15
Hospital_Service	3	O	PV1.10
Insurance_Company_ID	3	O	IN1-3
Insurance_Coverage	3	O	IN1-15
Previous_Hospital_Unit	3	O	PV1-6
Provider_Type_Code	3	O	OBX-2,3,5
Provider_Type_Combo	3	O	OBX-2,3,5
Provider_Type_Description	3	O	OBX-2,3,5
Unique_Physician_Identifier	3	O	PV1-7.1
Unique_Physician_Identifier_Assigning_Authority	3	O	PV1-7.9
Hospital_Unit_Code	3	O	OBX-2,3,5
Hospital_Unit_Description	3	O	OBX-2,3,5
Age_Calculated	3	RE	OBX.5.1
Age_Units_Calculated	3	RE	OBX.6.2
Birth_Date_Time	3	O	PID.7.1
Race_Description	3	O	PID-10.2
Triage_Notes	3	O	OBX.5.1
Diagnosis_Priority	3	O	DG1.15
Event_Type_Code	3	O	EVN.1.1
Procedure_Code	3	O	PR1.3.3
Procedure_Description	3	O	PR1.3.2

Clinical_Impression	3	O	OBX-2,3,5
Initial_Acuity_Code	3	O	OBX.5.1
Initial_Acuity_Description	3	O	OBX.5.1
Initial_Evaluation_Note	3	O	OBX-2,3,5
Medication_Code	3	O	OBX.5.1
Medication_Description	3	O	OBX.5.1
Medication_List	3	O	OBX.5.1
Problem_List_Code	3	O	OBX.5.1
Problem_List_Description	3	O	OBX.5.1
Travel_History	3	O	OBX-2,3,5
Initial_Temp	3	O	OBX-5
Initial_Temp_Units	3	O	OBX-6
Initial_Pulse_Oximetry	3	O	OBX-5
Initial_Pulse_Oximetry_Units	3	O	OBX-6
Diastolic_Blood_Pressure	3	O	OBX-5
Diastolic_Blood_Pressure_Units	3	O	OBX-6
Str_Diastolic_Blood_Pressure	3	O	OBX-5
Systolic_Diastolic_Blood_Pressure	3	O	OBX-5
Systolic_Diastolic_Blood_Pressure_Units	3	O	OBX-6
Systolic_Blood_Pressure	3	O	OBX-5
Systolic_Blood_Pressure_Units	3	O	OBX-6
Pregnancy_Status_Code	3	O	OBX-2,3,5
Pregnancy_Status_Description	3	O	OBX-2,3,5
Smoking_Status_Code	3	RE	OBX-2,3,5
Smoking_Status_Description	3	RE	OBX-2,3,5
Body_Mass_Index	3	O	OBX-5
Height	3	RE	OBX-5
Height_Units	3	RE	OBX-6
Weight	3	RE	OBX-5
Weight_Units	3	RE	OBX-6
Assigned_Patient_Location	3	O	PV1-3
Time_Zone	3	O	MSH-7.1

9. Staging Reports

During the onboarding and data validation process, staging reports are utilized to measure facility progress in attainment of the benchmarks for the priority elements. Once facilities have sufficient volume into the KHIE test environment, the KHIE SS team will request a staging report to establish a baseline for data validation. These reports are routinely used to provide feedback during the weekly onboarding and data validation meetings until the priority 1 elements are sufficiently attained.

An **example** of a multi-facility staging report is below.

Facility	Admit_Reason_Description	Chief_Complaint_Text	C_Chief_Complaint	Diagnosis_Code	Diagnosis_Description	Facility_Type_Code
Facility A	92.45	92.45	92.45	86.79	86.79	100
Facility B	83.61	83.61	83.61	81.15	81.15	100
Facility C	82.2	82.2	82.2	79.24	79.24	100
Facility D	92.12	92.12	92.12	77.83	77.83	100
Facility E	1.75	5.93	7.68	73.31	73.31	53.48

The example above is customized with color coding of green (80% or greater), yellow (79.99% to 60%) and red (59.99% to 0). After the initial staging report is generated and shared with each facility, the KHIE SS team may further customize the report to only address areas below 80%. This ensures the weekly onboarding meetings are more efficient, as only the problem areas are addressed. Once facilities are above 80% for all elements and have met volume standards, the KHIE SS team will ask for CDC review.

10. Priority Elements Tips

Helpful tips are provided below to assist facilities with the challenging areas of the data validation.

10.1 Facility Type Code

Facility Type Code is a standard used in SS program to determine trending in encounter locations and provides contextual information for surveillance and public health action. The Facility Type Code is found in the following fields of the OBX segment: OBX-2, OBX-3, and OBX-5. Below are the facility type codes that should be used.

Facility Type	Facility Type Code
Emergency Care	261QE0002X
Inpatient practice setting	1021-5
Medical Specialty	261QM2500X
Primary Care	261QP2300X
Urgent Care	261QU0200X

PHIN VADS Reference 2.16.840.1.114222.4.11.3401

Examples:

OBX|1|CWE|SS003^FACILITY/VISIT TYPE^L||261QE0002X^Emergency Care^HCPTNUCC|||||F|||20221206220019

OBX|1|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||261QE0002X^ Inpatient Practice^HCPTNUCC|||||F|||20221206220019

OBX|1|CWE|SS003^FACILITY/VISIT TYPE^L|| 261QM2500X^ Medical Specialty^HCPTNUCC||||||F|||20221206220019

OBX|1|CWE|SS003^FACILITY/VISIT TYPE^L|| 261QP2300X^ Primary Care^HCPTNUCC||||||F|||20221206220019

OBX|1|CWE|SS003^FACILITY/VISIT TYPE^L|| 261QU0200X^Urgent Care^HCPTNUCC||||||F|||20221206220019

10.2 Patient Class Code

The patient class code is a code that identifies whether a patient was a direct admit, emergency, inpatient, observation, obstetrics, outpatient, preadmit, or recurring. The patient class code describes the patient classification within a facility. The patient class code is found in PV1.2.1.

Patient Class	Patient Class Code
Direct admit	D
Emergency	E
Inpatient	I
Observation patient	V
Obstetrics	B
Outpatient	O
Preadmit	P
Recurring patient	R

PHIN VADS Reference 2.16.840.1.114222.4.11.3404

Examples:

Example PV1 for a Direct Admit patient:

- PV1-2 Patient Class = D (Direct Admit)
- PV1-7 Attending Doctor populated with a NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

PV1|1|D|||||1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||||||||1200222^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||||||||||||||201408171200

Example PV1 for an Emergency Department patient:

- PV1-2 Patient Class = E (Emergency)
- PV1-7 Attending Doctor populated with a NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

PV1|1|E|||||1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||||||||1200222^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||||||||||||||201408171200

Example PV1 Segment for an Inpatient:

This PV1 segment shows the following information

- PV1-2 Patient Class = I (Inpatient)
- PV1-4 Admission Type = E (Emergency) (US UB92 code "1")
- PV1-7 Attending Doctor populated with an identifier assigned by NE Medical Center
- PV1-10 Medical Service = MED (Medical Service)
- PV1-14 Admit source = 7 (suggested UB code for Emergency)
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit Date/time of August 17, 2014 at 12 noon

PV1|1|I||E|||112345^Familyname^Givenname^^^DR^MD^^NEMedCtr&1234567890&NPI|||MED|||7|||||2222_001^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||||||||||||||201408171200

Example PV1 for an Observation patient:

- PV1-2 Patient Class = V (Observation)
- PV1-7 Attending Doctor populated with a NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

PV1|1|V|||||1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||||||||1200222^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||||||||||||||201408171200

Example PV1 for an Obstetrics patient:

- PV1-2 Patient Class = B (Obstetrics)
- PV1-7 Attending Doctor populated with a NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

PV1|1|B|||||1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||||||||1200222^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||||||||||||||201408171200

Example PV1 Segment for an Outpatient (could be used for Ambulatory or Urgent care patients):

This PV1 segment shows the following information

- PV1-2 Patient Class = O (Outpatient)
- PV1-7 Attending Doctor populated with a NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

PV1|1|O|||||1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||||||||270002_001^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||||||||||||||201408171200

Example PV1 for a Preadmit patient:

- PV1-2 Patient Class = P (Preadmit)
- PV1-7 Attending Doctor populated with NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

PV1|1|P|||||1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||||||||1200222^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||||||||||||||201408171200

Example PV1 for a Recurring patient:

- PV1-2 Patient Class = R (Recurring)
- PV1-7 Attending Doctor populated with a NPI
- PV1-19 Visit Number populated with an identifier assigned by Greater North Medical Center
- PV1-44 Admit (Visit Start) Date/time of August 17, 2014 at 12 noon

PV1|1|R|||||1234567890^^^^^^^^NPI&2.16.840.1.113883.4.6^ISO||||||||||||1200222^^^GreaterNorthMedCtr&4356012945&NPI^VN|||||||||||||||||||||||||201408171200

10.3 Admit_Reason_Description

Hospitals and urgent treatment centers onboarding to SS can find the Admit_Reason_Description element challenging. This should be a short description of the provider's reason for admitting the patient. It is a direct input from the HL7 message and is found in PV2-3.2/PV2-3.5.

Example:

PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX (PV2-3 Admit Reason is ICD9-CM encoded)

PV2|||O24.4^Diabetes Mellitus arising in pregnancy^I10 (PV2-3 Admit Reason is ICD10 encoded)

This PV2 segment shows PV2-3 Admit Reason that has local information from a drop-down menu:
PV2|||^Diabetes Mellitus

10.4 Chief Compliant

The chief complaint captures the patient's primary reason for seeking medical care in near real-time and is commonly recorded as a *free text field*. This field is the patient's self-reported chief complaint or reason for visit. It is distinct from the Admit Reason field which is the provider's reason for admitting the patient. This is found in the OBX or PV2-3.

Example:

OBX|3|TX|8661-1^CHIEF COMPLAINT – REPORTED^LN||STOMACH ACHE THAT HAS LASTED 2 DAYS; NAUSEA AND VOMITING; MAYBE A FEVER|||||F|||201102171 531

PHIN VADS Reference 2.16.840.1.114222.4.11.909
PHIN VADS Reference 2.16.840.1.114222.4.11.856
PHIN VADS Reference 2.16.840.1.114222.4.11.3593

10.5 Diagnosis Code and Diagnosis Description

Diagnosis codes are assigned ICD-10-CM codes for the provider's diagnosis of the patient's symptoms. The field contains the diagnosis code assigned to the respective diagnosis. This information is in DG1-3.1, DG1-3.4.

Diagnosis description is the ICD-10-CM description. Please note this descriptor should be the ICD-10-CM guide description of the *Diagnosis Code*. This information is in DG1-3.2, DG1-3.5.

Example:

Diagnosis Description	Diagnosis Code
Abnormal Bowel Sounds	R19.1
Abscess of intestine	K63.0
Bacterial infection, unspecified	A49.9
Bell's palsy	G51.0
Candidiasis	B37
Cholera	A00
Dengue fever (classical dengue)	A90
Diabetes insipidus	E23.2

PHVS Administrative Diagnosis ICD-10CM

Examples:

DG1|1||R19.1^ABNORMAL BOWEL SOUNDS^I10|||W (Working diagnosis from ICD10)

DG1|2|| K63.0^ABSCESS OF INTESTINE^I10|||W (Working diagnosis from ICD10)

DG1|1|| A49.9^BACTERIAL INFECTION, UNSPECIFIED^I10|||A (Admitting diagnosis from ICD10)

DG1|2|| G51.0^BELL'S PALSY^I10|||W (Working diagnosis from ICD10)

DG1|1|| B37^CANDIDIASIS^I10||201312271700|F (Final diagnosis from ICD10)

DG1|1|| A00^CHOLERA^I10||201312271700|F (Final diagnosis from ICD10)

DG1|1|| A90^DENGUE FEVER (CLASSICAL DENGUE)^I10|||A (Admitting diagnosis from ICD10)

DG1|2|| E23.2^DIABETES INSIPIDUS^I10|||W (Working diagnosis from ICD10)

DG1|3||16932000^NAUSEA AND VOMITING^SCT|||W (Working diagnosis from SNOMED-CT)

11.0 Resource Guides

The CDC, in collaboration with the International Society for Disease Surveillance, has developed and published syndromic surveillance messaging guides. These guides support Promoting Interoperability programs that employ health information technology to improve the quality and value of American healthcare. To access and use the HL7 implementation guides for the Syndromic Surveillance Promoting Interoperability objectives, please see the table below.

Syndromic Surveillance

Location	Transaction	Standard(s) Used	Status
Syndromic Surveillance Message Mapping Guides	Syndromic surveillance transmissions from healthcare providers to public health	HL7 Version 2.5.1, ICD-10-CM, SNOMED-CT, LOINC, Rx Norm, UCUM, CPT4	The following decisions were made by the ISDS Message Guide Workgroup as well as the changes to streamline and reduce redundancies from previous versions of the guide: • Removed all references to laboratory data. • Removed all ICD 9 references. • Removed all references to HL7v2.3.1

11.1 Public Health Information Network (PHIN)

PHIN MESSAGING GUIDE FOR SYNDROMIC SURVEILLANCE: EMERGENCY DEPARTMENT, URGENT CARE, INPATIENT AND AMBULATORY CARE SETTINGS - - ADT MESSAGES A01, A03, A04 and A08 - Optional ORU^R01 Message Notation for Laboratory Data (cdc.gov)

11.2 The Public Health Information Network (PHIN) Vocabulary Access and Distribution System (VADS)

PHIN VADS is a vocabulary server that allows CDC programs and Public Health Partners to search, browse, and download vocabularies required for PHIN messaging and applications needed for Public Health Surveillance. The primary objective of PHIN VADS is to be the distribution source for vocabularies based on the Consolidated Health Informatics initiative.

PHIN Vocabulary Access and Distribution System (PHIN VADS) is a web-based enterprise vocabulary system for accessing, searching, and distributing vocabularies used within the PHIN. PHIN VADS serves as a single source of standard vocabularies to the CDC and its public health partners. PHIN VADS promotes the use of standards-based vocabulary within PHIN systems to support the exchange of consistent information among public health partners.

https://phinvads.cdc.gov/vads/SearchVocab.action

11.3 Standard Coding Guides

Appropriate use standardized codes are essential for the capture of accurate syndromic data.

International Classification of Diseases ICD-10- CM - Diagnoses for a patient's visit are recorded using standardized coded values outlined by the International Classifications of Diseases ICD-10th Revision code sets. The diagnosis codes are used by healthcare facilities throughout the United States for medical coding, reporting, and billing purposes. Reporting of ICD-10 values to KHIE and KDPH provides additional information on a patient's health care visit. These codes must be mapped correctly within the messages to ensure the KDPH data quality standards are met.

ICD-10 codes as the following: PHVS Administrative Diagnosis ICD-10CM

Logical Observation Identifiers Names and Codes (LOINC) are the international standard for identifying health measurements, observations, and documents. LOINC codes are utilized for observations and measurements, such as laboratory tests, physical findings, radiology studies and claim attachments. LOINC and SNOMED codes are strongly encouraged to use in observation reporting.

Download LOINC – LOINC

Systematized Nomenclature of Medicine-Clinical Terms (SNOMED CT) is a systematically organized computer-processable collection of medical terms providing codes, terms, synonyms, and definitions used in clinical documentation and reporting. SNOMED CT comprehensive coverage includes clinical findings, symptoms, diagnoses, procedures, body structures, organisms and other etiologies, substances, pharmaceuticals, devices, and specimens. http://www.ihtsdo.org/snomed-ct/

American Medical Association Current Procedural Terminology (CPT) http://www.ama-assn.org/ama/pub/physician-resources/solutions-managing-your-practice/coding-billing-insurance/cpt.page

12.0 Acronyms

ADT	Admit, Discharge, Transfer
BioSense Platform	Cloud-based computing environment and repository for syndromic data of the National Syndromic Surveillance Program
CEHRT	CEHRT Certified Electronic Health Record Technology; to see if an EHR is certified, search CHPL Search (healthit.gov)
CDC	Centers for Disease Control and Prevention
CMS	The Centers for Medicare & Medicaid Services; administers Meaningful Use incentives. See http://www.cms.gov/
Component	A subset of a segment; these are designated with a decimal and number after the segment (Example: OBX-5.1).
CPT	Current Procedural Terminology; these are numbers that identify medical procedures and services performed by healthcare professionals.
CSTE	Council of State and Territorial Epidemiologists
Data Element	The basic unit of information within messages. Data elements have requirements and standards for how they are sent.
ED	Emergency Department
EHR	Electronic Health Record
EMR	Electronic Medical Record
ESSENCE	Electronic Surveillance System for the Early Notification of Community-Based Epidemics. It is the BioSense Platform's application for public health use.
EVN	Event Type
Field	A slot for information within an HL7 message; a segment could have many fields; a field could have many components.
HL7	Health Level Seven
KDPH	Kentucky Department for Public Health
KHIE	Kentucky Health Information Exchange
LOINC	Logical Observation Identifiers Names and Codes
MRN	Medical Record Number
NEDSS	National Electronic Disease Surveillance System
NPI	National Provider Identifier
NSSP	National Syndromic Surveillance Program; it is the program within the CDC responsible for the BioSense Platform.
Onboarding	Onboarding is the process of connecting KHIE Participants (data providers) to the BioSense Platform for syndromic data submissions.
ORU	Observational Report - Unsolicited
PHIN	Public Health Information Network
PHIN VADS	Public Health Information Network Vocabulary Access and Distribution System
Segment	The divisional units of HL7 messages; each HL7 message consists of several segments (example, MSH is the Message Handler segment).

Staging	The Staging environment within the BioSense Platform is where messages are sent to be tested and validated; it precedes data being sent to Production.
Syndromic Surveillance (SS)	The real-time, continuous collection of health-related data from KHIE Participants (data providers) to inform public health.
SNOMED CT	Systemized Nomenclature of Medicine Clinical Terms
UAT	User Acceptance Testing
UC	Urgent Care