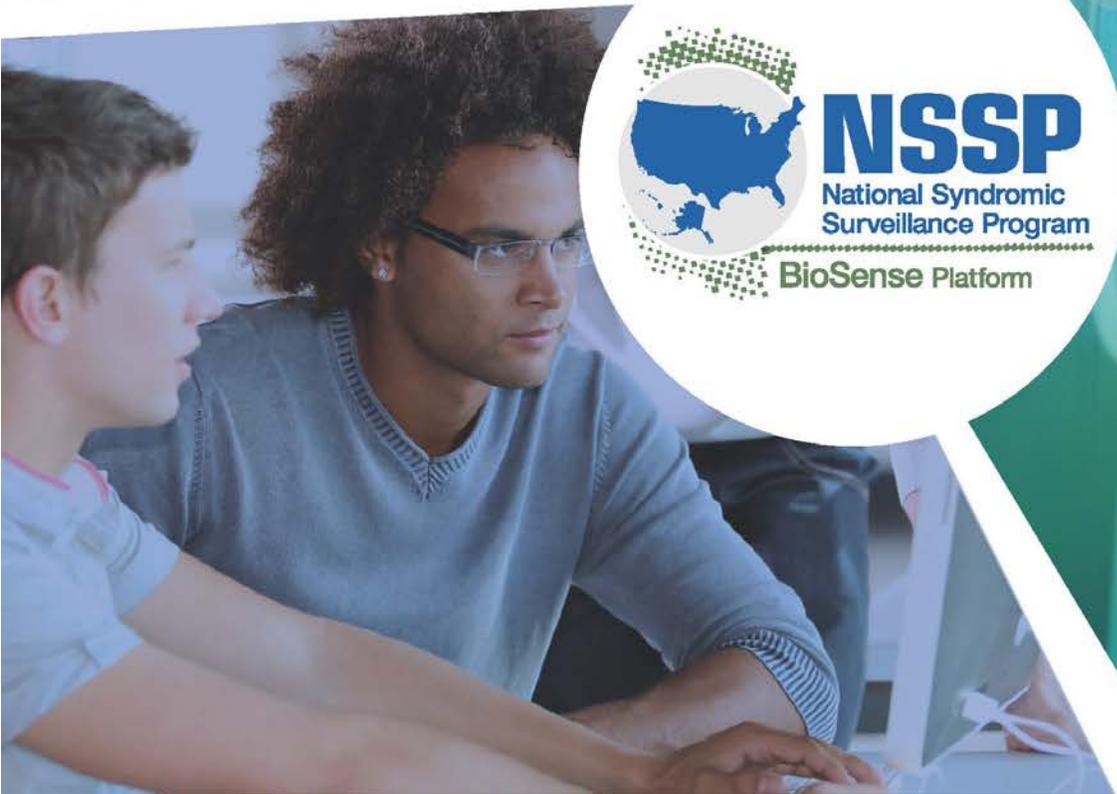


BioSense Platform Quick Start Guide to Using **ESSENCE**

October 2016



Center for Surveillance, Epidemiology, and Laboratory Services
Division of Health Informatics and Surveillance



CONTENTS

1 Overview, 1

2 Access, 3

Log In to ESSENCE, 3

Get Oriented to Home Page, 3

3 Data Completeness, 5

4 Basic Monitoring, 6

Check Alert List, 6

Create, Visualize, and Save a Query, 8

View Your Dashboard (myESSENCE), 12

Visualize Statistical Alerts: The “Map Portal” Tab, 13

Share Queries and Visualization, 14

Generate Reports, 16

Request Technical Assistance, 17

5 Activities Common to Users and Site Administrators, 18

Technical Assistance: support.syndromicsurveillance.org

The National Syndromic Surveillance Program (NSSP) promotes and advances development of the cloud-based BioSense Platform, a secure integrated electronic health information system that hosts standardized analytic tools and facilitates collaborative processes. The BioSense Platform is a product of the Centers for Disease Control and Prevention (CDC).

Quick Start Guide to Using ESSENCE

1. Overview

NSSP's BioSense Platform hosts the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE)—a system that will let you analyze events of public health interest, monitor healthcare data for events that could affect public health, and share data and analyses.

This *Quick Start Guide* supports NSSP ESSENCE v.1.20 and will help you access and navigate the system's main features. This guide is NOT intended to be a comprehensive user's manual.

A few reminders before getting started:

- **Data:** ESSENCE provides insight into the data sent to the BioSense Platform. Emergency department data are a primary source. Currently, the system can include data from many patient classes (e.g., emergency, inpatient, and outpatient data). In time, other types of data will become available, such as LabCorp and prescription drug data.
- **Terminology:** Within ESSENCE, the different data sources provide different levels of detail. For example, note the distinction between column header "REGION" and the term "HHS REGION." "REGION" refers to COUNTY-level data (approximated by ESSENCE) for detailed data sources below the state level. "HHS REGION" denotes the Department of Health and Human Services' ten regional offices that directly serve state and local organizations.
- **Data Sources:** Several sources feed data to ESSENCE. These data sources allow you to view data by either patient location or hospital location. Below are the names of the data sources and the views associated with them.
 - **Patient Location (Full Details):** Use is typically limited to users associated with sites. Enables a query of data based on where the patient lives. Will return complete list of available patient details. All binned patient syndromes are returned in a query (e.g., fever, GI).
 - **Patient Location and Visit (Full Details):** Use is typically limited to users associated with sites. Enables a query of data based on where the patient lives. Will return complete list of available patient details. A single patient syndrome is returned for a query (e.g., fever).
 - **Patient Location (Limited Details—HHS Region):** All users will have access to data source. Enables a query based on the region where a patient lives. Will return a limited set of available patient details. All binned patient syndromes are returned in a query.
 - **Facility Location (Full Details):** Use is typically limited to users associated with sites. Enables a query of data based on the hospital location where a patient sought treatment. Will return a complete list of available patient details. Patient's chief complaint can be binned into multiple categories.

- **Facility Location and Visit (Full Details):** Use is typically limited to users associated with sites. Enables a query of data based on hospital location where a patient sought treatment. Will return complete list of available patient details. A single patient syndrome is returned for a query (e.g., fever).
- **Facility Location (Limited Details–HHS Region):** All users will have access to this data source. Enables a query based on the region in which the hospital is located (where the patient sought treatment). Will return a limited set of available patient details. All binned patient syndromes are returned in a query.
- **Chief Complaint Query Validation Tool:** All users will have access to this data source. Limited view of Chief Complaint and Diagnosis Discharge information. Allows users to train a new definition against the largest possible universe of keyword occurrences. After fine-tuning the definition (e.g., figuring out what keywords to include or exclude), a user may copy this definition to an advanced query of site facilities or patients (data for which the user has access to view).
- **Department of Defense (DOD) Data:** These data are not in ESSENCE. Will eventually provide snapshot of DoD beneficiary encounters throughout the United States.
- **Veterans Affairs Data:** These data are not in ESSENCE. Will eventually provide snapshot of Veterans Affairs beneficiary encounters throughout the United States.
- **Weather Data:** All users will have access to these data. Provides an indication of various weather metrics (e.g., temperature, rainfall, snowfall) across all weather stations throughout the United States.

How do the statistical algorithms work?

A 30-day baseline of data is used to calculate alerts. The Poisson/Regression/Exponentially Weighted Moving Average switch algorithm is the default temporal alerting algorithm developed by Johns Hopkins University Applied Physics Laboratory (JHU/APL) for ESSENCE. For more information on the detector algorithms, please click the “More” tab and select Detector Algorithms. Additional information describing these algorithms will be provided in future user guides.

2. Access

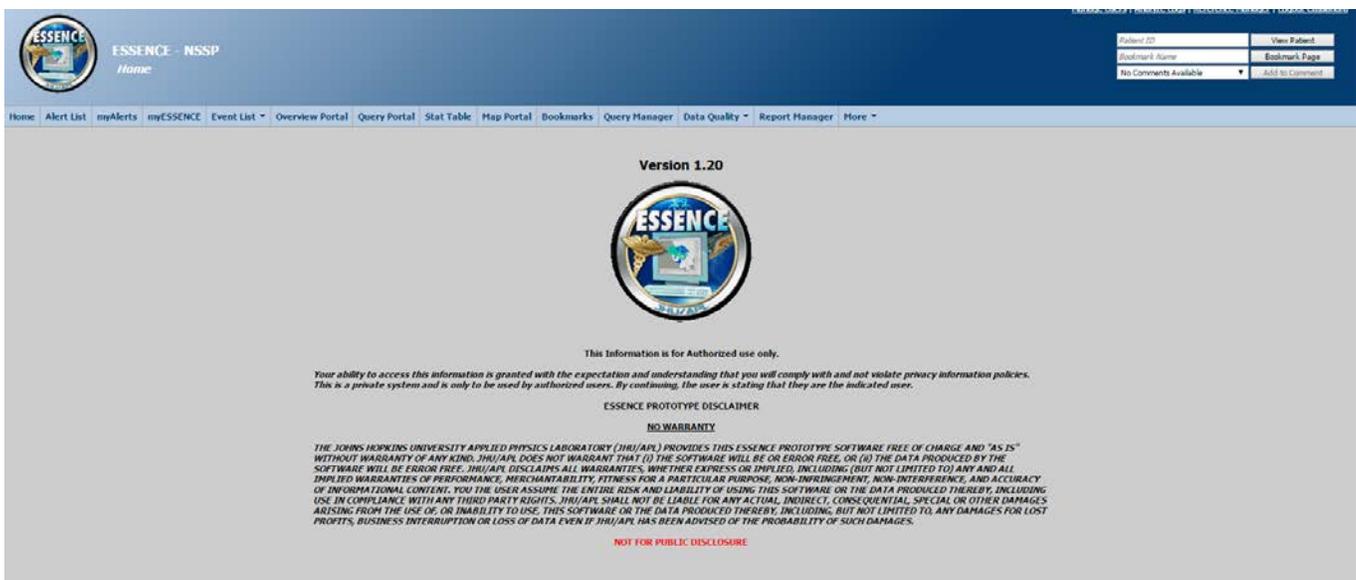
Log In to ESSENCE

1. Go to <https://essence.syndromicsurveillance.org/>.
2. Click on “ESSENCE – NSSP (1.20)” in the middle of the screen.
3. Log in by using your NSSP-provided user ID and password. These are the same credentials used for all Access & Management Center tools and apps hosted on the BioSense Platform.



Get Oriented to Home Page

The ESSENCE home page has multiple tabs (shown below). Each tab and a brief description of its function(s) are provided for quick reference.



Tabs

1. **Home:** Returns user to the home page; contains authorization/disclaimer information.
2. **Alert List:** Provides a tabular view of alerts for the 12 syndromes in ESSENCE.
3. **myAlerts:** Includes two primary functions:
 - Enables creation of custom alerts for syndromes, subsyndromes, or free-text queries by various stratifications or threshold criteria.
 - Enables creation of Records of Interest. The purpose of Records of Interest is to return encounter details that match your query criteria (e.g., the word of code for anthrax).
4. **myESSENCE:** Allows dashboard customization of frequently used graphs, maps, myAlerts results, rich text boxes, and data details pages.
5. **Event List:** Serves as an interactive communication portal to share monitoring activities.
6. **Overview Portal:** Allows stratification of data to produce time series graphs for a variable of interest. For example, a user can view time series graphs for syndromes in their site. This functionality may be accessed via the Query Portal once you've defined a query.
7. **Query Portal:** Allows users to perform various searches of their data.
8. **Stat Table:** Produces weekly and monthly epidemiology reports in tabular form.
9. **Map Portal:** Allows geographic representation of data by alert type.
10. **Bookmarks:** Allows user to save a page for quick access.
11. **Query Manager:** Allows time series queries to be saved to prevent user from rerunning a query each time the system is accessed.
12. **Data Quality:** Allows assessment of multiple data quality metrics, including completeness of data (by variable, by location, etc.), whether data are mapped to known values, and status of data processing by facility.
13. **Report Manager:** Produces reports including time series graphs and maps in MS Word; allows the user to add text for interpretation of data and visualizations.
14. **More:** Provides useful information such as the history of ESSENCE, definition of syndromic surveillance, detector algorithms, FAQs, user's guide, etc.

3. Data Completeness

Check your data for completeness (at a minimum) before running a query. This can be done at the file level or variable level. By running this check, you'll ensure essential data are in the system.

How to Check Data Completeness

1. Click the "Data Quality" tab
2. Select Data Source— "Facility Location (Full Details)"
3. Select Quality Factor—here, "Percent Completeness"
4. Select Time Resolution—the default is "Daily"
5. Select the hospitals you would like to see
6. Select "All Parameters"
7. Select start date of interest: Previous week/month (here, 9/16/15)
8. Select end date: typically, the current date (here, 9/30/15)
9. Click "Submit"

A color-coded legend indicates the percent complete:

Gray/green indicates positive results,

Yellow indicates caution, and

Orange/red indicates significant problems with completeness of the data.

You can display this information by facility, by variable, and by date of percent complete and download as an MS Excel table.

The screenshot shows the ESSENCE - NSSP Data Quality interface. The header includes the ESSENCE logo and navigation links like Alert List, myAlerts, myESSENCE, Event List, Overview Portal, Query Portal, Stat Table, Map Portal, Bookmarks, Query Manager, Data Quality, Report Manager, and More. The main content area is titled "Data Quality Datasources Facility Location (Full Details) & Factors Percent Completeness". It features a search string input field with "Apply", "Clear", and "Tip" buttons. Below this are two lists: "Filtered Hospital" and "Selected Hospital", with navigation arrows between them. The "Parameters" section shows a dropdown menu with "All Parameters" selected, and other options like "Sex", "Medical Record Number", "Age", and "Time". At the bottom, there are input fields for "Select Start Dates" (12May16) and "Select End Dates" (26May16), along with a "Submit" button.

4. Basic Monitoring

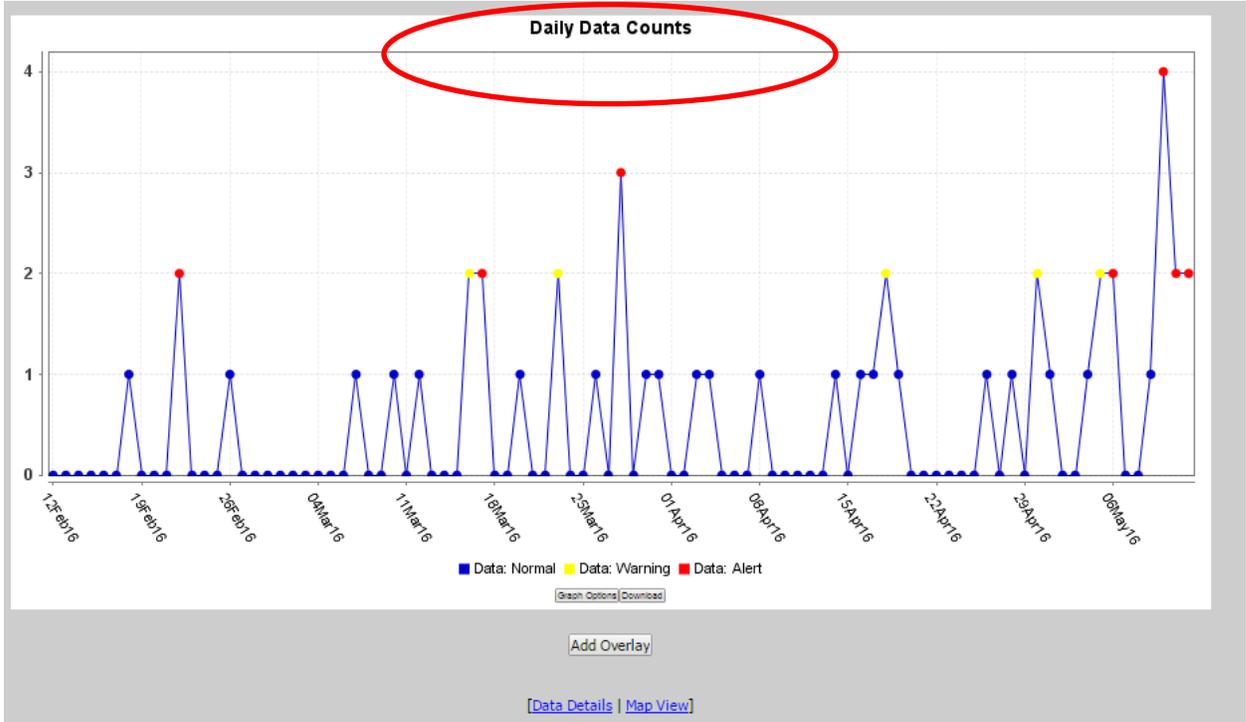
Check Alert List

To monitor for public health events, users can review the alert list on the main screen and assess syndromes of interest by Temporal Alerts Summary (see screen shot below), Region/Syndrome, Hospital/Syndrome, Spatial, and Hospital/SubSyndrome Time of Arrival. Each table will summarize the analysis of alerts either by region, hospital, geography or by time of arrival.

1. Click on “Alert List” tab to view Summary Alerts. The default alerts show an indicator for the past 9 days (each asterisk is a day) for 11 syndromes. The legend at the bottom of the page explains the color-coding for an asterisk (*) (i.e., action being taken, or not, for results that may have reached an alert threshold). The top row of asterisks corresponds to statistical anomalies for each region and syndrome, whereas the lower row of asterisks corresponds to user-entered actions taken as entered within the Event List.

Temporal Alerts Summary								
Last Updated: April 25, 2016 1:42 AM								
[Summary Alerts] [Region/Syndrome] [Hospital/Syndrome] [Spatial] [Hospital/SubSyndrome Time of Arrival]								
<input type="checkbox"/> View Detection-Based Alerts <input type="checkbox"/> View User-Based Events								
ER								
Region Group	Bot_Like	Exposure	Fever	GI	Henr_III	ILI	Injury	Neuro
Region I	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
Region II	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
Region III	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
Region IV	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
Region V	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
Region VI	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
Region VII	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
Region VIII	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****

- Click on the “Alert List” tab, then click on the Region/Syndrome tab to display the Region/Syndrome-Based Temporal Alerts page.
- Users with access to data associated with a Region/Syndrome alert for their site can further explore the underlying contributing cases by clicking on the time series link and data details for specific visits.



Create, Visualize, and Save a Query

Your next step is to create queries to monitor specific events within your site. You can save queries in myESSENCE or in Query Manager for future analysis.

1. CREATING A QUERY:

- a. Click on the “Query Portal” tab to display page.
- b. Select the data source(s) for your analysis.
- c. Note that Time Resolution, Detector (algorithm), and As Percent Query may remain in their default modes.
- d. Select start and end dates.
- e. Select query fields from the left-hand column. Press and hold the Ctrl key to select multiple query fields for analysis; those selected will appear in the right-hand column.

The screenshot displays the ESSENCE - NSSP Data Query interface. At the top, there is a navigation bar with links for Manage Users, Analyze Logs, Reference Manager, and Logout. The main header includes the ESSENCE logo and the text "ESSENCE - NSSP Data Query". A bookmark section is visible with fields for Bookmark Name, Bookmark Page, and a dropdown for No Comments Available.

The main navigation menu includes: Home, Alert List, myAlerts, myESSENCE, Event List, Overview Portal, Query Portal, Stat Table, Map Portal, Bookmarks, Query Manager, Data Quality, Report Manager, and More.

The central "Query Wizard" panel is configured with the following settings:

- Datasource: Patient Location (Full Details)
- Time Resolution: Daily
- Detector: Regression/EWMA 1.2
- As Percent Query: No Percentage Query
- Start Date: 13Feb16
- End Date: 13May16

The "Available Query Fields" list on the left includes:

- Patient Location (Full Details)
- Geography System
 - Region
 - HHS Region
 - State
 - Zipcode
- Facility
- Site
- Medical Grouping System
 - ChiefComplaintSubSyndromes
 - Syndrome
 - ChiefComplaints
- Age Group
- CDC ILI Reporting Age Group
- Ten Year Age Group
- Distribute Age Group
- Age Range
- Sex

The "Syndrome" selection window shows a list of values: Bot_Like, Exposure, Fever, GI, Hemr_Ill, ILI, Injury (highlighted), Neuro, Other, and Rash.

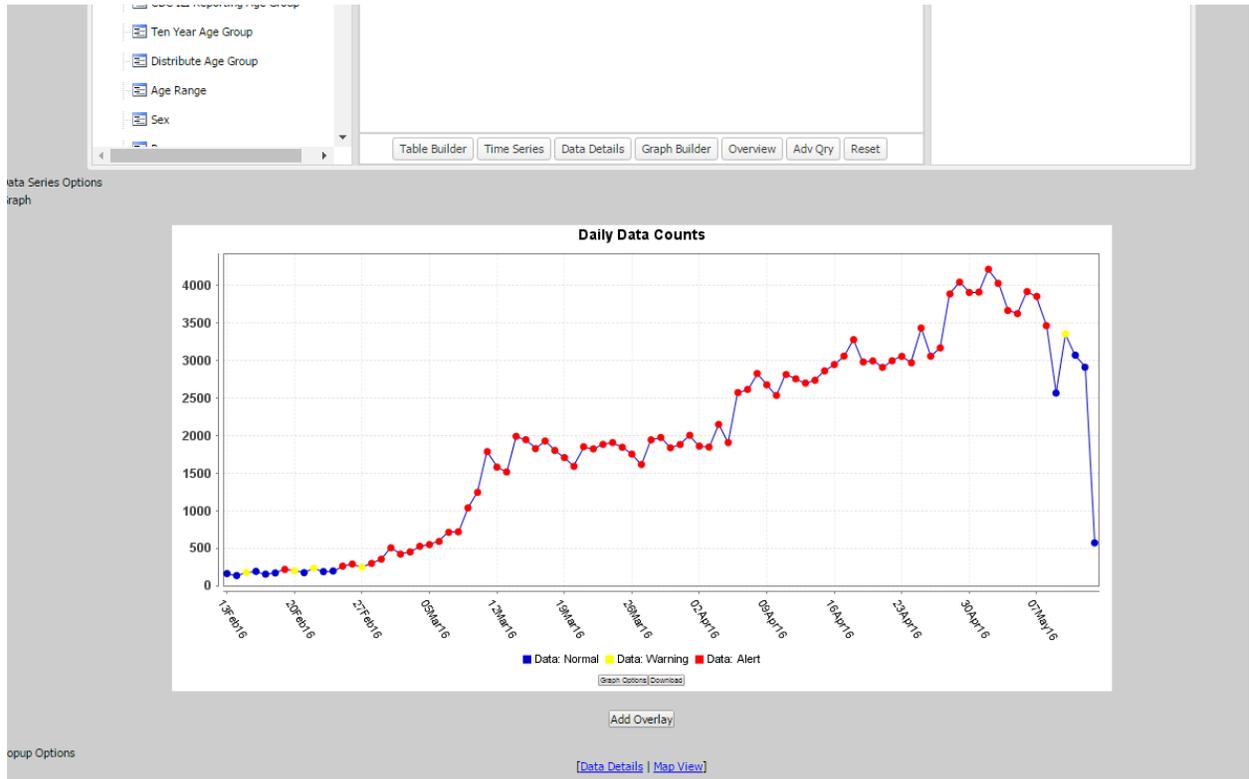
The "Selected Query Fields" list on the right includes:

- Geography System
 - Region
- Medical Grouping System
 - ESSENCESyndromes
- Syndrome
 - Injury

At the bottom of the Query Wizard, there are buttons for Table Builder, Time Series, Data Details, Graph Builder, Overview, Adv Qry, and Reset.

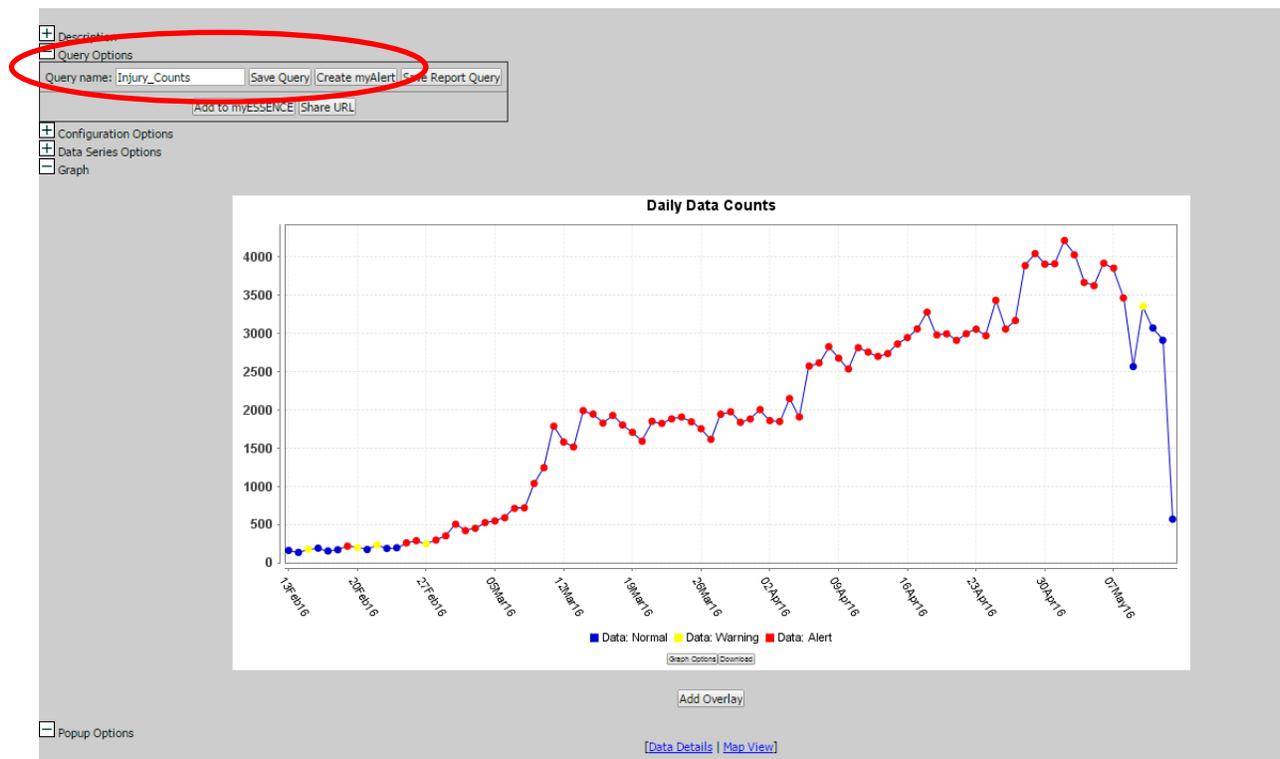
2. VISUALIZING THE ANALYSIS:

Next, select the type of visualization from the buttons at the bottom of the screen (e.g., Table Builder, Time Series, Data Details, Overview). Clicking on “Overview” provides the user time series graphs that may be stratified by various parameters including Region (i.e., County), Syndrome, Age, and Gender.



3. SAVING YOUR QUERY:

Name the query (red oval in screen shot below) and save it. Click on “Add to myESSENCE” or “Save Query.” If you chose “Add to myESSENCE,” be sure you’ve already created a new tab within myESSENCE to which the query will be saved. Now you’ll be able to use (or share) this query whenever you want to check the same parameters.



You can also create a myAlert for the query by typing the query name and selecting “Create myAlert” (refer to the previous screen shot). You can choose to create a Records of Interest or a Detection query. The next time the detection algorithm runs, it will include any new myAlerts you have created.

Create myAlert

Name of myAlert: AK Fever

Query: AK Fever

Enabled:

myAlert being created for: Records of Interest Detection

Stratifications: Use Original
Facility
Site
MedicalSubGrouping
Age Group

Detector: Regression/EWMA 1.2

Threshold: 0.05

Minimum Count: []

alerts in the past [] days

consecutive alerts

Save For:

<input type="checkbox"/>	First Name	Last Name	Organization
<input type="checkbox"/>	demoSti	aaaademoHi	OrgCat
<input type="checkbox"/>	admin	aaadmindemo	siteAdminsAssoci
<input type="checkbox"/>	tester	aatester	org
<input type="checkbox"/>	test	access	CDC
<input type="checkbox"/>	Demo	Account	CDC

Cancel Save myAlert

If you select the Detection alert above, also select the appropriate parameters for your alert.

Create myAlert

Name of myAlert: AK Fever

Query: AK Fever

Enabled:

myAlert being created for: Records of Interest Detection

Save For:

<input type="checkbox"/>	First Name	Last Name	Organization
<input type="checkbox"/>	demoSti	aaaademoHi	OrgCat
<input type="checkbox"/>	admin	aaadmindemo	siteAdminsAssoci
<input type="checkbox"/>	tester	aatester	org
<input type="checkbox"/>	test	access	CDC
<input type="checkbox"/>	Demo	Account	CDC

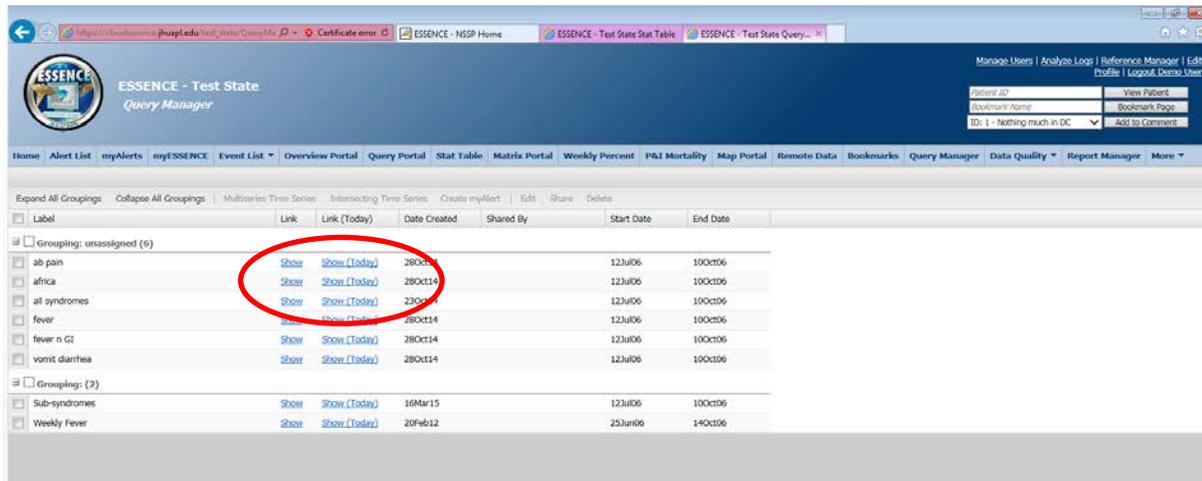
Cancel Save myAlert

4. MODIFYING QUERIES:

Queries may be modified or enhanced by clicking on the plus sign (+) next to Configuration Options. This will show the fields available in the Query Portal.

5. MANAGING QUERIES:

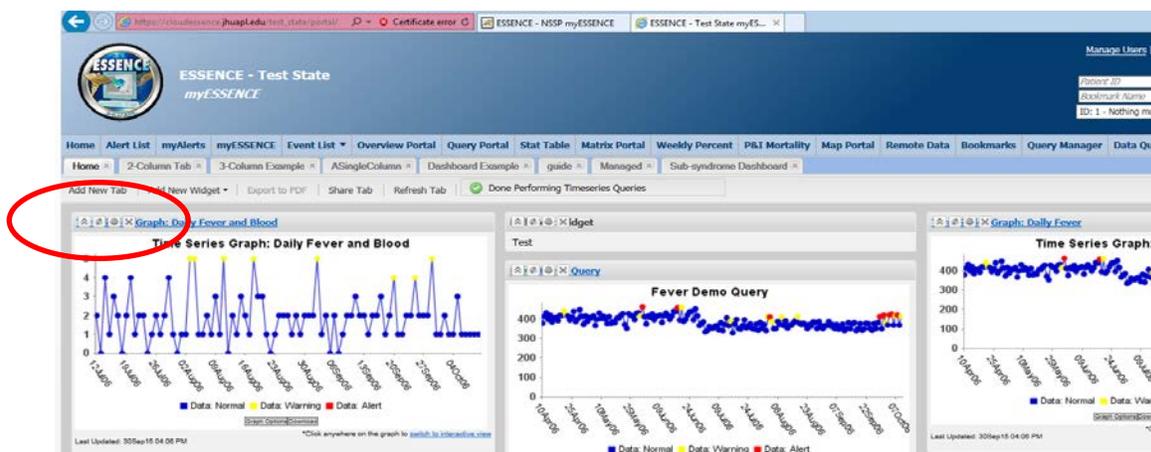
The Query Manager lets you view saved queries in one tab and modify by clicking on a link (see red oval below). Clicking on the link will run the saved query. Once the query has run, you can use the Configuration Options to make modifications.



View Your Dashboard (myESSENCE)

The myESSENCE tab lets you save customized views of any query you run that results in a time series graph, map, data details page, myAlert (detection and records of interest), or rich text box. Once you create a myESSENCE tab, you can view all queries in one place. In addition, myESSENCE updates automatically as data are received so that you can quickly identify what is happening (or not) in your jurisdiction.

1. Click on “myESSENCE” tab. Saved queries will appear in graph form. Click on “Add New Tab” if you want to organize query results in new tabs.
2. Roll up, refresh, modify, or delete a graph by using the icons for each function located at the top left-hand corner of each graph (red oval below).



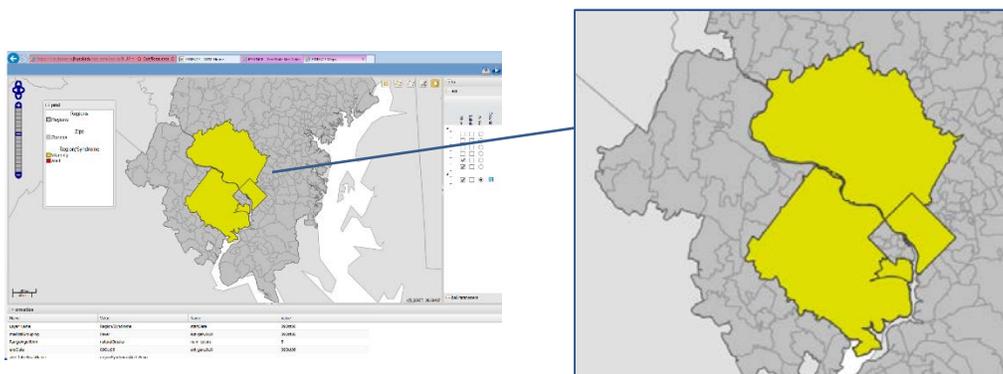
- Click on points of interest within the time series graphs to get data details. Use the scroll feature at the bottom of the page to view other data elements. To summarize data in your data details page, select the variables to summarize within “Select Pie Chart(s):” or “Select Bar Chart(s).” The “Map View” link will let you map your data by geographic unit, depending on how you built your query.

PIN	Date	Time	Zipcode	District	Age	Sex	Chief/Complaints/Orig	Chief/Complaints/Parsed	Category_flat	SubCategory_flat
JHBERCC_NULL_MDR_7980	11Aug06	05:10 AM	OTHER	Baltimore City, MD	1	Female	Fever/pos Blood Cx	FEVER POSSIBLE BLOOD CULTURE	;Fever;	;FeverOnly;FeverOrChills;FeverPlus;
NWERCC_NULL_MDR_6612	11Aug06	02:32 PM	OTHER	Baltimore, MD	12	Male	VOMITTING BLOOD FEVER NOSE BLEED	VOMITTING BLOOD FEVER NOSE BLEEDING	;GI;Hem_III;	;FeverOrChills;FeverPlus;Hematemesis;Nosebleed;Vomiting;
PQHCERCC_NULL_VAER_732	11Aug06	04:51 AM	20770	Prince Georges, MD	1	Female	Elev Wbc/fever	ELEVATED WHITE BLOOD CELL COUNT FEVER	;Fever;Hem_III;	;AcuteBloodAbnormalities;AcuteBloodAbnormalitiesGroup;FeverOnly;FeverOrChills;
LKMCERCC_NULL_MDR_7812	11Aug06	05:20 PM	OTHER	Harford, MD	58	Female	Fever Low Bp	FEVER LOW BLOOD PRESSURE	;Fever;SI_Death;	;FeverOnly;FeverOrChills;FeverPluchypotension;

Visualize Statistical Alerts: The “Map Portal” Tab

To visualize statistical alerts by region, syndrome, and time frame, use the map portal option:

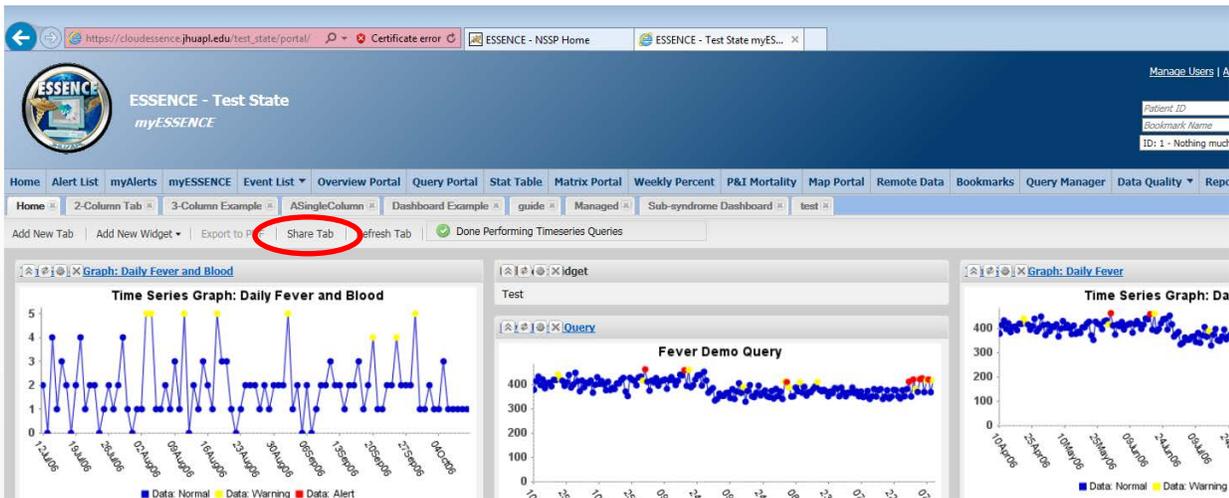
- Click on the “Map Portal” tab. Select the parameters of interest (Alert List, Syndrome, Timeframe). Click “submit.”
- A map of your jurisdiction will appear with alerts color coded in YELLOW or RED. Areas shaded YELLOW indicate a temporal alert in that region with a p-value between 0.05 and 0.01. Areas shaded RED indicate a temporal alert in that region with a p-value less than or equal to 0.01.



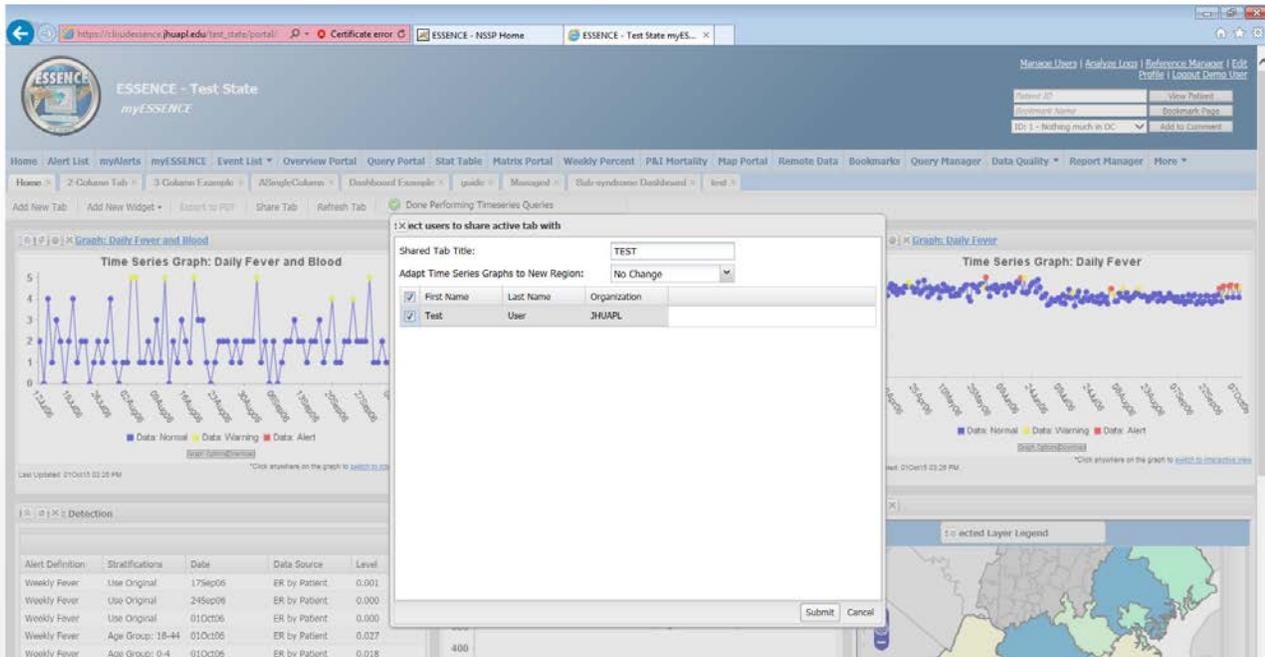
Share Queries and Visualization

Use myESSENCE and the Query Manager to share data. Once your site administrator has set your data-access privileges, you may begin sharing data to broaden your view of health trends. (CDC encourages you to re-read the Code of Conduct before releasing or distributing data to ensure confidentiality and data integrity. Another good practice is to consult others on how they interpreted their data.)

1. In myESSENCE, click on the “Share Tab” feature (circled in red below).



2. A window will open to let you name the tab and identify with whom these data may be shared. You can adjust the time series graphs to a specific region; here, “no change” has been selected.



- For the Query Manager, select a query by clicking on the appropriate check box, then click the “Share” button (circled in red below). A similar window will pop up to let you add a title and select with whom the query is to be shared.

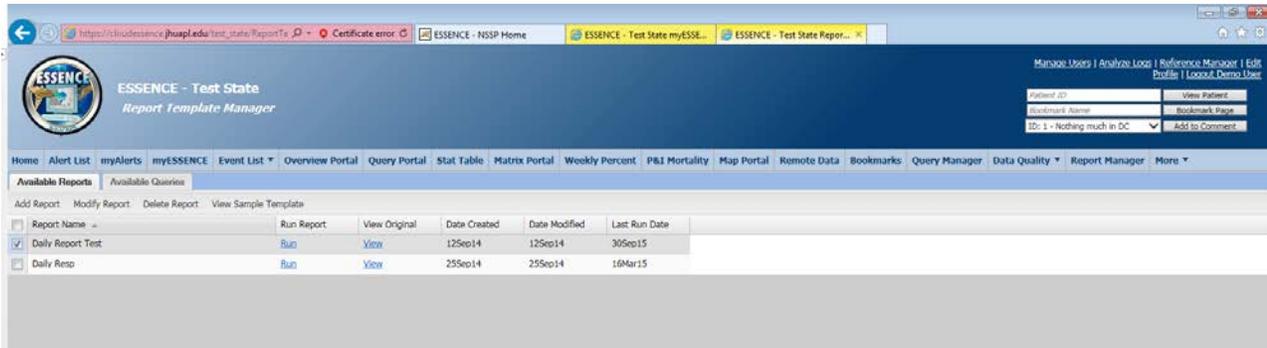
The screenshot shows the ESSENCE - Test State Query Manager interface. The browser address bar shows the URL: https://cloudessence.jhuapl.edu/test_state/QueryMa. The page title is "ESSENCE - Test State Query Manager". The navigation menu includes: Home, Alert List, myAlerts, myESSENCE, Event List, Overview Portal, Query Portal, Stat Table, Matrix Portal, Weekly Percent, P&I Mortality, Map Portal, Remote Data, Bookmarks, and Query Manager. Below the navigation menu, there are several action buttons: Expand All Groupings, Collapse All Groupings, Multiseries Time Series, Intersecting Time Series, Create myAlert, Edit, Share, and Delete. The 'Share' button is circled in red. Below the buttons, there is a table with columns: Label, Link, Link (Today), Date Created, Shared By, Start Date, and End Date. The table contains two groups of queries: "Grouping: unassigned (7)" and "Grouping: (2)". The "fever" query is selected with a checked checkbox.

Label	Link	Link (Today)	Date Created	Shared By	Start Date	End Date
<input type="checkbox"/> Grouping: unassigned (7)						
<input type="checkbox"/> ab pain	Show	Show (Today)	28Oct14		12Jul06	10Oct06
<input type="checkbox"/> africa	Show	Show (Today)	28Oct14		12Jul06	10Oct06
<input type="checkbox"/> all syndromes	Show	Show (Today)	23Oct14		12Jul06	10Oct06
<input checked="" type="checkbox"/> fever	Show	Show (Today)	28Oct14		12Jul06	10Oct06
<input type="checkbox"/> fever n GI	Show	Show (Today)	28Oct14		12Jul06	10Oct06
<input type="checkbox"/> test	Show	Show (Today)	01Oct15		12Jul06	10Oct06
<input type="checkbox"/> vomit diarrhea	Show	Show (Today)	28Oct14		12Jul06	10Oct06
<input type="checkbox"/> Grouping: (2)						
<input type="checkbox"/> Sub-syndromes	Show	Show (Today)	16Mar15		12Jul06	10Oct06
<input type="checkbox"/> Weekly Fever	Show	Show (Today)	20Feb12		25Jun06	14Oct06

Generate Reports

All users can generate reports using the Report Manager function in ESSENCE.

1. Click on the “Report Manager” tab; select a report by clicking the check boxes on the far left.
2. Click “Run” under the “Run Report” column.

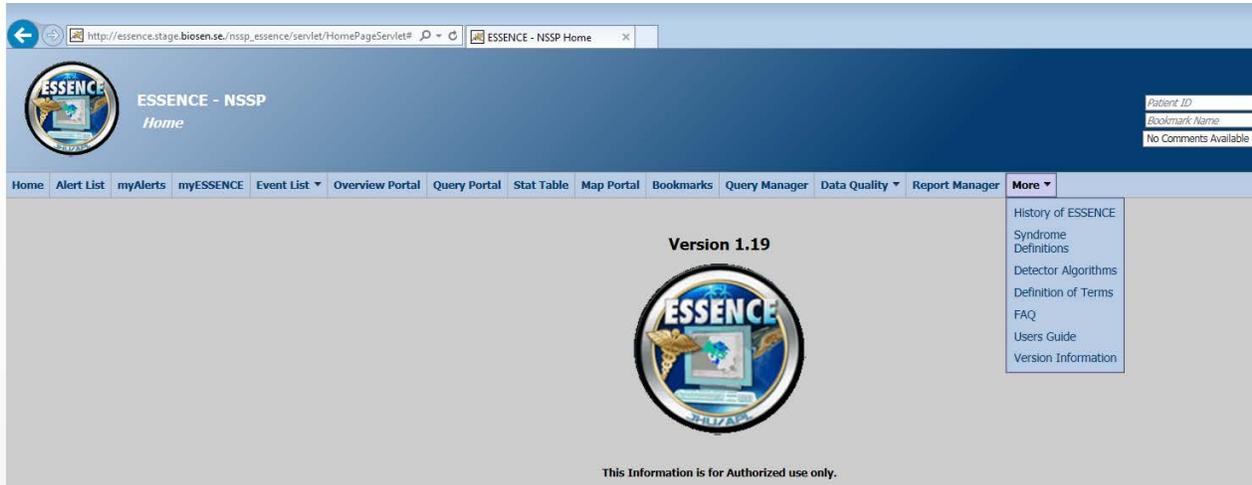


3. When prompted at the bottom of the screen, click “Open.” The result will be a newsletter template (shown below) that can be saved and shared. Inside the template are instructions for how to create reports for ESSENCE.



Request Technical Assistance

Within NSSP ESSENCE—If you need assistance beyond what’s covered in this *Quick Start Guide*, please refer to the FAQs and Users Guide under the “More” tab (shown below). If you still cannot find the information you need, please contact the NSSP Service Desk.



NSSP Service Desk—If you’ve exhausted the resources already mentioned and still have questions about NSSP ESSENCE v1.20, please contact the NSSP Service Desk. If you do not have an account, visit support.syndromicsurveillance.org and register to receive technical assistance from the NSSP Service Desk. Once registered, please sign in and enter your request for technical assistance (TA request) into the system. A ticket will be created automatically, and further communications will be sent to your registered email.

5. Activities Common to Users and Site Administrators

1. Log in to ESSENCE.
2. Check data access rules created by the site administrator for your site. Create a query on the data source or data sources (i.e., Patient Location [Full Details], or Patient Location and Visit [Full Details], or Facility Location [Full Details], or Facility Location and Visit [Full Details] at aggregate or data-details level) that your site administrator has set up for you. Create a time series graph.
3. Check data access rules created by a site administrator **NOT** in your site (if applicable). Create a query on the data source(s) included in that rule (i.e., Patient Location [Full Details], or Patient Location and Visit [Full Details], or Facility Location [Full Details], or Facility Location and Visit [Full Details] at aggregate or data-details level) that the site administrator has set up for you. Create a time series graph.
4. Check the national picture. Create a query on the data source Patient Location (Limited Details by HHS Region). Select HHS Region(s) and create a time series graph.
5. Check your data quality. Run a daily, weekly, and monthly data quality report for percent completeness on ER Data by Facility and by selecting a particular facility in your site from January 1–31, 2016.
6. Run a daily, weekly, and monthly data quality report for percent mapped to known values on ER Data by Facility and by selecting a particular facility in your site from January 1–31, 2015.
7. Download the data quality report to an MS Excel spreadsheet.
8. Run data quality frequencies on age.
9. View data quality alerts for a time period of your choice.
10. Click Alert list and view the summary alerts for the HHS region. Investigate an alert of interest.
11. Click “Region/Syndrome” tab, and investigate an alert of interest.
12. View the alerts by hospital/syndrome, and investigate the alerts that are level red for your site.
13. View the spatial alert list, and investigate the alerts that are level red for zip codes in your site.
14. View the alert list by time of arrival for each syndrome with red alerts for hospitals in certain zip codes.
15. Select the data source Patient Location (Full Details), and create a query to investigate ED visits of patients aged 18–44 years in a site with fever from January 1 through February 5, 2016, and create a table showing syndrome by sex and patient class.
16. Download the table to MS Excel.
17. Create a time series graph using the same data source and parameters as item 15.
18. Save the query with a name of your choice.

19. Add this time series graph to myESSENCE.
20. Select an alert or warning data point on the graph, and examine the line-level details.
21. Generate different charts (pie chart, bar charts, and pop-up charts) to determine patient breakdown by gender and race.
22. Download the tables to MS Excel.
23. Download the zip file for the graphs.
24. Select Facility Location (Full Details), and create a graph of your choice investigating ED visits of patients aged 18–44 years in hospitals in your site or in a particular region of your site for a period of your choice, and label the graph with title, axis labels, etc.
25. Return to the query portal; select Patient Location (Limited Details by HHS Region) from the list of data sources; and generate a time series graph of ED visits by patients aged 5–17 years in the fever syndrome, your HHS Region, and from January 1 through February 5, 2016.
26. Click “Configuration Options” to modify the variables in your query. Modify the variables of interest in the overview to generate a time series graph investigating ED visits by patients aged 5–17 years with fever by sex or another parameter of your choice.
27. Go to the “Query manager” to find the query you saved in item 18.
28. Share the saved query with another user.
29. Create and save a myAlert query to detect counts of fever in children younger than 5 years of age that occurred in the past 30 days.
30. Create a records of interest myAlert for patients in your site with GI syndrome.
31. Go to the “myAlerts” tab, and click Manage Alert Definitions to view all alerts created and to share the alert query with another user.
32. Delete an alert.
33. Add a tab in myESSENCE with a name of your choice.
34. Find the query saved in item 18 in myESSENCE, and add it to the tab you created.
35. Share the new tab in myESSENCE with a user of your choice.
36. Click the query name on the graph to generate a map of the time series graph in the myESSENCE tab.
37. Change the layers of the map to show the location of hospitals in your site and the distribution of ED visits by HHS region.
38. Add labels to the map.
39. Click the picture of disk to save the shapefile of the map on the bottom right under result.

40. Return to the query portal; create a time series graph to investigate ED visits of patients aged 5–17 years in a site with fever from January 1 through February 5, 2016; and save it as a report query.
41. Generate an external report for publishing.
42. Create an Event for fever in children younger than 5 years of age in a particular site.
43. Add comments to the event.
44. Delete an Event.
45. Bookmark the query created in item 24.
46. Explore using the segregated Chief Complaint Query Tool to develop a new definition. In the Query Portal, select the data source Chief Complaint Query Validation.
47. Query Chief Complaint Free Text, Discharge Diagnosis, and CC and DD for key words relevant to developing an outcome definition for anything related to a drug overdose.
48. Subsequent to identification of relevant key words, apply a query definition in the Query Portal to identify details of relevant cases.
49. After completing these tasks, log out from the system.