NSSP UPDATE

September 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. To learn more, visit the NSSP website. Link to more resources via the Syndromic Surveillance Community of Practice Portal.

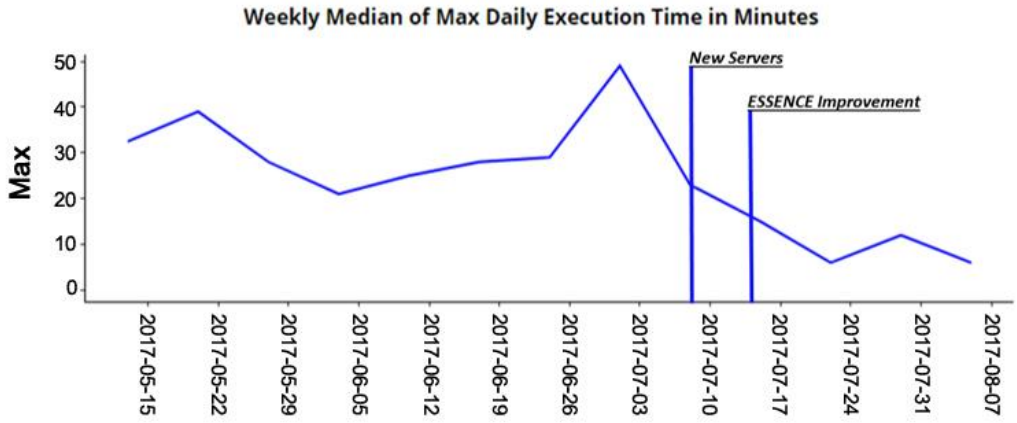
IN THIS ISSUE

Message from the NSSP Program Manager

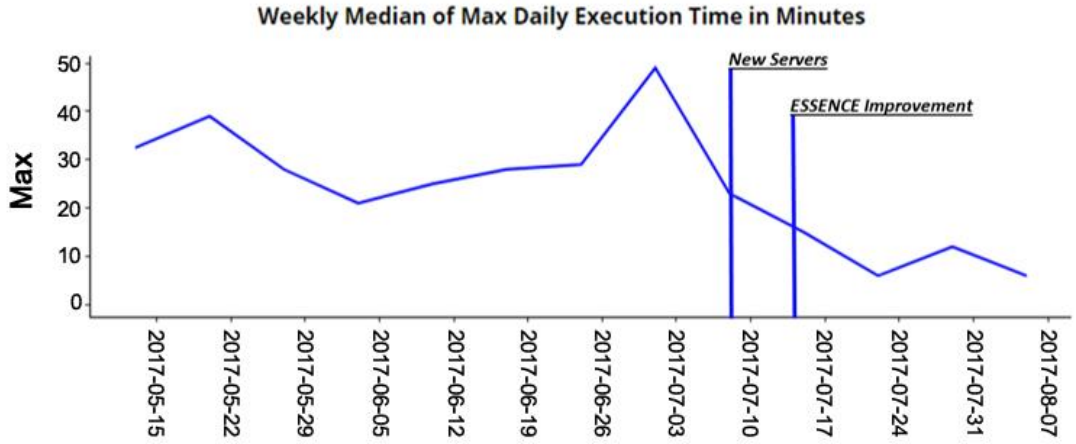
Seven months ago I wrote my first Message from the Program Manager. Since then, we've made considerable progress. In January, I wrote *"In 2017, we'll focus on optimizing the Platform, adding new data sources like the Department of Defense, and highlighting your good work."*

While adding new data sources proved more challenging than expected, we are optimizing the platform and highlighting successes—and the year isn't over. Already, we have achieved the following:

1. Deployed customizable Access & Management Center (AMC) user groups
2. Enabled about 40% of sites to see their legacy data—reaching back to 2012. This represents extensive work on developing requirements, testing, and processing volumes of data.
3. Developed and posted an online ESSENCE training webinar
4. Supported the International Society for Disease Surveillance (ISDS) in establishing the Community of Practice (CoP) steering committee
5. Supported ISDS's development of a knowledge repository AND website
6. Launched the Syndromic Surveillance CoP Portal to facilitate access to syndromic surveillance (SyS) information
7. Published our first two success stories
8. Onboarded facilities every week—plus, we opened a new site onboarding window to add three sites (South Carolina; Santa Cruz, California; and Marion County, Indiana)
9. Developed and regularly delivered data quality reports on timeliness, completeness, and validity
10. Assessed performance of, upgraded, and rebuilt EVERY SERVER on the BioSense Platform
11. Improved ESSENCE performance for faster querying



12. Collaborated with CDC's National Center for Injury Prevention and Control (Injury Center) to develop three heroin overdose categories and an opioid overdose category. This work supports the Enhanced State Surveillance for Opioid-Involved Morbidity and Mortality grant program that uses the BioSense Platform's ESSENCE for rapid surveillance of the opioid overdose epidemic.
13. Observed increase in use of ESSENCE—thanks to the efforts of many, including input from users:



All these accomplishments . . . and we're just entering our first full year of production! Of course, much work remains. We still pursue other data sources and strive to improve the Platform. We are developing a template to help the community solicit and deploy collaborative projects. We are also developing regional epi-groups that can offer feedback on trends seen in HHS regions.

To make NSSP even more valuable, we also want to enlist the community's input on how to create and operationalize accepted ways to compare data across sites and HHS regions. If we can do this, we'll be positioned to respond to questions like those ABC News posed recently about opioids. Years ago, the community had the Distribute project. "Distribute" enabled sites across the country to join together to understand what could and couldn't be done to share and compare flu data. Today, we have no structured process to unify practitioners around a specific topic. How can we strike a balance between national and other (local, state, regional) needs? How do we ensure engagement and appropriate discussions for just-in-time response needs? We also want to engage the community in developing a protocol for publication review and feedback. Then, as people use the Platform, there would be an understood protocol for practitioners who want to publish information when using the national picture or when collaborating across sites.

When you think about it, these goals reflect the great strides we've made as a community and the next great steps to tackle. Innovation and surveillance activities that use syndromic surveillance and the BioSense Platform occur daily. One example can be seen in our July 2017 newsletter post on Kansas' use of the system to assess fireworks injuries. I'm more than excited to see what the next 6 months can bring to the practice of syndromic surveillance!

As always, please continue to tell us when something does not function well or could be improved. Also, don't be reluctant to tell us about your successes and innovations. That's what this community is about—informing, working with, and inspiring others.

Sincerely,

Michael A. Coletta, MPH
National Syndromic Surveillance Program Manager
Division of Health Informatics and Surveillance
Center for Surveillance, Epidemiology, and Laboratory Services
Centers for Disease Control and Prevention

NSSP Progress Toward Transitioning Legacy Data

The NSSP Team continues to move data from the legacy system to ESSENCE. We made a notable accomplishment in the number of sites migrated to ESSENCE last month. By mid-August, we had processed 13 sites into production ESSENCE, compared with 6 in June. At least 4 sites had data ready to load into ESSENCE. Of the remaining 25 sites, 9 are reviewing their data in the testing environment.

Thanks for your continued patience throughout the legacy transition. If you have specific questions about your site, please contact the NSSP Service Desk.

Technology Update

Single Sign-on Delayed Due to Hurricane Response

To ease the struggle of password management, we had planned to release a new version of the Access & Management Center (AMC) this month that would unify multiple user names and passwords from different tools into one. **That release is being postponed due to CDC's use of the Platform in response to Hurricane Harvey.** As of August 31, 2017, the CDC Emergency Operations Center (EOC) was activated to coordinate agency response activities with federal, state, and local response partners through the HHS Emergency Management Group and the federal response structures in Texas.

All BioSense Platform tools remain accessible. Please use your current username and password to access AMC and ESSENCE. If you use Adminer or RStudio Pro, please continue to use the same username and password.

We apologize for this inconvenience and hope that you understand the circumstances under which we had to make this decision. If you have questions, please contact the NSSP Service Desk.

Now Available: Data Quality Assessment Reports

Updated NSSP data quality assessment (QA) reports on completeness, timeliness, and validity are available for pickup by site administrators. Reports are located in the site administrator's Reports/Production folder on the **datatrans.biosen.se** server. The intent of these reports is to

standardize the presentation of data across sites. The reports also benefit sites that don't have the resources to dedicate to data quality assessment. Reports include year-to-date data for 2017 and individual reports for April through July.

On the basis of your feedback, we made several improvements to the reports:

- **Visit Date:** Reports are based on visit date instead of arrived date. For example, July 2017 reports are based on data associated with visits that took place in July 2017. Notice the report name includes a "v" (e.g., vMonth, vYear) to discern reports based on visit date.

- **Facility Type:** A column titled Facility Type has been added. This enables you to filter results based on the facility type. Keep in mind that the facility type is based on how the primary facility is registered in your Master Facility Table.

  Completeness
  "ByFacility" worksheet includes a new Facility Type Column for filtering and viewing results by facility type. *"All_Feeds"* worksheet groups results as overall, overall by facility type, overall by feed name, and overall by feed name and facility type. *"Specific feeds"* worksheets group results as overall, overall by facility type, and by facility.

  Timeliness
  "Graph" worksheet groups graphs as overall; overall by facility type; overall by feed name; and overall by feed name, facility type, and facility. *"Detail worksheet"* includes a new Facility Type column that you can use to filter and view results by facility type.

- **Timeliness:** Timeliness Data Quality Reports now account for differences in time zones. 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. To account for these time zone differences, the report has been redesigned so that your site's time zone is applied to the NSSP Arrived_Date_Time and is displayed with the adjusted value. The adjusted Arrived_Date_Time is used in calculating the lag time between "date/time of the patient visit" (C_Visit_Date_Time) and "date/time the first message for the patient visit arrived on the BioSense Platform" (Arrived_Date_Time). (Note. the original Arrived_Date_Time is included in the detail-level report and labeled "Unadjusted.")

- **Visit- and Record-level Completeness:** Completeness reports include "% Visits" completeness on basis of data found among all records associated with a visit. In addition, a new column titled "% Recs" is available based on completeness for *individual* records.

- **Completeness and Exceptions:** Exceptions portion of the completeness report has been updated to include a "Total Records" column. Labels clarify the denominator used for "% Records of Total Read" in the "Total Processed" and "Total Exceptions" sections.

USING REPORTS TO . . .
DRIVE DATA QUALITY

Data Completeness: *Completeness* is defined as the "visit's full set of data," not the capturing of a single record (message) or "last message only." Data are considered across all messages associated with "the visit" to determine whether data in the field are missing. Record-level completeness is also included.

Data Timeliness: Reports and graphs note timeliness of visit-level data for either 24- or 48-hour periods. To calculate lag time, date/time of first message (for a visit) to arrive on the BioSense Platform is considered versus date/time of patient visit. (Note: Subsequent messages for the same visit are *not* included in the calculation.)

Data Validity: Reports show conformance to PHIN vocabulary standards and provide information of interest to data analysts (e.g., age, temperature). Data either do or do not conform, and supporting reports specify the value of conformance. Missing data elements are categorized as nonconforming. Reports provide record-level information. Reports also include visit-level information by collapsing data across records and by using the same logic applied to downstream ESSENCE processing.

- "Total Records" (Column G) is the sum of processed, exceptions, and filtered records in the NSSP Archive Raw table.
- "Total Read" (Column J) is "Total Records" minus "Filtered" records. These records passed filtered checks, becoming eligible for processing either into Processed or Exceptions.
- "% Records of Total Read" in the "Total Processed" section (Column L) and the "Total Exceptions" section (Column Q) use "Total Read" as the denominator.

- **Underlying Data for QA:** Data have been remodeled to optimize month-to-month updates. This new model facilitates QA reporting. For example, QA reports can be tailored for a specific facility or for visits associated with a patient class or trigger event.

We encourage you to attend the monthly Data Validation Support Call or contact our team to schedule a one-on-one session to review your reports. Please contact us if you want a custom report (e.g., specific facility), need help locating your reports, or have questions about content. Contact the NSSP Service Desk and submit a Support Request ticket.

ESSENCE Tip: Watch Out for "Hidden" Rows

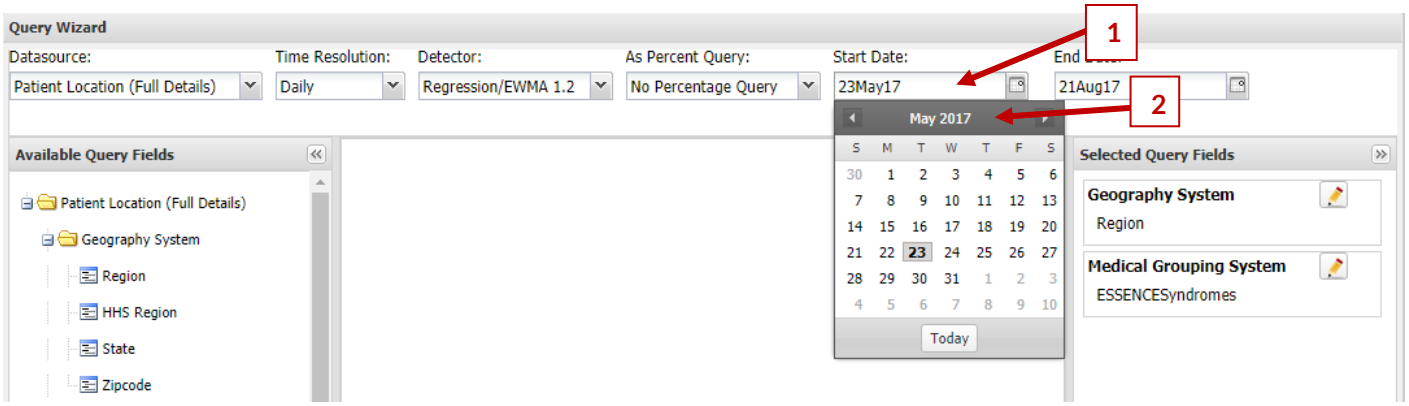
Frustration mounting, one system user couldn't understand why columns didn't total accurately in TABLE BUILDER EXCEL FILE but worked correctly in DETAIL DATA EXCEL FILE.

Here's why autosum did not appear to work: There are SUBTOTALs rows that you can't see unless you expand the rows. It's a good idea to autofit row height and adjust column width to see what's really there.

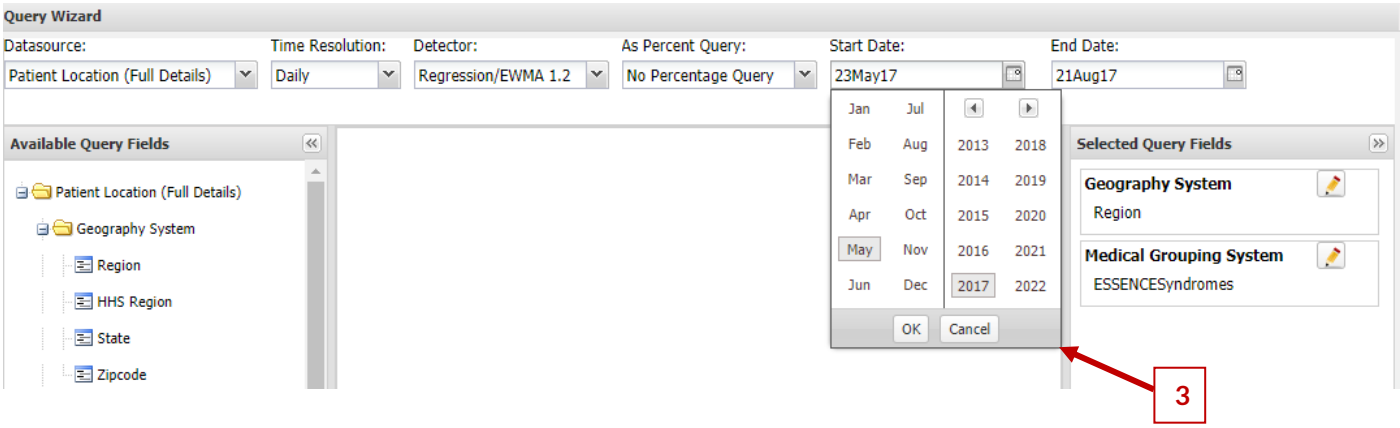
ESSENCE Tip: How to Change Dates Quickly

Changing dates can get cumbersome in ESSENCE if you have to keep pointing and clicking to the year of choice. An easy alternative follows:

1. Select the calendar icon next to the Start Date (here, the date is 23May17).
2. Next, select the date in the top bar (this date is usually set to 90 days before the current date).



This selection reveals another pop-up that lists months to the left and years to the right. Use the arrows to select earlier years.



3. Select a month and year.
4. Click "OK." This takes you to a calendar view of your selection where you can select dates. The Start Date will be set to your preferred date.
5. Repeat the process to select the End Date.

VIOLA! You just saved time! Now you can complete the remainder of the query as planned.

SPOTLIGHT ON SYNDROMIC SURVEILLANCE PRACTICE

We continue our series of articles examining literature that advances the practice of syndromic surveillance. This month, we encourage you to read about the research needs that practitioners believe will increase the relevance of syndromic surveillance to public health.

A Practitioner-Driven Research Agenda for Syndromic Surveillance

The possibilities for syndromic surveillance (SyS) are limited by one's imagination. SyS is, foremost, about the data and the analytic skills of system users. Any sustained investment in SyS, however, will benefit from having a framework for further research and development and by having defined goals. That's what this article provides—an overview of current challenges and opportunities and a framework for the future.

A Practitioner-Driven Research Agenda for Syndromic Surveillance[1] is part of a supplemental issue of *Public Health Reports*.[2] The International Society for Disease Surveillance (ISDS), which has an extensive global surveillance network, facilitated the agenda's development by assembling a work group of SyS experts. This agenda stands apart from previous recommendations for two reasons: (1) the agenda reflects SyS practitioners' research needs, and (2) the agenda specifies research priorities.

The work group began by surveying SyS researchers, practitioners, and other stakeholders. Most survey respondents had expertise in statistics, informatics, epidemiology, and data management. After rounds of review and refinement, 12 priority topics were identified. Topics were grouped into four domains: analytics, informatics, systems research, and communication. Respondent concerns ranged from the need to better integrate multiple data sources (human and nonhuman) and develop adaptive detection algorithms to communicating contextual information that will help public health officials make better decisions, particularly during a health event.

The agenda's focus on research will be of interest to academics. The long-term implication of the agenda is that it can be used to guide research and funding priorities.

The research agenda project was funded by the Centers for Disease Control and Prevention through cooperative agreement U38OT000143 with the Council of State and Territorial Epidemiologists.

[1] Hopkins RS, Tong CC, Burkom HS, Akkina JE, Berezowski J, Shigematsu M, Finley PD, Painter I, Gamache R, Del Rio Vilas VJ, Streichert LC. A Practitioner-Driven Research Agenda for Syndromic Surveillance. *Public Health Reports* [Internet]. 2017 July/August [cited 2017 Aug 22];132(1 Suppl). Available from: http://journals.sagepub.com/doi/full/10.1177/0033354917709784#articleCitationDownloadContainer

[2] Syndromic Surveillance: The Value of Real-time Data for Public Health Action. *Public Health Reports* [Internet]. 2017 July/August [cited 2017 Jul 25];132(1 Suppl). Available from: http://journals.sagepub.com/toc/phrg/132/1_suppl

UPCOMING EVENTS

September 6, 2017	Data Validation Support Call: 3:00–4:00 PM ET
September 19, 2017	Scheduled vendor patches in staging environment: 6:00–10:00 AM ET
September 21, 2017	Scheduled vendor patches in production environment: 6:00–10:00 AM ET
September 26, 2017	Surveillance Community of Practice Call: 3:00–4:30 PM ET. The topic is Syndromic Surveillance Data Briefs.

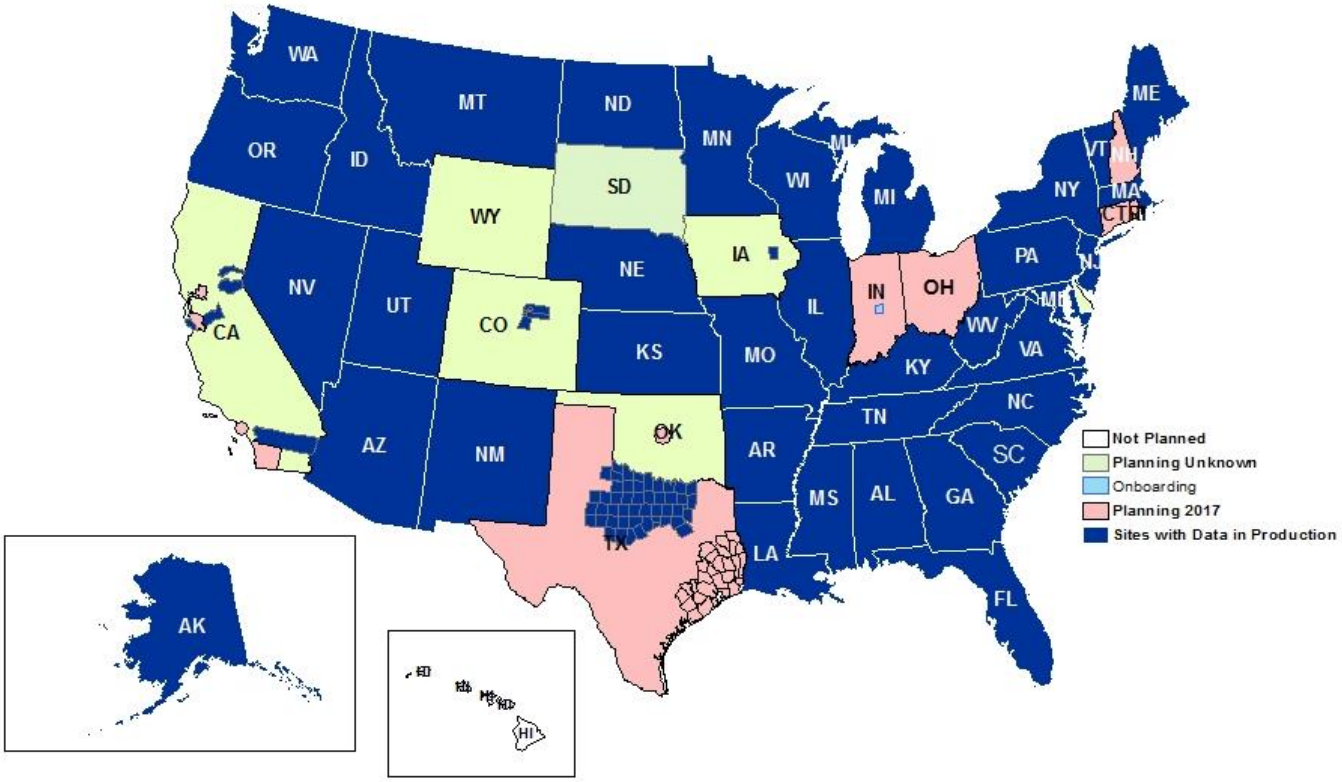
Note. To access the Surveillance Community of Practice group resources, you must be signed in to your healthsurveillance.org account. To create an account, click here.

LAST MONTH'S TECHNICAL ASSISTANCE

August 2, 2017	Data Validation Support Call
August 15, 2017	Scheduled vendor patches in staging environment
August 17, 2017	Scheduled vendor patches in production environment
August 23, 2017	Staging AMC inaccessible: 8:00–9:00 AM ET

NSSP PARTICIPATION

NSSP receives data from more than 4,000 facilities. Of these, 2,086 are emergency departments (EDs) that actively submit data, which means that about 60% of all ED visits in the country are being represented (based on American Hospital Association data). At the end of August 2017, 48 sites in 40 states were participating in NSSP. Although NSSP is pleased with participation to date, sites with data in production do not always translate into sites with broad ED coverage. NSSP continues to work closely with sites to improve data representativeness.



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***.

ONBOARDING UPDATES

Fall Onboarding is Underway!

Onboarding will begin October 3, 2017, and continue through December 15, 2017. NSSP emailed potential sites in late July to determine interest and capacity to onboard this year. The next window for onboarding will be spring 2018.

Data Validation Support

Conference calls are held the first Wednesday of each month, 3:00–4:00 PM ET, to assist with data validation compliance. For more information, contact the NSSP Service Desk.

GRANTEES AND PARTNERSHIPS UPDATES

Tabletop Exercise Prepares Epidemiologists to Detect Public Health Threats

In August, the Georgia Department of Public Health hosted an SyS tabletop exercise with district epidemiologists at the State Electronic Notifiable Disease Surveillance System (SendSS) User Conference. Georgia uses SendSS—a secure web-based reporting system—to collect data on notifiable diseases. This exercise simulated

the use of data obtained through SyS to identify public health threats and improve situational awareness. Participants practiced how to detect, monitor, and respond to SyS system flags. Such exercises help epidemiologists understand the intricacies of using an SyS system for routine public health practice and during an event.

Nebraska SyS Workshops Improve Situational Awareness

The Nebraska Department of Health and Human Services (NDHHS) hosted two 1-day workshops in August on the use of ESSENCE to analyze data and detect health events. The workshop was held in two locations to allow surveillance staff at local public health departments to attend.

Kansas Uses a Novel Approach to Assess Injuries to Agricultural Workers

Syndromic epidemiologist Zach Stein, Kansas Department of Health and Environment (KDHE), often reports on syndromic surveillance (SyS) at regional public health meetings. These meetings are held quarterly in six locations around Kansas and are attended by health department adminstrators. With ESSENCE fully functional on the BioSense Platform and all of the Kansas data coming in, Zach uses these meetings to explain how ESSENCE and SyS can benefit smaller health departments.

Kansas has 100 health departments, and more than half have fewer than five employees. The smaller the health department, the greater the need for predesigned standard queries. Fortunately, this is easy to do. A query written in Topeka can be shared widely across health departments.

For the presentation to Western Kansas health departments, Zach created an ESSENCE query to report on the number of agriculture-related injuries. Zach, who was raised on a farm himself, has observed that farmers and ranchers, a stoic group of individuals, are not verbose in their emergency room complaints. Because the literal text in the chief complaint field was insufficient, Zach chose to identify agricultural injuries by using various ICD-10 CM codes: W30 (contact with agricultural machinery), Y92.7 (farm as place of occurrence), V84 (occupant of special vehicle mainly used in agriculture), Y93.K9 (activity, other involving animal care). Taken together, Zach captured any visit to a Kansas emergency department regardless of patient's residence, including seasonal or migrant agriculture workers.

We thank Zach Stein, KDHE, for sharing his approach. Look for this success story next month on the NSSP website.

Please share your successes for improving data representativeness; data quality, timeliness, and utility; SyS practice; and the use of SyS data for public health action and response. Simply fill out the NSSP Success Stories Template and email to us.

COMMUNITY OF PRACTICE UPDATES

Trending Topics

Mass Gathering Surveillance is a trending topic for the Community of Practice (CoP) following the eclipse on August 21, 2017. To learn more about what other community members are doing around this topic, please visit the Surveillance Knowledge Repository.

Work Group and Committee Updates

- The Metadata Visualization App (MVA) work group created a publicly available version of its interactive web application. Unlike the *real* app that uses *real* data, the public app lets users get familiar with how it works by using fake and randomly generated data to display timeliness and completeness measures of data (submitted to CDC's NSSP). Users can switch between local and state map views and can select different fields of interest. To use the app, go to https://hgil.shinyapps.io/metadata_viz_app_fake_data/. To join the MVA work group, contact Jill Baber (jbaber@nd.gov).
- The Data Quality Committee's guest presenters for the August call were Jim Daniel, Public Health Coordinator, Office of the National Coordinator for Health IT (ONC); Sanjeev Tandon, Lead for the CDC Electronic Health Records Meaningful Use and Public Health Project and CDC Zika Response Health IT Team; and Shandy Dearth, Executive Director, International Society for Disease Surveillance (ISDS).

  The goals of the August call were to hear from partners about the *who*, *what*, *when*, *how*, and *why* of creating SyS policy and to learn what we, as practitioners, can do to have our voices heard. The CoP Urgent Care Justification Work Group shared the challenges and barriers of onboarding urgent care providers and the need for a standardized definition for urgent care. The work group members thank Jim and Sanjeev for listening and taking the next steps to create a Centers for Medicare and Medicaid Services (CMS) FAQ. They also thank Shandy and her assistant for collecting comments on behalf of the SyS CoP for the CMS Quality Payment Program's Year 2 Notice of Proposed Rule Making period.
- The Urgent Care Justification Work Group is writing an abstract for submission to ISDS. The abstract will present a rationale for collecting SyS data from urgent care centers. During discussion, the group acknowledged the lack of a standardized definition for urgent care is a complicating factor worth addressing on a wider platform. The group identified other much-needed documents, which they will compile and share at the 2018 ISDS Conference:
  - Talking points for describing syndromic surveillance to urgent care centers
  - Methods for compiling a comprehensive list of urgent care centers within an HHS jurisdiction, public health jurisdiction, or an NSSP site
  - Best practices and lessons learned when onboarding urgent care centers
- The upcoming meeting of the Northeast Region Work Group will be held Wednesday, October 18, 2017, from 8:00 AM to 4:30 PM ET at the Northeast Epidemiology Pre-Conference event in North Hampton, Massachusetts. Practitioners in the Northeast region are encouraged to participate in this data sharing meeting.

Interested in joining a chapter, committee, or work group? You can find a list of the groups here.

Messaging Guide

Development of *Messaging Guide for Syndromic Surveillance**	
Time Frame	**Activity**
2015	Version 2.0 Released
2016	Erratum and Clarification Documents Released for Version 2.0
2017 Spring	Version 2.2 Released for Community Comment and Consensus
2017 Summer	Version 2.3 to be Released for Review
2017 Fall	Version 2.4 to be Prepared for HL7 Balloting
2017 Winter	Version 2.5 HL7 Balloting Begins
2018 January	HL7 Balloting (anticipated) Completed—Version 2.6 Released

*This document was previously titled *Public Health Information Network (PHIN) Messaging Guide for Syndromic Surveillance.*

Community of Practice Call

Please join us for the monthly Surveillance Community of Practice Call. This call brings together various stakeholders with a vested interest in surveillance and sparks collaborative efforts to share guidance, resources, and technical assistance.

The next call, titled Syndromic Surveillance Data Briefs, will be held **September 26, 2017, 3:00–4:30 PM ET**. Please join us and share what you are doing on this topic. Click here to register.

Note. Please remember that you have to register for each call individually. To access the slides and recordings from previous Surveillance CoP Calls, visit the Surveillance Community of Practice Group Page. You must be signed into your healthsurveillance.org account. To create an account on healthsurveillance.org, click here.