

North Dakota Department of Health Syndromic Surveillance Guidelines

ADT Messages A01, A03, A04 & A08

HL7 Version 2.5.1

Version 1.3

North Dakota Department of Health, Division of Disease Control

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How to use this guide

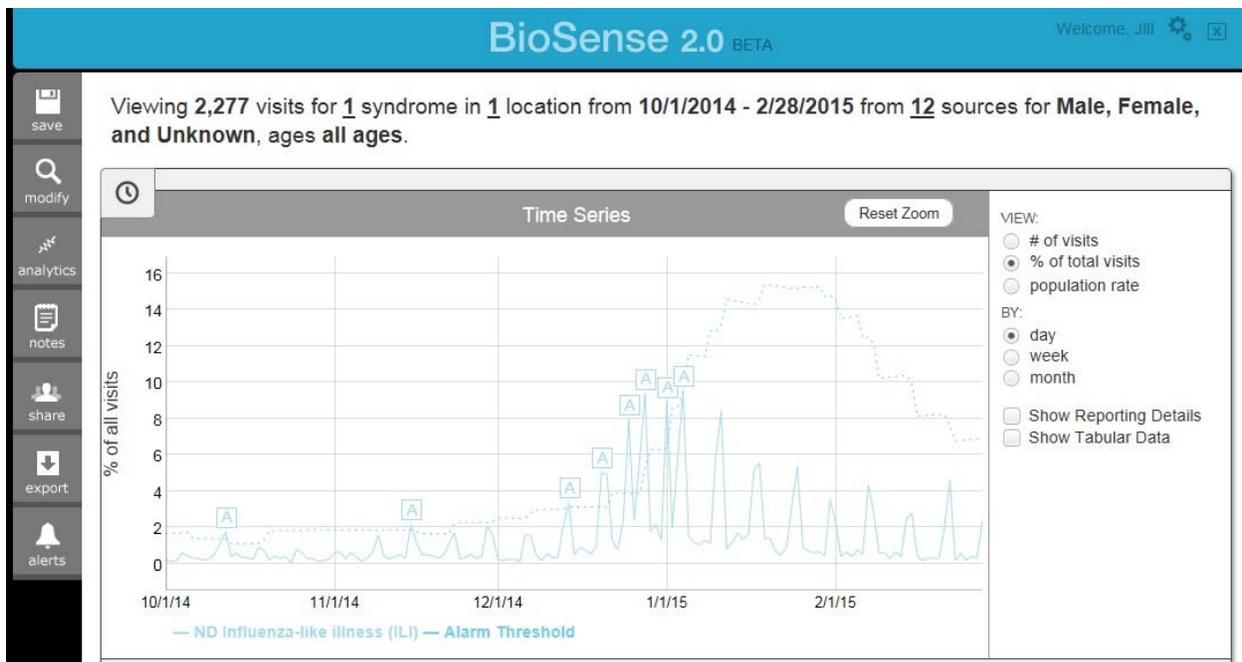
This guide is intended for the use of providers and hospitals or their vendors to use toward meeting the requirements for meeting Meaningful Use (MU) stages one, two, and three for Syndromic Surveillance (SS). It is not meant to be an exhaustive resource regarding SS MU requirements. Rather, the information provided here is intended as a North Dakota-specific reference. This guide assumes you have some knowledge how HL7 messages are structured. For a more comprehensive discussion of the technical aspects of HL7, we refer you to the most current edition of the national specification guide, which can be found here:

<http://www.cdc.gov/phin/resources/PHINguides.html>

What is syndromic surveillance and how is it used?

Syndromic surveillance refers to the systematic collection, grouping, and tracking of reason for visit-type data. Syndromic surveillance is not tied to reportable conditions or laboratory results, but rather is a set of information shared for **all** patient visits. (Or all visits of a certain type, such as all emergency department and urgent care visits.) Health care visit information is de-identified and grouped into “syndromes.” Syndromes are categories of visits that may be similar. Commonly used syndromes include: respiratory, gastrointestinal, neurologic, rash, sepsis, injury, animal bites, and severe illness/death. A typical syndromic surveillance system will alert the user when there are more visits of a particular syndrome than expected, based on past visits. NDDoH then follows up on any identified data anomaly to see if there might be a reason for unexpected increase.

The North Dakota Department of Health (NDDoH) has been conducting syndromic surveillance since 2003. In the past, syndromic surveillance data was collected primarily from emergency departments, but the NDDoH will accept data related to inpatient and outpatient clinic visits as well. In addition to monitoring common syndromes on a daily basis, the NDDoH has used syndromic surveillance to monitor injuries during flood events, investigate increased visits for respiratory complaints during the enterovirus D68 outbreak, investigate and respond to inquiries regarding increased rotavirus illnesses, and track influenza-like illness during the influenza season. In 2014, the NDDoH began participating in the BioSense 2.0 program. BioSense 2.0 is a cloud based syndromic surveillance platform created by the CDC that is free of charge for the NDDoH. Emergency department, inpatient, and outpatient data can all be added to the BioSense 2.0 environment.



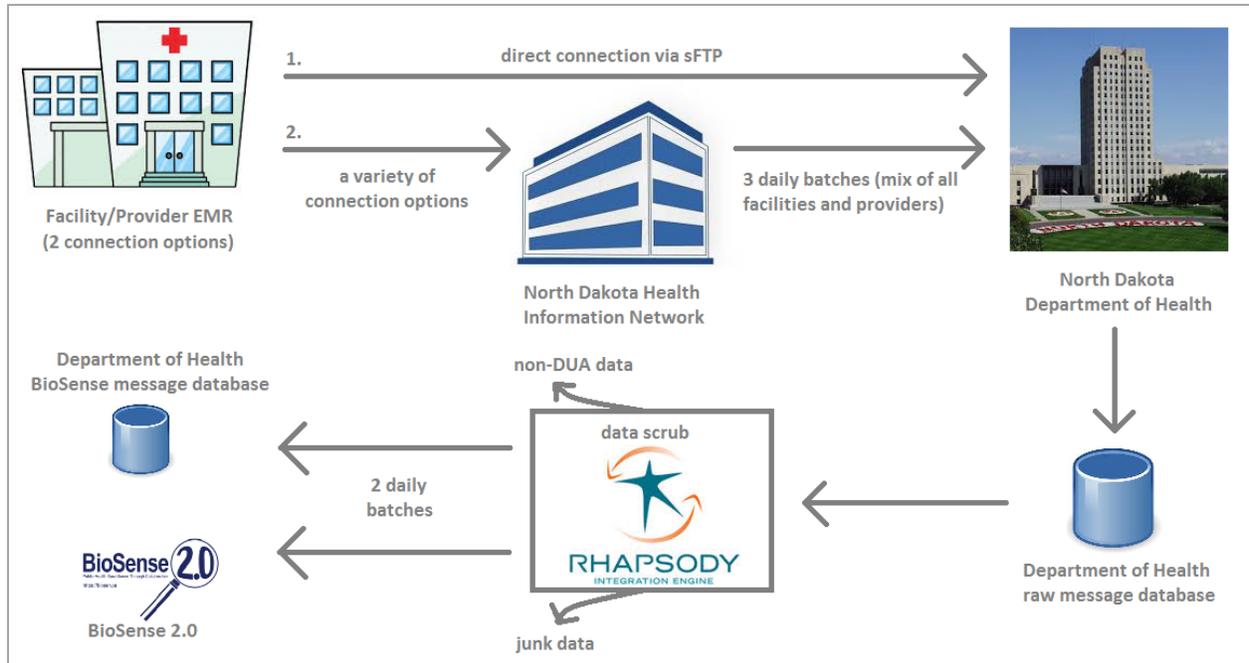
North Dakota influenza-like illness syndrome for 10/01/2014 to 03/01/2015

Syndromic surveillance and Meaningful Use

Many hospitals and clinics now connecting to the NDDoH to send syndromic data are using their connection to attest for Meaningful Use dollars. Syndromic surveillance is one of the public health measures both hospitals and clinics can use to obtain Meaningful Use Medicaid dollars, and the NDDoH can accept messages from both hospitals and eligible providers at any Meaningful Use stage. Facilities and providers have the option of either connecting with the NDDoH directly, utilizing secure file transfer protocol, or connecting via a connection with the North Dakota Health Information Network (ND HIN). When connecting through the ND HIN, messages from all ND HIN facilities and providers are sent batched several times daily to the NDDoH. The messages are grouped together, stripped of identifying fields and sent from the NDDoH to the BioSense 2.0 environment (see pathway diagram).

Establishing a Connection for Syndromic Reporting

Facilities that wish to connect to the NDDoH for the purpose of sending syndromic messages must first register their intent to do so. The online MU Registration of Intent form can be found at <http://www.ndhealth.gov/disease/mu/MU.aspx>. The NDDoH will contact registrants after receiving this registration of intent form. Facilities will follow this process when establishing a connection with the NDDoH:



State of North Dakota syndromic surveillance message pathway.

1. Determine how messages will be transported—Facilities can connect to the NDDoH in one of two ways:
 - Direct Secure File Transfer Protocol (SFTP) connection. Please note that providers connecting directly will need to establish a Data Use Agreement (DUA) with the NDDoH as part of the onboarding process. A template DUA and additional information is available for direct connect locations.
 - Connection through the ND HIN. The ND HIN offers a wide variety of connection options; providers who are not set up to connect via SFTP may be able to connect to the NDDoH via the ND HIN. Providers connecting through the ND HIN should review our ND HIN FAQ at: [ADD LINK HERE.](#)

2. Create messages in the proper format: Messages must conform to the HL7 standard, version 2.5.1 (expected) or 2.3.1 (acceptable). The NDDoH accepts four types of messages:
 - A01—Admit/visit notification
 - A03—Discharge/end visit
 - A04—Registration of patient

- A08—Update patient information
3. Analyze messages internally to verify all required data has been captured (see Required Fields). If a facility has not yet completed the Registration of Intent, it must do so now.
 4. Send a test message to the NDDoH for validation (completion through this step only fulfill MU stage one requirements for SS) and prepare for the testing phase. The NDDoH will provide feedback based on requirements for MU stage 2, and will work with your facility to prepare for sending complete and valid syndromic messages.
 5. Send production level test messages to the NDDoH through a direct connection or through the ND HIN. (Please note, this meaning production status with the NDDoH. For those connecting via the ND HIN, production status with the ND HIN will precede this step.)
 6. Go-live: After the NDDoH determines messages received via testing will be successful, a continued connection will be established. Please note that “production” status will not be reached until the NDDoH is approved for sending production level messages to the BioSense 2.0 syndromic surveillance interface. The continued submission of complete and valid syndromic messages to the NDDoH that is being passed on to BioSense 2.0 is required for the fulfillment of MU stage 2 SS objectives.

Required fields

Required fields are designated at the national level, with additional fields requested by the state. In order to meet Stage 2 requirements for MU in North Dakota, fields required from the national specification **must** be included in the message set. This guide is generally applicable to both facility and ambulatory providers. The NDDoH understands information from ambulatory providers will be different in some respects, and questions from ambulatory providers related to these fields will be addressed during the onboarding process. Additional fields that are optional may also be sent.

Quality assurance:

All required and required if available fields are expected to be present in syndromic messages if it is information the facility collects, although it is likely not all fields will be included in every

single message for a single visit. In order for a message to be accepted by our syndromic surveillance system, the following fields **must** be completed:

- Universal ID (MSH-4.2)
- Visit ID (PV-19.1)
- Syndrome Element, including chief complaint, diagnosis, admit reason, and triage notes (various locations)

Without these fields, a message cannot be loaded into the BioSense 2.0 environment.

Required fields table:

The following fields make up the NDDoH syndromic surveillance data set. Requirements for National certification may be different: fields not used for NDDoH syndromic surveillance have been removed, and fields specific to NDDoH have been added (and denoted*). Additional optional fields may also be sent. Multiple timely messages may be sent to fulfill the complete set of requirements for one visit as long as the same unique visit ID (PV1-19.1) is identified in each message for a single visit.

HL7 Element Name	HL7 Segment	Requirement
<i>MSH—Message Segment Header (Required)</i>		
Field Separator	MSH-1	Required
Encoding Characters	MSH-2	Required
NameSpace ID (sending facility)	MSH-4.1	Required if available
Universal ID	MSH-4.2	Required
Universal ID Type	MSH-4.3	Required
Receiving Facility	MSH-6	Required*(provided by NDDoH during onboarding)
Date/Time of Message	MSH-7	Required
Message Code	MSH-9.1	Required
Trigger Event	MSH-9.2	Required
Message Structure	MSH-9.3	Required
Message Control ID	MSH-10	Required
Processing ID	MSH-11	Required
Version ID	MSH-12	Required
<i>EVN—Event Type Segment (Required)</i>		
Recorded Date/Time	EVN-2	Required

Facility Name (event facility)	EVN-7.1	Required if available
Universal ID (event facility)	EVN-7.2	Required for HL7 2.5.1
Universal ID Type	EVN-7.3	Required for HL7 2.5.1
PID—Patient Identification Segment (Required)		
Set ID for PID Segment	PID-1	Required, valued at “1”
Patient ID Number	PID-3.1	Required
Date of Birth	PID-7	Required*
Administrative Sex	PID-8	Required if available
Race Identifier	PID-10.1	Required if available
Race Text	PID-10.2	Required if available
Name of race coding system	PID-10.3	Required if 10.1 is filled
State or Province	PID-11.4	Required if available*
Zip or Postal Code	PID-11.5	Required if available
Ethnic Group Identifier	PID-22.1	Required if available
Ethnic Group Text	PID-22.2	Required if available
Name of ethnic group coding system	PID-22.3	Required if 22.1 filled
Patient Death Date/Time	PID-29	Required if PID-30 filled (A08 and A03 message types only)
Patient Death Indicator	PID-30	Required if field PV1-36 denotes patient has expired (A08 and A03 message types only)
PV1—Patient Visit Segment (Required)		
Set ID for PV1 Segment	PV1-1	Required if applicable
Patient Class	PV1-2	Required *
Admission Type	PV1-4	Required if available*
Admit Source	PV1-14	Required if available*
Ambulatory Status	PV1-15	Required if available*
Patient Visit ID Number	PV1-19.1	Required, and should be the same of all messages submitted for a single patient encounter
Visit Number Identifier Type Code	PV1-19.5	Required
Discharge Disposition	PV1-36	Required if available, including to indicate patient death for applicable visits (A08 and A03 message types only)
Admit Date/Time	PV1-44	Required
Discharge Date/Time	PV1-45	Required if available (A08 and A03 message types only)*
PV2—Patient Visit Additional Information Segment (Required when available but MUST be present for inpatient visits if no diagnosis is given in DG1 segment)		
Admit Reason Identifier	PV2-3.1	Required if available
Admit Reason Text	PV2-3.2	Required if available
Admit Reason Name of Coding System	PV2-3.3	Required if PV2-3.1 is filled

OBX—Observations/Results Segment (Required if available)		
The following values are required to be present within the OBX segments when available: Facility Type, Patient Age, Chief Complaint . The following values are also requested by NDDoH when available: Initial Temperature, Initial Pulse Oximetry, Blood Pressure, Patient Weight, Patient Height, Patient Illness/Injury Onset Date, Triage Notes, and Smoking Status .		
Set ID for OBX Segment	OBX-1	Required (1,2,3....etc.)
Value Type (NM, CWE, TX, etc.)	OBX-2	Required
Observation Identifier	OBX-3.1	Required
Observation text	OBX-3.2	Required if available*
Name of Coding System	OBX-3.3	Required if OBX-3.1 is filled
Observation Value (OBX-5 field(s) based on value type and identifier as designated in OBX-2 and OBX-3)	OBX-5._	Required, see below for details specific to each data type (CWE, NM, TS, TX)
CWE (Facility Type, Chief Complaint)		
Code identifying type of data (LOINC indicating facility type, chief complaint, etc.)	OBX-5.1	Required
Text (for Chief Complaint from drop down, drop down of text goes here; for facility type, facility type goes here; etc.)	OBX-5.2	Required/Required if available (dependent on data being sent)
Original Text (free text chief complaint goes here)	OBX-5.9	Required for free text chief complaint data
NM (Age, Initial Temperature, Initial Pulse Oximetry, Blood Pressure, Patient Weight, Patient Height)		
Numeric Value	OBX-5.1	Required for NM data type
TS (Onset Date)		
Date/time (required precision to nearest date)	OBX-5.1	Required for TS data type
TX (Triage Notes)		
Numeric value	OBX-5.1	Required for TX data type
Identification code for observation value unit type	OBX-6.1	Required if OBX-5.1 NM value type
Name of coding system for observation value unit type	OBX-6.3	Required if OBX-5.1 NM value type
Observation Results Status (ex." F" for final)	OBX-11	required
DG1—Diagnosis Segment (Required if available)		
Set ID for DG1 Segment	DG1-1	Required (1,2,3....etc.)
Diagnosis Code	DG1-3.1	Required
Diagnosis Code Text	DG1-3.2	Required
Name of coding system	DG1-3.3	Required
Diagnosis Type (ex." A" for admitting, "F" for final, etc.)	DG1-6	Required

PR1-Procedures Segment (Required if available*)		
Set ID for PR1 Segment	PR1-1	Required
Procedure Code	PR1-3	Required
Procedure Date/Time	PR1-5	Required

Example HL7 Messages:

Example 1. A04 Outpatient/Emergency Department Registration; No Updates

In the following example, a non-Hispanic white female, Ann A. Everyperson, 67 years old, visits the Midland Health Center Emergency Department with an infected abrasion on her forearm. Because this is an Emergency Department visit, PV1-44 reflects the time the patient registered in the Emergency Department. The Admit Reason is coded in ICD-9. The original provider of the data, Midland Health Center, is captured in the EVN-7. The facility location and visit type was provided by Midland Health Center.

```
MSH|^~\&||MIDLAND HLTH
CTR^9876543210^NPI|State_SS|State_Public_Health|201102091114||ADT^A04^ADT_A01|201102091114-0078|P|2.5.1<cr>
EVN||201102091114||||MIDLAND HLTH CTR^9876543210^NPI<cr>
PID|1||20060012168^A^MR^MIDLAND HLTH CTR^9876543210&NPI||EVERYPERSON^ANN^A^L||F||2106-
3^White^CDCREC|^13^30341^USA^C|||||2186-5^Not Hispanic^CDCREC<cr>
PV1||E|E|||||1||||20110209_0064^VN|||||20110217144208<cr>
PV2||9131^ABRASION FOREARM-INFECT^I9CDX<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||201102171531<cr>
```

Example 2. 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 stomach ache. The chief complaint was sent as free text.

```
MSH|^~\&||OTHER REG MED CTR^1234567890^NPI||201102171531||ADT^A04^ADT_A01|201102171531956|P|2.3.1<cr>
EVN||201102171531<cr>
PID|1||FL01059711^U||F||2106-3^White^CDCREC|^12^33821|||||2186-5^Not Hispanic^CDCREC<cr>
PV1||E|E|||||7||||V20220217-00274^VN|||||201102171522<cr>
PV2||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>
OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED
CTR^1234567890^NPI||||F||201102171531<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^STOMACH
ACHE||||F||201102171531<cr>
OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM||||F||201102171531<cr>
DG|1|78900^ABDMNAL PAIN UNSPCF SITE^I9CDX||A<cr>
```

Continuing the example, the patient is suspect for appendicitis and is admitted as an inpatient. The patient also has reported that she has had a stomach ache 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^1234567890^NPI||201102171658||ADT^A01^ADT_A01|201102171658076|P|2.3.1<cr>
EVN||201102171658<cr>
PID|1||FL01059711^^^PI||~^^^U||F||2106-3^White^CDCREC|^12^33821|||||2186-5^Not Hispanic^CDCREC<cr>
PV1||I|E|||||7||||V20220217-00274^^^VN|||||09|||||201102171656<cr>
PV2||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>
OBX|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED
CTR^1234567890^NPI||||F||201102171531<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^STOMACH
ACHE||||F||201102171531<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:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A||F||201102171658<c
r>
OBX|5|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE
OXIMETRY^LN||95|^PERCENT^UCUM||A||F||201102171658<cr>
OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND
TIME:TMSTP:PT:PATIENT:QN^LN||20110215||||F||201102171658<cr>
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX||A<cr>
DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX||W<cr>
```

Continuing the example, the patient has expired and this is indicated in PV1.36 (Code=20). A final diagnosis also is sent. It also is 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||201102172334||ADT^A03^ADT_A03|201102172334640|P|2.3.1<cr>
EVN||201102172334
PID|1||FL01059711^^^PI||~^^^U||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|1|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||OTHER REG MED
CTR^1234567890^NPI||||F||201102171531<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^STOMACH
ACHE||||F||201102171531<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:TEMP:ENCTRFIRST:PATIENT:QN^LN||99.1|[degF]^FARENHEIT^UCUM||A||F||201102171658<cr>
```

OBX|5|NM|59408-5^OXYGEN SATURATION:MFR:PT:BLDA:QN:PULSE
 OXIMETRY^LN|95|^PERCENT^UCUM||A||F||201102171658<cr>
 OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND
 TIME:TMSTP:PT:PATIENT:QN^LN|20110215||||F||201102171658<cr>
 DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX||A<cr>
 DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX||W<cr>
 DG1|3||5400^AC APPEND W PERITONITIS^I9CDX||F<cr>

Example 3. A01 Inpatient Admission; No Updates

In the following example, a Hispanic white male, age currently 20, is admitted as an inpatient to the Mid-Co Health Center Emergency Department after falling down the stairs.

MSH|^~\&||MID-CO HLTH CTR^9876543210^NPI||201110090314||ADT^A01^ADT_A01|201110090314-0017|P|2.3.1<cr>
 EVN||201110090314<cr>
 PID|1||MD01059711^^^ADMITTING^MR^MID-CO HLTH CTR^9876543210^NPI||~^^^U||M||2106-
 3^White^CDCREC|^24^21502|||||2135-2^Hispanic or Latino^CDCREC<cr>
 PV1|I|E|||||6||||20111009_0034^^^AN^MID-CO HLTH CTR&9876543210&NPI |||||20111009025915<cr>
 OBX|1|NM|21612-7^AGE PATIENT QN REPORTED^LN||20|a^YEAR^UCUM||||F||201102171531<cr>
 OBX|2|HD|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||MID-CO HLTH
 CTR^9876543210^NPI||||F||201102171531<cr>
 DG1|1||E8809^FALL ON STAIR/STEP NEC^I9CDX||A<cr>

Contact Information

If you have any questions, please contact the the NDDoH Division of Disease control at 701-328-2378. Information on syndromic surveillance and other Meaningful use messaging requirements can be found at <http://www.ndhealth.gov/disease/mu/>.

If you are interested in contacting the ND HIN, please call 701-328-1983 or visit www.ndhin.org.