

Syndromic Surveillance Event Detection of Nebraska (SSEDON)

HL7 Implementation Guide Inpatient Syndromic Surveillance

HL7 version 2.5.1
Includes Inpatient Admissions, Discharges and
Updates

Document Version 1.2
February 2011

This implementation guide contains descriptions of HL7 version 2.5.1 message type ADT (Admit/Discharge/Transfer) to be sent from health care facility inpatient visits. These messages are sent to the Syndromic Surveillance Event Detection of Nebraska system as a part of the Nebraska Department of Health and Human services for syndromic surveillance purposes.

Introduction

Inpatient syndromic surveillance is being established to enhance the Nebraska Department of Health and Human Services (NDHHS) Office of Epidemiology's ability to detect, track and control infectious and non-infectious conditions, including poisonings and chronic diseases, to protect and safeguard the health of the citizens of Nebraska. NDHHS will use demographic and clinical information from both HL7 version 2.5.1 Admit-Discharge-Transfer (ADT) messages and flat file records detailing inpatient encounters to provide general public health indicators for surveillance and analysis and provide indicators for chronic disease surveillance and analysis. NDHHS will use the Syndromic Surveillance Event Detection of Nebraska (SSEDON) system for the data collection portion of the system.

The Health Level Seven (HL7) Standard

The ANSI HL7 standard is widely used for data exchange in the health care industry. The full standard is quite lengthy, covering a variety of situations in patient care and health care finance and no single application is likely to use all of its content. This document covers the subset of HL7 that will be used for electronic surveillance records exchanged between SSEDON and outside systems.

- The basic unit transmitted in an HL7 implementation is the **message**.
- Messages are made up of several **segments**, each of which is one line of text, beginning with a three-letter code identifying the segment type.
- Segments are in turn made up of several **fields** separated by a delimiter character, "|".

```
MSH|^~\&||NEFACIL^1234567890^NPI||SSEDON|201102091114||ADT^A01^ADT_A01|201102091114-0078|P|2.5
EVN||201102181114|||NEFACIL^1234567890^NPI
PID|1||20060012168^^^MR||~^^^S||19500923|F||U^CDCREC|^65101|||||U^CDCREC|||||N
PV1|||||20110217_0064^^^V^N|||||20110217144208
PV2||^SOB,TIGHTNESS IN CHEST
OBX|1|TX|18684-1^BLOOD PRESSURE^LN||165/127|mmHG^F^UCUM||||F||20110217145658
DG1|1||58258-5^MYOCARDIAL INFARCTION^LN||20110217163455|F
PR1|1||36.91^Repair of aneurysm of coronary vessel^I9CP|201102171600
```

The details of how HL7 messages are put together, for SSEDON purposes, will be explained later in this document. The example above shows the essentials of what a message looks like. In this example, NEFACIL (facility name) is sending a message to NDHHS. This message consists of eight segments.

- The Message Header segment (**MSH**) identifies the owner (**NEFACIL**) of the information being sent and the receiver (**SSEDON**). It also identifies the message as being of type **ADT**. The ADT is an Admit-Discharge-Transfer, which is one of the message types defined by HL7.
- The Event Type Segment (**EVN**) identifies the date and time this message was generated as well as the owner of the information.
- The Patient Identification segment (**PID**) provides patient identification information as allowed by HIPPA and demographic information. This segment is to only contain de-identified data. Patient name, address, social security number or any other information specifically identifying any unique person outside of the health care facility setting is not to be used here. Even though the patient name field is used because of HL7 requirements, no patient name or alias is to be used.
- The Patient Visit segment (**PV1**) provides information unique to the patient visit to the care facility such as visit identifier and date and time of admission.
- The Patient Visit Additional Information segment (**PV2**) provides chief complaint information.
- The Observation segment (**OBX**) is primarily used to carry key clinical observation/results reporting information within a patient's message.
- The Diagnosis segment (**DG1**) is primarily used to carry primary, secondary and final diagnosis information within a patient's message.
- The Procedure segment (**PR1**) is primarily used to transmit procedure codes and descriptions within a patient's message.

HL7 does not specify how messages are transmitted. It is flexible enough to be used for both real-time interaction and large batches. The standard defines file header and file trailer segments that are used when a number of messages are gathered into a batch for transmission as a file. SSEDON will use batch files of messages to communicate with outside systems.

Scope of This Document

The General Transfer Specification (GTS) documented here supports automated exchange of data between the SSEDON repository and outside systems. This allows both the patient and clinical information to be available in both systems, so as to avoid the need to enter data twice. The remainder of this document specifies how HL7 file messages are constructed for the purposes of SSEDON. It covers only a small subset of the very extensive HL7 standard. Files of messages constructed from the guidelines in this document will fall within the HL7 standard, but there is a wide variety of other possible HL7 messages that are outside the scope of this document.

References

- See Version 2.5.1 of the Health Level 7 standard for a full description of all messages, segments, and fields. Information regarding HL7 is at www.hl7.org.
- The Public Health Information Network (PHIN) within the Center for Disease Control (www.cdc.gov/phin) has published an Implementation Guide for Syndromic Surveillance Data with the purpose of keeping the use of HL7 for syndromic surveillance data as uniform as possible.
- The Public Health Information Network (PHIN) with the Center for Disease Control has published a vocabulary access and distribution system at phinvads.cdc.gov.

Basic HL7 Terms

Table 1.1	Basic HL7 Terms
Term	Definition
Message	A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event.
Segment	A segment is a logical grouping of data fields. Segments within a defined message may be required or optional and may occur only once or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique 3-character code.
Field	A field is a string of characters. Each field has an element name and is identified by the segment it is in and its sequence within the segment. Usage and cardinality requirements are defined in the Segment Definitions.
Component	A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are necessarily required to be populated.
Data Type	A data type restricts the contents and format of the data field. Data types are given a 2- or 3-letter code. Some data types are coded or composite types with several components. The applicable HL7 data type is listed in each field definition.
Delimiters	The delimiter values are given in MSH-1 and MSH-2 and are used throughout the message. The delimiters supported by SSEDON are: Field Separator ^ Component Separator & Sub-Component Separator ~ Repetition Separator \ Escape Character

Basic HL7 Data Types

The following Data Types have been used in the SSEDON HL7 Implementation Guide.

Table 1.2	Data types used in SSEDON Implementation Guide
Data Type Code	Data Type Name
CE	Coded Element
CWE	Coded with exception
CX	Extended composite with check digit
DTM	Date/Time
EI	Entity Identifier
HD	Hierarchic Designator
ID	Coded value for HL7-defined tables
IS	Coded value for user-defined tables
MSG	Message Type
NM	Numeric
PT	Processing Type
SI	Sequence Identifier
ST	String Data
TS	Time Stamp
VID	Version Identifier

For further definition of these data types, please reference HL7 Standard Version 2.5.1 located at www.hl7.org

Basic HL7 encoding rules

- Encode each segment in the order specified in the Message Structure
- Begin each segment with the 3-letter segment ID (for example “PV1”).
- End each segment with the carriage return terminator (hex 0D). Note that in the examples in this guide, this character is illustrated as “<cr>”. This character is a single ASCII character; the segment terminator is NOT the four-character sequence
- Encode the data fields in the sequence given in the corresponding segment definition tables.
- Encode each data field according to the data type format listed in this guide.
- Components, subcomponents or repetitions that are not valued at the end of a field need not be represented by component separators. Likewise, field separators are not required for empty fields at the end of a segment. For example the data fields and segments below are equivalent

^XXX&YYY&&^	is equal to	^XXX&YYY
ABC^DEF^	is equal to	ABC^DEF

MSH|^~&|DCC|NEHOSP|NDHHS|NEHOSP|20110127111604||ADT^A01|00069250|P|2.5||AL|AL|US|||
Is the same as

MSH|^~&|DCC|NEHOSP|NDHHS|NEHOSP|20110127111604||ADT^A03|00069250|P|2.5||AL|AL|US

- If a data segment is not documented in this guide, the data segment should not be sent. However, if the segment is sent then the segment must conform to HL7 guidelines for message and segment structure. If the extraneous segment does not follow HL7 guidelines, SSEDON will reject the message and the condition causing the failure must be corrected before the HL7 message will be accepted. If the extraneous segment does follow HL7 guidelines, SSEDON will ignore the undocumented segment. This “extraneous” data (segment) is best negotiated prior to transmission between the sending facility and SSEDON.
- If a data field is not documented in this guide, the data field should not be sent.

SSEDON HL7 Message Structure

SSEDON uses the ADT (Admit, Discharge and Transfer) message type for health care facilities to communicate the CVD data set. The ADT is used for sending inpatient data including the patient’s chief complaint, diagnostic codes, and clinical data marks such as blood pressure, temperature, height, weight, BMI, cholesterol, etc. The SSEDON CVD data set ADT messaging structure has two different message layouts as defined in the PHIN Messaging Guide for Syndromic Surveillance. The ADT_A01 layout is for the A01 (Admission) and A08 (Update) event types. The ADT_A03 is for the A03 (Discharge) event type. The following tables show the segments that are used to construct the ADT message type. Each segment is one line of text ending with the carriage return <cr> character. The carriage return is needed so that the HL7 messages are readable and printable. The messages may appear somewhat cryptic due to the scarcity of white space. Square brackets [] enclose optional segments and curly braces { } enclose segments that can be repeated; thus, an ADT message type could be composed of just MSH, PID and PV1 segments. The full HL7 standard allows additional segments within these message types, but they are unused by SSEDON. The segments that are documented here are sufficient to support the principal SSEDON functions of storing data about patients and emergency department encounters.

Basic HL7 Message Structure Attributes

The structure of the supported messages in this guide is described in tabular format. The columns of those tables are used as described in the table below.

Table 1.5 Basic HL7 Message Structure Attributes	
Attribute	Definition
Segment	A three-character code for the segment plus the square and curly braces structure syntax. If a segment is not documented in this guide, it should not be sent. [XXX] Optional {XXX} Repeating XXX Required [{XXX}] Optional and Repeating
Name	A short, descriptive name of the segment.
Description	Explanation of the use of the segment.
Usage	Describes the use of the segment by SSEDON. Values used in this implementation are: R – Required, Segment must be sent with fields populated according to the segment definition. RE – Required, but may be empty. If the sender captures the data, the data must be sent. C – Conditional – When conditionality predicate evaluates to “True”, the segment usage behaves the same as ‘RE’, otherwise the segment should not be populated.
Cardinality	Defines the minimum and maximum number of times the segment may appear in this message. [0..1] Segment may be omitted and can have, at most, one occurrence. [1..1] Segment must have exactly one occurrence. [0..*] Segment may be omitted or may repeat an unlimited number of times.

HL7 ADT Message Layout

The HL7 message formats sent to SSEDON will be constrained versions of the 2.5.1 abstract message formats. Only the segments necessary for carrying the syndromic data, and certain structural message segments, are included. Because the message structure for the message types is similar, one table (Table 3-5A) was used to define the message structure for the ADT A01, A04, and A08 messages. Another table (Table 3-5B) was used for the A03 message structure, as per the HL7 Standard.

HL7 ADT Message Structure ADT_A01 Layout

Table 1.6 SSEDON ADT Message Structure ADT_A01 Layout				
Segment	Name	Description	Usage	Cardinality
MSH	Message Header	Information explaining how to parse and process the message. This includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information.	R	[1..1]
PV1	Patient Visit	Information related to this visit at this hospital including a unique visit identifier and critical timing information.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason / Chief Complaint information. PV2 is optional if a DG1 segment with chief complaint data is sent. If no DG1 segment is sent, the PV2 segment is required.	C	[0..1]
[{OBX}]	Observation Information	Information related to clinical observations/results	RE	[0..*]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information. DG1 is optional if a PV2 segment is sent. If no PV2 segment is sent, one or more DG1 segments are required.	C	[0..*]
[{PR1}]	Procedures	Information relative to various types of procedures performed.	O	[0..*]

NOTE: If you are using the ADT_A03 layout with the ADT^A03 discharge event, please note that the accepted order of OBX and DG1 PR1 segments is reversed.

Table 1.6 SSEDON ADT Message Structure ADT_A03 Layout				
Segment	Name	Description	Usage	Cardinality
MSH	Message Header	Information explaining how to parse and process the message. This includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information.	R	[1..1]
PV1	Patient Visit	Information related to this visit at this hospital including a unique visit identifier and critical timing information.	R	[1..1]
[PV2]	Patient Visit (Additional Information)	Admit Reason / Chief Complaint information. PV2 is optional if a DG1 segment with chief complaint data is sent. If no DG1 segment is sent, the PV2 segment is required.	C	[0..1]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information. DG1 is optional if a PV2 segment is sent. If no PV2 segment is sent, one or more DG1 segments are required.	C	[0..*]
[{PR1}]	Procedures	Information relative to various types of procedures performed.	O	[0..*]
[{OBX}]	Observation Information	Information related to clinical observations/results	RE	[0..*]

Segment Profile Attributes

The structure of the supported segments in this guide is described in tabular format. The columns of those tables are used as described in the table below.

Table 1.5 Basic HL7 Message Structure Attributes	
Attribute	Definition
Sequence	Sequence of the elements as they are numbered in the HL7 Segment
Element Name	Descriptive name of the data element
Description	Explanation of the use of the element.
Value Set	Link to value set or literal value of data expected to be populated in the field. A table in appendix A lists all of the value sets and their literal values included in this messaging guide. Numbers in this field denote the related vocabulary in that HL7 Table. Contains the name and/or the PHIN Value Set (accessible through PHIN VADS) when relevant as well as notes, condition rules (2.5.1 vs. 2.3.1) and recommendations.
Length	Length of an element
Usage	<p>Describes the use of the elements within segment by SSEDON. Values used in this implementation are:</p> <ul style="list-style-type: none"> R – Required, Element must be sent with sub-elements populated according to the segment definition. RE – Required, but may be empty. If the sender captures the data, the data must be sent. C – Conditional – When conditionality predicate evaluates to “True”, the segment usage behaves the same as ‘RE’, otherwise the segment should not be populated. O – Optional – Facilities may choose whether they want to send the data element, even if the data is captured. <p>Note: A required(R) component in a required, but may be empty (RE) element does not mean the element must be present in the segment. It means that if the element is present, the required component within that element must be populated.</p>
Cardinality	<p>Defines the minimum and maximum number of times the segment may appear in this message.</p> <ul style="list-style-type: none"> [0..1] Element may be omitted and can have, at most, one occurrence. [1..1] Element must have exactly one occurrence. [0..*] Element may be omitted or may repeat an unlimited number of times.

2 HL7 Message Protocol

2.1.1 MSH: Message Header Segment Definition

The MSH segment defines the intent, source, destination and some specifics of the syntax of the message.

Example:

```
MSH|^~\&|DCC|NEHOSP||SSEDON|20110127111604||ADT^A03|00069250|P|2.5.1
```

Table 2.1.1 MSH: Message Header Segment Definition							
Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
1	Field Separator	Character to be used as the field separator for the rest of the message. The supported value is the pipe “ ” character. (ASCI 124)		1	ST	R	[1..1]
2	Encoding Characters	Characters to be used as the component separator, repetition separator, escape character and subcomponent separator. The supported values are “^~\&” (ASCII 94, 126, 92, and 38)		4	ST	R	[1..1]
3	Sending Application	Identifies the sending application for the other HL7 message exchange applications belonging to the sender. This field is an optional convenience. See MSH-4 and MSH-6 for the fields principally used to identify sender and receiver of the message.		227	HD	O	[0..1]
3.1	Name Text	Name of application or software used to create or send this message. SSEDON suggests that a shortened name, abbreviation or acronym be used.			IS	O	[0..1]
4	Sending Facility Name	Uniquely identifies the facility associated with the application that sends the message.		227	HD	R	[1..1]
4.1	Name Text	Name of sending facility. SSEDON suggests that a shortened name, abbreviation or acronym be used in the first component. Ex: NEHOSP		20	IS	RE	[0..1]
4.2	Universal ID	Unique identifier of sending facility.		199	ST	R	[1..1]
4.3	Universal ID Type	Expected value “NPI”		6	ID	R	[1..1]
6	Receiving Facility	Unique Identifier for the receiving facility.		180	HD	R	[1..1]
6.1	Receiving Facility Name	Literal value “SSEDON”			IS	R	[1..1]
7	Date/Time of Message	Date and time sending system created the message: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.		26	TS	R	[1..1]

Table 2.1.1 MSH: Message Header Segment Definition							
Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
9	Message Type	Messages will be ADT (Admit-Discharge-Transfer) message type. The triggering event is the real-world circumstance causing the message to be sent. If an ADT message is sent then supported trigger events are A01 (Admit/Visit Notification), A03 (Discharge/End Visit), and A08 (Patient Update). Ex: ADT^A08^ADT_A01		15	CM	R	[1..1]
9.1	Message Type	Literal value "ADT"		3	ID	R	[1..1]
9.2	Trigger Event	One of the following Literals: 'A01' Admit/Visit Notification, 'A03' Discharge/End Visit, and 'A08' Patient Update.		3	ID	R	[1..1]
9.3	Message Structure	Indicates the layout of the message. Literal values "ADT_A01" (admission layout) and "ADT_A03" (discharge layout). Note: the only trigger event to be used with ADT_A03 is the A03 Discharge/End visit.		7	ID	R	[1..1]
10	Message Control ID	The message control ID is a string (which may be a number) uniquely identifying the message among all those ever sent by the sending system. It is assigned by the sending system and echoed back in the ACK message sent in response. Some hospitals send a Date/Time stamp using microsecond precision or Date/Time stamp using minute precision plus a sequence number that restarts each day at one or wraps around when it reaches all 9s.		199	ST	R	[1..1]
11	Processing ID	Indicates how to process the message as defined in HL7 processing rules.	0103	3	PT	R	[1..1]
12	Version ID	The HL7 version number used to interpret format and content of the message.	0104	12	VID	R	[1..1]

2.1.2 EVN: Event Type Segment Definition

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

EVN||201102091114||| ||MIDLAND HLTH CTR^9876543210^NPI

Table 2.1.2		EVN: Event Type Segment Definition					
Seq	Element Name	Description	Value Set	LEN	DT	Usage	Cardinality
2	Recorded Date/Time	Date and time when the Transaction was entered. YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.		26	TS	R	[1..1]
7	Event Facility	Treating facility where the original event occurred.		241	HD	R	[[1..1]
7.1	Facility Name	Name of the originating facility		20	IS	RE	[0..1]
7.2	Universal ID	National Provider Identifier (10 digit Identifier)		199	ST	R	[1..1]
7.3	Universal ID Type	Expected value "NPI"		6	ID	R	[1..1]

2.1.4 PID: Patient Identification Segment Definition

The PID segment is used as the primary means of communicating patient identification information. This segment contains patient identifying and demographic information that does not change frequently.

Examples:

```
PID|1||99XYZ8877^^^^MR||~^^^^^^S||20040908|M||2054-5^^CDCREC|^^^65109-1234|||||||H^^CDCREC|||||||201104290345|Y
```

```
PID|1||95101101^^^^MR||~^^^^^^S||19580704|M||2106-3^WHITE^CDCREC|^65065|||||||N^NOT HISPANIC OR LATINO^CDCREC|||||||N
```

Table 2.1.4 PID: Patient Identifier Segment Definition							
Seq	Element Name	Description	Value Set	LEN	DT	Usage	Cardinality
1	Set ID	Numbers the repetitions of the segments. Only one patient per message is supported. Literal value: "1".		4	SI	R	[1..1]
3	Patient Identifier List	Patient's unique identifier(s) from the facility that is submitting this report to public health officials		478	CX	R	[1..1]
3.1	Identifier	Patient Medical Record Number is desired here. This value is to be the same each time the patient visits the facility. The patient medical record number will more easily facilitate identification of the patient in the event of a required follow-up investigation. Without it, the work required to follow up on the data provider is greatly increased.		15	ST	R	[1..1]
3.5	Type Code	Identifier Type Code that corresponds to the type of ID number specified in PD-3.1. For Medical Record Number, use the literal value "MR".	0203	5	ID	R	[1..1]
5	Patient Name	Syndromic Surveillance does not require the patient name. The Patient ID number will be used to identify uniquely the patient. HL7 does require the patient name field for a PID segment. The patient name field must still be populated even when reporting de-identified data. Literal value for the element "~^^^^^^S"		294	XPN	R	[1..*]
7	Patient Date/Time of Birth	Patient's date of birth. YYYYMMDD[HHMM] Preferred precision is to the nearest day and time components may be sent if they are known Ex: 19580704 or 200409081426		26	TS	R	[1..1]
8	Patient Gender	Code for the gender of the patient.	0001	1	IS	RE	[1..1]
10	Patient Race	Code for the race of the patient.		478	CE	R	[1..*]
10.1	Identifier	Standardized code for patient race.	CDCREC	20	ST	R	[1..1]
10.2	Text	Standardized description associated with the code in PID-10.1.		199	ST	O	[0..1]

Table 2.1.4 PID: Patient Identifier Segment Definition							
Seq	Element Name	Description	Value Set	LEN	DT	Usage	Cardinality
10.3	Name of Coding System	Name of coding system is required if an identifier is provided in component 10.1	0203	20	CE	C	[0..1]
11	Patient Address	Patient's primary residence address. Only the patient's zip code is required in the patient address for keeping the patient data de-identified.		513	XAD	R	[1..1]
11.4	State or Province	Code or text indicating state or Province of residence. Codes for Nebraska and surrounding states are located in Appendix A. For a complete listing of state FIPS 5-2 codes please reference the PHIN VADS PHVS_State_FIPS5-2 value set.	FIPS 5-2			RE	[0..1]
11.5	Zip Code	Postal Code portion of the patient's home address. Extended zip code values are not required but may be sent.	USPS	12	ID	R	[1..1]
11.6	Country	Code indicating country of residence. For a complete listing of country ISO 3166-1 codes please reference the PHIN VADS PHVS_Country_ISO_3166-1 value set.	ISO 3166-1			RE	[0..1]
22	Patient Ethnic Group	Further defines the patient's ancestry as Hispanic, Non-Hispanic or Unknown. No repetitions. Ex: H or N or N^NON-HISPANIC (text is optional)		478	CE	RE	[0..1]
22.1	Identifier	Standardized identifier for the ethnicity of the patient.	0189	20	ID	R	[1..1]
22.2	Text	Standardized text description associated with the code in PID-22.		199	ST	O	[0..1]
22.3	Name of Coding System	Required if an identifier is provided in component 1	0203	20	ID	C	[0..1]
29	Patient Death Date and Time	Required if PID-30 Patient Death Indicator = "Y". YYYYMMDD[HH[MM]] The minimum acceptable precision is to the nearest day; time components are desirable Ex: 20110319 or 20110319041627		26	TS	C	[0..1]
30	Patient Death Indicator	Code indicating if the patient is deceased. Ex: Y (the patient died) or N (the patient is still alive)	0136	1	ID	R	[1..1]

2.1.5 PV1: Patient Visit Segment

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

Examples:

```
PV1|1|I|||||||||7|||||8399193^^^VN|||||||||20091209031420
PV1|1|I|A|||||||||7|||||V20220217-00274^^^VN|||||||||20|||||201102171656|201102172334
```

Table 2.1.5 PV1: Patient Visit Segment Definition							
Seq	Element Name	Description	Value Set	LEN	DT	Usage	Cardinality
1	Set ID	Numbers the repetitions of segments. Only one per patient per message is supported. Literal Value: "1".		4	SI	RE	[0..1]
2	Patient Class	Patient Class does not have a consistent industry-wide definition and is subject to site-specific variations. SSEDON supports only messages with Patient Class = E (Emergency Department visits) or I (Inpatient Admission) or O (Outpatient). Literal values: "E", "I" or "O"	0004	1	IS	RE	[1..1]
4	Admission Type	Indicates the circumstances under which the patient was seen or will be admitted.	0007	2	IS	O	[0..1]
14	Admit Source	Indicates the place from which the patient was admitted or referred. Sometimes known as the Referral Source. If this information is not known or not collected, use 9 (Information not available) as a default.	0023	3	IS	O	[0..1]
19	Visit Number	Unique Identifier for this visit by this patient at this hospital.		478	CX	R	[1..1]
19.1	Identifier	Unique identifier assigned to each patient visit.		15	ST	R	[1..1]
19.5	Type Code	Indicates the type of ID number specified in PV1-19.1	0203	5	ID	R	[1..1]
36	Discharge Disposition	Patient's anticipated location or status following the encounter.	0112	36	IS	RE	[0..1]
44	Admit Date/Time	Date and time of the patient presentation. Format: YYYYMMDDHHMM[SS[S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.		26	TS	R	[1..1]
45	Discharge Date/Time	Date and time of the patient discharged. Format: YYYYMMDDHHMM[SS[S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.		26	TS	C	[0..1]

2.1.6 PV2: Patient Visit Additional Information Segment Definition

SSEDON's preferred method of receiving Chief Complaint data is using a PV2 segment. The PV2 segment is a continuation of visit-specific information and is the segment where the Chief Complaint data is passed. This element is a CE data type and the Chief Complaint text may be sent as free text in the second component of PV2-3 Admit Reason.

Examples:

PV2 || | 625.9^PELVIC PAIN^I9

PV2 || | ^ABDOMINAL PAIN

Table 2.1.6 PV2: Patient Visit Additional Information Segment Definition							
Seq	Element Name	Description	Value Set	LEN	DT	Usage	Cardinality
3	Admit Reason	Short description of the reason for patient's visit. If the description text has been identified with a code, the code must also be sent. Ex: ^FEVER/COUGH, HA or 112.0^THRUSH^I9		478	CE	R	[1..1]
3.1	Identifier	If an ICD-9-CM, ICD-10 or SNOMED Disease/Disorder code has been identified for the text in PV2-3.2, the code must be sent. Codes may be sent with or without embedded periods. Ex: V72.9 or V729, 454.0 or 4540, 945.22 or 94522		20	ST	RE	[0..1]
3.2	Text	Short description relating only to the reason for the patient's visit. Any abbreviations used should be common to industry practice. Even if a code has been sent in PV2-3.1, the standardized text component must be sent. Ex: "DIZZY, NAUSEA" or "PARALYSIS NOS"		199	ST	R	[1..1]
3.3	Name of Coding System	Name of standardized coding scheme used for the code in PV2-3.1. If no code was specified in PV2-3.1, there is no need to populate this component. ICD9 is the preferred coding methodology.	0396	20	ID	C	[0..1]
38	Mode of Arrival	Indicates how the patient arrived at health care facility		478	CE	RE	[1..1]
38.1	Identifier	Standardized identifier for mode of arrival.	0430	1		R	[1..1]
38.2	Text	Standardized description relating to the mode of arrival code in PV2-38.1. Even if a code has not been sent in PV2-38.1, a text component must be sent here. Any abbreviations used should be common to industry practice.		199		RE	[0..1]
38.3	Name of Coding System	Name of standardized coding scheme used for the code in PV1-38.1. If no code was specified in PV1-38.1, there is no need to populate this component.	0396	20		R	[1..1]

2.1.7 DG1: Diagnosis Segment Definition

The DG1 segment contains patient diagnosis information. SSEDON supports Admitting, Working and Final Diagnosis types. Regardless of whether a code is sent, the diagnosis text must be sent.

Examples:

```
DG1|1||CC^LOWER BACK PAIN|||CC
```

```
DG1|1||8472^SPRAIN LUMBAR REGION^I9|||F
```

Table 2.1.7		DG1: Diagnosis Segment Definition					
Seq	Element Name	Description	Value Set	LEN	DT	Usage	Cardinality
1	Set ID	Numbers the repetitions of the segments. For the first occurrence of the segment the sequence number shall be 1, for the second occurrence it shall be 2, etc.		4	SI	R	[1..1]
3	Diagnosis Code			478	CE	R	[1..1]
3.1	Identifier	Standardized identifier for diagnosis. ICD9 Clinical Modification Diagnosis codes, ICD10 Clinical Modification diagnosis codes, or SNOMED Disorder/Disease domain codes should be used here		20	ST	R	[1..1]
3.2	Text	Standardized description relating to the diagnosis code in DG1-3.1. Even if a code has not been sent in DG1-3.1, a text component must be sent here. Any abbreviations used should be common to industry practice.		199	ST	RE	[0..1]
3.3	Name of Coding System	Name of standardized coding scheme used for the code in DG1-3.1. If no code was specified in DG1-3.1, there is no need to populate this component. ICD9 is the preferred coding method.	0396	20	ID	C	[1..1]
5	Diagnosis Date/Time	Date and time of the observation. Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.		26	TS	O	[0..1]
6	Diagnosis Type	Identifies the type of diagnosis being sent. Literal values are 'A' – admitting, 'F' – Final and 'W' – Working.	0052	2	IS	R	[1..1]

2.1.8 OBX: Observation Result Segment Definition

The OBX segment is primarily used to carry key clinical observations/results reporting information within HL7 messages. The OBX will be used to communicate the cardiovascular disease data elements listed here. The concept code listed for each data element is there to serve as examples only. For examples of complete OBX segments please review section 4.

Data Element	Concept Code	Coding Authority
Vital Signs		
Blood Pressure	75367002	SNOMED-CT
Pulse Rate	364075005	SNOMED-CT
Respiratory Rate	162913005	SNOMED-CT
Temperature	386725007	SNOMED-CT
Pulse Oximetry	252465000	SNOMED-CT
Height	50373000	SNOMED-CT
Weight	27113001	SNOMED-CT
BMI	60621009	SNOMED-CT
Smoking Status	308512009	SNOMED-CT
BP High Systolic	18050000	SNOMED-CT
BP High Diastolic	23154005	SNOMED-CT
Medications on admission	42346-7	LOINC
Hospital Discharge Medications	10183-2	LOINC
High Density Lipoprotein Test Result	17888004	SNOMED-CT
Low Density Lipoprotein Test Result	113079009	SNOMED-CT
Triglycerides Test Result	365795001	SNOMED-CT
Hemoglobin A1C Test Result	33601001	SNOMED-CT
Troponin Test Result	16255-2	LOINC
Patient Employer	NECVD001	99NECVD
Patient Occupation	NECVD002	99NECVD
Employment Status	NECVD003	99NECVD
Employment work hazards of patient	NECVD004	99NECVD
Patient activity level at employment	NECVD005	99NECVD
Patient operates hazardous equipment at employment (Y/N)	NECVD006	99NECVD
Patient Education Level	NECVD007	99NECVD
Illness or injury onset date and time	11368-8	LOINC
Facility/Visit Type	SS003	PHINQUESTION

Examples:

OBX|1|NM|F-048C3^BODY TEMPERATURE^SCT||101|[degF]^F^UCUM||||F|||20110114130658
 OBX|2|NM|P2-25013^ Pulse Oximetry ^SCT||90|%^Percent^UCUM||||F|||20110114130658

Table 2.1.8		OBX: Observation Result Segment Definition					
Seq	Element Name	Description	Value Set	LEN	DT	Usage	Cardinality
1	Set ID	Numbers the repetitions of the segments. SSEDON supports repetition of the OBX segment. For the first occurrence of the segment the sequence number should be "1", for the second occurrence it shall be "2", etc		4	SI	RE	[1..1]
2	Observation Value Data Type	Identifies the structure of data used for OBX-5. If OBX-5 is populated then OBX-2 is required. A table of valid observation value data types is located in Appendix B		3	ID	R	[1..1]
3	Observation Identifier	Identifies the data to be received in OBX-5. A table with examples of observation identifier codes, description, and name of the coding system is in Appendix C.		478	CE	R	[1..1]
3.1	Identifier	Standardized code for observation.		20	ST	RE	[0..1]
3.2	Text	Standardized description relating to the observation code in OBX-3.1. Even if a code has not been sent in OBX-3.1, a text component must be sent here. Any abbreviations used should be common to industry practice.		199	ST	R	[1..1]
3.3	Name of Coding System	Name of standardized coding scheme used for the code in OBX-3.1. If no code was specified in OBX-3.1, there is no need to populate this component.	0396	20	ID	C	[0..1]
5	Observation Value	Values received in observation value are defined by value type (OBX.2) and observation identifier (OBX.3).		9999	varies	R	[1..1]
6	Units	Units are a conditional field. If numeric data is sent, the units field must define the units if the value used in observation value (OBX.5)		62	CE	C	[0..1]
6.1	Identifier	Standardized identifier for units describing the value in OBX-5.	UCUM	20	ST	O	[0..1]
6.2	Text	Standardized description associated with the identifier in OBX-6.1.		20	ST	O	[0..1]
6.3	Name of Coding System	The name of the coding system for value of OBX-6.1. This value is required if an identifier is provided in component 1.	0396	20	ID	C	[0..1]
11	Observation Results Status	Expected Value 'F'	0085	1	ID	R	[1..1]
14	Observation Date/Time	Date and time of the observation. Format: YYYYMMDDHHMM[SS].[S[S[S[S]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.		26	TS	O	[0..1]

2.1.9 PR1: Procedures Segment Definition

The PR1 segment is used to carry information relative to various types of procedures performed.

PR1|1||0046^Insertion of two vascular stents^I9CP||201106020930

PR1|1||0114 ^Open biopsy of the brain ^I9CP||2011060201500

Table 2.1.9		PR1: Procedures Segment Definition					
Seq	Element Name	Description	Value Set	LEN	DT	Usage	Cardinality
1	Set ID	Numbers the repetitions of the segments. SSEDON supports repetition of the PR1 segment. For the first occurrence of the segment the sequence number should be "1", for the second occurrence it shall be "2", etc		4	SI	R	[1..1]
3	Procedure code	Standardized code and description for procedure performed.		478	CE	R	[1..1]
3.1	Identifier	Standardized identifier for procedure. Valid values include ICD9 Clinical Modification Procedure codes, or ICD10 Clinical Modification Procedure codes.		20	ST	RE	[0..1]
3.2	Text	Standardized description relating to the procedure code in PR1-3.1. Even if a code has not been sent in PR1-3.1, a text component must be sent here. Any abbreviations used should be common to industry practice.		199	ST	R	[1..1]
3.3	Name of Coding System	The name of the coding system for value of PR1-3.1. This value is required if an identifier is provided in component 1.	0396	20	ID	C	[0..1]
5	Procedure Date/Time	Date and time of the procedure indicated in PR1-3.1		26	TS	R	[1..1]

3 EXAMPLES

A minimal amount of data was intentionally used to provide emphasis on the Syndromic Surveillance data elements of interest.

3.1 A01 INPATIENT ADMISSION; NO UPDATES;

In the following example, a non-Hispanic white female, 67 years old, is admitted to the Nebraska Hospital with emphysema. The Medical Record Number, 20060012168, is sent for the patient identifier. Since this is an inpatient stay, PV1-44 reflects the time the patient was admitted into the hospital. The Admit Reason is coded in ICD-9. The original provider of the data, Nebraska Hospital, is captured in the EVN-7. The facility location and visit type was provided by Nebraska Hospital.

```
MSH|^~\&||NEHOSP^9876543210^NPI||SSEDON|201102091114||ADT^A01^ADT_A01|201102091114-0078|P|2.5.1<CR>
EVN||201102091114|||NEHOSP^9876543210^NPI<CR>
PID|1||20060012168^^^MR||~^^^^^S||19440227|F||2106-3^WHITE^CDCREC|^ ^^NE^68541|||2186-5^NOT HISPANIC^CDCREC|||N<CR>
PV1|I|||9|||20110209_0064^^^VN|||20110217144208<CR>
PV2||45670-7^EMPHYSEMA OR COPD^LN<CR>
OBX|1|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||^^13^30341^USA^C|||F||201102091114<CR>
OBX|2|CWE|SS003^FACILITY / VISIT TYPE^PHINQUESTION||1108-0^EMERGENCY DEPARTMENT^HSLOC|||F||201102091114<CR>
OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||67|A^YEAR^UCUM|||F||201102091114<CR>
```

3.2 A01 INPATIENT ADMISSION FOLLOWED BY A08 UPDATE

In the next example, a non-Hispanic black male, 51 years old, is admitted to the Nebraska Acute Care Facility with cough and ear pain. Nebraska Acute Care Facility does not transmit Medical Record Number, so it uses a unique patient identifier of 95101100001, in PID-3. The chief complaint was sent as free text and an admitting diagnosis was sent in the DG1 segment, coded in ICD-9.

```
MSH|^~\&||NACF^9876543210^NPI||SSEDON|20110217144317||ADT^A01^ADT_A01|E100648329|P|2.5.1<CR>
EVN||20110217144317|||NACF^9876543210^NPI<CR>
PID|1||95101100001^^^PI||~^^^^^S||19590812|M||2054-5^BLACK OR AFRICAN AMERICAN^CDCREC|^ ^^29^65101|||2186-5^NOT HISPANIC^CDCREC<CR>
PV1|I|||9|||8399193^^^VN|||20110217144208<CR>
PV2||^SOB<CR>
DG1|1||78605^SHORTNESS OF BREATH^I9C||A<CR>
OBX|1|NM|21612-7^AGE TIME PATIENT REPORTED^LN||51|A^YEAR^UCUM|||F||201102171443<CR>
OBX|2|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||^^13^30341^USA^C|||F||201102091114<CR>
OBX|3|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||1024-9^ CRITICAL CARE UNIT^HSLOC|||F||201102091114<CR>
```

Continuing the example above, a non-Hispanic black male, 52 years old, visits the Nebraska Clinic with cough and ear pain. Nebraska Clinic wants to update the receiving system with new information about the same patient and the same visit. The Visit Number and Admit Date/Time have not changed; but, the Message Date/Time and Message Control ID have. So, an A08 message is used to transmit the additional information: Temperature, Blood Oxygen Level, and Final Diagnosis.

```
MSH|^~\&||CITY GENL HOSP^9876543210^NPI||SSEDON|20110217145139||ADT^A08^ADT_A01|E100648353|P|2.5.1<CR>
EVN||20110217144317|||NECLINIC^0133195934^NPI<CR>
PID|1||95101100001^^^PI||~^^^S||19590812|M||2054-5^BLACK OR AFRICAN AMERICAN^CDCREC|^29^65101|||2186-5^NOT HISPANIC^CDCREC<CR>
PV1||E||E|||1|||8399193^^^VN|||20110217144208<CR>
PV2||^SOB<CR>
DG1|1||78605^SHORTNESS OF BREATH^I9CDX||A<CR>
DG1|2||41402^CORONARY ATHEROSCLEROSIS OF AUTOLOGOUS VEIN BYPASS GRAFT^I9CDX||F<CR>
OBX|1|NM|21612-7^AGE TIME PATIENT REPORTED^LN||51|A^YEAR^UCUM|||F||20110217145139<CR>
OBX|2|NM|11289-6^BODY TEMPERATURE^LN||98.5|[DEGF] ^FARENHEIT^UCUM||A||F||20110217145139<CR>
OBX|3|NM|59408-5^OXYGEN SATURATION^LN||85|% ^PERCENT^UCUM||A||F||20110217145139<CR>
OBX|1|ST|NECVD001^PATIENT EMPLOYER^99NECVD||NECORP|||F||20110601
OBX|1|ST|NECVD002^PATIENT OCCUPATION^99NECVD||ACCOUNTANT|||F||20110601
OBX|1|ST|NECVD003^EMPLOYMENT STATUS^99NECVD||EMPLOYED|||F||20110601
OBX|1|ST|NECVD005^PATIENT ACTIVITY LEVEL AT EMPLOYMENT^99NECVD||A^SEDENTARY^99PAL|||F||20110601
OBX|1|IS|NECVD006^PATIENT OPERATES HAZARDOUS EQUIPMENT AT EMPLOYMENT^99NECVD||N|||F||20110601
OBX|1|IS|NECVD007^PATIENT EDUCATION LEVEL^99NECVD||6^^99PEL|||F||20110601
```

3.3 A04 EMERGENCY DEPARTMENT REGISTRATION; A01 INPATIENT ADMISSION; A03 DISCHARGE INCLUDING PATIENT DEATH

In the next example, a non-Hispanic white female, 43 years old, visits the Other Regular Medical Center emergency department with a chief complaint of a heart attack. The chief complaint was sent as free text and the admitting diagnosis was coded in a DG1 segment.

```
MSH|^~\&| OTHER REG MED CTR^9182736450^NPI||SSEDON|201102171531||ADT^A04^ADT_A01|201102171531956|P|2.5.1<CR>
EVN|201102171531||| OTHER REG MED CTR^9182736450^NPI <CR>
PID|1||FL01059711^^^^PI||~^^^^^S||19680315|F||2106-3^WHITE^CDCREC|^12^33821|||2186-5^NOT HISPANIC^CDCREC<CR>
PV1|E|E|||||7|||V20220217-00274^^^^VN|||201102171522<CR>
PV2||^HEART ATTACK<CR>
DG1|1||410.9^MYOCARDIAL INFARCTION^I9CDX|||A<CR>
```

Continuing the example, the same non-Hispanic white female, 43 years old, visits the Other Regular Medical Center emergency department with a chief complaint of bad chest pain. The patient is suspect for a heart attack and is admitted as an inpatient. The patient has also reported that she has had intermittent chest pain since the 15th of February. The patient class (PV1.2) is changed to Inpatient. Admit Date/Time (PV1.44) is updated with the admission date and time. *In this particular case, visit number (PV1.19) has remained the same. However, it is recognized that some insurance companies require the visit number to be changed when a patient is admitted from the Emergency Department.*

```
MSH|^~\&| OTHER REG MED CTR^9182736450^NPI||SSEDON|201102171658||ADT^A08^ADT_A01|201102171658076|P|2.3.1<CR>
EVN|201102171658||| OTHER REG MED CTR^9182736450^NPI <CR>
PID|1||FL01059711^^^^PI||~^^^^^S||F||2106-3^WHITE^CDCREC|^12^33821|||2186-5^NOT HISPANIC^CDCREC<CR>
PV1|I|E|||||7|||V20220217-00274^^^^VN|||201102171656<CR>
PV2||^ HEART ATTACK <CR>
DG1|1||4109^MYOCARDIAL INFARCTION^I9CDX |||A<CR>
PR1|1||36.91^REPAIR OF ANEURYSM OF CORONARY VESSEL^I9CP|2011021717015
OBX|4|NM|11289-6^BODY TEMPERATURE^LN||99.1|[DEGF]^FARENHEIT^UCUM||A||F||201102171658<CR>
OBX|5|NM|59408-5^OXYGEN SATURATION^LN||95|%^PERCENT^UCUM||A||F||201102171658<CR>
OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME^LN||20110215|||F||201102171658<CR>
```

Continuing the example, the same non-Hispanic white female, 43 years old, visits the Other Regular Medical Center emergency department with a chief complaint of a stomach ache. The patient has expired and this is indicated in PV1.36 (Code=20). A final diagnosis is also sent. It is also indicated by the “Y” in PID-30 and the Date and Time of Death in PID-29. The discharge date/time (PV1.45) is sent with the A03 message type.

```
MSH|^~\&| OTHER REG MED CTR^1234567890^NPI||SSEDON|201102172334||ADT^A03^ADT_A03|201102172334640|P|2.3.1<CR>
EVN|201102172334||| OTHER REG MED CTR^1234567890^NPI
PID|1||FL01059711^^^^PI||~^^^^^S ||F||2106-3^WHITE^CDCREC|^12^33821|||2186-5^NOT HISPANIC^CDCREC|||201102172334|Y<CR>
PV1|I|E|||||7|||V20220217-00274^^^^VN|||20|||201102171656|201102172334<CR>
PV2||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<CR>
OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|A^YEAR^UCUM|||F||201102171531<CR>
OBX|4|NM|11289-6^BODY TEMPERATURE^LN||99.1|[DEGF]^FARENHEIT^UCUM||A||F||201102171658<CR>
OBX|5|NM|59408-5^OXYGEN SATURATION^LN||95|%^PERCENT^UCUM||A||F||201102171658<CR>
OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME^LN||20110215|||F||201102171658<CR>
DG1|1||4109^MYOCARDIAL INFARCTION^I9CDX |||A<CR>
```

4 HL7 BATCH PROTOCOL

The HL7 Batch Protocol can be used to allow for periodic reporting. The HL7 file and batch header and trailer segments are defined in exactly the same manner as the HL7 message segments; hence, the same HL7 message construction rules used for individual messages can be used to encode and decode HL7 batch files. **One batch of messages per file is supported.**

4.1 HL7 BATCH FILE STRUCTURE

The structure of the batch file is constrained as follows:

Table 4.1 Batch Simple File Structure				
Segment	Name	Description	Usage	Cardinality
FHS	File Header Segment	Information explaining how to parse and process the file. This information includes identification of file delimiters, sender, receiver, timestamp, etc.	R	[1..1]
BHS	Batch Header Segment	Trigger event information for receiving application. One batch per file is supported.	R	[1..1]
{HL7 Messages}			R	[1..*]
BTS	Batch Trailer Segment		R	[1..1]
FTS	File Trailer Segment		R	[1..1]

4.2 FILE HEADER (FHS) SEGMENT

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

Seq	Element Name	Description	Len	DT	Usage	Cardinality
1	File Field Separator	Same definition as the corresponding field in the MSH segment.	1	ST	R	[1..1]
2	File Encoding Characters	Same definition as the corresponding field in the MSH segment.	4	ST	R	[1..1]
4	File Sending Facility Name	Same definition as the corresponding field in the MSH segment.	227	HD	O	[1..1]
6	File Receiving Facility	Same definition as the corresponding field in the MSH segment.	227	HD	R	[1..1]
7	File Creation Date and Time	Same definition as the corresponding field in the MSH segment.	26	TS	R	[1..1]
9	File Name	Same definition as the corresponding field in the MSH segment.	20	ST	O	[0..1]
11	File Control ID	This field is used to identify a particular file uniquely among all files sent from the sending facility identified in FHS-4.	199	ST	O	[0..1]
12	Reference File Control ID	Contains the value of FHS-11-file control ID when this file was originally transmitted. Not present if file is being transmitted for the first time.	20	ST	O	[0..1]

4.3 FILE TRAILER (FTS) SEGMENT

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

Seq	Field Name	Description	Length	DT	Usage	Cardinality
1	File Batch Count	The number of batches contained in this file. Since this interface is constrained to one batch per file, this number should always be '1'.	10	NM	R	[1..1]
2	Batch Comment		80	ST	O	[0..1]

4.4 BATCH HEADER (BHS) SEGMENT

The BHS segment is used to head a group of messages that comprise a batch.

Seq	Field Name	Description	Length	DT	Usage	Cardinality
1	Batch Field Separator	Character to be used as the field separator for the rest of the batch. The supported value is the pipe “ ” character. (ASCII 124)	1	ST	R	[1..1]
2	Batch Encoding Characters	Characters to be used as the component separator, repetition separator, escape character and subcomponent separator. The supported values are “^~\&” (ASCII 94, 126, 92, and 38)	4	ST	R	[1..1]
3	Batch Sending Application	Same definition as the corresponding field in the MSH segment.	227	HD	R	[1..1]
4	Batch Sending Facility	Same definition as the corresponding field in the MSH segment.	227	HD	R	[1..1]
6	Batch Receiving Facility	Same definition as the corresponding field in the MSH segment.	227	HD	R	[1..1]
7	Batch Creation Date/Time	Same definition as the corresponding field in the MSH segment.	26	TS	R	[1..1]

4.5 BATCH TRAILER (BTS) SEGMENT

The BTS segment defines the end of a batch of messages.

Seq	Field Name	Description	Length	DT	Usage	Cardinality
1	Batch Message Count	The number of Messages contained in the preceding batch	10	NM	R	[1..1]
2	Batch Comment		80	ST	O	[0..1]

4.6 BATCH EXAMPLE

In the following example, Nebraska Health Center sends their syndromic data to their state public health authority. NHC sends the messages that have gathered over the last 12 hour period in batch message format. There are 240 messages.

```
FHS|^~\&<cr>
BHS|^~\&|ER1|NEBRASKA_HLTH_CTR^9876543210^NPI||SSEDON|20110123123558<cr>
MSH|^~\&|ER1|NEBRASKA_HLTH_CTR^9876543210^NPI||SSEDON|20110123003938||ADT^A01^ADT_A01|ER1-20110123-001|P|2.5.1<cr>
... (Continue 240 messages)...
BTS|240|NE HEATH CENTER reporting 1-23-2011: 0000 - 1200 hrs<cr>
FTS|1<cr>
```

5 Message Timing

If the inpatient data will be submitted in a daily batch process

- All inpatient clinical data shall be submitted five days after admission.
- All inpatient demographic data shall be submitted within 24 hours after the diagnostic and procedural coding is completed.

Inpatient data may also be submitted in real time. “Real-time” processing refers to the ability to transmit an HL7 2.5.1 formatted ADT^A01(Patient Admission), ADT^A03(Patient Discharge), ADT^A04 (Emergency Department Registration), ADT^A08 (Patient Information Update) messages as the events occur within the patient encounter.

6 Secure Message Transmission

All messages submitted to SSEDON must be sent in an electronic secure fashion. Secure email will be used in the HL7 message testing phase. Once message testing is complete a secure communication ebXML interface will be used for sending/receiving syndromic surveillance data. The CDC provides, free of charge, their PHINMS client Message Sender for communication with their PHINMS Message Receiver. Alternatively, the provider may choose to develop their own ebXML Message Sender to communicate with the PHINMS Message Receiver. The provider organization will submit a text file containing HL7 2.5 formatted ADT^A01, ADT^A03, ADT^A04 and ADT^A08 Messages (up to 1000 messages are accepted) to be delivered via their ebXML-based client Message Sender to the SSEDON PHINMS Message Receiver. It is the responsibility of the provider organization to obtain or develop, install and configure an ebXML client Message Sender for sending the HL7 2.4 formatted Message Requests. The provider organization will need to obtain from SSEDON a CPA (Collaboration Protocol Agreement) for access to the SSEDON Real-time system.

****SSEDON PROVIDES NEITHER INSTALLATION, CONFIGURATION NOR TECHNICAL SUPPORT FOR THE EBXML CLIENT MESSAGE SENDER.**

Full documentation and contact information for the PHINMS product may be found at the following link:
<http://www.cdc.gov/phin/>

Full documentation for the ebXML specification may be found at the following link:
<http://www.ebxml.org/specs>

PHINMS is ebXML version 2.0 compliant.

Appendix A – Value Sets

Type	Table	Name	Value	Description
HL7	0001	Sex		
	0001		F	Female
	0001		M	Male
	0001		O	Other
	0001		U	Unknown
HL7	0003	Event Type		
	0003		A01	Admit/Visit Notification
	0003		A03	Discharge/End Visit
	0003		A04	Register a Patient
	0003		A08	Update Patient Information
HL7	0004	Patient Class		
	0004		B	Obstetrics
	0004		E	Emergency
	0004		I	Inpatient
	0004		O	Outpatient
	0004		P	Preadmit
	0004		R	Recurring
HL7	CDCREC	Race		
	CDCREC		1002-5	American Indian or Alaska Native
	CDCREC		2028-9	Asian
	CDCREC		2054-5	Black or African-American
	CDCREC		2076-8	Native Hawaiian or Other Pacific Islander
	CDCREC		2106-3	White
	CDCREC		2131-1	Other Race
	CDCREC		Null	Unknown
HL7	0007	Admission Type		
	0007		A	Accident
	0007		C	Elective
	0007		E	Emergency
	0007		L	Labor and Delivery
	0007		N	Newborn (Birth in healthcare facility)
	0007		R	Routine
	0007		U	Urgent
HL7	0008	Acknowledgment Code		
	0008		AA	Application Accept
	0008		AE	Application Error
	0008		AR	Application Reject
HL7	0023	Admit Source		
	0023		1	Physician Referral
	0023		2	Clinic Referral

Type	Table	Name	Value	Description
	0023		3	HMO Referral
	0023		4	Transfer from a hospita
	0023		5	Transfer from a skilled nursing facility
	0023		6	Transfer from another health care facility
	0023		7	Emergency Room
	0023		8	Court/Law Enforcement
	0023		9	information not available
HL7	0052	Diagnosis Type		
	0052		A	Admitting
	0052		F	Final
	0052		W	Working
HL7	0066	Employment Status		
	0066		1	Full time employment
	0066		2	Part time employment
	0066		3	Unemployed
	0066		4	Self employed
	0066		5	Retired
	0066		6	On active military duty
	0066		9	Unknown
	0066		C	Contract, per diem
	0066		L	Leave of absence (e.g., family leave, sabbatical, etc)
	0066		O	Other
	0066		T	Temporarily unemployed
HL7	0069	Hospital Service		
	0069		CAR	Cardiac Service
	0069		MED	Medical Service
	0069		PUL	Pulmonary Service
	0069		SUR	Surgical Service
	0069		URO	Urology Service
HL7	0076	Message	Type	
	0076		ADT	ADT message
HL7	0085	Observation result status codes interpretation		
	0085		C	OBX record is a correction, therefore it replaces a final result
	0085		D	Deletes OBX record
	0085		F	Final Result; can only be changed with a corrected result
	0085		I	Specimen in lab; results pending
	0085		N	Not Asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in the OBR-4 implies that it would be sought
	0085		O	Order detail description (no result)
	0085		P	Preliminary results
	0085		R	Results entered -- not verified
HL7	0103	Processing ID		

Type	Table	Name	Value	Description
	0103		P	Production
	0103		D	Debugging
	0103		T	Testing
HL7	0104	Version ID		
	0104		2.3.1	Release 2.3.1 1999
	0104		2.5.1	Release 2.5.1
HL7	0112	Discharge Disposition		
	0112		01	Discharge to home or self care (routine discharge)
	0112		02	Discharged/transferred to another short term general hospital for inpatient care
	0112		03	Discharged/transferred to skilled nursing facility (SNF)
	0112		04	Discharged/transferred to an intermediate care facility (ICF)
	0112		05	Discharged/transferred to another type of institution for inpatient care or referred for outpatient services to another institution
	0112		06	Discharged/transferred to home under care of organized home health service organization
	0112		07	Left against medical advice or discontinued care
	0112		08	Discharged/transferred to home under care of Home IV provider
	0112		09	Admitted as an inpatient to this hospital
	0112		20	Expired (i.e. dead)
	0112		30	Still patient or expected to return for outpatient services (i.e. still a patient)
	0112		40	Expired (i.e. died) at home
	0112		41	Expired (i.e. died) in a medical facility; e.g., hospital, SNF, ICF, or free standing hospice
	0112		42	Expired (i.e. died) - place unknown
HL7	0125	Value Type – NOTE: Please review OBX-5 Data type table in Appendix B		
HL7	0136	Yes/No Indicator		
	0136		Y	Yes
	0136		N	No
HL7	0189	Ethnic Group		
	0189		H	Hispanic or Latino
	0189		N	Not Hispanic or Latino
	0189		U	Unknown
HL7	0203	Identifier Type		
	0203		AN	Account number
	0203		APRN	Advanced Practice Registered Nurse number
	0203		ANON	Anonymous identifier
	0203		BR	Birth registry number
	0203		CY	County number
	0203		DDS	Dentist license number
	0203		DN	Doctor number
	0203		DR	Donor Registration Number
	0203		DFN	Drug Furnishing or prescriptive authority Number
	0203		HC	Health Card Number

Type	Table	Name	Value	Description
	0203		LN	License number
	0203		LR	Local Registry ID
	0203		MD	Medical License number
	0203		MR	Medical record number
	0203		UPIN	Medicare/CMS (formerly HCFA)_s Universal Physician Identification number
	0203		MB	Member Number
	0203		MI	Military ID number
	0203		NH	National Health Plan Identifier
	0203		NII	National Insurance Organization Identifier
	0203		NNxxx	National Person Identifier where the xxx is the ISO table 3166 3-character (alphabetic) country code
	0203		NPI	National provider identifier
	0203		NI	National unique individual identifier
	0203		NP	Nurse practitioner number
	0203		OD	Optometrist license number
	0203		DO	Osteopathic License number
	0203		PPN	Passport number
	0203		PT	Patient external identifier
	0203		PI	Patient internal identifier
	0203		MA	Patient Medicaid number
	0203		MC	Patient's Medicare number
	0203		PCN	Penitentiary/correctional institution Number
	0203		PRC	Permanent Resident Card Number
	0203		PN	Person number
	0203		RPH	Pharmacist license number
	0203		PA	Physician Assistant number
	0203		DPM	Podiatrist license number
	0203		MCD	Practitioner Medicaid number
	0203		MCR	Practitioner Medicare number
	0203		PRN	Provider number
	0203		RRI	Regional registry ID
	0203		RN	Registered Nurse Number
	0203		RI	Resource identifier
	0203		SL	State license
	0203		SR	State registry ID
	0203		SN	Subscriber Number
	0203		ANT	Temporary Account Number
	0203		PNT	Temporary Living Subject Number
	0203		MRT	Temporary Medical Record Number
	0203		U	Unspecified identifier
	0203		VN	Visit number
HL7	0208	Query Response Status		

Type	Table	Name	Value	Description
	0208		AE	Application Error
	0208		AR	Application Reject
	0208		NF	No data found, no errors
	0208		OK	Data found, no errors (default)
HL7	0396	Coding System		
	0396		99zzz or L	Local general code (where z is an alphanumeric character)
	0396		HL7nnnn	HL7 defined codes where nnnn is the HL7 table number
	0396		I10	ICD-10
	0396		I10P	ICD-10 Procedure Codes
	0396		I9	ICD-9
	0396		I9C	ICD-9CM
	0396		I9CDX	ICD9-CM Diagnosis Codes
	0396		I9CP	ICD9-CM Procedure Codes
	0396		ISOnnnn	ISO defined codes where nnnn is the ISO table number.
	0396		LN	Logical Observation Identifier Names and Codes (LOINC)
	0396		SCT	SNOMED Clinical Terms
	0396		UCUM	UCUM Code set for units of measure
	0396		USPS	United States Postal Service
HL7	0430	Mode of Arrival		
	0430		A	Ambulance
	0430		C	Car
	0430		F	On Foot
	0430		H	Helicopter
	0430		P	Public Transportation
	0430		U	Unknown
HL7	0895	Present on Admission (POA) Indicator		
	0895		E	Exempt
	0895		N	No
	0895		U	Unknown
	0895		W	Not Applicable
	0895		Y	Yes
User	FIPS 5-2	State IDs Note		
	FIPS 5-2		08	Colorado – CO
	FIPS 5-2		19	Iowa – IA
	FIPS 5-2		20	Kansas – KS
	FIPS 5-2		29	Missouri – MO
	FIPS 5-2		31	Nebraska – NE
	FIPS 5-2		46	South Dakota – SD
	FIPS 5-2		56	Wyoming – WY
HL7	HCPTNUCC	Facility Visit Type		
	HCPTNUCC		170300000X	Emergency Care
	HCPTNUCC		207XP3100X	Specialty Care

Type	Table	Name	Value	Description
	HCPTNUCC		225XN1300X	Primary Care
	HCPTNUCC		251V00000X	Urgent Care
HL7	HSLOC	Health Service Location		
	HSLOC		1001-7	Dedicated service delivery location
	HSLOC		1002-5	Dedicated clinical service location
	HSLOC		1003-3	Diagnostics or therapeutics practice setting
	HSLOC		1004-1	Cardiovascular diagnostics or therapeutics unit
	HSLOC		1005-8	Cardiac catheterization lab
	HSLOC		1006-6	Gastroenterology diagnostics or therapeutics unit
	HSLOC		1007-4	Endoscopy lab
	HSLOC		1008-2	Radiology diagnostics or therapeutics unit
	HSLOC		1009-0	Pulmonary function testing
	HSLOC		1010-8	Clinical laboratory
	HSLOC		1011-6	Clinical chemistry
	HSLOC		1012-4	Hematology
	HSLOC		1013-2	Histology/Surgical pathology
	HSLOC		1014-0	Microbiology
	HSLOC		1015-7	Serology lab
	HSLOC		1016-5	Virology lab
	HSLOC		1017-3	Hyperbaric oxygen center
	HSLOC		1018-1	Infusion center
	HSLOC		1019-9	Specimen collection area [Healthcare]
	HSLOC		1020-7	Sleep disorders unit
	HSLOC		1021-5	Inpatient practice setting
	HSLOC		1022-3	Bone marrow transplant unit
	HSLOC		1023-1	Pediatric bone marrow transplant unit
	HSLOC		1024-9	Critical care unit
	HSLOC		1025-6	Trauma critical care unit
	HSLOC		1049-6	Pediatric trauma critical care unit
	HSLOC		1026-4	Burn critical care unit
	HSLOC		1042-1	Pediatric burn critical care unit
	HSLOC		1027-2	Medical critical care unit
	HSLOC		1028-0	Medical cardiac critical care unit
	HSLOC		1029-8	Medical/Surgical critical care unit
	HSLOC		1045-4	Pediatric medical/surgical critical care unit
	HSLOC		1044-7	Pediatric medical critical care unit
	HSLOC		1030-6	Surgical critical care unit
	HSLOC		1048-8	Pediatric surgical critical care unit
	HSLOC		1031-4	Neurosurgical critical care unit
	HSLOC		1046-2	Pediatric neurosurgical critical care unit
	HSLOC		1032-2	Surgical cardiothoracic critical care unit
	HSLOC		1043-9	Pediatric surgical cardiothoracic critical care unit

Type	Table	Name	Value	Description
	HSLOC		1033-0	Respiratory critical care unit
	HSLOC		1047-0	Pediatric respiratory critical care unit
	HSLOC		1034-8	Prenatal critical care unit
	HSLOC		1035-5	Neurology critical care and stroke unit
	HSLOC		1197-3	Pediatric critical care unit
	HSLOC		1039-7	Neonatal critical care unit [Level II/III]
	HSLOC		1040-5	Neonatal critical care unit [Level III]
	HSLOC		1042-1	Pediatric burn critical care unit
	HSLOC		1043-9	Pediatric surgical cardiothoracic critical care unit
	HSLOC		1044-7	Pediatric medical critical care unit
	HSLOC		1045-4	Pediatric medical/surgical critical care unit
	HSLOC		1046-2	Pediatric neurosurgical critical care unit
	HSLOC		1047-0	Pediatric respiratory critical care unit
	HSLOC		1048-8	Pediatric surgical critical care unit
	HSLOC		1049-6	Pediatric trauma critical care unit
	HSLOC		1036-3	Pediatric inpatient practice setting
	HSLOC		1023-1	Pediatric bone marrow transplant unit
	HSLOC		1037-1	Neonatal unit
	HSLOC		1038-9	Inpatient well baby nursery [Level I]
	HSLOC		1039-7	Neonatal critical care unit [Level II/III]
	HSLOC		1040-5	Neonatal critical care unit [Level III]
	HSLOC		1041-3	Step down neonatal ICU [Level II]
	HSLOC		1100-7	Pediatric step down unit [post-critical care]
	HSLOC		1114-8	Pediatric SCA
	HSLOC		1089-2	Pediatric hematology/oncology SCA
	HSLOC		1091-8	Pediatric dialysis SCA
	HSLOC		1093-4	Pediatric solid organ transplant SCA
	HSLOC		1197-3	Pediatric critical care unit
	HSLOC		1039-7	Neonatal critical care unit [Level II/III]
	HSLOC		1040-5	Neonatal critical care unit [Level III]
	HSLOC		1042-1	Pediatric burn critical care unit
	HSLOC		1043-9	Pediatric surgical cardiothoracic critical care unit
	HSLOC		1044-7	Pediatric medical critical care unit
	HSLOC		1045-4	Pediatric medical/surgical critical care unit
	HSLOC		1046-2	Pediatric neurosurgical critical care unit
	HSLOC		1047-0	Pediatric respiratory critical care unit
	HSLOC		1048-8	Pediatric surgical critical care unit
	HSLOC		1049-6	Pediatric trauma critical care unit
	HSLOC		1050-4	Ward
	HSLOC		1051-2	Inpatient behavioral Health/Psych Ward
	HSLOC		1075-1	Inpatient adolescent behavioral health ward
	HSLOC		1077-7	Inpatient pediatric behavioral health ward

Type	Table	Name	Value	Description
	HSLOC		1052-0	Inpatient burn ward
	HSLOC		1078-5	Inpatient pediatric burn ward
	HSLOC		1053-8	Inpatient ear/nose/throat ward
	HSLOC		1079-3	Inpatient pediatric ear, nose, throat ward
	HSLOC		1054-6	Inpatient gastrointestinal ward
	HSLOC		1055-3	Inpatient genitourinary ward
	HSLOC		1080-1	Inpatient pediatric genitourinary ward
	HSLOC		1056-1	Inpatient gerontology ward
	HSLOC		1057-9	Inpatient gynecology ward
	HSLOC		1058-7	Labor and delivery ward
	HSLOC		1059-5	Labor, Delivery, Recovery, Postpartum suite [LDRP]
	HSLOC		1060-3	Inpatient medical ward
	HSLOC		1076-9	Inpatient pediatric medical ward
	HSLOC		1061-1	Inpatient medical/surgical ward
	HSLOC		1081-9	Inpatient pediatric medical/surgical ward
	HSLOC		1062-9	Inpatient neurology ward
	HSLOC		1082-7	Inpatient pediatric neurology ward
	HSLOC		1063-7	Inpatient neurosurgical ward
	HSLOC		1083-5	Inpatient pediatric neurosurgical ward
	HSLOC		1064-5	Inpatient ophthalmology ward
	HSLOC		1065-2	Inpatient orthopedic ward
	HSLOC		1084-3	Inpatient pediatric orthopedic ward
	HSLOC		1066-0	Inpatient orthopedic trauma ward
	HSLOC		1067-8	Inpatient plastic surgery ward
	HSLOC		1068-6	Inpatient postpartum ward
	HSLOC		1069-4	Inpatient pulmonary ward
	HSLOC		1070-2	Inpatient rehabilitation ward
	HSLOC		1085-0	Inpatient pediatric rehabilitation ward
	HSLOC		1071-0	Inpatient acute stroke ward
	HSLOC		1072-8	Inpatient surgical ward
	HSLOC		1086-8	Inpatient pediatric surgical ward
	HSLOC		1073-6	Inpatient vascular surgery ward
	HSLOC		1074-4	Pediatric ward
	HSLOC		1075-1	Inpatient adolescent behavioral health ward
	HSLOC		1076-9	Inpatient pediatric medical ward
	HSLOC		1077-7	Inpatient pediatric behavioral health ward
	HSLOC		1078-5	Inpatient pediatric burn ward
	HSLOC		1079-3	Inpatient pediatric ear, nose, throat ward
	HSLOC		1080-1	Inpatient pediatric genitourinary ward
	HSLOC		1081-9	Inpatient pediatric medical/surgical ward
	HSLOC		1082-7	Inpatient pediatric neurology ward
	HSLOC		1083-5	Inpatient pediatric neurosurgical ward

Type	Table	Name	Value	Description
	HSLOC		1084-3	Inpatient pediatric orthopedic ward
	HSLOC		1085-0	Inpatient pediatric rehabilitation ward
	HSLOC		1086-8	Inpatient pediatric surgical ward
	HSLOC		1087-6	Specialty care area [SCA]
	HSLOC		1088-4	Hematology/Oncology SCA
	HSLOC		1089-2	Pediatric hematology/oncology SCA
	HSLOC		1090-0	Long-term acute care [LTAC]
	HSLOC		1092-6	Solid organ transplant SCA
	HSLOC		1093-4	Pediatric solid organ transplant SCA
	HSLOC		1114-8	Pediatric SCA
	HSLOC		1089-2	Pediatric hematology/oncology SCA
	HSLOC		1091-8	Pediatric dialysis SCA
	HSLOC		1093-4	Pediatric solid organ transplant SCA
	HSLOC		1198-1	Dialysis SCA
	HSLOC		1091-8	Pediatric dialysis SCA
	HSLOC		1094-2	Operating and recovery rooms
	HSLOC		1095-9	Cesarean section room/suite
	HSLOC		1096-7	Inpatient operating room/suite
	HSLOC		1097-5	Post-Anesthesia care unit/recovery Room
	HSLOC		1098-3	Step down units
	HSLOC		1099-1	Adult step down unit [post-critical care]
	HSLOC		1100-7	Pediatric step down unit [post-critical care]
	HSLOC		1101-5	Nursing or custodial care practice setting
	HSLOC		1102-3	Long-Term care unit
	HSLOC		1103-1	Long-Term care alzheimer's unit
	HSLOC		1104-9	Long-Term care behavioral health/psych unit
	HSLOC		1105-6	Long-Term care rehabilitation unit
	HSLOC		1106-4	Assisted living area
	HSLOC		1107-2	Outpatient practice setting
	HSLOC		1108-0	Emergency department
	HSLOC		1109-8	Pediatric emergency department
	HSLOC		1110-6	Allergy clinic
	HSLOC		1111-4	Cardiac clinical practice setting
	HSLOC		1112-2	Cardiac rehabilitation center
	HSLOC		1113-0	Cardiology clinic
	HSLOC		1129-6	Pediatric cardiology clinic
	HSLOC		1115-5	Dermatology clinic
	HSLOC		1131-2	Pediatric dermatology clinic
	HSLOC		1116-3	Endocrinology clinic
	HSLOC		1132-0	Pediatric diabetes/endocrinology clinic
	HSLOC		1117-1	Family medicine clinic
	HSLOC		1118-9	Gastroenterology clinic

Type	Table	Name	Value	Description
	HSLOC		1119-7	Pediatric gastroenterology clinic
	HSLOC		1120-5	General internal medicine clinic
	HSLOC		1121-3	Gynecology clinic
	HSLOC		1122-1	Medical genetics clinic
	HSLOC		1123-9	Neurology clinic
	HSLOC		1124-7	Ophthalmology clinic
	HSLOC		1125-4	Orthopedics clinic
	HSLOC		1133-8	Pediatric orthopedic clinic
	HSLOC		1126-2	Otorhinolaryngology clinic
	HSLOC		1127-0	Pain clinic
	HSLOC		1135-3	Nephrology clinic
	HSLOC		1137-9	Pediatric nephrology clinic
	HSLOC		1140-3	Podiatry clinic
	HSLOC		1141-1	Provider's office
	HSLOC		1142-9	Rheumatology clinic
	HSLOC		1138-7	Pediatric rheumatology clinic
	HSLOC		1143-7	Surgery clinic
	HSLOC		1144-5	Wound clinic
	HSLOC		1145-2	Behavioral health clinic
	HSLOC		1146-0	Pediatric behavioral health clinic
	HSLOC		1147-8	Blood collection center
	HSLOC		1148-6	Continence clinic
	HSLOC		1149-4	Ostomy clinic
	HSLOC		1150-2	Outpatient dental clinic
	HSLOC		1130-4	Pediatric dental clinic
	HSLOC		1151-0	Occupational health clinic
	HSLOC		1152-8	Occupational therapy clinic
	HSLOC		1153-6	Outpatient hemodialysis clinic
	HSLOC		1154-4	Outpatient HIV clinic
	HSLOC		1155-1	Outpatient rehabilitation clinic
	HSLOC		1156-9	Prenatal clinic
	HSLOC		1157-7	Pulmonary clinic
	HSLOC		1158-5	Speech therapy clinic
	HSLOC		1159-3	Wound ostomy continence clinic
	HSLOC		1160-1	Urgent care center
	HSLOC		1161-9	Holistic medicine center
	HSLOC		1162-7	24-Hour observation area
	HSLOC		1199-9	Pediatric outpatient practice setting
	HSLOC		1109-8	Pediatric emergency department
	HSLOC		1128-8	Pediatric clinic
	HSLOC		1119-7	Pediatric gastroenterology clinic
	HSLOC		1129-6	Pediatric cardiology clinic

Type	Table	Name	Value	Description
	HSLOC		1130-4	Pediatric dental clinic
	HSLOC		1131-2	Pediatric dermatology clinic
	HSLOC		1132-0	Pediatric diabetes/endocrinology clinic
	HSLOC		1133-8	Pediatric orthopedic clinic
	HSLOC		1134-6	Pediatric scoliosis clinic
	HSLOC		1136-1	Pediatric hematology/oncology clinic
	HSLOC		1137-9	Pediatric nephrology clinic
	HSLOC		1138-7	Pediatric rheumatology clinic
	HSLOC		1139-5	Well baby clinic
	HSLOC		1146-0	Pediatric behavioral health clinic
	HSLOC		1167-6	Outpatient pediatric surgery center
	HSLOC		1200-5	Hematology/oncology clinic
	HSLOC		1136-1	Pediatric hematology/oncology clinic
	HSLOC		1201-3	Scoliosis clinic
	HSLOC		1134-6	Pediatric scoliosis clinic
	HSLOC		1202-1	Physical therapy clinic
	HSLOC		1163-5	Residential treatment practice setting
	HSLOC		1164-3	Ventilator dependent unit
	HSLOC		1165-0	Inpatient hospice
	HSLOC		1166-8	Ambulatory surgical setting
	HSLOC		1167-6	Outpatient pediatric surgery center
	HSLOC		1168-4	Outpatient plastic surgery center
	HSLOC		1169-2	Outpatient surgery recovery room/post-anesthesia care unit
	HSLOC		1170-0	Institutional infirmary
	HSLOC		1171-8	Inpatient jail unit
	HSLOC		1172-6	Inpatient school infirmary
	HSLOC		1173-4	Mobile services
	HSLOC		1174-2	Mobile emergency services/EMS
	HSLOC		1175-9	Mobile MRI/CT
	HSLOC		1176-7	Mobile blood collection center
	HSLOC		1177-5	Dedicated non-clinical service location
	HSLOC		1178-3	Transport services
	HSLOC		1179-1	Pharmacy
	HSLOC		1180-9	Public area in healthcare facility
	HSLOC		1181-7	Physical plant operations center
	HSLOC		1182-5	Housekeeping/environmental services
	HSLOC		1183-3	Laundry room
	HSLOC		1184-1	Administrative area
	HSLOC		1185-8	Blood bank
	HSLOC		1186-6	Central sterile supply
	HSLOC		1187-4	Central trash area
	HSLOC		1188-2	Facility grounds
	HSLOC		1189-0	Morgue/Autopsy room

Type	Table	Name	Value	Description
	HSLOC		1190-8	Soiled utility area
	HSLOC		1191-6	Incidental service delivery location
	HSLOC		1192-4	Patient's residence [Home care]
	HSLOC		1194-0	Home-based hospice
	HSLOC		1195-7	Blood collection [Blood drive campaign]
	HSLOC		1196-5	Specimen collection area [Community]
User	99PAL	Activity Level at Place of Employment		
	99PAL		A	Sedentary Work – Lifting 10lbs or less
	99PAL		B	Light Work – Lifting 20lbs or less, frequently lifting and carrying up to 10lbs.
	99PAL		C	Medium Work – Lifting 50lbs or less, frequently lifting and carrying up to 25lbs
	99PAL		D	Heavy Work – Lifting 100lbs or less, frequently lifting and carrying up to 50lbs
	99PAL		E	Very Heavy work – Lifting 100lbs or more, frequently lifting and carrying up to 50lbs
User	99PEL	Education Level		
	99PEL		1	None Thru 8 th Grade
	99PEL		2	Some High School
	99PEL		3	High School Graduate
	99PEL		4	Some college – No Degree
	99PEL		5	Associate Degree
	99PEL		6	Bachelor's Degree
	99PEL		7	Some Post-Graduate Work
	99PEL		8	Master's Degree
	99PEL		9	Professional Degree
	99PEL		10	Doctorate Degree
HL7	UCUM	Units of Measure		
	UCUM		Cel	degrees Celsius [temperature]
	UCUM		[degF]	degrees Fahrenheit [temperature]
	UCUM		d	day [time]
	UCUM		mo	month [time]
	UCUM		UNK	Unknown
	UCUM		wk	week [time]
	UCUM		a	year [time]
	UCUM		%	Percent

Appendix B – OBX-5 Element Data Type

This table describes the format of the OBX-5 element as it pertains to the data type id expressed in OBX-2

OBX-5 Data Type	Description	Usage	HL7 Data Type	Length	Seq	Note
TS	Date/Time Stamp	RE	DTM	26	5.1	Minimum acceptable precision is to the nearest day.
TX	Text	RE	TX	65536	5.1	The TX data type is used to carry string data intended for display purposes. It can contain leading blanks (space characters).
NM	Numeric Value	RE	ST	16	5.1	A numeric data type is a number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.
CWE	Identifier	RE	ST	20	5.1	
	Text	RE	ST	199	5.2	It is strongly recommend that text be sent to accompany any identifier
	Name of Coding System	C	ID	20	5.3	Required if an identifier is provided in component 1.
XAD	Street Address		ST	120	5.1	
	Other Designation		ST	120	5.2	
	City		ST	50	5.3	
	State		ST	50	5.4	FIPS 5-2
	Zip or Postal Code		ST	12	5.5	USPS
	Country		ID	3	5.6	ISO 3166-1

Appendix C – Observation Identifier Examples

Concept Code	Preferred Concept Name	HL7 Table 0396 Code
11289-6	Body temperature:Temp:Enctr^frst:^Patient:Qn:	LN
44833-2	Diagnosis.preliminary:Imp:Pt:Patient:Nom:	LN
SS003	Facility / Visit Type	PHINQUESTION
11368-8	Illness or injury onset date and time:TmStp:Pt:^Patient:Qn:	LN
59408-5	Oxygen saturation:MFr:Pt:BldA:Qn:Pulse oximetry	LN
SS001	Treating Facility Identifier	PHINQUESTION
SS002	Treating Facility Location	PHINQUESTION
NECVD001	Patient Employer	99NECVD
NECVD002	Patient Occupation	99NECVD
NECVD003	Employment Status	99NECVD
NECVD004	Employment work hazards of patient	99NECVD
NECVD005	Patient activity level at employment	99NECVD
NECVD006	Patient operates hazardous equipment at employment (Y/N)	99NECVD
NECVD007	Patient Education Level	99NECVD

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OBX|2|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||^13^30341^USA^C|||||F|||201102091114<cr>
OBX|3|CWE|SS003^FACILITY/VISIT TYPE^PHINQUESTION||1108-0^EMERGENCY DEPARTMENT^HSLOC|||||F|||201102091114<cr>
OBX|1|NM|F-048C3^BODY TEMPERATURE^SCT||101|[degF]^F^UCUM|||||F|||20110114130658
OBX|2|NM|P2-25013^Pulse Oximetry^SCT||90|%^Percent^UCUM|||||F|||20110114130658
OBX|1|ST|NECVD001^Patient Employer^99NECVD||NECORP|||||F|||20110601
OBX|1|ST|NECVD002^Patient Occupation^99NECVD||PAINTER|||||F|||20110601
OBX|1|ST|NECVD003^Employment Status^99NECVD||EMPLOYED|||||F|||20110601
OBX|1|ST|NECVD004^Employment work hazards of patient^99NECVD||falling from high places|||||F|||20110601
OBX|1|ST|NECVD005^Patient activity level at employment^99NECVD||D^HEAVY WORK^99PAL|||||F|||20110601
OBX|1|IS|NECVD006^Patient operates hazardous equipment at employment^99NECVD||Y|||||F|||20110601
OBX|1|IS|NECVD007^Patient Education Level^99NECVD||6^99PEL|||||F|||20110601
  
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