NSSP UPDATE

National Syndromic Surveillance Program
BioSense Platform

May 2017

Welcome to NSSP Update

NSSP Update is published monthly by the National Syndromic Surveillance Program (NSSP) and brings you the latest news about the BioSense Platform and [Community of Practice](#).

If a colleague forwarded this issue to you, we encourage you to [subscribe](#) to receive future issues.

NSSP Looks Ahead

On April 25, 2017, the NSSP Team began a series of webinars to introduce new sites to the BioSense Platform. Representatives from four sites attended: Santa Cruz County, California; Solano County, California; Marion County, Indiana; and South Carolina.

These additional sites will improve data representativeness—not only to get a better picture of health *nationally*, but also to expand situational awareness *regionally*. A second onboarding window is tentatively planned for August.

NSSP ESSENCE Adds Category for Querying Heroin Overdoses

Heroin use has increased sharply across the United States among men and women, most age groups, and all income levels. Some of the greatest increases occurred in demographic groups with historically low rates of heroin use: women, the privately insured, and people with higher incomes.

Many efforts are underway to begin opioid and heroin surveillance, including the NSSP Team's work with CDC's National Center for Injury Prevention and Control. To help users of the NSSP BioSense Platform respond to this public health epidemic, we have translated free-text queries for heroin overdose into indexable fields. NSSP ESSENCE has a new Chief Complaint (CC) and Discharge Diagnosis (DD) Category for querying heroin overdoses. We understand that each site may want to customize a query to fit their data, which may include more than CC and DD text, if available, but this version is a good start. The query terms as ESSENCE syntax follow:

Category	Query Terms (ESSENCE Syntax)
Chief Complaint and Discharge Diagnosis	(,^narcan^,or,^naloxo^,or,^poison^,or,^[ao]verdose^,or,^over dose^,or,^overose^,or,^sobredosis^,or,^nodding^,or,^ nod ^,or,^snort^,or,^adverse rxn^,or,^adverse reaction^,or,^adv effect drug^,or,^adverse effect drug^,or,^drug reaction^,or,^adverse drug^,or,^in[gj]est^,or,^intoxic^,),and,(,^her[io][oi]n^,or,^ hod ^,or,^speedball^,or,^speed ball^,or,^dope^,or,^spheroin^,),or,^[;/]T40.1X1A^,or,^[;/]T401X1A^,or,^[;/]T40.1X4A^,or,^[;/]T401X4A^
Chief Complaint Free Text	^,andnot,^denies her[io][oi]n^,andnot,^deny her[io][oi]n^,andnot,^denied her[io][oi]n^

You can find the CC and DD Category by clicking on the ESSENCE Query Portal, then scrolling the left pane until you find the CC and DD Category in the list of Available Query Fields. Select CC and DD Category to view available categories in the central pane of the Query Wizard. Simply select CDC Heroin Overdose v1 from the list to use it in your query. We encourage you to use this because your query will perform much better. Look for more work in this area, as we plan to publish more of the most popular free-text queries as CC and DD Categories soon.

CDC Resources:

Download CDC July 2015 *Vital*signs™ fact sheet. Today's Heroin Epidemic: More people at risk, multiple drugs abused.

What Can States Do? Here's general guidance from the CDC website:

- Address the strongest risk factor for heroin addiction: addiction to prescription opioid painkillers.
  - o Make prescription drug monitoring programs timely and easy to use. Providers can analyze patient prescription drug history and make informed decisions before prescribing opioid painkillers.
  - o Look at the data and practices of state Medicaid and worker's compensation programs to identify and reduce inappropriate prescribing.
- Increase access to substance abuse treatment services, including medication-assisted treatment (MAT) for opioid addiction.
  - o Work with Medicaid and other insurance companies to provide coverage for MAT.
  - o Support adoption of MAT in community settings.
- Expand access to and training for administering naloxone to reduce opioid overdose deaths.
- Ensure that people have access to integrated prevention services, including access to sterile injection equipment from a reliable source, as allowed by local policy.
- Help local jurisdictions to put these effective practices to work in communities where drug addiction is common.

Centers for Disease Control and Prevention. *Vital*signs™: Today's Heroin Epidemic [online]. 2015. [cited 2017 Apr 20]. Available from URL: https://www.cdc.gov/vitalsigns/heroin/

Does Anyone Know What Time It Is?

The NSSP Analytic Data Management Team thanks everyone who provided feedback on the beta version of the Timeliness Data Quality Reports—especially on how to account for differences in time zones. Your input was most helpful.

Timeliness is based on the lag time between the "date/time of the patient visit" (C_Visit_Date_Time) and the "date/time the first message for the patient visit arrived on the BioSense Platform" (Arrived_Date_Time). The Arrived_Date_Time is based on Coordinated Universal time (or, UTC time), whereas the C_Visit_Date_Time is based on *other* time zones. Always, we must account for differences in time zones.

On the basis of your feedback, the NSSP Analytic Data Management Team is redesigning the report so that the time zone associated with C_Visit_Date_Time is the time zone associated with your site's time zone. We will adjust the calculation of lag time by adding the appropriate number of hours to C_Visit_Date_Time so that the date/time aligns with the Arrived_Date_Time time zone. Daylight savings time will be honored where appropriate. These adjustments will be made by the lag time algorithm. The actual C_Visit_Date_Time will not change.

Want a Guided Tour of the NSSP Data Quality Assessment Report?

The set includes reports on data completeness, timeliness, and validity. Reports will usually be posted each month to the **datatrans.biosen.se** server. If you would like our NSSP Analytic Data Management Team to give you a guided tour of the report, please submit a Support Request ticket to the NSSP Service Desk. We are pleased to set up webinars or live meetings, walk you through the reports, and answer your questions. As always, we encourage your feedback on additions and changes to the reports.

Changes to RStudio Pro Username and Password

On Tuesday, April 25, 2017, RStudio Pro became the newest application with login managed by Active Directory™, a Microsoft service that eliminates repetitive administrative tasks. Anyone who uses Adminer and RStudio Pro or accesses databases via NSSP's Open Database Connectivity application programming interface (ODBC API) can now use the same username and password login for all. The NSSP development team will continue to add Active Directory to other applications to improve the login process for users.

We encourage all users to change their passwords every 90 days. To change your Active Directory password, please use the self-service password reset tool available at this link: https://password.syndromicsurveillance.org. Remember that passwords changed using this link will affect Adminer, RStudio Pro, and ODBC API login.

Explanation of Patient Class Fields in ESSENCE

The Basics

The NSSP Service Desk receives many questions about platform applications. Questions are routed to our technical experts who respond to most questions directly and then use the feedback to suggest system improvements. Recently, a Platform user asked about the various Patient Class fields in ESSENCE. Others have asked "*What data can be used to track visits in multiple Patient Class settings?*" "*I see a number of Patient Class-related columns in ESSENCE, but I don't understand the differences.*" "*Where did these data come from?*" "*How are updates to Patient Class handled?*" "*Why do I see 'codes' for some fields and*

'descriptions' for others?" These users want to understand exactly what each field on the ESSENCE screen contains—and that curiosity will lead to better querying and observations.

We respond to these and similar questions by mentioning that Patient Class data in the Processed Data Table is, essentially, our *core data*. Then we describe how Patient Class makes it through to ESSENCE tables.

First, you'll need an understanding of the **Processed Data Table**. The Patient Class value sent in PV1-2 is stored in patient_class_code. The value is stored "as is" so that whatever comes in gets stored as an exact replica—even something odd, such as "not sure." A visit may have multiple messages and, thus, multiple records in the Processed Data Table. Also, multiple records may have different values in patient_class_code because the incoming PV1-2 can be different across messages.

ESSENCE pulls from the Processed Data Table and drops Patient Class into a few places. The last non-null value of patient_class_code (based on the record with the most recent message date time) is stored in two columns: patient_class_code and PatientClass. Because the name of the PatientClass column cannot be changed in ESSENCE, the patient_class_code is always placed in PatientClass, which is used throughout ESSENCE.

When records are collapsed, ESSENCE stores a de-duplicated list of PatientClass values found among all the records for a visit. These values are stored in a concatenated format with '|' as the delimiter. The name of the column that contains the Patient Class list is PatientClassUpdates. The order of the Patient Classes found among the records is reflected in PatientClassUpdates.

> **Example:** If E came in and then I came in, the value in PatientClassUpdates would be {1};E; {2};I;. Think of this as a transactional version of Patient Class history. In addition to being a history of Patient Classes, this is a *raw version* of the history that includes the order in which Patient Class data came through.

Another column in ESSENCE—PatientClassList—uses Patient Class history but adds descriptive values. The PatientClassList column has a descriptive concatenated set of de-duplicated PatientClass values but has NO information about the order sequence. The descriptions used are based on reference tables housed within ESSENCE.

> **Example:** Patient class value of E is mapped to Emergency. Building on our example of the PatientClassUpdates value of {1};E; {2};I;, the descriptive version stored in PatientClassList is Emergency, Inpatient.

Calculated Patient Class Fields in ESSENCE

As noted in the [NSSP Data Dictionary and Data Flow documentation](#), Calculated Patient Class is hierarchically defined as follows:

- If not NULL, set to the reported Patient_Class_Code.
- *Otherwise,* infer the Patient Class based on the reported facility type reported in the visit-level data.
- *Otherwise,* infer the Patient Class based on the facility type recorded in the Master Facility Table for the facility associated with the visit.

The same rationale described above for Patient Class applies to the Calculated Patient Class. There is a C_Patient_Class column, a C_Patient_Class_Updates column, and a C_Patient_Class_List column.

The ESSENCE detail in Figure 1 contains these three columns. Figure 2 shows an anonymized example of "messages/records" from the Processed Data Table that relates to what is seen in the ESSENCE detail. (If you have questions or need a better understanding of how to use this information, please submit a Support Request ticket to the NSSP Service Desk.)

Patient_Class_Code	Patient_Class	PatientClassUpdates	PatientClassList	C_Patient_Class	C_Patient_Class_Updates	C_Patient_Class_List
I	I	{1};E; {2};I;	Emergency, Inpatient	I	{1};E; {2};I;	Emergency, Inpatient

Figure 1. ESSENCE Detail

	A	B	C	D
1	c_biosense_id	message_date_Time	patient_class_code	c_patient_class
2	Biosense_ID_Number_1	3/27/2017 13:41	E	E
3	Biosense_ID_Number_1	3/27/2017 13:49	E	E
4	Biosense_ID_Number_1	3/27/2017 13:58	E	E
5	Biosense_ID_Number_1	3/27/2017 14:05	E	E
6	Biosense_ID_Number_1	3/27/2017 15:51	E	E
7	Biosense_ID_Number_1	3/27/2017 16:21	I	I

Figure 2. Message/Records from Processed Data Table

Update on AMC Release Timeline

In April, the NSSP Team completed the first round of user acceptance testing of the new Access & Management Center (AMC) user group feature. We are already incorporating feedback to improve the AMC's functionality and user experience; consequently, the next version of the AMC will be released sooner than anticipated. Look for an update in next month's issue of *NSSP Update.*

NSSP Transitions Legacy Data

Last month we reported that a third of NSSP site data would be transitioned by late May. The transition is still in progress. We continue to work closely with each site to process data and uphold data quality standards. Please contact us if you have specific questions about your site.

SPOTLIGHT ON SYNDROMIC SURVEILLANCE PRACTICE

This is the first in a series of articles examining literature that advances the practice of syndromic surveillance.

Tips for Using Syndromic Data

Here's an older article that was forward thinking in its day and is relevant today. The author, Dr. Julie A. Pavlin, is a pioneer in syndromic surveillance. Dr. Pavlin, Director of Health and Medicine Division with the National Academies of Science, worked on initial versions of ESSENCE at a time when syndromic surveillance primarily focused on outbreak detection, either deliberately caused or naturally occurring. Although public health practitioners have found value in syndromic surveillance beyond its initial focus, *detection* remains an objective, and this article is a good reminder about the value in connecting our surveillance activities to further investigation.

The article, titled "Investigation of Disease Outbreaks Detected by 'Syndromic' Surveillance Systems,"[1] emphasizes the importance of understanding differences and limitations of syndromic surveillance—particularly when it is incorporated into a comprehensive surveillance program. Health departments vary greatly in their processes and how certain activities are prioritized. Staff working in syndromic surveillance will need to make further in-roads with staff who have access to other corroborative data sources or whose responsibilities include initiating contact with the clinical community for additional follow-up. The article emphasizes that protocols help to make these connections. Further, the article explains how to integrate syndromic data into existing processes to determine whether analyst observations have a broader public health significance. We hope that you'll find this article useful.

[1] Pavlin JA. Investigation of disease outbreaks detected by "syndromic" surveillance systems. *Journal of Urban Health* 2003;80(Suppl 1):i107–14.

UPCOMING EVENTS

Mondays	Onboarding Support Calls: 3:00–4:00 PM EDT
Wednesdays	Data Validation Support Calls: 3:00–4:00 PM EDT
May 16, 2017	Scheduled vendor patches in staging environment: 6:00–10:00 AM EDT
May 18, 2017	Scheduled vendor patches in production environment: 6:00–10:00 AM EDT
May 23, 2017	Surveillance Community of Practice Call. Merges BioSense User Group (BUG), Meaningful Use, and Public Health Practice community calls. **Topic: Sharing surveillance work on drug overdose surveillance.** Facilitated by the International Society for Disease Surveillance (ISDS): 3:00–4:30 PM EDT. Advance registration required.
June 4–8, 2017	2017 CSTE Annual Conference: Cultivating an Environment for Better Health; Boise, Idaho
July 11–13, 2017	2017 NACCHO Annual Conference: Public Health Revolution: Bridging Clinical Medicine and Population Health; Pittsburgh, Pennsylvania

LAST MONTH'S TECHNICAL ASSISTANCE

April 7, 2017	Announced production deployment schedule for SFTP/PHIN MS server.
April 18, 2017	Applied vendor patches in staging environment: 6:00–10:00 AM EDT.
April 20, 2017	Applied vendor patches in production environment: 6:00–10:00 AM EDT.
April 24, 2017	Released updated Access & Management Center (AMC).
April 25, 2017	Held Surveillance Community of Practice Call.

Second Quarter MFT Planning

We thank all site administrators who submitted their updated Master Facility Tables last month. We will contact you early May with the new onboarding plan and dates for facilities scheduled to onboard in May, June, and July 2017.

Onboarding Support

Conference calls are held by invitation every Monday, 3:00–4:00 PM EDT, to discuss the process and to answer questions in a group forum.

Data Validation Support

Conference calls are held every Wednesday, 3:00–4:00 PM EDT, to assist with data validation compliance. For more information or to download the template for validating data, contact the NSSP Service Desk.

NSSP PARTICIPATION

NSSP receives data from more than 4,000 facilities. These facilities represent about 65% of all emergency department visits in the country based on American Hospital Association data. Currently, 47 sites in 40 states participate in the NSSP. Two sites transitioned but paused their move to production. At least 14 sites are working on local data feeds with plans to transmit data to the BioSense Platform soon. Four new sites attended a webinar to kick-off the first onboarding window of 2017, and others are scheduled to onboard later in the year.
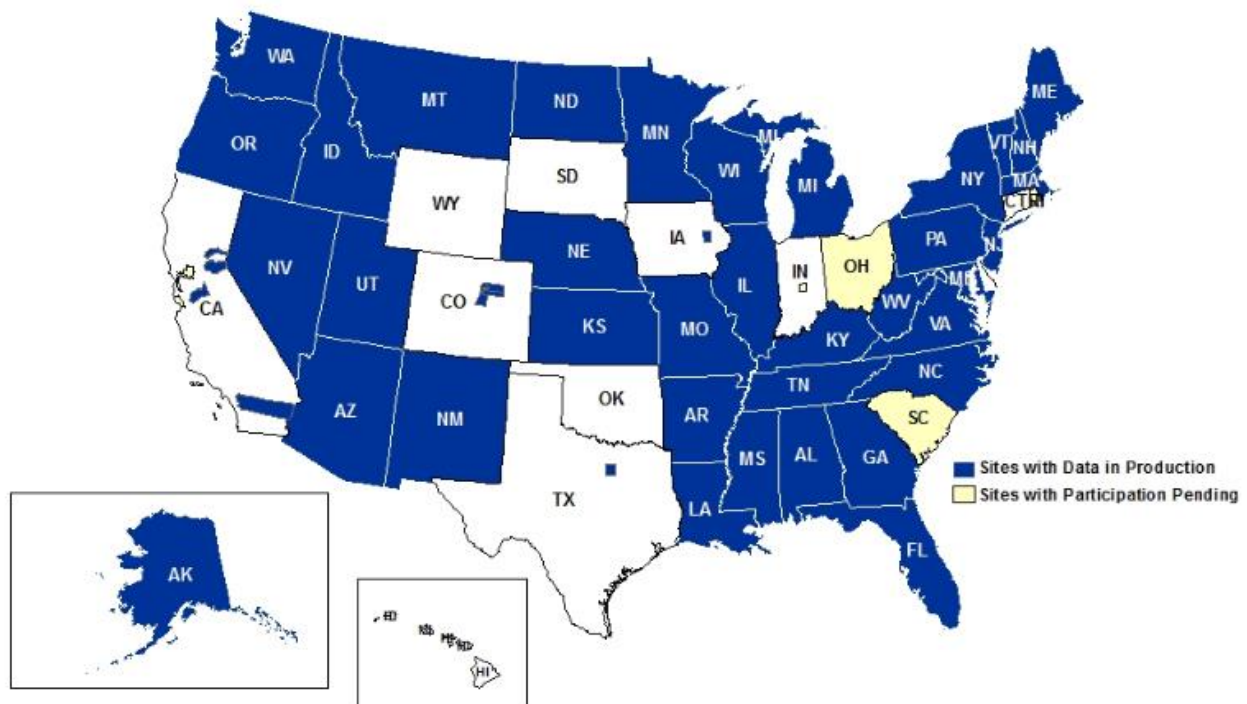
Definitions: NSSP consolidates facilities that provide data under a single data administrative authority called a *site administrator*. These facilities and single-site administrator constitute a *site*.

Winning in Syndromic Surveillance:
Tennessee Successes Around Use of ESSENCE

Positioning grantees for success is one of CDC's prime goals. In April, CDC's NSSP grantees submitted their yearly reports about the progress they've made in syndromic surveillance. When support for public health goals and grantee ingenuity intersect, it's a win–win for everyone.

The Tennessee State Department of Health annual report included a link to its newsletter describing the state's 2016 accomplishments in syndromic surveillance. The newsletter also defines syndromic surveillance, describes other data available for analysis, and explains how ESSENCE will be used in the future. This newsletter is a good example of how to share information among people with different levels of knowledge about syndromic surveillance.

Our thanks to Epidemiologist Caleb Wiedeman, MPH, of the Emergency Preparedness Program, Tennessee Department of Health, for sharing this newsletter with the Community.

COMMUNITY OF PRACTICE UPDATES

Trending Topics

Interested in learning more about what other community members are doing around **opioid surveillance**? Check out the Community of Practice (CoP) Community Forum on Opioid Surveillance here: https://healthsurveillance.site-ym.com/forums/Topics.aspx?forum=219887.

Work Group Updates

The Data Quality Committee and the CoP's NSSP partners from the Analytics Data Management Team and Onboarding Team are looking for your help to improve one of our tools for collecting Electronic Health Record (EHR) vendor information, the Master Facility Table (MFT). Currently, we are looking for a standardized list containing EHR vendor information for fields like the developer name or product name (sometimes referred to as the software name). EHR vendor information is collected during the Onboarding Team's quarterly planning and prioritization. Vendor information will be a part of future developments for the Metadata Visualization Application. Sharing knowledge and resources can assist us all in our effort to achieve high data quality. Let us know if you have suggestions or resources that could help us standardize collecting EHR vendor information. For additional questions, you may contact Data Quality Committee chair Krystal Collier.

Interested in joining a chapter, committee, or work group? You can find a list of all of the existing groups here: https://healthsurveillance.site-ym.com/members/group_select.asp.

Other CoP Updates

Join the monthly Surveillance Community of Practice Call. Please join us for the newly-formed, monthly Surveillance Community of Practice Call. The purpose of this call is to bring together various stakeholders with a vested interest in this field and to spark collaborative efforts to share guidance, resources, and technical assistance. The call was created by merging the BioSense User Group (BUG), Meaningful Use, and Public Health Practice community calls. **The next call will be held May 23, 2017, 3:00–4:30 PM EDT and will focus on sharing surveillance work on drug overdose surveillance. Please join us and share what your jurisdiction is doing on this topic.** Click here (https://attendee.gotowebinar.com/rt/2168546273482898690) to register.