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 Makes Progress in Transitioning Legacy Data

The NSSP Team continues to make steady progress moving data from the legacy system to ESSENCE. Last month, we reported working to transition 31 total sites that used secure file transfer protocol (SFTP) as the primary transport method. Recall that in the legacy system, data sent by PHINMS were treated differently than data sent by SFTP. NSSP has successfully converted the PHINMS sites to prepare for the transition to ESSENCE. This will enable NSSP to properly transition a total of 42 sites to the new data flow and ESSENCE. By mid-June, we had processed 6 sites into production ESSENCE and another 9 sites had data ready to load into ESSENCE. Of the remaining 27 sites, 4 are reviewing their data in the testing environment.

Due to our upgrade of the BioSense Platform servers, we paused the loading of NSSP-migrated legacy data to production ESSENCE between June 12, 2017, and June 30, 2017. Throughout June, however, we continued to prepare the NSSP data for loading to ESSENCE. (Note. We will resume loading legacy data in July.)

The NSSP Team continues to work closely with each site to process data, uphold data quality standards, and maintain program efficiency while meeting the specifications for each site. Thanks for your continued patience throughout the legacy transition. If you have specific questions about your site, please contact the NSSP Help Desk.

Technology Update

In June, NSSP migrated production data on the BioSense Platform to a powerful new generation of servers. Look for better performance across the Platform. We will continue to monitor server and application performance and improve upon the user experience. In July, the NSSP technical team will make similar upgrades to the staging and onboarding part of the Platform. These updates, which were being finalized when *NSSP Update* was published, were tentatively planned for the first two weeks of July.

Some downtime can be expected. However, we will try to minimize downtime to hours when system usage is lowest and will give you sufficient notice beforehand.

NSSP Adds Indexes to DataMart

COMING SOON in July! NSSP is pleased to announce that indexes have been added to the DataMart. NSSP BioSense Platform users rely on the DataMart to manipulate and query data. You'll notice that these indexes will improve the performance of your queries. The indexes will be applied to the Raw and Processed tables in the DataMart. These improvements, coupled with the upgraded servers, will enhance the Platform's overall functionality. Faster queries. Faster processing. More timely results.

An updated Data Dictionary (Data Flow Requirements) will be posted to the NSSP Resource Center. This robust Data Dictionary provides detailed information about data elements stored in NSSP data tables. Check out the new Indexes worksheet. The Cover worksheet has also been updated and links to the Indexes tab. The Indexes worksheet lists the new indexes as well as the data tables that include the indexes. Also, the Data Dictionary links to the Public Health Information Network Vocabulary Access and Distribution System (PHIN VADS), which supports the exchange of consistent information among public health partners. This Data Dictionary adds to the suite of materials available through "one-stop shopping" on the NSSP Resource Center.

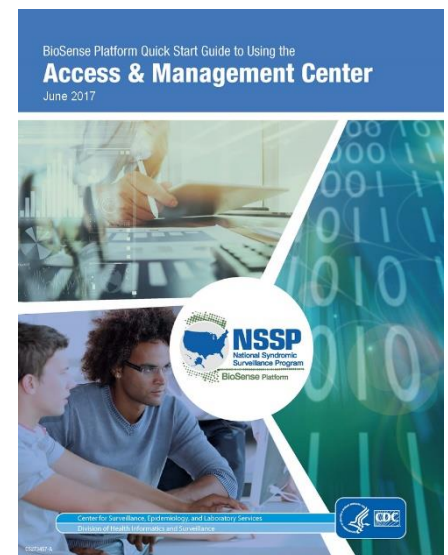## NSSP Updates Access & Management Center

The long-awaited custom **user group feature** for the AMC was released in late June. Site administrators will see a new tab called User Groups on the AMC's main navigation page. From here, they can create groups of users that can then be used when giving permissions to data access rules—and all in just a few steps.

For this initial release, site administrators may create, view, and modify user groups. Future enhancements are planned that could allow site administrators to link existing access rules to newly created groups and receive auto-generated email notifications when a site's public group is being used by another site's site administrator.

If you have ideas for future enhancements that will make the user group feature even more valuable, or want to suggest other AMC features, please submit your suggestions to the NSSP Service Desk.

Look for an updated *Quick Start Guide to Using the Access & Management Center* in the NSSP Resource Center this month.

NSSP Introduces CC and DD Category for Heat-Related Illness

The summer heat is upon us, albeit much more so in some areas of the country than others. The NSSP Team has been working closely with Community of Practice members in Maricopa County, Arizona, to implement a new Chief Complaint (CC) and Discharge Diagnosis (DD) category for Heat-related Illness. This category, which is based on CSTE workgroup recommendations from a few years ago, combines CC text with ICD codes to look for heat-related illness visits. Users of NSSP ESSENCE can find the definition by going to the "More" tab, syndrome definitions, CC and DD Category, and then clicking on Heat Related Illness v1.

ESSENCE Syntax for Heat-related Illness Inclusions (CC and DD)

(,^[;/]992^, OR,(,^[;/]E900^,ANDNOT,^[;/]E900.1^,ANDNOT,^[;/]E9001^,), OR,^[;/]T67^, OR,^[;/]X30^,ANDNOT,^[;/]W92^,), OR,((,(,^HEAT ^, OR,^HEATCRAMP^, OR,^HEATEX^, OR,^HEATST^, OR,^HYPERTHERM^, OR,^OVERHEAT^, OR,^OVER HEAT^, OR,^SUNSTR^, OR,^SUN STR^, OR,^TO HOT^, OR,^TOO HOT^, OR,((,(,^HEET^, OR,^HOT^,),AND,(,^EXCESSIVE^, OR,^EXHAUST^, OR,^EXPOS^, OR,^FATIGUE^, OR,^CRAMP^, OR,^STRESS^, OR,^IN CAR^, OR,^OUTSIDE^, OR,^PROSTRATION^,),),),ANDNOT,(,^ALLERG^, OR,^FEELING HOT^, OR,^FEELS HOT^, OR,^FELT HOT^, OR,(,^HOT^,AND,^SENSATION^,), OR,^HEAT SENSATION^, OR,^ INFLAM^ , OR,(,^PAIN^, AND,(,^LIMB^, OR,^ARM^, OR,^SHOULDER^, OR,^ELBOW^, OR,^WRIST^, OR,^HAND^, OR,^LEG^, OR,^HIP^, OR,^GROIN^, OR,^THIGH^, OR,^KNEE^, OR,^ANKLE^, OR,^FOOT^, OR,^FEET^, OR,^BACK^, OR,^NECK^, OR,^FLANK^, OR,^RED^, OR,^JAW^, OR,^MOUTH^, OR,^TEETH^, OR,^TOOTH^,),), OR,^RADIAT^, OR,^REDNESS^, OR,^SWELL^, OR,^SWOLLEN^, OR,^SURG^, OR,^POST OP^, OR,^IBUPROFEN^, OR,^IBUPROPHEN^, OR,^ALIEVE^, OR,^MOTRIN^, OR,^TYLENOL^, OR,^INJUR^, OR,^TRAUMA^, OR,(,^HEAT^,AND,(,^ICE^, OR,^APPLIED^, OR,^TRIED^, OR,^USED^, OR,^USING^, OR,^COLD^, OR,^RASH^,),), OR,^HEAT PACK^, OR,^HEATING PAD^, OR,^LUMBAGO^, OR,^RELIEF^, OR,^RESOLVE^, OR,^RELIEVE^, OR,^RELEIVE^, OR,^DENTAL^, OR,(,^HOT^,AND,(,^COLD^, OR,^COFF^, OR,^SHOWER^,),), OR,(,^ORAL^,AND,^SURG^,), OR,(,^SENSITIV^,AND,(,^HEAT^, OR,^HOT^,),), OR,^HOT DOG^, OR,^HOT GREASE^, OR,^HOT EPPERS^, OR,^HOT TEA^, OR,^HEAT ACHE^, OR,^HEATACHE^, OR,^HEAT ATTACK^, OR,^HEAT BEAT^, OR,^HEATBEAT^, OR,^HEAT BURN^, OR,^HEATBURN^, OR,^HEAT FLUTTER^, OR,^HEAT RACING^, OR,^HEAT RATE^, OR,^HEATRATE^, OR,^HEATLH^, OR,^HEATH^, OR,^HEATTH^, OR,^HITTING HEAT^, OR,^PALPITATION^, OR,^CHEAT^, OR,^HEATER^, OR,^HEATHER^, OR,^HEATING^, OR,^HOTEL^, OR,^LITHOTR^, OR,^METHOTR^, OR,^PHOTO^, OR,^PSYCHOTIC^, OR,^SHEATH^, OR,^SHEET^, OR,^SHOT^, OR,^SUNDAY^, OR,^THEAT^, OR,^WHEAT^, OR,^ACCIDENT^, OR,^ALCOHOL^, OR,(,^BURN^,AND,^MOUTH^,), OR,^DISTRESS^, OR,^FEVER^, OR,^GETS HOT^, OR,^HEAT FLASH^, OR,^HOT FLASH^, OR,^HIVES^, OR,^HOT TUB^, OR,^NO HEAT^, OR,^OVEN^, OR,^SUICID^,),)

Heat-related Illness Exclusions (CC)

^,ANDNOT,^X30^

National Trend for Heat-related Illness (CC and DD Category)
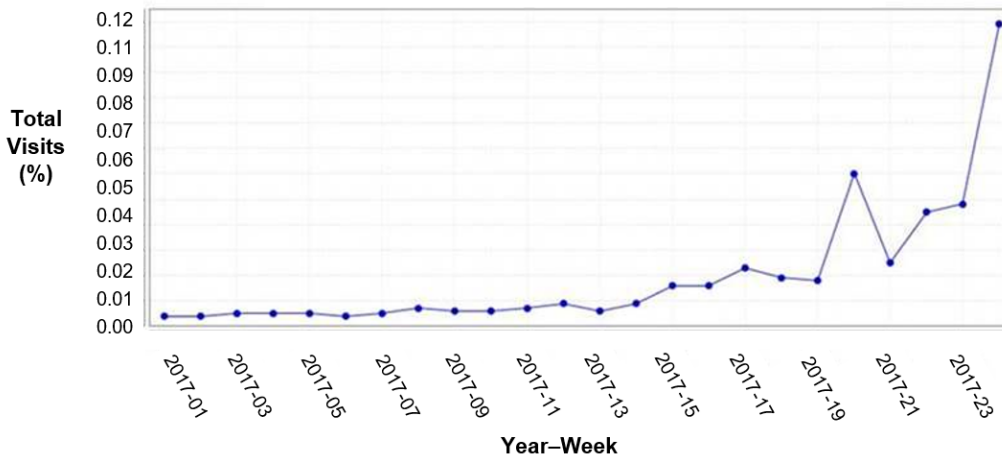
ESSENCE Online Training Now Available

The ESSENCE pros from Johns Hopkins University Applied Physics Laboratory (JHU–APL) and the CDC NSSP Team have designed an online training course for novice and intermediate ESSENCE users. This course is specifically for NSSP's version of ESSENCE that is available on the BioSense Platform.

The course explains how to perform routine tasks such as creating queries, analyzing data using multiple visualization types, and understanding alerts. The course is divided into an introduction and six self-paced modules that instruct and assess your understanding of the concepts being presented:

1. How to Use the ESSENCE Online Training
2. Overview of ESSENCE and Syndromic Surveillance
3. Basic ESSENCE System Components

4. Advanced ESSENCE System Components
5. Scenario-based Example
6. ESSENCE Chief Complaint Processor
7. ESSENCE Alerting Algorithms

The presenters are from JHU–APL. You can access the online training [here](#).

NSSP Evaluation of BioSense Platform Tools

Later this month the NSSP Team will invite site administrators whose sites transitioned to the BioSense Platform between June and December 2016 to participate in a survey. The survey will evaluate how well the new BioSense Platform and tools meet users' needs. The email will contain links to two web-based Epi-Info surveys: one for site administrators and one for site administrators to send to local users.

We encourage everyone to take the survey. Your feedback will help us continue to meet the needs of the syndromic surveillance community. If you have questions, please contact Hussain Yusuf, Team Leader for the Program Evaluation Team, at hay0@cdc.gov.

SPOTLIGHT ON SYNDROMIC SURVEILLANCE PRACTICE

We continue our series of articles examining literature that advances the practice of syndromic surveillance. Here, we call attention to CDC's Surveillance Strategy and to the ways in which CDC is enhancing its surveillance data analysis and visualization, information sharing, and dissemination.

A CDC Perspective: Enhancements to Public Health Surveillance and the Challenges Ahead

Recently published "[Advances in Public Health Surveillance and Information Dissemination at the Centers for Disease Control and Prevention](#)"[1] examines a cornerstone of public health practice—public health *surveillance*. Surveillance for public health is an ongoing and systematic process of collecting, analyzing, and interpreting data to prevent and control disease and injury. Technical advancements and new analytic methods are constantly changing the surveillance landscape. Consequently, CDC is taking steps to transform and modernize its surveillance systems and its approaches. This report describes how CDC is enhancing myriad aspects of its surveillance efforts to meet future challenges.

The report describes the progress CDC and its partners are making in data collection—from the use of nontraditional data sources, improved national surveys, and expansion of health networks to better data timeliness and representativeness. The report gives examples of data sets available to public health practitioners and systems that offer interactive tools for viewing, sorting, and analyzing data; assessing trends; and customizing tables and graphs.

CDC's Surveillance Strategy is described, as is the National Syndromic Surveillance Program and its focus on building syndromic surveillance capacity at local, state, and national levels.[1] Improvements include modernizing technology for data-reporting systems, updating electronic message standards, and improving data transfer and processes.

The discussion on Challenges and Opportunities examines three key areas: shared information technology services, development of surveillance workforce, and harnessing of data from electronic health records and health information systems. CDC, public health partner organizations, and a host of experts in improving interoperability and data exchange are already working in these key areas.

The report highlights the intricacies of public health surveillance, including syndromic surveillance, an area acknowledged not only for its current achievements but also for its future potential.

[1] Richards CL, Iademarco MF, Atkinson D, Pinner RW, Yoon P, Mac Kenzie WR, Lee B, Qualters JR, Frieden TR. Advances in Public Health Surveillance and Information Dissemination at the Centers for Disease Control and Prevention. *Public Health Reports* [Internet]. 2017 Jun 13 [cited 2017 Jul 21];132(4):1–8. Available from: http://journals.sagepub.com/doi/pdf/10.1177/0033354917709542

UPCOMING EVENTS

|	
Tuesdays	Onboarding Support Calls: 1:00–2:00 PM EDT
July 5, 2017 New Day!	Data Validation Support Call: 3:00–4:00 PM EDT
July 18, 2017	Scheduled vendor patches in staging environment: 6:00–10:00 AM EDT
July 20, 2017	Scheduled vendor patches in production environment: 6:00–10:00 AM EDT
July 11–13, 2017	2017 NACCHO Annual Conference: Public Health Revolution: Bridging Clinical Medicine and Population Health; Pittsburgh, Pennsylvania
July	Server upgrades for staging environment. NSSP will provide dates and times.

LAST MONTH'S TECHNICAL ASSISTANCE

June 12–13, 2017	Upgraded servers.
June 20, 2017	Applied vendor patches in staging environment.
June 22, 2017	Applied vendor patches in production environment.
June 26–30, 2017	Moved AMC, Adminer, ESSENCE, RStudio Pro, and SAS tools to new servers.
June 27, 2017	Participated in Surveillance Community of Practice Call: **Climate-related Illness Surveillance**. Access slides and recordings here.*
June 28, 2017	Participated in Webinar: Enhancing NSSP Through Collaboration. 1:00–3:00 PM EDT. Hosted by the Southeast Regional Grantees.
June 30, 2017	Released update to Access & Management Center.

* Please Note: To access the Surveillance Community of Practice group resources, you must be signed into your healthsurveillance.org account. To create an account on healthsurveillance.org click here.

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 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. Three new sites are scheduled to onboard at the end of July 2017.
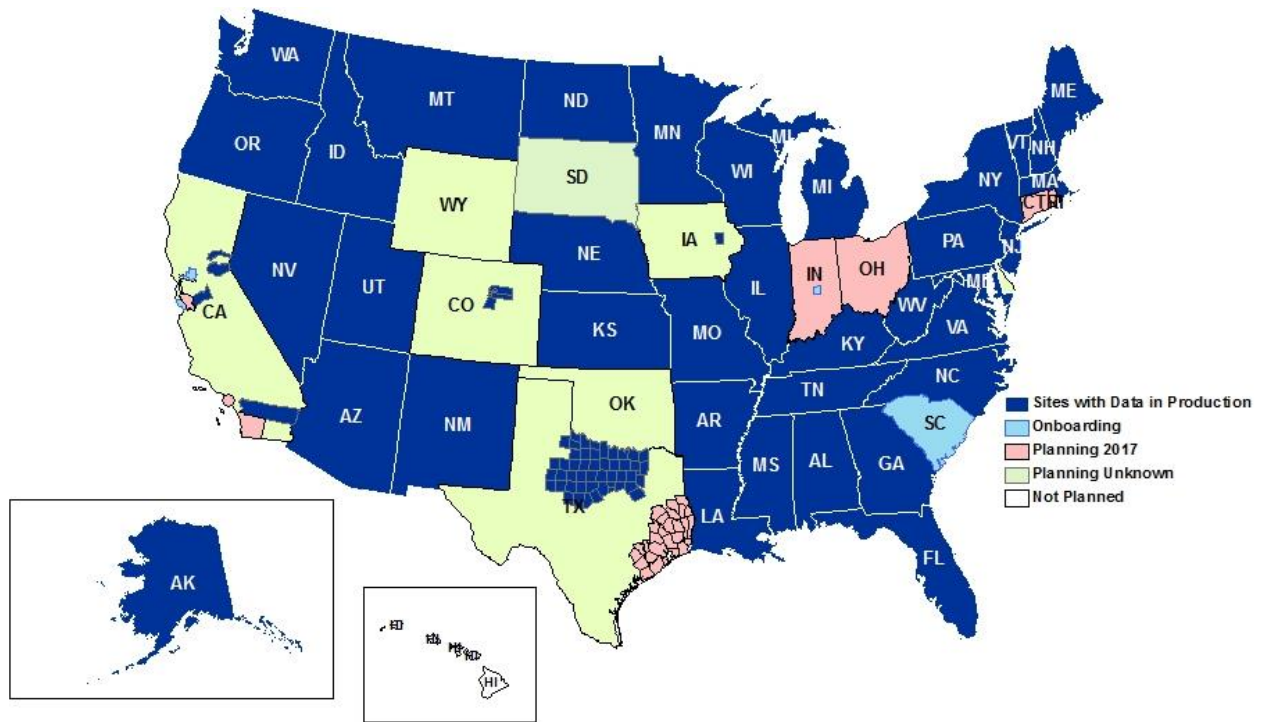
Definitions: NSSP consolidates facilities that provide data under a single data administrative authority called a *site administrator*. These facilities and single-site administrator constitute a *site*.

Onboarding Support
Conference calls are held by invitation every Tuesday, 1:00–2:00 PM EDT, to discuss the process and to answer questions in a group forum.

Data Validation Support New Date!
Conference calls will now be held the first Wednesday of each month, 3:00–4:00 PM EDT, to assist with data validation compliance. For more information, contact the NSSP Service Desk.

GRANTEES AND PARTNERSHIPS UPDATES

Qualitative Analysis of NSSP Grantee Meeting Roundtable
Findings from the 2017 Second Annual Grantee Meeting

Grantees are a leading voice in focusing NSSP's priorities. They are also a source of support and expertise with concerns and successes that matter a great deal to NSSP. This year at the second annual NSSP grantee's meeting on February 6–8, 2017, in Atlanta, Georgia, attendees discussed a spectrum of barriers and opportunities shaped by state policy, healthcare purview and infrastructure, and

technological advances. This year's theme—**Working Together in the New World: NSSP Revised BioSense Platform**—reflects how essential grantee input is to NSSP's strategic planning for 2017.

The input gleaned from the roundtable stood out. This was NSSP's one opportunity to hear from grantees in a structured format. The roundtable focused on four core components of CDC's cooperative agreement with grantees: (1) **data quality**, (2) **data sharing**, (3) **data representativeness**, and (4) **syndromic surveillance (SyS) practice**. Now that NSSP data analysts have completed their report of the roundtable discussions, we want to share their results with you. To learn more about their thematic analysis techniques and findings, please see the Executive Summary.

Several concerns around **data quality** were identified, some relating to work with vendors. There is a need for

- Facilities and vendors to use the same standardized coding systems;
- Data to be sent in a timely manner (some data are batched from several facilities, which creates large files that are difficult to ingest and can delay moving facilities into production);
- Illustrating the need for improved data quality to vendors and facilities (for example, why particular elements are important to collect); and
- All parties (vendors, facilities, health departments, CDC) to share a common understanding of and agree on data quality requirements.

Wordle.com image of roundtable notes. Word size indicates relative frequency. Names and site identifiers were removed in the creation of this image.

In addition, the grantees suggested ways for CDC to better support data quality:

- Provide data quality reports. This would be especially useful not only for the content, but also for the *process* by which these reports are created.
- In partnership with other federal agencies, facilitate coordination among sites to affect changes from vendors and facilities that can improve data quality.

Promising advances and challenges in **data sharing** practice are ongoing:

- Several sites share influenza-like-illness (ILI) data across geographic boundaries and with nongrantees.
- Data sharing across sites continues to increase as does partnering with CDC programs that track drug overdose (e.g., CDC's Injury Center) and other noninfectious disease programs.
- Grantees need a variety of resources including shared dashboards, documentation, and knowledge repositories to assist in the development of data-sharing relationships.

Despite increases in data sharing, some grantees face barriers that raise questions about how to control data access on the BioSense Platform:

- One grantee noted that, as a rural state, it is unable to share county data because facilities would be identifiable.
- To avoid legal issues, some sites limit data sharing. For instance, some are reluctant to share data because relevant state laws are unclear.

Several key issues emerged from the **representativeness** discussion:

- Little to no data are available from children's hospitals and school nurses in some sites, creating information gaps.
- Gaps persist around geographic representativeness in rural areas.
- Policies in some sites differ among standalone emergency departments (EDs) that necessitate varying the approach to onboarding these facilities. Some grantees noted, for example, that their standalone EDs must be associated with a hospital, something that does not appear to be the case among facilities belonging to other sites.
- Data quality is occasionally being negatively affected by the standalone EDs. For example, some facilities' data are batched with the primary ED *despite being a separate facility*. Other independent standalone EDs have little incentive to be added to the syndromic surveillance system.

Some SyS programs work with their states to expand **syndromic practices** and data use. This makes a strong statement about the value of building collaborative relationships *before* a public health event occurs.

- SyS program practitioners regularly contact public health nurses and epidemiologists about alerts and emerging issues.
- SyS programs have expanded services to include noninfectious disease use cases such as drug overdoses and weather-related health issues. Such expansion, however, is not without its issues:
  - Resistance to the use of syndromic data is still present in states in which SyS programs haven't the purview to conduct formal investigations.
  - Several grantees are unsure as to their role in disease detection and control. Although considered experts in ESSENCE, their role is limited to alerting other disease experts.
  - Grantees noted the fine balance between flagging alerts and overburdening the public health system with information that turns out to be artifacts.
  - Similarly, some grantees noted difficulties in communicating the caveats of syndromic data, especially when they are unsure about how these data will be used and interpreted.

Use ESSENCE Templates to Communicate About SyS

For a good example of an ESSENCE report that educates and informs audiences with different information needs, check out Oregon's report. It appeals to a broad range of public health practitioners, including new entrants to SyS. It also appeals to those who routinely interpret statistical findings to make decisions that affect public health—striking a balance that's difficult to accomplish in a single report.

Standardized ESSENCE reports can help you consistently track and present syndromes, define what's being presented, reinforce the benefits of SyS, and explain why the findings are important.

To see Oregon's report and learn how other states communicate about SyS, visit the SyS Community of Practice Portal.

This roundtable report from the annual meeting sheds light on how grantees conduct SyS amid myriad constraints, which gives all NSSP participants a deeper understanding of the concerns of those with whom they share data. Many NSSP participants that are *not grantees* face the same challenges. For instance, as standalone EDs become more prevalent, some sites are adjusting their onboarding procedures to fit the new healthcare landscape. These changes affect the recruitment and maintenance of facility data feeds and will require vigilance on part of all NSSP participants and CDC.

Some grantees are exploring ways to work with disease programs that are reluctant to use these "new" data. Other grantees fear misinterpretation of syndromic data among those eager to use but unaware of the nuances of these data. As grantees build stronger connections within health departments, support will be needed to educate public health practitioners on how to use these data correctly.

The NSSP Team can suggest practical ways to encourage further expansion of data-sharing relationships. More importantly, however, NSSP facilitates the SyS Community's efforts to coalesce and share effective practices among themselves through the annual grantees meeting, start-up of NSSP Success Story web page, and the SyS Community of Practice Portal.

Grantees with deep expertise can influence the surveillance landscape by educating policy and decision makers and others in public health about SyS's role within a comprehensive surveillance program. This starts with the grantees' unwavering commitment to sharing their successes, and concerns, with others in the SyS community and by collaborating to advance the science and practice.

The NSSP Team thanks the session facilitators and notetakers for their integral contributions to the development of this report.

COMMUNITY OF PRACTICE UPDATES

Trending Topics

Summer is here and heat-related illness is a trending topic for the Community of Practice. To learn more about what other community members are doing around Climate-related Surveillance, please visit the community forums. Sign-on is required. SyS CoP guest membership is free.

Work Group and Committee Updates

The Overdose Surveillance Committee (ODSC) hosted a kick-off call on June 2 where results of a survey that was sent to our community were summarized. This survey gathered information about different work already being done with overdose surveillance in different communities as well as community priorities on different types of drug overdose. The summarized survey results can be found on the ODSC group page in the meeting slides. A recording of the kick-off call is also available in the ODSC group page. Thank you to all survey participants for providing feedback.

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

Development of Messaging Guide: Comment Period Extended!

The comment period on the *Message Guide for Syndromic Surveillance* has been extended to July 15, 2017.

Click here to review the Guide. Please submit feedback via this web form. You can view feedback from others here. To show support for or against feedback already submitted, add your comment to a feedback item (a row on the spreadsheet). For more information about adding comments, refer to the instructions document here. If you are interested in assisting with the review of these comments and the development of the next version of the Guide, please join the Messaging Guide Work Group.

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.*

Knowledge Repository Update

You can now use your ISDS Website (healthsurveillance.org) account credentials to log in to the Surveillance Knowledge Repository. If you want to submit a comment on a particular resource, or submit your success story, you can log in with your username and password from the ISDS website (healthsurveillance.org) without having to create a new account on the Knowledge Repository. If you already had a Knowledge Repository account, your information has been updated with your healthsurveillance.org credentials.

Visit the Syndromic Surveillance Community of Practice Portal
North Carolina's Website Includes Case Definitions and Free-text Examples

You're missing out if you haven't looked at the Portal recently. Under State and Local Resources, check out the link to North Carolina's website that lists case definitions for developing a syndrome.

Creating a new syndrome can be challenging and slightly intimidating—especially for new analysts. North Carolina's Syndromic Surveillance team has created a case definitions list that simplifies the process. It includes both free text and ICD codes. Although broad, these case definitions provide a useful starting point to create or evaluate a syndrome.
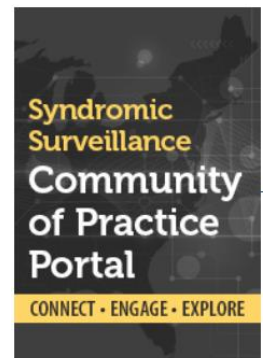
Other Updates:

Join 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 will be held July 25, 2017, 3:00–4:30 PM EDT, on Utilizing Syndromic Surveillance Data in Reports.** Please join us and share what you are doing on this topic. Click here to register. Please remember that you have to register for each call individually. To access slides and recordings from previous Surveillance CoP Calls, please visit the Surveillance Community of Practice Group Page.*

* Please Note: To access the Surveillance Community of Practice group resources, you must be signed into your healthsurveillance.org account. To create an account on healthsurveillance.org click here.