

# **Florida Department of Health, Bureau of Epidemiology**

## **ESSENCE User Guide**

**Version 1.0 (Oct. 2010)**

*This should be considered an evolving guide due to the periodic changes made to Florida's ESSENCE system. It will be updated as necessary, and as resources allow.*



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## ***Florida Electronic Surveillance System for the Early Notification of Community-based Epidemics (Florida ESSENCE)***

### **Introduction**

This user manual is intended as a self-study guide to help the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) user navigate through some basic functions in ESSENCE. As changes are made to ESSENCE we will try to update this document as quickly as possible. Please contact ESSENCE Help ([Essence\\_Help@doh.state.fl.us](mailto:Essence_Help@doh.state.fl.us)) at the Florida Department of Health, Bureau of Epidemiology with questions about ESSENCE.

It should be noted that access to some features described in this training guide might not be available to all individuals. For example, hospital personnel can only view data for their hospital or hospital group, and the “Merlin Limited View Reportable Disease Data.” Access to the Florida Poison Information Network data is dependent on having been trained in the use of these data, and is only available for Florida Department of Health and Florida Poison Information Network employees. Please contact ([Essence\\_Help@doh.state.fl.us](mailto:Essence_Help@doh.state.fl.us)) about access to the poison center data in ESSENCE.

### **Purpose**

Public health surveillance is often defined as “the ongoing systematic collection, analysis, interpretation, and dissemination of data regarding health-related event for use in public health action to reduce morbidity and mortality and to improve health” (1). A second definition of syndromic surveillance more specifically is “an investigational approach where health department staff, assisted by automated data acquisition and generation of statistical signals, monitor disease indicators continually to detect outbreaks of disease earlier and more completely than might otherwise be possible with traditional methods for reporting disease” (2). ESSENCE in Florida includes syndromic and non-syndromic data, and so both definitions provide a useful framework for our disease surveillance activities. The purpose of the ESSENCE system within this context is as a system that provides an intuitive environment for epidemiologists to conduct routine descriptive epidemiologic analysis, to monitor morbidity and mortality trends over time, geography, and across multiple data sources, and thereby providing information that can assist with making decisions on how to improve population health.

### **Overview**

In the mid-1990s the Johns Hopkins University Applied Physics Laboratory (JHU/APL) began a collaborative biosurveillance project with the Maryland Emergency Management Agency (MEMA) and the Maryland Department of Health and Mental Hygiene. In 2000, the team realized that the Walter Reed Army Institute for Research (WRAIR) was conducting a similar effort, called ESSENCE. These two projects soon merged, and JHU/APL and Walter Reed entered into a collaborative research and development agreement to continue working on the technology and expand system access to both military and civilian public health authorities across the region. In 2001, a worldwide United States military version of ESSENCE was implemented by JHU/APL.

In 2004 the military assumed the responsibility and implementation for the military version of ESSENCE. JHU/APL has continued to maintain and develop the civilian version of ESSENCE.

In 2006 the Florida Department of Health, Bureau of Epidemiology, created a syndromic surveillance workgroup that included a diverse group of members from county health departments, the Bureau of Epidemiology, and partners from the hospital community. This workgroup defined a set of syndromic surveillance standards for Florida, and guided the decision making for Florida's statewide syndromic surveillance solution. In 2007 the Florida Department of Health, Bureau of Epidemiology partnered with the JHU/APL to install a Florida specific version of the ESSENCE system for statewide implementation. Currently the system in Florida includes four different data sources, each with its own module; 1) De-identified emergency department data from 163 hospitals and urgent care centers (updated once daily); 2) De-identified Merlin reportable disease data from the Merlin system (updated once every hour); 3) De-identified Florida Poison Information Network data (updated every 20 minutes); 4) De-identified Florida Office of Vital Statistics Death Data (updated once daily). Including multiple streams of data in ESSENCE permits the visualization and descriptive epidemiologic analysis of several data sources in one location. Each of these data sources is briefly described below.

#### *Emergency Department Data Module:*

The data elements included from the EDs are patient age, sex, chief complaint, date of visit, time of visit, race/ethnicity, discharge disposition (e.g. admitted, discharged, etc), discharge diagnosis, patient resident zip code, a unique identifier for the patient and visit, and hospital name. Unfortunately, not all hospitals provide a unique patient ID, discharge diagnoses and discharge dispositions at this time. Automated parsing of the free text chief complaints place these data into 12 syndrome categories, >100 sub-syndrome categories, and allow for free text querying of the chief complaint text. These data are, with very few exceptions, always one day behind. When users log in today the ED visits for the previous 12am-12pm period are available for review. The data are loaded automatically on weekends and holidays on the same schedule as noted above. ESSENCE analyzes and displays the findings for use at the state, county, and hospital level. *Note: As a result the HITECH Act and the syndromic surveillance Meaningful Use criteria, the number of requested variables may increase over time, and the data will become more real-time. Pilot projects for this transition will begin in 2011.*

#### *Merlin Reportable Diseases Data Module:*

Florida has about 100 reportable diseases/conditions. Merlin is the state of Florida's reportable diseases and conditions surveillance system and all 67 counties in Florida use the system for reporting. Over 45,000 cases of reportable diseases are reported in Merlin annually, not including tuberculosis, sexually transmitted diseases or HIV/AIDS. The data are transmitted to ESSENCE from the Merlin system. The variables from Merlin include 5 dates associated with the reported case, Case ID, disease name, disease code, sex, race, ethnicity, age, zip code of residence, county of residence, outbreak status, diagnosis status, reporting status, year reported, week reported, daycare associated, occupation, imported status, and case status. ESSENCE also

calculates some additional variables based on the available date fields to create measures of reporting timeliness. For these timeliness measures each value is the difference in days between two reporting dates (e.g. date reported to CHD minus date of onset, etc).

*Mortality Data Module:*

Mortality data are transmitted to ESSENCE from Florida's Office of Vital Statistics. These data include all deaths reported in Florida and allows an ESSENCE user to analyze mortality trends for the state of Florida. These data include demographic variables, place of death, county of residence, zip code of residence, 5 free text "literal" cause of death variables, ICD-10 codes for underlying and contributing causes of death, ACME codes 1-20, and three underlying cause of death groups (annual-358 categories, monthly-113 categories, and infant-130 categories). Death data can be queried using ICD-10 codes, literal causes of death, and combinations of ICD-10 codes and literal causes of death. The timeliness of this data source is quite different in comparison to the other data sources. The user should expect these data to be delayed approximately 5-6 weeks when looking at the free text literal causes of death, and ~12 weeks when using the ICD-10 or ACME codes. These data should be considered provisional and are subject to changes months later.

*Poison Control Data Module:*

The Poison Control (PC) data in ESSENCE is transmitted from the Florida Poison Information Center Network (FPICN) to ESSENCE every 20 minutes. A large number of variables are included in the ESSENCE-PC interface, including demographic data to orient the data by time, person, and place, as well as information on substances, substance categories, clinical effects, information on the exposure, and how it was managed clinically. These data have been used to detect outbreaks associated with exposures to various chemical substances, detecting individual cases of some reportable diseases (e.g. carbon monoxide poisoning, pesticide poisoning), and providing situational awareness as it relates to chemical substance exposures in Florida. A specific training is necessary prior to the user receiving access to these data in ESSENCE.

**Limitations and Other Context**

An understanding of the limitations of a particular data source enables users to make correct interpretations of the data. This is especially the case with syndromic surveillance data where the focus of the surveillance is on reporting timeliness and not necessarily the specificity and completeness of the data. Limitations for specific data sources are described below:

*Emergency Department Data:*

The syndromic classification of emergency department (ED) data in ESSENCE is based on the patient's chief complaint, which is generally some variation on what the patient said was the reason for visiting the ED. Some things to consider include:

- 1) Chief complaints may be a comprehensive free text statement that mirrors the patient's actual statement very closely,

- 2) Chief complaints may be an abbreviated free text statement that includes only the primary reason for the ED visit, or
  - 3) Chief complaints may be a selection from a standardized “pick-list” of possible chief complaints from within a hospital’s data system that best fits the patient’s actual statement.
  - 4) Chief complaints may include misspelled words and/or medical short-hand.
  - 5) Another limitation is that chief complaint data vary in their diagnostic precision, which is also affected by the type of chief complaint text provided by the hospital.
- Systems like ESSENCE tend to prefer options 1 and 2 above, because they often include additional information that can be helpful for free text querying as well as with the syndrome categorization. These kinds of chief complaints lend themselves well to impromptu free text query development, and systems with free text chief complaints may be flexible enough to add particular phrases to a patient’s chief complaint in certain circumstances (e.g. adding the word “Haiti” in a patient’s chief complaint). Whenever available we ask that hospitals send us the free text chief complaints, but this isn’t always possible. Regarding misspellings and medical short-hand, the language parsing algorithms in ESSENCE include a large number of common misspellings and medical shorthand terms and will show what it thinks is the correct version of the chief complaint.

*Merlin Reportable Disease Data:*

Interpretation of Florida’s reportable disease data should be more familiar to the county health department staffs that use this data source, as these data are the same data that are entered into Merlin. The points included below briefly highlight some of the limitations and assumptions associated with interpretation of reportable disease data.

- 1) Under-reporting: Evaluations of infectious disease reporting systems have, in general, indicated that the completeness of reporting varies by disease. The less common, more severe reportable diseases such as bacterial meningitis, diphtheria, polio, botulism, and anthrax are more completely reported than the more common but (individually) less severe diseases such as hepatitis A or campylobacteriosis. Variation in reported disease incidence at the local level reflects, to varying degrees, both differences in the true incidence of disease and differences in the vigor with which surveillance is performed.
- 2) Case Definition: Cases are classified as confirmed, probable, or suspected at the local level, using a published set of surveillance case definitions (Surveillance Case Definitions for Select Reportable Diseases in Florida, available at [http://www.doh.state.fl.us/disease\\_ctrl/epi/surv/CaseDefinitions.html](http://www.doh.state.fl.us/disease_ctrl/epi/surv/CaseDefinitions.html)). For cases of selected diseases, these classifications are reviewed at the state level.
- 3) Incomplete Case Information: Certain analyses may not include all reportable cases of a specific disease due to incomplete case information. For instance, if the ESSENCE user selects onset date as the date type for analysis, only those reported cases that include an onset date will be included in the results.

*Florida Poison Information Network:*

*Will be added in the future.*

*Office of Vital Statistics – Death data:*

Staffs at the Office of Vital Statistics enter the demographic and cause of death data from the paper death certificates into their databases. Batches of these data are routinely sent for coding to the National Center for Health Statistics, which then sends the data back with the underlying and contributing cause of death ICD-10 codes completed for each death. This process may at times assign inappropriate underlying or contributing causes of death, however these data are reviewed routinely for quality. If errors are discovered they are corrected, though this may take some time to update in the databases. These data should be considered provisional.

*Statistical Analyses:*

Automated statistical analyses in alert lists, my alerts, and of time series data assists the user by generating alerts when observed counts exceed a particular threshold. While this information can be very helpful with focusing our attention on specific data, users should not interpret statistical significance to necessarily mean public health significance. Epidemiologists should conduct additional review of the data details (line list) and distribution of the data to determine whether additional investigation is warranted for a given circumstance. Appendix 1 provides an example of how to review emergency department data. Additional information is available on the statistical algorithms in the ESSENCE Help section and the Detector Algorithms section, both at the top of the webpage once you have logged in.

Outbreak detection has always been one of the major goals of syndromic surveillance. In Florida we have had success in detecting otherwise unreported outbreaks using both the ED data and poison control data. In this context there are a few things to understand:

- 1) It is important to keep in mind the data source (ED and poison control data) and the various kinds of disease outbreaks that you might expect to see given the context of these data. For instance, in EDs you will see some percentage of patients who lack another source of health care and as a result utilize the ED for that purpose, and those who truly have a health emergency (or are at least very concerned about their health for whatever reason).
- 2) The way patients present to the ED (for example) has to be in such a way that our attention is drawn to these visits. One way is for the number of observed ED visits for a given syndrome to exceed the expected value by some statistically significant margin. For follow up to occur we also often like to see some other kind of clustering in the data (e.g. by zip code, or age, or geographic location) in addition to the increased overall count. A second way to draw attention to specific visits is related to what is said in the chief complaint text. For instance, if a specific disease name is mentioned, or if a group of seemingly related patients all mention “food poisoning” or something similar.

## Getting Started

The secure ESSENCE website can be accessed by going to:

[https://essenceweb.isf.com/florida\\_5\\_1\\_12](https://essenceweb.isf.com/florida_5_1_12)

*Note: ESSENCE tends to run faster when using the FireFox internet browser. The Florida Department of Health, Division of Information Technology, has approved the use of FireFox for ESSENCE users. For more information please contact ESSENCE Help ([Essence\\_Help@doh.state.fl.us](mailto:Essence_Help@doh.state.fl.us)) for additional guidance. The user may also experience problems when using older versions of Internet Explorer (IE). For instance, IE6 is known to cause some problems.*

Please add this website to your list of trusted websites.

Logging on:

1. The first time you log on, a security certificate dialog box may appear – click yes



2. You will likely see a Security Alert dialog box – click ok.



3. The Enter Network Password dialog box should appear – enter your user name and password. To obtain ESSENCE access, please contact ESSENCE Help ([Essence\\_Help@doh.state.fl.us](mailto:Essence_Help@doh.state.fl.us)) at the Florida Department of Health, Bureau of Epidemiology.



4. The ESSENCE homepage will appear. All of the major functions of the software are accessible using the main toolbar. We will describe most of the application tabs (e.g., query portal, alert list) in the next pages. The remote data and user admin tabs will not be discussed since these functions are not often utilized by ESSENCE users in Florida.

Prior to examining specific data outputs, you may want to look at the items on the very top of the tool bar which describe: 1) history and background of ESSENCE and its relationship to syndromic surveillance, 2) syndrome and sub-syndrome definitions, 3) detector alorighms, a description of statistical techniques for outbreak detection, 4) the data dictionary, a glossary of common ESSENCE terms and 5) the help section, which contains FAQs, additional background information, and useful links. Please be aware that many of these items have not been updated to reflect recent changes in the ESSENCE system.

History of ESSENCE      Syndrome Definitions      Detector Algorithms      Data Dictionary      Help

<a href="#">Alert List</a>	<a href="#">myAlerts</a>	<a href="#">Event List</a>	<a href="#">Overview Portal</a>	<a href="#">Query Portal</a>	<a href="#">Matrix Portal</a>	<a href="#">Weekly Percent</a>	<a href="#">P&amp;I Mortality</a>	<a href="#">Map Portal</a>	<a href="#">Remote Data</a>	<a href="#">Bookmarks</a>	<a href="#">Query Manager</a>
						Add URL to Comment: <input type="text" value="D:\24-IN\index.aspx"/> <input type="button" value="Add"/>					

**ESSENCE - Florida Home Page**

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Version 1.13

System Information	
Date	Description
01Oct10	Welcome to ESSENCE version 1.13.
01Oct10	Alachua reporting (1/1) hospitals for 30 Sep 2010
01Oct10	Bay reporting (1/1) hospitals for 30 Sep 2010
01Oct10	Brevard reporting (1/1) hospitals for 30 Sep 2010
01Oct10	Broward reporting (17/17) hospitals for 30 Sep 2010
01Oct10	Charlotte reporting (1/1) hospitals for 30 Sep 2010
01Oct10	Clay reporting (1/1) hospitals for 30 Sep 2010
01Oct10	Collier reporting (4/4) hospitals for 30 Sep 2010
01Oct10	Duval reporting (8/8) hospitals for 30 Sep 2010

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The homepage displays key information about the ESSENCE data including 1) the total number of hospitals per county that are reporting ED data for the previous day; the total number of Florida hospitals reporting their ED chief complaint data for the previous day; the times the ED, Merlin, Poison Control and Death data feeds were last updated; and other information pertaining to the different data sources. The most recent ED data in ESSENCE is usually the previous day's data. Please note that if only some of the hospitals in your geographic area have reported their data at a particular time, this will have a direct influence on how you interpret the ED data.

Monitoring of data completeness is one of the first activities each morning at the Bureau of Epidemiology. If a hospital has not sent a file, or another problem is discovered, we will work with you and the hospitals to resolve it. If you observe a problem with ESSENCE, please contact ESSENCE Help ([Essence\\_Help@doh.state.fl.us](mailto:Essence_Help@doh.state.fl.us)) at the Florida Department of Health, Bureau of Epidemiology.

The next sections of this manual provide a basic step by step introduction to navigating through the ESSENCE system, and shares examples of the data analysis and visualization tools.

# Emergency Department Data

## A. ALERT LIST

The alert list provides a tabular view of alerts for eleven of the twelve syndromes in ESSENCE (it excludes the “other” category), and gives the user the ability to drill down into the data from the alert list page. The alerts are the result of statistical analyses performed within the ESSENCE system. ESSENCE uses the last 30-days as a baseline, minus the 2 most recent days, and compares the current data’s counts to that baseline to see if there is a statistically significant increase. A yellow flag indicates a statistically significant p-value between 0.01 and 0.05 while a red flag indicates a p-value of <0.01.

The statistical alerts presented on the Alert List page should be interpreted simply as there being a larger than expected number of ED visits for a particular syndrome category on a given day. This is an attempt to create an efficient way to scan through all the data automatically and tell the user where to focus additional review. However, statistical significance does not necessarily equal public health significance, and inevitably there are many alerts generated that do not warrant additional follow up with the hospital. It is up to the user to analyze the data and try to determine when additional follow-up and investigation is warranted. Appendix 1 provides an example of how to review alerts for the emergency department data in ESSENCE.

To begin navigating through the alert lists, click on the “alert list” icon.

*Note: For a more detailed explanation please see the paper by Howard Burkom in the Johns Hopkins APL Technical Digest (Volume 24; No. 4; 2003) “Development, Adaptation, and Assessment of Alerting Algorithms of Biosurveillance”. A google search of the title will return a few locations where the paper can be downloaded.*

### **Summary Alerts**

Click on “summary alerts” to see a graphical summary of syndromic alerts for the state of Florida and individual regions. *Please note: ESSENCE uses the term “region” in different ways throughout the system. In the summary alerts, region means Regional Domestic Security Task Force (RDSTF) region, but in the region/syndrome, hospital/syndrome and hospital/sub-syndrome time of arrival alert lists, region means county.*

**ESSENCE - Florida Alert List**

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**Temporal Alerts Summary**

[Summary Alerts | Region/Syndrome | Hospital Syndrome | Spatial | County/Caller Site | County/Generic Substance | Hospital/SubSyndrome Time of Arrival]

Description     Configuration Options

[  View Detection-Based Alerts |  View User-Based Events ]

ER											
Region Group	Bot_like	Exposure	Fever	GI	Hemr_ill	ILI	Injury	Neuro	Rash	Resp	Shk_coma
Florida	★★★★★★★★	★★★★★★★★★	★★★★★★★★★	★★★ ★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★
Region 1	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★
Region 2	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★
Region 3	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★
Region 4	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★
Region 5	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★
Region 6	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★
Region 7	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★	★★★★★★★★

Each cell of asterisks (\*) represents the past nine days for a given syndrome listed chronologically with the current day being on the far right. Asterisks will appear as grey, yellow or red. A yellow asterisk indicates a warning and a red asterisk indicates an alert that may warrant further investigation. When looking at the data across regions, please keep in mind that ED coverage can vary considerably.

The top tier of asterisks provides a sense of syndromic alert activity over time. By clicking on individual asterisks, you can further investigate the data used to generate the data point. The bottom tier of asterisks shows whether any event list entries have been posted in a particular region. In Florida, no events of public health importance are recorded in the Event List feature, so clicking on these asterisks will provide no information. For further details about the event list, see the “event list” section.

## Region/Syndrome

Click on “region/syndrome” to review alerts by county ([region = county](#)).

**ESSENCE - Florida Alert List**

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**Region/Syndrome Based Temporal Alerts**

[Summary Alerts | [Region/Syndrome](#) | Hospital Syndrome | Spatial | County/Caller Site | County/Generic Substance | Hospital/SubSyndrome Time of Arrival]

Description     Configuration Options

[ [Reset 3-Level Sorting](#) ]

Region/Syndrome Based Temporal Alerts												
Links	Date	Data Source	Region	Age	Sex	Syndrome	Detector	Level	Count	Expected	Observed / Expected	
Time Series	20Jun10	ER by Patient		20-34	All	Fever	Regression/EWMA 1.2	0.047	2	0.357	5.6	
Time Series	20Jun10	ER by Patient		35-54	All	Bot_like	Regression/EWMA 1.2	0.005	2	0.25	8	
Time Series	20Jun10	ER by Patient		75+	All	Bot_like	Regression/EWMA 1.2	0.017	2	0.321	6.222	
Time Series	20Jun10	ER by Patient		00-04	All	Injury	Regression/EWMA 1.2	0.019	37	26.536	1.394	
Time Series	20Jun10	ER by Patient		20-34	All	Injury	Regression/EWMA 1.2	0.022	77	57.786	1.333	
Time Series	20Jun10	ER by Patient		35-54	All	Exposure	Regression/EWMA 1.2	0.002	2	0.429	4.667	

In the Region/Syndrome view, and as in most tables like this in ESSENCE, you can sort alerts by any of the column headings. A maximum of three columns can be sorted at a time.

Note: The region column in the example above (and in other sections of this manual) has been blocked for confidentiality reasons. When you log into ESSENCE, you should be able to view this information.

### Other useful features within the “Region/Syndrome” view

#### a. Configuration Options:

**ESSENCE - Florida Alert List**

**Region/Syndrome Based Temporal Alerts**

[Summary Alerts | Region/Syndrome | Hospital Syndrome | Spatial | County/Caller Site | County/Generic Substance | Hospital SubSyndrome Time of Arrival]

Description	Configuration Options																							
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Clicking on the plus sign next to “configuration options” in the region/syndrome view will allow you to view alerts for selected regions, syndromes, age ranges, and start and end dates. *Leave the data source field as “all data sources” and the sex field as “all sexes”*. After you have made the necessary changes, click on “change configuration” to generate your new output. In the region/syndrome alert list, syndromes are often presented in an aggregated view for age. Within the configuration options, age can be delineated into subgroups.

#### b. Time Series:

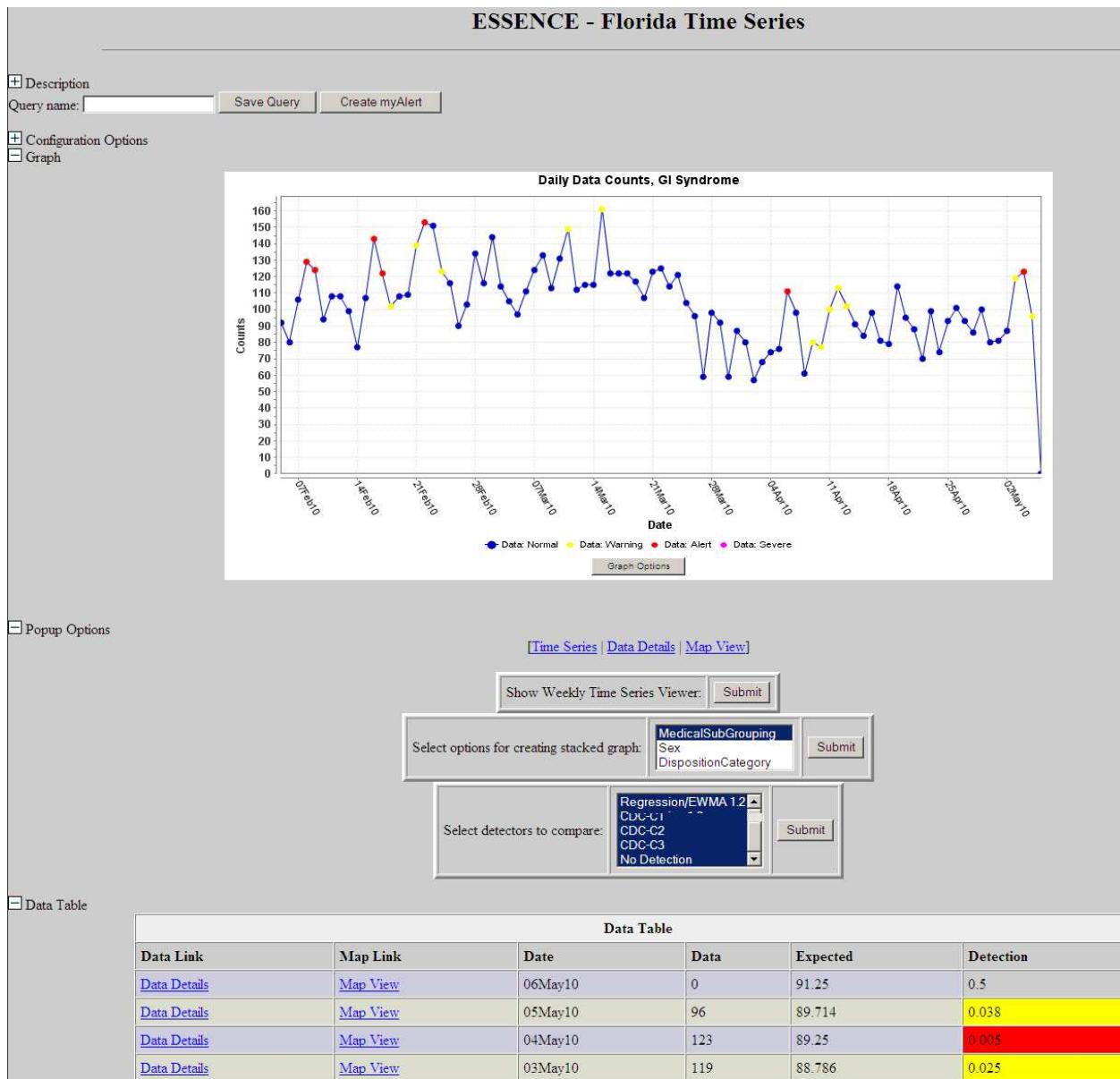
**ESSENCE - Florida Alert List**

**Region/Syndrome Based Temporal Alerts**

[Summary Alerts | Region/Syndrome | Hospital Syndrome | Spatial | County/Caller Site | County/Generic Substance | Hospital SubSyndrome Time of Arrival]

Description	Configuration Options																																																																																																							
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Clicking on “time series” for an alert displays a time series graph of the number of cases over time for the particular date and syndrome you selected. This is often called “drilling down” into the data, and is a good way to see how an alert compares to baseline data and previous alerts. Here is a time series graph that was generated by clicking on “time series”. The title of the graph and other details can be changed by clicking on *graph options* below the time series graph.



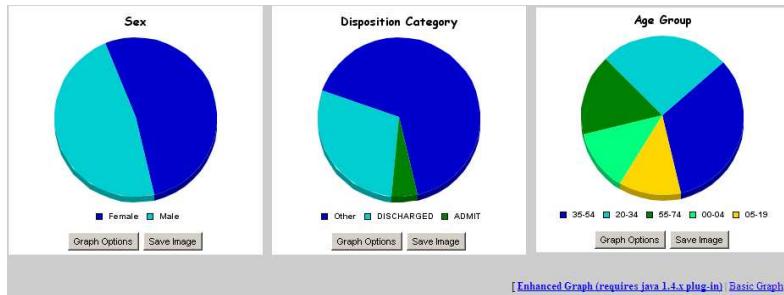
### c. Data Details:

There are three places where you can access the data details (line list) view. Directly below the time series graph generated in b (time series) above, you can click on “data details” to see a line list of the data in your query for the entire range of dates included in your time series. If you would like to see only one particular

day's data details, then you could either click on the data point in the graph or click the "data details" hyperlink in the data table below the time series graph.

Data Table					
Date Link	Map Link	Date	Data	Expected	Detection
<a href="#">Data Details</a>	<a href="#">Map View</a>	28Jun10	0	12.679	0.5
<a href="#">Data Details</a>	<a href="#">Map View</a>	27Jun10	19	12.357	0.033
<a href="#">Data Details</a>	<a href="#">Map View</a>	26Jun10	10	12.393	0.644

The following are examples of figures and a line list that can be generated by clicking on data details. Columns are blocked out for confidentiality reasons.



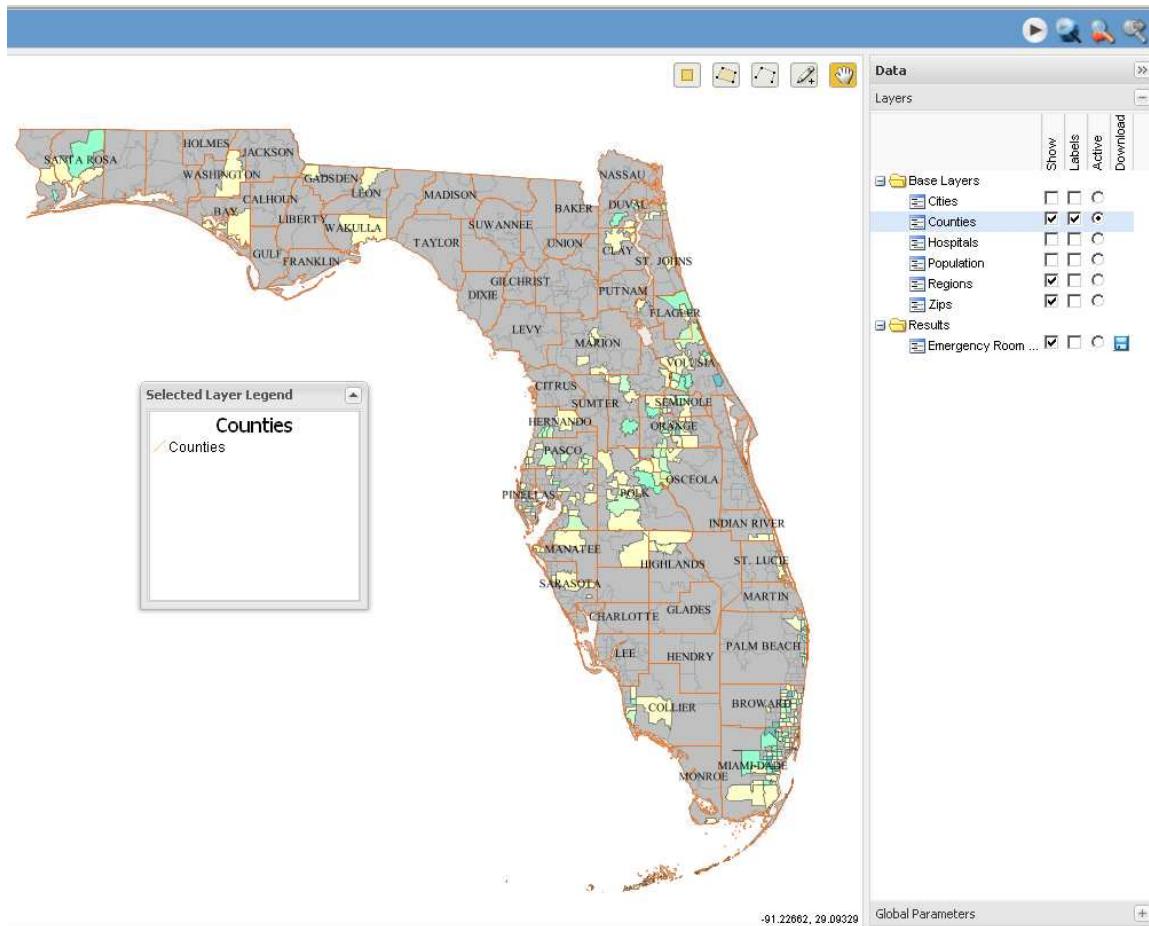
Date	Time	HospitalName	Region of the Hospital	Zipcode	Orig_Zipcode	Region	Age_Group	Age	Sex	ChiefComplaintOrig
12Feb10	04:48 AM						55-74	68	Male	RESPIRATORY DISTRESS
12Feb10	04:01 AM						55-74	71	Male	LEAKAGE FROM PROSTATE BIOPSY
12Feb10	03:05 AM						05-19	17	Male	PED VS AUTO/ BLAKE TRANSFER
12Feb10	02:05 AM						20-34	21	Female	BIT BY A SPIDER SWOLLEN AND PAINFUL AREA
12Feb10	01:51 AM						05-19	6	Female	STREP THROAT, COUGH
12Feb10	01:48 AM						00-04	0	Female	COLD
12Feb10	01:32 AM						35-54	49	Female	UPPER BACK PAIN

The line list information can also be sorted using the 3-sort function. Each case record has fields for date, admit time, zip code, age, chief complaint, patient identification number (PIN), etc. All of these data are essential for evaluating alerts. The PIN in particular can be used to determine if duplicate records occur in the dataset. It can also be used to facilitate communications among public health partners and hospital staff during follow up or investigations. The field "MedRecNo" is identical to the PIN, and both are a unique identifier for the patient and the patient's visit.

#### d. Map View:

Data Table						
Data Link	Map Link	Date	Data	Expected	Detection	
<a href="#">Data Details</a>	<a href="#">Map View</a>	28Jun10	0	12.679	0.5	
<a href="#">Data Details</a>	<a href="#">Map View</a>	27Jun10	19	12.357	0.033	
<a href="#">Data Details</a>	<a href="#">Map View</a>	26Jun10	10	12.393	0.644	

There are three locations where you will find map view hyperlinks. 1) is beneath the time series graph, 2) in the data table below the time series graph, and 3) on the data details (aka line list) page. Depending on your query, clicking on the map view will create a map of your data by either county or zip code.



Once in the map the user can zoom in by double clicking on the map, and zoom out using the “slider” on the left side of the map. At the top-center of the map above are 5 tools the user can select to drill down into the map for more information. These include select by square, select by polygon, select by path, select by point, and map grabber. The first 4 of these allow you to select parts of the map in different ways, and the selections you make will appear in a table below the map. The table will include some information about what you selected, and a time series link so that you can produce a time series view of the selected data for that geography. On the right-hand side you can see a column with “Layers” and “Global Parameters” selections via a “+” or “-“sign. These function allow the user to manipulate the map in various ways, including adding layers to visualize, changing the date range of the data displayed in the map, changing the algorithm that creates the color ranges, change the number of ranges, and lets you download the shapefile of the map you have created (click the picture of a disk under results). Once the shapefile is downloaded the user can import it directly into ArcMap for further manipulation.

## Hospital/Syndrome

Clicking on “Hospital / Syndrome” will allow you to view the previous 8 days of alerts **by reporting hospital**. This option offers additional focus (vs. Region) by further

individualizing the data. If an elevated number of cases in a particular syndrome are reported in a hospital's data, a yellow or red alert will appear and can be further investigated by clicking on the time series hyperlink.

The screenshot shows a table titled "Hospital/Syndrome Based Temporal Alerts". The columns include: Links, Date, Data Source, HospitalName, Region of the Hospital, Age, Sex, Syndrome, Detector, Level, Count, Expected, RareColor, RareLevel, NonZero, and Hospital. The table lists various alerts across different hospitals and syndromes, with some cells containing yellow or red background colors indicating alerts.

Clicking on the plus sign next to *configuration options* in the region/syndrome view will allow you to view alerts for selected regions, syndromes, age ranges, and start and end dates. Leave the data source field as “all data sources” and the sex field as “all sexes”. After you have made the necessary changes, click on “change configuration” to generate your new output. In the region/syndrome alert list, syndromes are often presented in an aggregated view for age. Within the configuration options, age can be delineated into subgroups. See the graphic below for a better idea of the selections a user can have with this option.

The screenshot shows the "Data Configuration" dialog box. It includes sections for Data Source (with dropdowns for All Data Sources, Hospital, Syndrome, Detector, Sex, Start Date, and End Date), and buttons for Change Configuration and Reset 3-Level Sorting.

## ED Spatial and Merlin Spatial Alerts

There are two spatial alert lists to choose from, 1) ED spatial alerts, and 2) Merlin spatial alerts. The spatial alert list is different from the temporal alert lists in that it only looks for clusters over space, in this case by zip code centroids. If a particular combination of zip codes has abnormally high counts of ED visits for a given syndrome as compared to many combinations of the surrounding zip codes, it may be noted as a

red or yellow alert. The alert list will present information on the p-value, the observed count, the number of zip codes in the cluster, and the center zip code in the cluster. The interface has the option to click a “map view” and “time series” view so that you can drill down into these data.

The difference between the ED spatial alerts and the Merlin spatial alerts is that the ED data are based on daily counts, and the Merlin data are based on weekly counts. Below the table of Merlin spatial alerts is a table that defines the column headings. *Note: For a more detailed explanation please see the paper by Howard Burkom in the Johns Hopkins APL Technical Digest (Volume 24; No. 4; 2003) “Development, Adaptation, and Assessment of Alerting Algorithms of Biosurveillance”. A google search of the title will return a few locations where the paper can be downloaded.*

ESSENCE - Florida Alert List										
Zipcode/Syndrome Based Spatial Alerts										
<a href="#">[Summary]</a> <a href="#">[Alerts]</a> <a href="#">[Region]</a> <a href="#">[Syndrome]</a> <a href="#">[Hospital Syndrome]</a> <a href="#">[Spatial]</a> <a href="#">[County]</a> <a href="#">[Caller Site]</a> <a href="#">[County]</a> <a href="#">[Generic Substance]</a> <a href="#">[Hospital SubSyndrome]</a> <a href="#">[Time of Arrival]</a>										
<a href="#">[Description]</a> <a href="#">[Configuration Options]</a>										
<a href="#">[Reset 3-Level Sorting]</a>										
Zipcode/Syndrome Based Spatial Alerts										
Links	Links	Date	Syndrome	Pvalue	Count	Number of ZipCodes	Cluster Size	Center ZipCode	Region	Data Source
<a href="#">[Map View]</a>	<a href="#">[Time Series]</a>	28Jun10	GI	0.012	3	4	9.3			ER by Patient
<a href="#">[Map View]</a>	<a href="#">[Time Series]</a>	28Jun10	Neuro	0.023	3	49	19.5			ER by Patient
<a href="#">[Map View]</a>	<a href="#">[Time Series]</a>	27Jun10	Bot_like	0.029	2	1	0			ER by Patient
<a href="#">[Map View]</a>	<a href="#">[Time Series]</a>	27Jun10	Exposure	0.013	2	13	7.2			ER by Patient
<a href="#">[Map View]</a>	<a href="#">[Time Series]</a>	27Jun10	Hemr_ill	0.007	2	16	7.1			ER by Patient
<a href="#">[Map View]</a>	<a href="#">[Time Series]</a>	27Jun10	Neuro	0.001	3	3	13.5			ER by Patient

## County Caller Site (Alert List for Poison Control Data)

ESSENCE - Florida Alert List									
County/Caller Site Based Temporal Alerts									
<a href="#">[Summary]</a> <a href="#">[Alerts]</a> <a href="#">[Region]</a> <a href="#">[Syndrome]</a> <a href="#">[Hospital Syndrome]</a> <a href="#">[Spatial]</a> <a href="#">[County]</a> <a href="#">[Caller Site]</a> <a href="#">[County]</a> <a href="#">[Generic Substance]</a> <a href="#">[Hospital SubSyndrome]</a> <a href="#">[Time of Arrival]</a>									
<a href="#">[Description]</a> <a href="#">[Configuration Options]</a>									
<a href="#">[Reset 3-Level Sorting]</a>									
County/Caller Site Based Temporal Alerts									
Links	Date	Data Source	County	Caller Site	Detector	Level	Count	Expected	
<a href="#">[Time Series]</a>	28Jun10	Poison Control Center		Public area	Regression:EWMA 1.2	0	3	0.179	
<a href="#">[Time Series]</a>	28Jun10	Poison Control Center		Public area	Regression:EWMA 1.2	0.001	2	0.036	
<a href="#">[Time Series]</a>	28Jun10	Poison Control Center		Unknown	Regression:EWMA 1.2	0.016	2	0	
<a href="#">[Time Series]</a>	28Jun10	Poison Control Center		Workplace	Regression:EWMA 1.2	0.002	2	0.071	
<a href="#">[Time Series]</a>	27Jun10	Poison Control Center		Other residence	Regression:EWMA 1.2	0	4	0.107	

These alerts are for the Poison Control (PC) data. They provide a snapshot of exposure calls made to the PIC by caller site. The alerts show if the number of calls on a particular day exceeds the baseline number of calls for a health care facility, workplace, school, residence, or public area in a particular county. You can examine a time series graph of the data by clicking on the time series link.

## County/Generic Substance (Alert List for Poison Control Data)

**ESSENCE - Florida Alert List**

**County/Generic Substance Based Temporal Alerts**

[Summary Alerts | Region/Syndrome | Hospital/Syndrome | Spatial | County/Caller Site | County/Generic Substance | Hospital/SubSyndrome Time of Arrival]

Description     Configuration Options

Reset 3-Level Sorting

County/Generic Substance Based Temporal Alerts								
Links	Date	Data Source	County	Substance	Detector	Level	Count	Expected
<a href="#">Time Series</a>	21Jun10	Poison Control Center		Arts-crafts-office supplies	Regression EWMA 1.2	0.03	1	0.286
<a href="#">Time Series</a>	21Jun10	Poison Control Center		Dietary supplements-herbals-homeopathic	Regression EWMA 1.2	0.048	2	0.429
<a href="#">Time Series</a>	21Jun10	Poison Control Center		Diuretics	Regression EWMA 1.2	0.001	2	0.214
<a href="#">Time Series</a>	21Jun10	Poison Control Center		Alcohols	Regression EWMA 1.2	0.008	2	0.214
<a href="#">Time Series</a>	21Jun10	Poison Control Center		Other-unknown nondrug substances	Regression EWMA 1.2	0.006	2	0.179

This feature also provides alerts for the PC data. It gives users a snapshot of exposure calls made to the Poison Control Center by chemical substance.

## Hospital/Sub-Syndrome Time of Arrival

**ESSENCE - Florida Alert List**

**Hospital/SubSyndrome Based Temporal Alerts**

Last Updated: September 21, 2010 9:53 AM

[Summary Alerts | Region/Syndrome | Hospital/Syndrome | Spatial | Merlin Spatial | County/Caller Site | County/Generic Substance | Hospital/SubSyndrome Time of Arrival]

Description     Table Configuration Options     Configuration Options

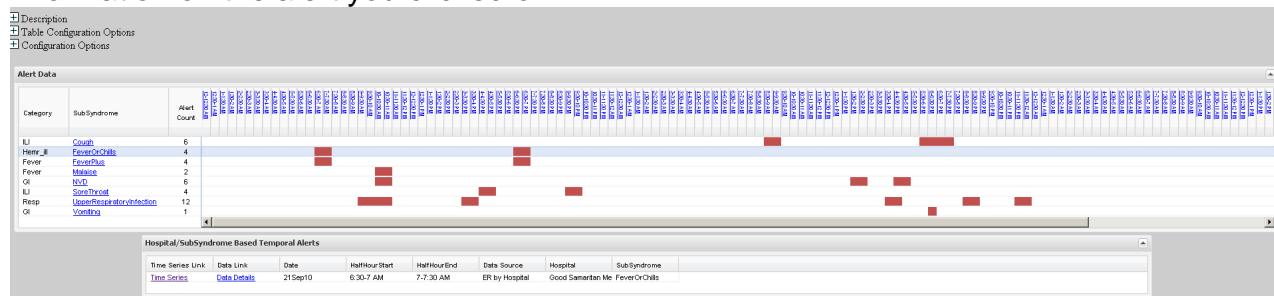
**Data Configuration**

Hospital:	<input type="button" value="All Hospitals"/> Arnold Palmer Hospital for Children Aventura Hospital and Medical Center Baptist Hospital of Miami Baptist Medical Center- Beaches	SubSyndrome:	<input type="button" value="All SubSyndromes"/> Abdominal Pain AcuteBloodAbnormalities AcuteBronchitis Agitation
Time Interval:	<input type="button" value="All Time Intervals"/> 12:12-30 AM 12:30-1 AM 1-1:30 AM 1:30-2 AM		
Start Date:	19Sep10 <input type="button" value=""/>	End Date:	21Sep10 <input type="button" value=""/>
<input type="button" value="Change Configuration"/>			

The hospital/sub-syndrome time of arrival alert list looks for clustering of patients based on the time they arrive at the hospital ED. Analysis of these data is by hospital, patient sub-syndrome, and the time the patient arrived at the ED. A minimum of 4 visits is required to produce an alert (i.e.  $p\text{-value} \leq 0.0001$ ). This tool will help find clusters of patients who arrive at a hospital with similar symptoms and within a small time interval, but whose total volume is not enough to create a statistical alert in the daily total alert lists. The development of this tool was based on known outbreaks that were detected using a manual version of this approach.

Make the selections you would like from the available fields in the data configuration view, and then click “Change Configuration.” When the table loads you will see on the left side Region (i.e. county), Hospital, and Alert Count. Along the top are the 30 minute time intervals, which is the minimum time interval used in the time of arrival analysis. You can change this table view by clicking on the “+” sign next to “Table Configuration Options”, and then selecting sub-syndrome in the row field drop down. Open the “+” next to “Configuration Options” and click change configuration to update the table view.

The red boxes in the table are the time intervals where a statistical alert was produced. To drill down, click on the red box. A table will load at the bottom of the page with the information on the alert you clicked on.

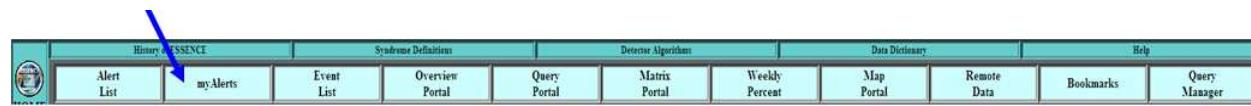


Follow the time series or data details link for additional information on these data.

## Reviewing Alerts in ESSENCE

Please refer to Appendix 1 to see a flowchart of how to analysis syndromic surveillance alerts in order to identify possible events of public health importance.

## B. MY ALERTS



The alert list feature (described in A - alert list above), provides alerts for eleven of the twelve syndrome categories in ESSENCE. "myAlerts" on the other hand, allows users to customize which stratifications of the ESSENCE data they are interested in monitoring for routine daily surveillance. It also enables users to set criteria for alerting that include statistical thresholds, minimum counts, and consecutive days of alerting. Alerts can be created for the standard syndrome and sub-syndrome categories, free text queries of the ED data, as well as for any of the other data sources available in ESSENCE.

### Creating myalerts and Records of Interest

To create a my alert for a sub-syndrome category (for example),

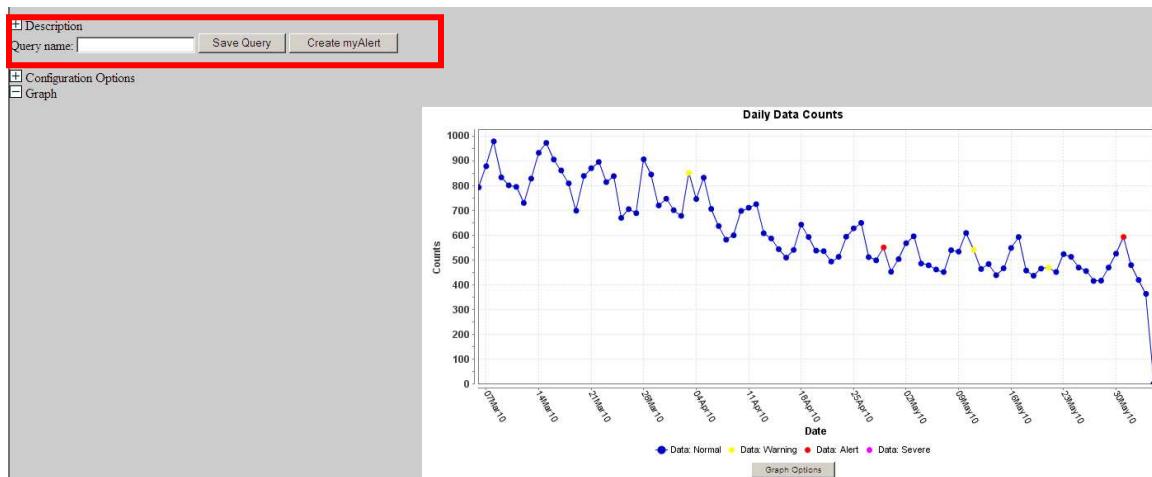
- 1) Click on query portal, and then select your data source. Data sources include emergency room data, Merlin reportable disease data, Poison Control data, and death data.
- 2) In the next screen select your geography system and the medical grouping system "chief complaint sub-syndrome". You may also select one of the five time resolution options to examine daily, weekly, monthly, quarterly, and yearly time resolutions of the data. Statistical alerting algorithms only work on daily and weekly time resolutions. For weekly time resolutions consider using CDC-C2. When done, click submit.

Next Selections:			
Select Geography System:	HospitalRegion	Select Medical Grouping System:	ChiefComplaintSubSyndromes
Select Time Resolution:	Daily		
		<input type="button" value="Submit"/>	<input type="button" value="Adv Qry"/>

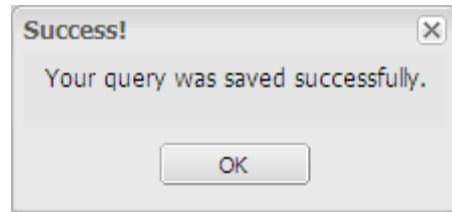
- 3) In the next screen, choose the sub-syndrome for which you wish to create the alert from the “select chief complaint sub-syndromes” field, make all other desired selections and click on time series at the bottom of the page.

Next Selections:			
Select Region of the Hospital:	All Region of the Hospitals Alachua, FL Baker, FL Bay, FL Bradford, FL	Select ChiefComplaintSubSyndromes:	All ChiefComplaintSubSyndromes AbdominalPain AcuteBloodAbnormalities AcuteBronchitis Agitation
Select Detector:	Regression/EWMA 1.2	Select Age Group:	All Age Groups Unknown 00-04 05-19 20-34
Select Age Range:	Equal	Select Sex:	All Sexes Female Male Unknown
Select Disposition Category:	All Disposition Categories ADMIT DECEASED DISCHARGED Other	Select Discharge Diagnosis:	all
Select Time Interval:	All Time Intervals 12-12:30 AM 12:30-1 AM 1-1:30 AM 1:30-2 AM		
Select Start Date:	30Mar2010	Select End Date:	28Jun2010
<input type="button" value="Table Builder"/> <input type="button" value="Time Series"/> <input type="button" value="Data Details"/> <input type="button" value="Overview Portal"/> <input type="button" value="Adv Qry"/>			

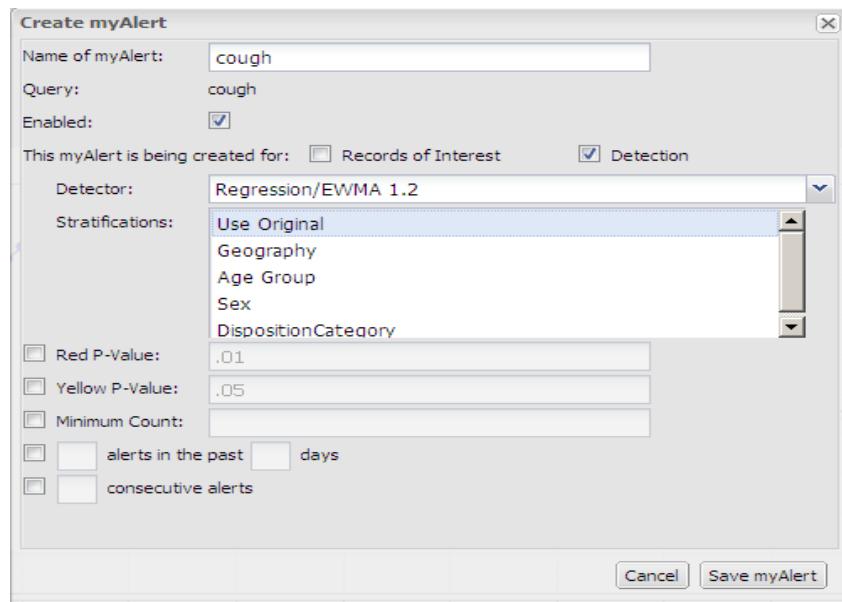
- 4) In the next screen, you will notice at the top of the time series graph a “query name” field. Type in the name of your query and click “save query”.



If your query was successfully saved, you will see a dialog box similar to this:



Click OK. To create your sub-syndrome alert, click on the “create myalert” button on the same page. The “create myalert” dialog box will pop up. Here, you can check the box next to detection, choose a variable by which to stratify the detection algorithm, select threshold p-values (or leave as default), and/or input the minimum count of ED visits for which the alert should be created, then click save my alert to save the alert. You could also check the box next to “records of interest” (discussed below) if you are interested in monitoring rare events with small counts. Your myalerts may be accessed and monitored routinely through the “my alerts” feature in the main toolbar.



Alternatively, once you have clicked on the save query button and your query has been successfully saved, you can click on the “query manager” tab in the main toolbar where you can create the alert. If you have some previously saved queries, your new query will appear at the bottom of the list. Check the check box next to your query name and click on “create myalert” at the top of the page.

Multiseries Time Series	Create myAlert	Delete	Link	Link (Today)	Date Created	Start Date	End Date
<input type="checkbox"/> Label							
<input type="checkbox"/> Total ED census	<a href="#">Show</a>	<a href="#">Show (Today)</a>			20Jan10	22Oct09	20Jan10
<input type="checkbox"/> ILI by Hospital	<a href="#">Show</a>	<a href="#">Show (Today)</a>			21Jan10	01Aug09	31Oct09

*Creating alerts for your free text queries:*

To create a my alert for your free text query, select “chief complaints” as the medical grouping system in step 3 above, click submit and in the next screen, enter your free text query in the “select chief complaints” field.

Current Data Query Selections			
Data Source	Emergency Room Data by Hospital Location	Geography System	HospitalRegion
Medical Grouping System	ChiefComplaints	Time Resolution	Daily
Next Selections:			
Select Region of the Hospital:	All Region of the Hospitals ▾ Alachua, FL Baker, FL Bay, FL Bradford, FL	Select ChiefComplaints:	<input type="text" value="all"/> Write your free text query here
Select Detector:	Regression/EWMA 1.2 ▾	Select Age Group:	All Age Groups ▾ Unknown 00-04 05-19 20-34
Select Age Range:	Equal ▾	Select Sex:	All Sexes ▾ Female Male Unknown
Select Disposition Category:	All Disposition Categories ▾ ADMIT DECEASED DISCHARGED Other	Select Discharge Diagnosis:	<input type="text" value="all"/>
Select Time Interval:	All Time Intervals ▾ 12-12:30 AM 12:30-1 AM 1-1:30 AM 1:30-2 AM	Select Start Date:	12Mar2010
		Select End Date:	10Jun2010
<input type="button" value="Table Builder"/> <input type="button" value="Time Series"/> <input type="button" value="Data Details"/> <input type="button" value="Overview Portal"/> <input type="button" value="Adv Qry"/>			

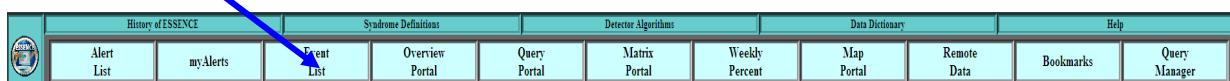
Proceed to steps 4 and 5 as outlined above.

*Records of Interest:*

“Records of interest” allows ESSENCE to produce a line list of ED visits in ESSENCE that match a specific query. It is useful in those instances where the user wants to review each ED visit for a particular query. For instance, if you want to look at any ED visits with specific reportable disease names, you would use the record of interest feature. The “records of interest” feature is useful for monitoring rare events with small counts.

To create a record of interest, follow the same steps as you would to create an alert (steps 1 through 5 above). In the “create myalert” pop up (shown in step 5 above), check the box next to “records of interest” and click “save myalert”.

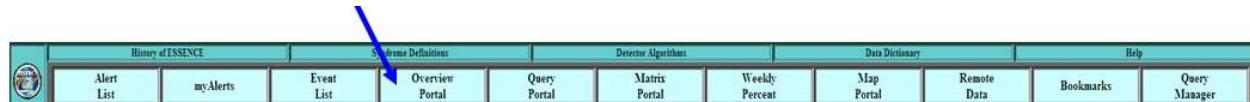
## **C. EVENT LIST**



The purpose of the event list feature in ESSENCE is to allow users who find alerts or other information in the system that may warrant further attention to complete an entry describing their findings or recommendations. The event list is not currently promoted for use in Florida because of its similarity to our existing system EpiCom. However, if users would like, they are welcome to use the event list if they feel it would benefit them locally. Contact ESSENCE Help ([Essence\\_Help@doh.state.fl.us](mailto:Essence_Help@doh.state.fl.us)) if you would like more information. EpiCom includes a syndromic surveillance forum, and we encourage ESSENCE users to post their ESSENCE related work in this forum.

In states where this feature is utilized, users can view events within the summary alerts feature in alert list. These events would show up in the second tier of asterisks (please see section A on alert list above). In Florida ESSENCE, clicking on any of these asterisks would not return any meaningful results.

## **D. OVERVIEW PORTAL**

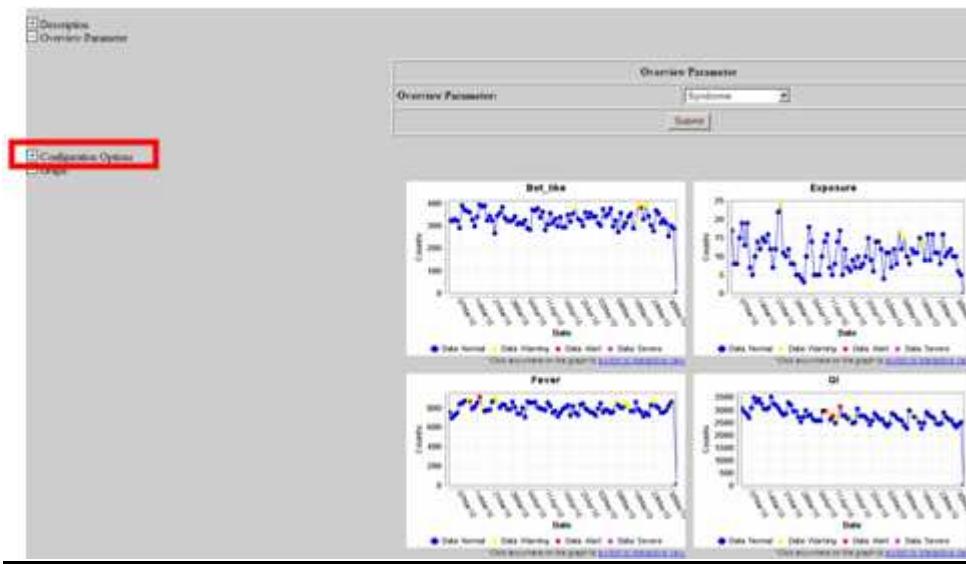


Overview portal allows a user to examine multiple time series graphs for the previous three months (a default time frame). Some of the parameters for which these time series can be created are region of the hospital (county), syndrome, and medical subgrouping. The medical subgrouping option enables the user to view graphs by sub-syndrome. Sub-syndromes are clinically defined subgroupings of the twelve main ESSENCE syndromes.

There are two main ways to get to the overview portal. One way is through the query portal, and the other is through the overview portal tab in the main toolbar.

To access the overview portal through the query portal,

- 1) Click on “query portal” in the main toolbar
- 2) Select your desired data source option
- 3) Next, choose a geography system, a medical grouping system, and a time resolution
- 4) In the next screen, make all necessary selections and change the date range if need be, then click on “overview portal” at the bottom of the page
- 5) Once the graphs appear on the screen, you may go back and change your previous selections by clicking on the plus sign next to configuration options.

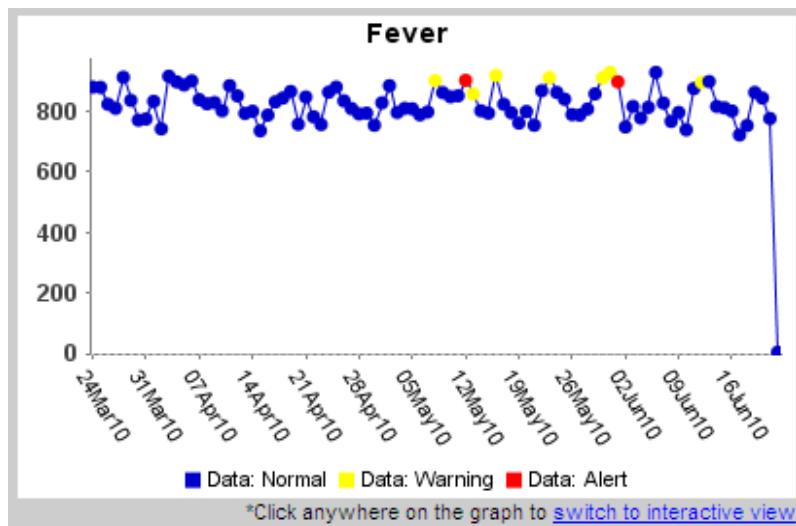


The other way to get to the overview portal, clicking on the overview portal icon in the main toolbar, provides a quick way to visualize time series graphs stratified on a specified parameter (hospital, region, syndrome, medical subgrouping, age group, sex, or disposition category).

Note: this is not a good way of getting to the Merlin data in ESSENCE at this time, as it defaults to certain selections that most users would want to change. A better approach for the Merlin data is through the query portal, described later.

- 1) Click on “overview portal” in the main toolbar
- 2) Select a data source
- 3) Select an overview parameter in the next screen and click submit.

You can click on any portion of one of the small graphs (or click on “switch to interactive view” at the bottom right corner of the graph) to activate the graph and examine the data more closely.



ESSENCE also allows you to bookmark your queries so that you don't have to repeat all of these steps each time. At the top of each page is the bookmark page button:



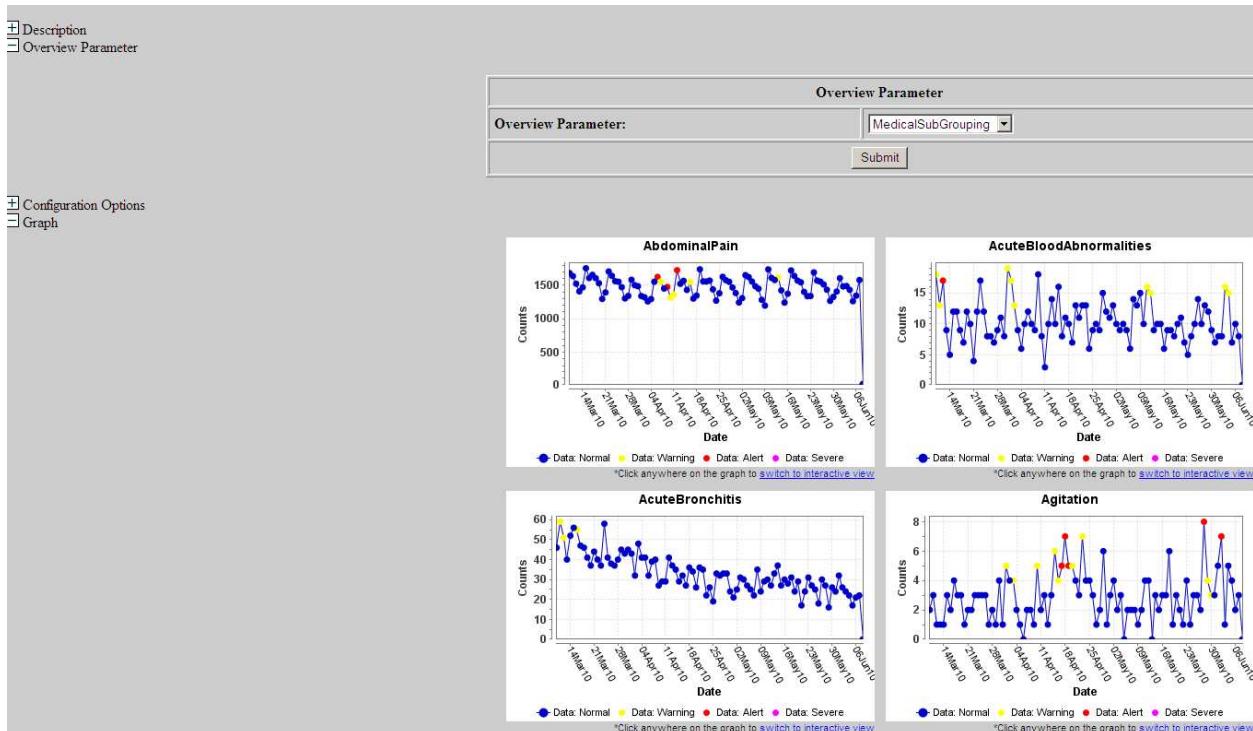
Type in the name you would like to give the query and click on "bookmark page". Bookmarks can be accessed by clicking on the bookmarks link in the main toolbar.

### **Using the overview portal, practical example:**

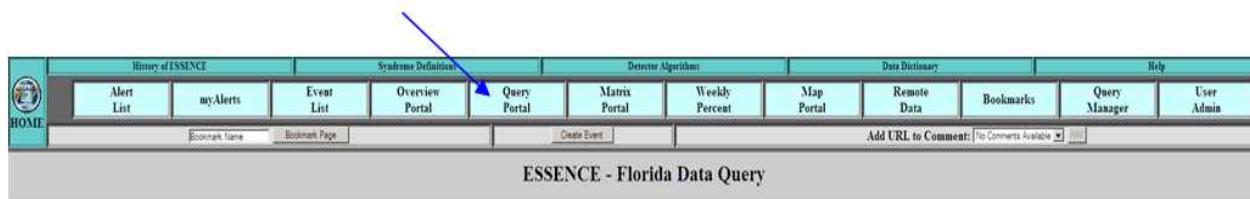
One use of ESSENCE is for situational awareness. You may want to monitor the ESSENCE syndromes and sub-syndromes to identify potential events of public health importance. The simplest way to do this is to use the overview portal to obtain small graphs stratified on your variable of interest. In this example, we will look at graphs of sub-syndromes to see if there are any alerts that may require further investigation.

- 1) Click on the overview portal tab in the main toolbar
- 2) For this example, choose your data source as either "emergency room data by patient location" or "emergency room data by hospital location". The first option will only provide the ED data for patients who provided a zip code or county of residence within Florida when they visited the ED, but the second option, "emergency room data by hospital location", will give you information on all ED visits irrespective of the patient's county of residence and provides more complete data than the first data source option
- 3) Select "medical subgrouping" from the list of overview parameters and click submit. This should return graphs of all the sub-syndromes in ESSENCE. You can click on any portion of any of the graphs, and then click on a data point on the graph to examine the data for a particular day more closely. You can also change your date range and other parameters by going to the configuration options. In the screen

shot below, only 4 of the <100 sub-syndrome graphs generated by ESSENCE are shown.



## E. QUERY PORTAL



The query portal allows users to perform various searches of Florida data in ESSENCE. Based on your level of access, you may view and analyze emergency department data, Merlin reportable disease data, Merlin limited view reportable disease data (for hospital users), death records data, and/or Poison Control data.

This section focuses on emergency department (ED) data. Subsequent sections will explain how to analyze Merlin reportable disease and Poison Control data.

To access the ED data,

- 1) Click on “query portal” in the main toolbar.
- 2) Select data source.

Next Selections:	
Select Data Source:	<input type="button" value="Emergency Room Data by Patient Location"/>
<input type="button" value="Submit"/>	

The first three options in the data source list provide access to the ED data. “Emergency room data by patient location”, categorizes the ED visits by the patient’s location (zip code and county). This option will only provide the ED data for patients who provided a zip code or county of residence within Florida when they visited the ED. The second option, “emergency room data by hospital location”, will give you information on all ED visits irrespective of patient zip code or county of residence. This second option provides more complete data than the first data source option. The third option, “percentage ER data by hospital location”, will give you the percentage of all ED visits that are attributable to a particular medical grouping for a given hospital or grouping of hospitals. The next three options will allow you to access the Merlin reportable disease, Poison Control and death records data, which will be discussed later in this manual. In the example below, we will select the “emergency room data by hospital location” option.

- 3) In the next screen, select a geography system, a medical grouping system, and a time resolution option.

For the geography system, you can select “hospital region”, which will allow you to select a county or grouping of counties. You can also select “hospital” if you would prefer to see graphs of the ED data for a particular hospital or hospital grouping.

Time resolution allows you to look at daily, weekly, monthly, quarterly or yearly time resolutions of ESSENCE data.

For the medical grouping, you have the option of selecting one of three medical groupings: ESSENCE syndromes, chief complaint sub-syndromes, or chief complaints. The first two options bring you to pre-categorized groupings of chief complaints. The ESSENCE syndromes include 12 syndrome categories, and the sub-syndrome groupings include over 100 sub-syndrome categories. For more information on the syndrome definitions, please click on the syndrome definitions link at the top of the page.

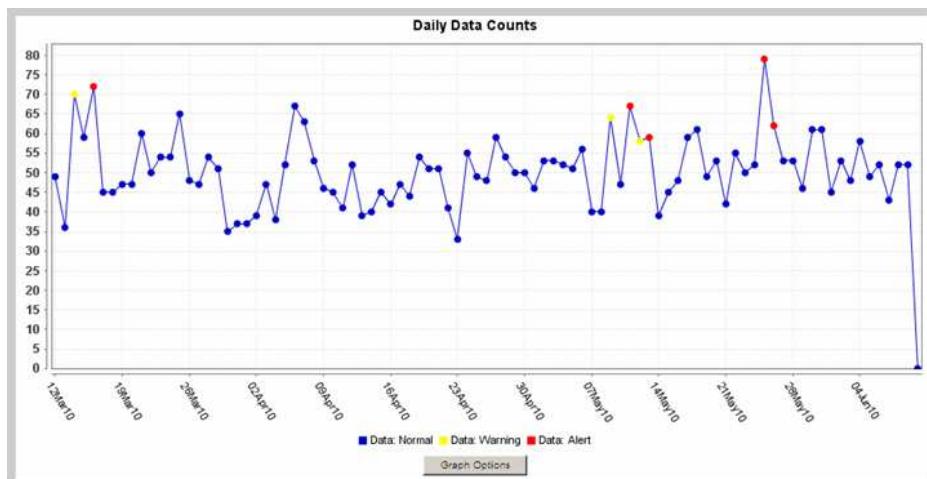
We will focus on “ESSENCE syndromes” for now and discuss the other two options later. Once you have made all the necessary selections, click submit.

Next Selections:			
Select Geography System:	<input type="button" value="HospitalRegion"/>	Select Medical Grouping System:	<input type="button" value="ESSENCE Syndromes"/>
Select Time Resolution:	<input type="button" value="Daily"/>	<input type="button" value="Submit"/> <input type="button" value="Adv Qry"/>	

- 4) In the next view, you can select your variables of interest. *Please note that in the query portal “region” means county.* If the age group you want to look at is not one of the pre-set age categories, click on the “select age range” drop down menu to customize the age or age range.

Next Selections:			
Select Region of the Hospital:	All Region of the Hospitals Alachua, FL Baker, FL Bay, FL Bradford, FL	Select Syndrome:	All Syndromes Bot-like Exposure Fever GI
Select Detector:	Regression/EWMA 1.2	Select Age Group:	All Age Groups Unknown 00-04 05-19 20-34
Select Age Range:	Equal	Select Sex:	All Sexes Female Male Unknown
Select Disposition Category:	All Disposition Categories ADMIT DECEASED DISCHARGED Other	Select Discharge Diagnosis:	all
Select Time Interval:	All Time Intervals 12-12:30 AM 12:30-1 AM 1-1:30 AM 1:30-2 AM		
Select Start Date:	24Mar2010	Select End Date:	22Jun2010
<input type="button" value="Table Builder"/> <input type="button" value="Time Series"/> <input type="button" value="Data Details"/> <input type="button" value="Overview Portal"/> <input type="button" value="Adv Qry"/>			

To make multiple selections of any of the variables, hold the control key down on your keyboard and click on your choices. For example, to select both the admit and deceased disposition categories, hold the control key down and click on admit and deceased. Select a minimal number of syndrome categories from the “select syndrome” field to avoid duplication of data. Once you have made all your selections, you can click on “time series” at the bottom of the page to see a time series graph of the data.



Alternatively, you could click on “table builder” to see a tabular view of the data. Once you have clicked on table builder, you would need to select a column variable and a row variable in the next screen and click on “create table”. The tables that ESSENCE will generate can contain up to 30,000 cells at a time and will look similar to this:

Data Table													
		Syndrome											
Date	Show Totals	Show Totals											
		Bot_like	Exposure	Fever	GI	Hemr_ill	ILI	Injury	Neuro	Other	Rash	Resp	Shk_coma
14Nov09		229	11	811	2069	9	623	2027	667	7012	221	1899	192
15Nov09		236	12	923	2408	11	717	2001	633	7290	256	2242	188
16Nov09		281	16	826	2641	10	750	1868	812	8564	248	2470	174
17Nov09		293	13	802	2417	11	694	1801	772	7775	247	2230	206
18Nov09		331	11	800	2372	6	634	1719	752	7573	216	2124	202

Clicking on “data details” would produce pie charts, bar graphs and a line list of the data.

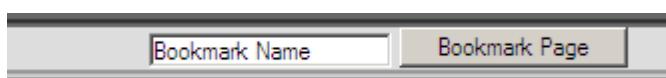
Clicking on “overview portal”, will take you to the following screen:

Overview Parameter	
Overview Parameter:	<input type="button" value="Region of the Hospital"/>
<input type="button" value="Submit"/>	

Here, you could click on the drop down menu to select a variable by which to stratify the data. For example, if you select “region of the hospital” ESSENCE would stratify the data by county and produce 67 graphs, each representing a county in Florida.

*Creating a bookmark for your query:*

Once you have run a query, you can bookmark that query so that you don’t have to go through all of the steps each time. You can do this by typing in the name you would like to give the query and clicking on “bookmark page” in the top left corner of the page below the main toolbar.



You can access your bookmarks later by clicking on the bookmarks tab in the main toolbar.

### Free text chief complaint queries

Current Data Query Selections			
Data Source	Emergency Room Data by Hospital Location	Geography System	HospitalRegion
Medical Grouping System	ChiefComplaints	Time Resolution	Daily
Next Selections:			
Select Region of the Hospital:	All Region of the Hospitals Alachua, FL Baker, FL Bay, FL Bradford, FL	Select ChiefComplaints:	<input type="text" value="all"/> Write your free text query here
Select Detector:	Regression/EWMA 1.2	Select Age Group:	All Age Groups Unknown 00-04 05-19 20-34
Select Age Range:	Equal <input type="text"/>	Select Sex:	All Sexes Female Male Unknown
Select Disposition Category:	All Disposition Categories ADMIT DECEASED DISCHARGED Other	Select Discharge Diagnosis:	<input type="text" value="all"/>
Select Time Interval:	All Time Intervals 12-12:30 AM 12:30-1 AM 1:130 AM 1:30-2 AM	Select Start Date:	12Mar2010
Select End Date:		Select End Date:	10Jun2010
<input type="button" value="Table Builder"/> <input type="button" value="Time Series"/> <input type="button" value="Data Details"/> <input type="button" value="Overview Portal"/> <input type="button" value="Adv Qry"/>			

ESSENCE data can also be queried using words or strings of words known as free text queries. To query the free text chief complaints,

- 1) Click on “query portal” in the main toolbar.
- 2) Select ED data source.
- 3) Select a geography system, a medical grouping system, and a time resolution. To query the free text, you will need to select the “chief complaint” medical grouping and then click submit.
- 4) Next, in the “select chief complaints” field, you can type in your free text chief complaint query using wildcards (^) and Boolean operators, examples of which are “and”, “andnot”, “or”. The purpose of the “^”, or wildcard symbol, is to tell the system that you want to see chief complaints with the word(s) enclosed in the “^”, plus any other words. If you don’t use the “^”, then you will only get chief complaints with that specific word(s). Wildcards and Boolean operators must be separated by commas. Examples of a few free text queries include:

Carbon monoxide poisoning:

^carbon^,or,^carbon monoxide^

Fever and stiff neck:

^fever^,and,^stiff neck^,or,^mening^

Pneumonia without mention of aspiration pneumonia:

^pneumonia^,andnot,^aspiration^

To make multiple selections of any of the variables, hold the control key down on your keyboard and select your choices, which will all be highlighted in blue.

You can also write more complex queries based on your specific needs. Please see *appendix 2* for additional examples of free text queries. After you have typed in the free text query and made all the necessary changes to the other fields, you can click on “time series” at the bottom of the page to see a time series graph of the data.

You can click on the “data details” hyperlink directly below the time series graph to see a line list of ED visits for your query for the entire range of dates included in your time series. If you would like to see only one particular day’s data details, then you could either click on the data point in the graph or click the “data details” hyperlink in the data table below the time series graph.

To change your previously made selections, click on the plus sign next to *configuration options* above the time series graph. You can also click on the plus sign next to *description* to see a summary of all variable selections you have made to generate your results.

### **Querying the discharge diagnoses:**

Although hospitals do not usually report patient discharge diagnoses at the time data files are transmitted to ESSENCE, this information is later uploaded into the system when it is available (for most hospitals). As such, discharge diagnoses can be queried in ESSENCE, just like the free text chief complaints. To query the discharge diagnoses,

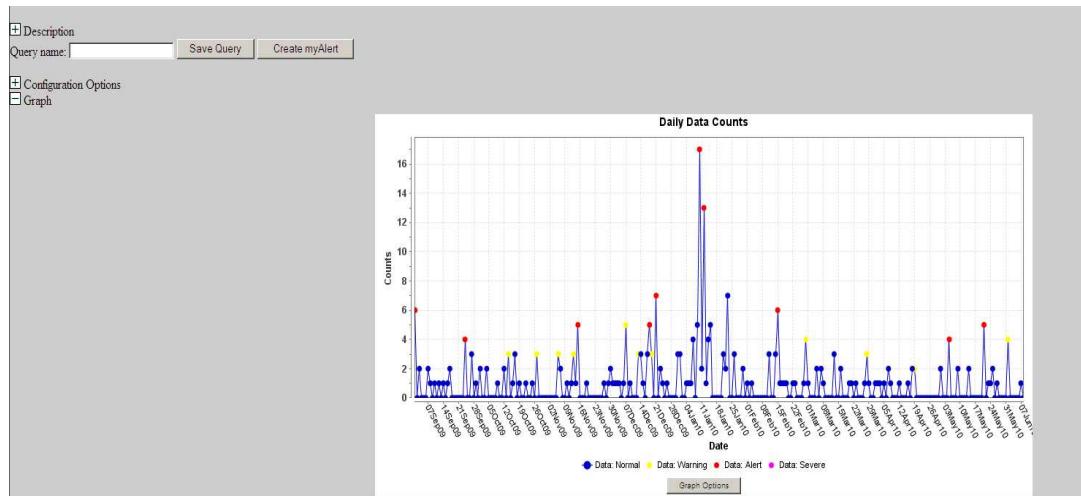
- 1) Click on “query portal”.
- 2) Select your data source.
- 3) Select a geography system, time resolution and “chief complaints” as a medical grouping system. In the “select discharge diagnosis” field, you can type in your free text discharge diagnosis using wildcards and Boolean operators, just like you, make all the necessary changes to the other fields and proceed as described in step 5 above.

*NOTE: Any analysis includes a certain set of limitations and assumptions. Please take a moment to consider the limitations associated with chief complaint data mentioned in the introduction section of this document.*

### **Using the query portal, practical example:**

Suppose you have heard that unsafe attempts at home heating in Florida lead to an increase in carbon monoxide poisoning in January, and you want to explore this issue.

- 1) First, click on “query portal in the main toolbar.
- 2) Next, select “emergency room data by hospital location” as your data source option and click submit.
- 3) Then select “chief complaints” as your medical grouping system to allow you to specifically query ESSENCE for ED visits pertaining to carbon monoxide. Since you would like to look at trends for the entire state, you can leave the geography system as “hospital region”. To examine the data for a particular hospital or hospital grouping, you would select “hospital” as a geography system.
- 4) In the next screen, type your free text query in the “select chief complaints” field. For this example, we will use ^carbon^,or,^carbon monoxide^ to find ED visits related to carbon monoxide. Also leave the “select region of the hospital” as the default, “all regions of the hospitals” and leave all the other fields as the default, unless you want to look at specific stratifications of the data. The time period in this example is September, 2009 through June, 2010.



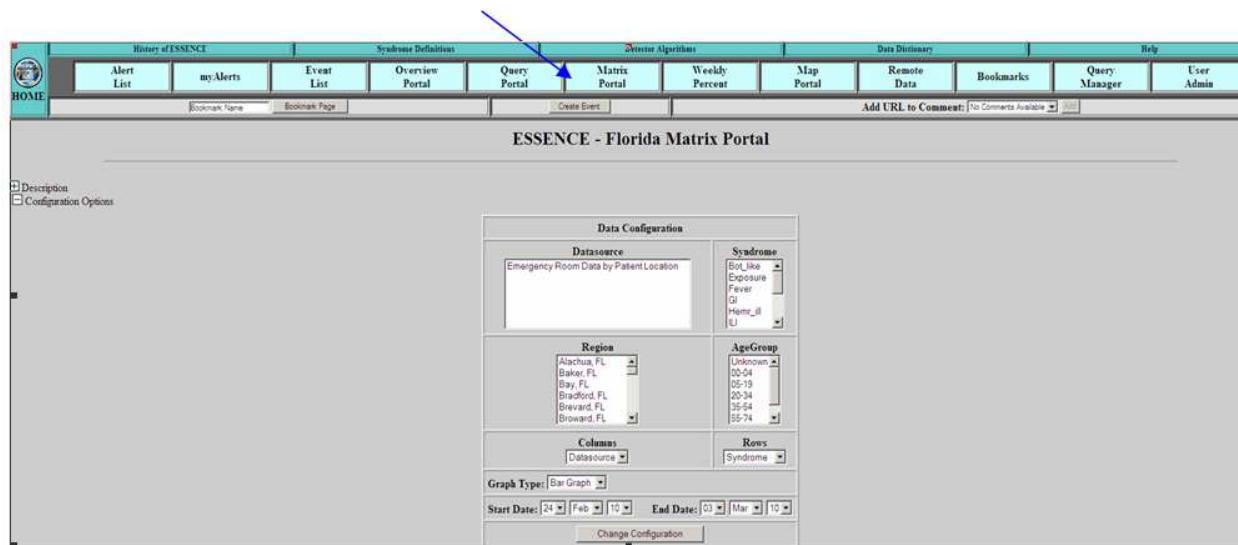
As you can see from the time series graph, there were significantly higher numbers of ED visits associated with carbon monoxide poisoning than expected in the month of January. You can click on the “data details” hyperlink directly below the time series graph to see a line list of ED visits for your query for the entire range of dates included in your time series. If you would like to see only one particular day’s data details, then you could either click on the data point in the graph or click the “data details” hyperlink in the data table below the time series graph. This information can be used along with supporting information from other sources to determine whether interventions should be aimed at a particular geographic area and/or demographic group. A map view might also be helpful in this case (not shown).

This example is only one of many ways the query portal can be used. As you explore this feature, you will identify other utilities that will benefit your geographic area.

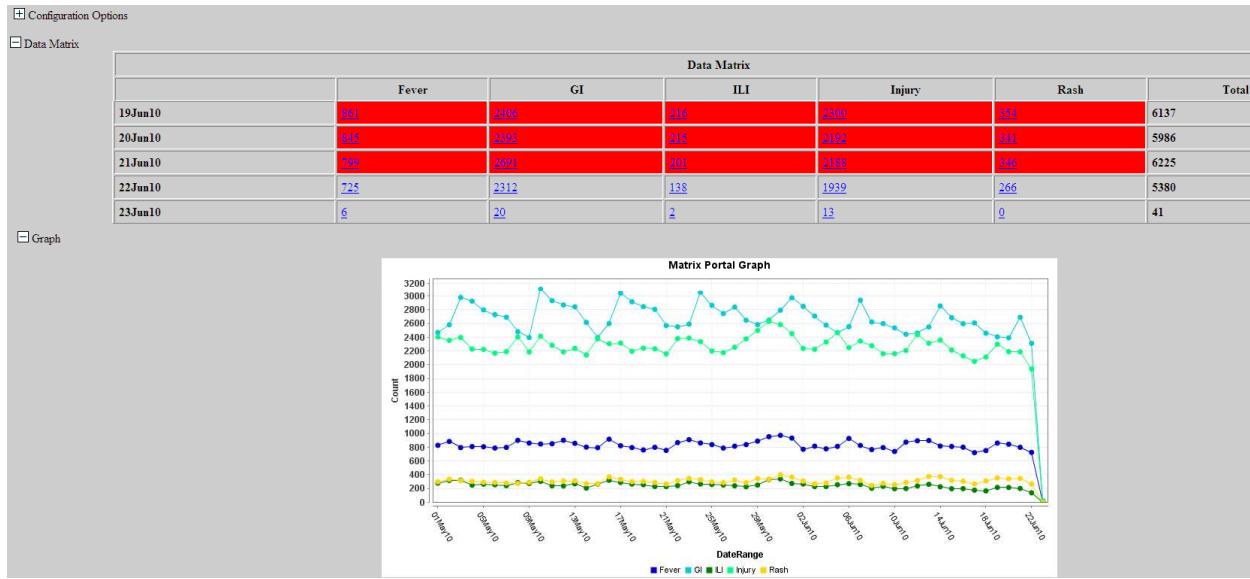
Again, please remember that the nature of chief complaint text may vary by hospital, and the free text chief complaint queries may change based on language used in the chief complaints from your particular jurisdiction. It is therefore important to be familiar with the chief complaints from your area to find the best combination of terms that will provide the best results for a query.

## **F. MATRIX PORTAL**

The matrix portal allows you to create a custom report for ER data by patient location along with a bar chart or line graph for your county of choice. To look at aggregate data for all the counties, please select all the counties in the region field. Also, select all the age groups if you are not interested in looking at the data for any one age group. Below is one example of a line graph, but many different line graphs and bar charts can be created in the matrix portal.



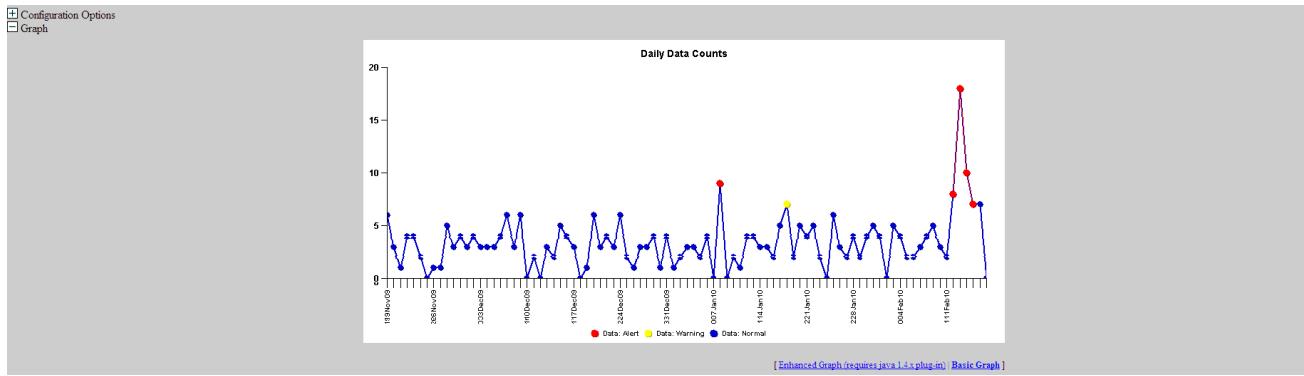
- 1) To create a line graph that shows all ED visits for Florida by syndrome for a particular time period in matrix portal, first click on “matrix portal” in the main toolbar, and then select “emergency room data by patient location”. This is the only data source option available. Holding the control key down on your keyboard, click on your syndromes and age groups of choice. To create a graph for the entire state, please select all regions. In the columns category, select “syndrome” and in the rows category, select “date range”. Select “line graph” from the graph type field. In the start date and end date section enter the time period of interest and click on “change configuration” below the date fields.
- 2) At the top of the matrix portal page, you will see a description of everything included in the data table. Scroll down to see the data matrix and line graph. The matrix shows all of the cells in which a red or yellow alert has occurred. The graph is a line graph that shows the trend in each syndrome during the specified period for the state of Florida. Here, only a small section of the data table is shown.



- 3) By clicking on a cell within the data matrix, you will see a table with hyperlinks for ESSENCE to create a time series graph, data details (line list), map view, or an alert list.



- 4) By selecting the time series option, you can see the time series for the last three months of available data, including the time period selected within the matrix portal. By selecting data details (not shown), ESSENCE will produce pie charts, bar charts, and a line list of the chief complaints data for the specific day you clicked on in the data matrix. This view would be similar to any data details page. By selecting the map view (not shown) you will see a map for the specified syndrome and day you clicked on in the data matrix. By selecting the Alert List option (not shown), you can view more details about the syndrome alerts for the day you picked in the data matrix.



## **G. WEEKLY PERCENT**

Weekly percent allows a user to view graphs of percent ED visits for one of the available medical grouping options by week. You can choose one or several options in each category (year, category or medical grouping, data source, geography, and age group). For geography, region stands for Florida's Regional Domestic Security Task Force (RDSTF). Selecting "aggregate" by any of the fields will combine the different options for that particular category into one, producing one trend line instead of several for the same variable. For example, if you click on aggregate next to age, this will collapse the different age categories (00-04, 05-19, etc.) into one group for your analysis.

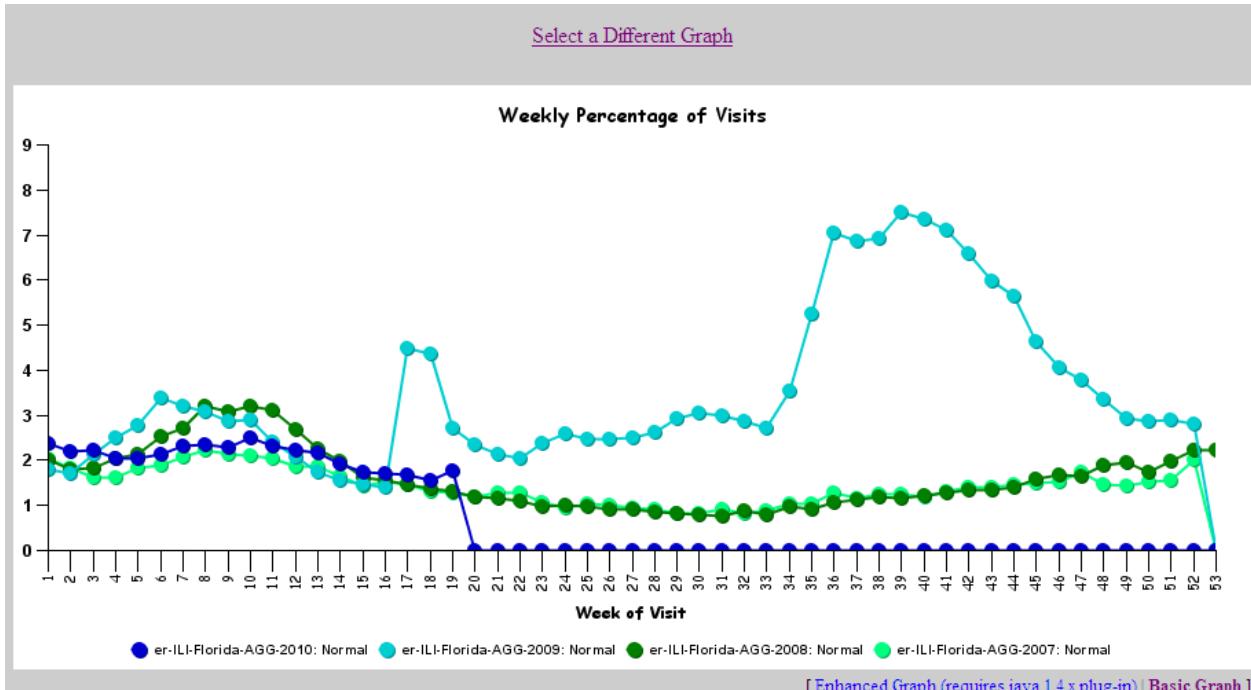
As an example, let's look at a graph of influenza-like illness in Florida for the past three years. To do this,

- 1) Click on the "weekly percent" tab in the main toolbar.
- 2) Holding the control key down on your keyboard, mouse over 2010, 2009, and 2008 in the "year" field.
- 3) Select "ILI" from the "category" field.
- 4) Click on the "emergency room data by patient location" data source option. This is the only available data source in weekly percent.
- 5) Select "Florida" from the geography field.
- 6) Holding the control key on your keyboard down, mouse over all the age groups, and then check the "aggregate" check box and click on "show graph" below the page.

## ESSENCE - Florida Multi-Year Weekly Percentage Graph

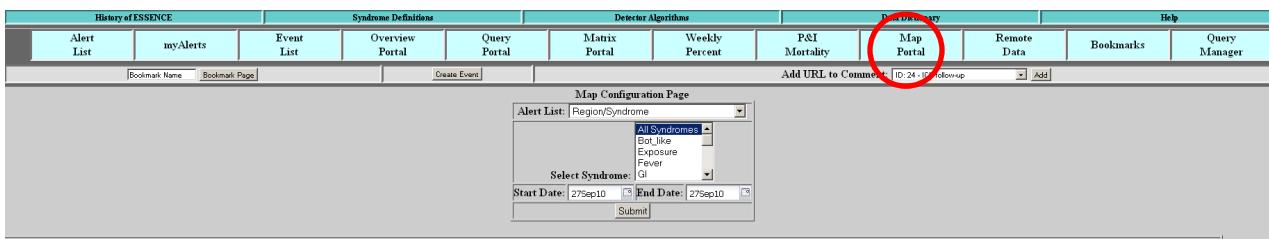
<b>Year</b> <input type="checkbox"/> Aggregate	<input type="button" value="2010"/> <input type="button" value="2009"/> <input type="button" value="2008"/> <input type="button" value="2007"/> <input type="button" value="2006"/> <input type="button" value="2005"/>	<input type="button" value="Select All"/> <input type="button" value="Deselect All"/>
<b>Category</b> <input type="checkbox"/> Aggregate	Bronchitis Chronic Diarrhea DifficultyBreathing FeverOrChills ILI	<input type="button" value="Select All"/> <input type="button" value="Deselect All"/>
<b>Datasource</b>	Emergency Room Data by Patient Location	<input type="button" value="Select All"/> <input type="button" value="Deselect All"/>
<b>Geography</b> <input type="checkbox"/> Aggregate	Florida Region 1 Region 2 Region 3 Region 4 Region 5	<input type="button" value="Select All"/> <input type="button" value="Deselect All"/>
<b>Age Group</b> <input checked="" type="checkbox"/> Aggregate	00-04 05-19 20-34 35-54 55-74 75+	<input type="button" value="Select All"/> <input type="button" value="Deselect All"/>
<input type="button" value="Show Graph"/>		

The graph produced will show the proportion of total weekly ED visits that are due to ILI for the state of Florida for the three year period. The big increase in percent ED visits from ~ week 34 to week 48 of 2009 was likely due to the H1N1 (swine flu) pandemic. Weeks run from Sunday through Saturday in weekly percent.



To change your previously selected options, click on “select a different graph” above the time series graph and this will allow you to make your changes.

## H. MAP PORTAL



The map portal is where the user can map statistical alerts (temporal and spatial) across the different data sources. When you click on the map portal link a map configuration page loads. From this page the user can select what data source they are interested in seeing in the “alert list” selection list. The outcome selections then change as appropriate when the user selects a given data source. Examples include:

- 1) Region/Syndrome: this option shows the user counties where there were temporal alerts for a selected syndrome. If the user selects more than one day in the date range, the map will map the alert with the lowest p-value.
- 2) Hospital/Syndrome: this option shows the user hospitals where there were temporal alerts for a selected syndrome. If the user selects more than one day in the date range, the map will map the alert with the lowest p-value.
- 3) Spatial: this option shows the user the zip codes that were included in a spatial alert for a selected syndrome.
- 4) Merlin spatial: this option shows the user the zip codes that were included in a spatial alert for a selected reportable disease. *Note: under the alert list function in ESSENCE there is also a Merlin spatial table that is updated throughout the day. This table includes a link the map for each of the alerts, and may be a more efficient way to evaluate the Merlin spatial alerts.*
- 5) County/Caller Site: this option shows the user the county where temporal alerts occurred for poison control center calls associated with the origin of the call. If the user selects more than one day in the date range, the map will map the alert with the lowest p-value.
- 6) County/Generic Substance: this option shows the user the county where temporal alerts occurred for poison control center calls associated a particular substance. If the user selects more than one day in the date range, the map will map the alert with the lowest p-value.
- 7) Hospital/Sub-syndrome time of arrival: this option shows the user the hospitals that were included in a sub-syndrome time of arrival alert.

## I. BOOKMARKS



The bookmarks feature allows the ESSENCE user to save searches and use the same criteria to recover data on a daily, weekly or as-needed basis without doing the stepwise

work. To save a search, you type in the name you would like to give the query and click on “bookmark page” in the top left corner of the page below the main toolbar.



You can access your bookmarks at a later date by clicking on the bookmarks tab in the main toolbar. ESSENCE will bring you to the following page, and you can click on “select” or “select today” to re-run your query.

ESSENCE - Florida Bookmarks							
View Bookmarks							
Reset 3-Level Sorting							
Bookmarks							
Order	Bookmark Name	Page	Date Created	Select	Select_Today	Edit	Delete
100	Reporting Hospitals	Data Status	17Aug09 11:15 AM	Select	Select	Edit	Delete
100	All Subsyndromes 0-19	Overview	11Dec09 03:55 PM	Select	Select (Today)	Edit	Delete
100	All Merlin - event date	Overview	11Dec09 04:27 PM	Select	Select (Today)	Edit	Delete
100	Subsyndromes 20-54	Overview	11Dec09 04:39 PM	Select	Select (Today)	Edit	Delete
100	Subsyndromes 55+	Overview	11Dec09 04:52 PM	Select	Select (Today)	Edit	Delete
100	Exposure alert list	Alert List	22Dec09 11:44 AM	Select	Select (Today)	Edit	Delete
100	All Subsyndromes except other region	Overview	29Dec09 12:22 PM	Select	Select (Today)	Edit	Delete
100	All Subsyndromes other region only	Overview	29Dec09 12:24 PM	Select	Select (Today)	Edit	Delete
100	All ED Visits by Age Group	Overview	30Dec09 10:16 AM	Select	Select (Today)	Edit	Delete
100	All ED visits by Age Group Other Region Only	Overview	30Dec09 10:19 AM	Select	Select (Today)	Edit	Delete
100	All ED Visits by Age Group Excluding Other Region	Overview	30Dec09 10:23 AM	Select	Select (Today)	Edit	Delete
100	Region 1 Weekly Percent	Weekly %	06Jan10 02:07 PM	Select	Select	Edit	Delete
100	Region 2 Weekly Percent	Weekly %	06Jan10 02:08 PM	Select	Select	Edit	Delete
100	Region 3 Weekly Percent	Weekly %	06Jan10 02:09 PM	Select	Select	Edit	Delete
100	Region 4 Weekly Percent	Weekly %	06Jan10 02:10 PM	Select	Select	Edit	Delete
100	Region 5 Weekly Percent	Weekly %	06Jan10 02:10 PM	Select	Select	Edit	Delete
100	Region 6 Weekly Percent	Weekly %	06Jan10 02:10 PM	Select	Select	Edit	Delete

*Working with your bookmarks, “select” versus “select (today)”:*

Bookmarks							
Order	Bookmark Name	Page	Date Created	Select	Select_Today	Edit	Delete
100	Reporting Hospitals	Data Status	17Aug09 11:15 AM	Select	Select	Edit	Delete
100	All Subsyndromes 0-19	Overview	11Dec09 03:55 PM	Select	Select (Today)	Edit	Delete

Once your bookmarks have been saved, you can click on “select” in the bookmarks page to run the query as you created it, without a change in dates. For example, if your selected date range for the query was from January 1, 2010 to March 30, 2010, this option will produce results for that same date range. If you click on “select (today)”, you will see the results of your query for the most recent three month period, up to the most recent day.

*Editing or deleting your saved bookmark:*

- 1) Click on the bookmarks tab in the main toolbar
- 2) Click on edit (or delete if you would like to permanently delete the bookmark). Edit and delete are in the last two columns of the bookmarks table and in the same row as the bookmark you would like to edit (or delete).

Bookmarks							
Order	Bookmark Name	Date	Date Created	Select	Select_Today	Edit	Delete
100	Emergency Room		17Aug09 11:15 AM	Select	Select Today	Edit	Delete
300	All Submissions 0-10	Overview	11Dec09 03:55 PM	Select	Select Today	<b>Edit</b>	<b>Delete</b>

- 3) Follow the prompts to edit or delete your bookmark.

## J. QUERY MANAGER

The screenshot shows the ESSENCE interface with the 'Query Manager' button highlighted by a blue arrow. Below it, a table lists saved queries:

Label	Link	Link (Today)	Date Created	Start Date	End Date
Total ED census	Show	Show (Today)	20Jan10	22Oct09	20Jan10
ILI by hospital	Show	Show (Today)	21Jan10	01Aug09	31Oct09
CDC Acute PARI	Show	Show (Today)	11Feb10	22Oct09	20Jan10
CDC Acute PARI	Show	Show (Today)	11Feb10		
CDC Acute PARI	Show	Show (Today)	11Feb10		

The query manager allows users to save and manage queries from sessions in the query portal (Described in E-Query Portal). This saves the user from having to re-write chief complaint free text queries should it become necessary to re-run the same query or a similar one. Query manager is similar to bookmarks, but it also has other useful features that are not available in the bookmarks. For example, you can create your “my alerts” in the query manager (described in B. Alert List). Also, you can create multi-series time series graphs, which are described below.

### Multi-Series time series graphs:

Multi-series time series graphs allow a user to overlay trend lines from different time series graphs, including from different data sources. For example, to compare trends in influenza-like illness (ILI) activity for two counties, two separate time series graphs can be generated in ESSENCE, one for each county. From the two graphs, a single multi-series time series graph can be produced in ESSENCE to compare trends in ILI activity for the two counties.

To create a multi-series time series graph of saved queries in the query manager,

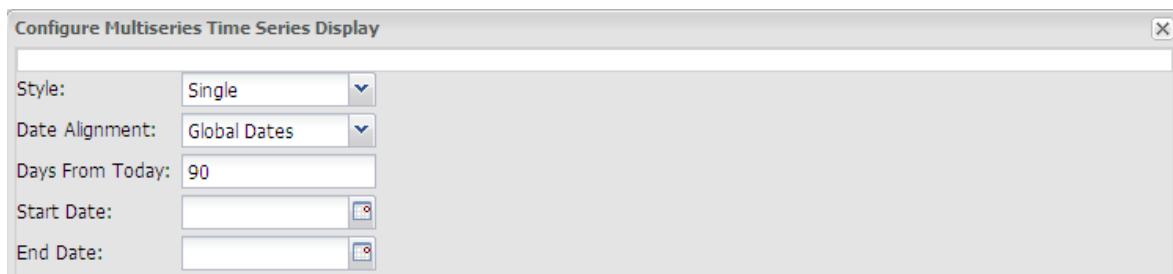
- 1) Click on “query manager” in the main toolbar.
- 2) Check all check boxes next to the names of the queries you would like to create the multi-series time series graph for.
- 3) Click on “multi-series time series” at the top of the page.

The screenshot shows the 'Multi-Series Time Series' section with a red box around the title. Below it is a table:

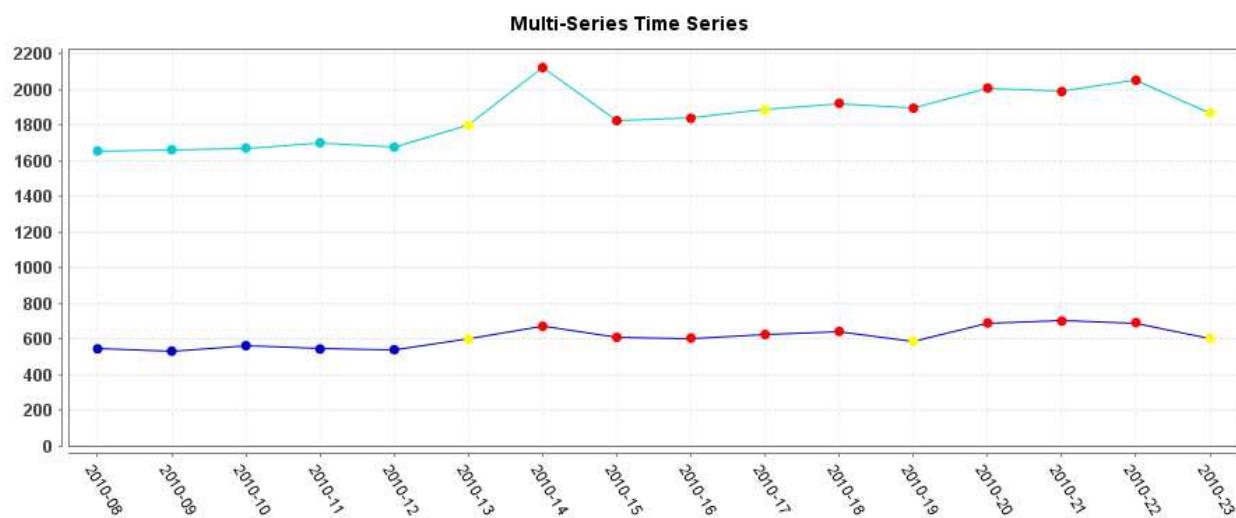
Label	Link	Link (Today)	Date Created	Start Date	End Date
Total ED census	Show	Show (Today)	20Jan10	22Oct09	20Jan10
ILI by Hospital	Show	Show (Today)	21Jan10	01Aug09	31Oct09

- 4) This should bring you to the “configure multi-series time series display”. For style, select “single”, and the system will plot all your selected queries from step 2 on the same chart. “Multiple large” will plot each query on its own large chart, and “multiple small” will plot each query on its own small chart.

For the date alignment, “actual dates” uses the dates saved with each individual query to run detection on that query. “Global dates” uses the dates provided in your queries to run detection on all selected queries. “Start together” uses each query’s individual dates, but aligns them so that they all start at the leftmost side of the graph. And “end together” uses each query’s individual dates, but aligns them so that they all end at the rightmost side of the graph.



The chart below is an example of a multi-series time series graph comparing rash illness in one county to rash illness for the entire state of Florida. Separate queries were run to generate two time series graphs, and the multi-series time series graph was created by going into query manager, selecting the queries of interest, and proceeding as described above to create the graph.



#### *Deleting your saved query:*

- 1) Go into the query manager
- 2) Click in the checkbox next to the query you would like to delete
- 3) Click delete at the top of the page to permanently delete the query.

Multiseries Time Series Create myAlert <a href="#">Delete</a>						
	Label	Link	Link (Today)	Date Created	Start Date	End Date
<input type="checkbox"/>	Total ED census	<a href="#">Show</a>	<a href="#">Show (Today)</a>	20Jan10	22Oct09	20Jan10
<input type="checkbox"/>	ILI by Hospital	<a href="#">Show</a>	<a href="#">Show (Today)</a>	21Jan10	01Aug09	31Oct09

# Merlin Reportable Diseases Data

This section focuses on the Merlin reportable disease data in ESSENCE. Depending on your level of access, you can review the Merlin data, look at trends of reportable diseases, and generate graphs, tables, or maps to be used in reports, presentations, etc. If you do not have access to this data source, but need to conduct routine analysis of the data, please contact ESSENCE Help ([Essence\\_Help@doh.state.fl.us](mailto:Essence_Help@doh.state.fl.us)). Merlin reportable diseases data in ESSENCE can be accessed either through the query portal or the overview portal.

*Hospital users please note: You can also access the Merlin reportable disease data, but only through the “Merlin Limited View Reportable Disease Data” selection in the query portal drop down list. This view does not provide a lot of the detail that the DOH users will have access too (e.g. age, zip code, sex, race, ethnicity, etc is not visible). However, the general instructions here still provide a useful guide to accessing the data at your level of access.*

## **Accessing Merlin data through the query portal:**

- 1) Click on “query portal” in the main toolbar.



- 2) From the “select data source” drop down menu, choose “Merlin reportable diseases data.” For hospital users select “Merlin Limited View Reportable Disease Data.”

A screenshot of the 'ESSENCE - Florida Data Query' interface. The page title is 'ESSENCE - Florida Data Query'. Below it is a section titled 'Current Data Query Selections'. Underneath is a section titled 'Next Selections:'. A 'Select Data Source:' dropdown menu is open, showing 'Merlin Reportable Diseases Data' as the selected option. A 'Submit' button is located below the dropdown.

- 3) In the next screen, select a geography system and a time resolution option.

For geography system, you can select “county”, which will allow you to view the data for a particular county or grouping of counties. You can also select “zip code” to view the data for one zip code or a select number of zip codes.

Time resolution will enable you to look at daily, weekly, monthly, quarterly, or yearly time resolutions of the Merlin data.

In this example, we will choose “county” as a geography system and “weekly” as a time resolution and click submit.

Next Selections:			
Select Geography System:	<input type="button" value="County"/>	Select Time Resolution:	<input type="button" value="Weekly"/>
<input type="button" value="Submit"/>			

- 4) In the next screen, there will be several more fields to choose from. You can look at time series graphs of all of the reportable diseases on the same page by selecting “all reportable diseases” from the select reportable disease field. You could also select one or a few reportable diseases to look at. To make multiple selections in the same field, hold the control key down on your keyboard and make those selections.

Also, please note that the detector enables you to see alerts where the number of cases of a disease exceeds a certain threshold. If you are interested in using one of these statistical algorithms we suggest the **CDC-C2** for weekly data.

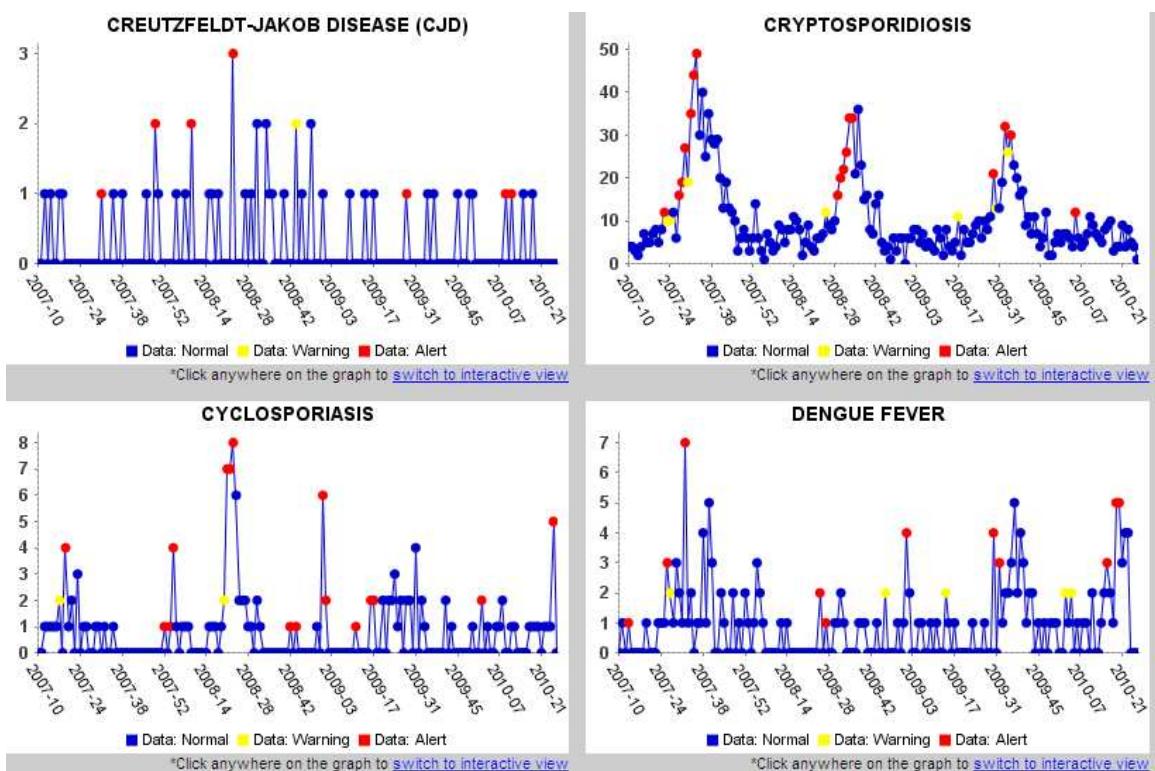
In this next example, we will examine separate time series graphs of all of Florida's reportable diseases. After we have made our selections from the other fields, we click on the “overview portal” tab at the bottom of the page to see the results of our query.

Current Data Query Selections					
Data Source	Merlin Reportable Diseases Data			Geography System	County
Time Resolution	Monthly				
Next Selections:					
Select County:	<input type="button" value="All Counties"/> ALACHUA BAKER BAY BRADFORD	Select Reportable Disease:	<input type="button" value="All Reportable Diseases"/> AMEBIC ENCEPHALITIS ANIMAL RABIES ANTHRAX ARSENIC		
Select Diagnosis Status:	<input type="button" value="All Diagnosis Statuses"/> CONFIRMED PROBABLE SUSPECT UNKNOWN	Select Case Status:	<input type="button" value="All Case Statuses"/> MARKED FOR DELETION NOT YET REPORTED REPORTED		
Select Race:	<input type="button" value="All Races"/> AMERICAN INDIAN/ALASKAN NATIVE ASIAN/PACIFIC ISLANDER BLACK OTHER	Select Ethnicity:	<input type="button" value="All Ethnicities"/> HISPANIC NHISPANIC UNKNOWN		
Select Sex:	<input type="button" value="All Sexes"/> Female Male Unknown	Select Age Group:	<input type="button" value="All Age Groups"/> Unknown 00-04 05-19 20-34		
Select Age Range:	<input type="button" value="Equal"/> <input type="text" value=""/>	Select Occupation:	<input type="button" value="All Occupations"/> FOOD HANDLER HEALTH CARE WORKER NO OR NON-SENSITIVE OCCUPATION UNKNOWN		
Select Imported:	<input type="button" value="All Importeds"/> Acquired in Florida Acquired in U.S., but not in Florida Acquired outside the U.S. Unknown	Select Daycare Associated:	<input type="button" value="All Daycare Associateds"/> ATTENDEE NO STAFF UNKNOWN		
Select Outbreak Status:	<input type="button" value="All Outbreak Statuses"/> OUTBREAK ASSOCIATED SPORADIC UNKNOWN	Select Date Type:	<input type="button" value="Event Date"/>		
Select Detector:	<input type="button" value="No Detection"/>	Select Start Date:	<input type="button" value="July"/> <input type="text" value="2009"/>	Select End Date:	<input type="button" value="July"/> <input type="text" value="2010"/>
<input type="button" value="Table Builder"/> <input type="button" value="Time Series"/> <input type="button" value="Data Details"/> <input type="button" value="Overview Portal"/>					

- 5) The next screen will ask you to pick which variable to use for creating the graphs. In this example we select “reportable disease” from the overview parameter drop down menu, because we wanted graphs of each disease selected. Click submit. The other parameters in the drop down menu allow you to stratify the data by county, diagnosis status, case status, outbreak status, etc.

Overview Parameter	
Overview Parameter:	<input type="button" value="Reportable Disease"/>
<input type="button" value="Submit"/>	

Approximately 80 graphs will be displayed for all of Florida's reportable diseases. Four of these graphs are shown below:



You can click on any portion of one of the small graphs or click on “switch to interactive view” at the bottom of the graph to activate the graph. This will allow you to click on the points to get to the data details page. *Tip: if you right click on the point, select open in a new tab or new window, you will keep the page of graphs loaded. This way you don't have to re-load all these data.*

Also, once the graphs have appeared on the screen, you can go back and change your previously made selections by clicking on the plus sign next to configuration options.

Configuration Options

Graph

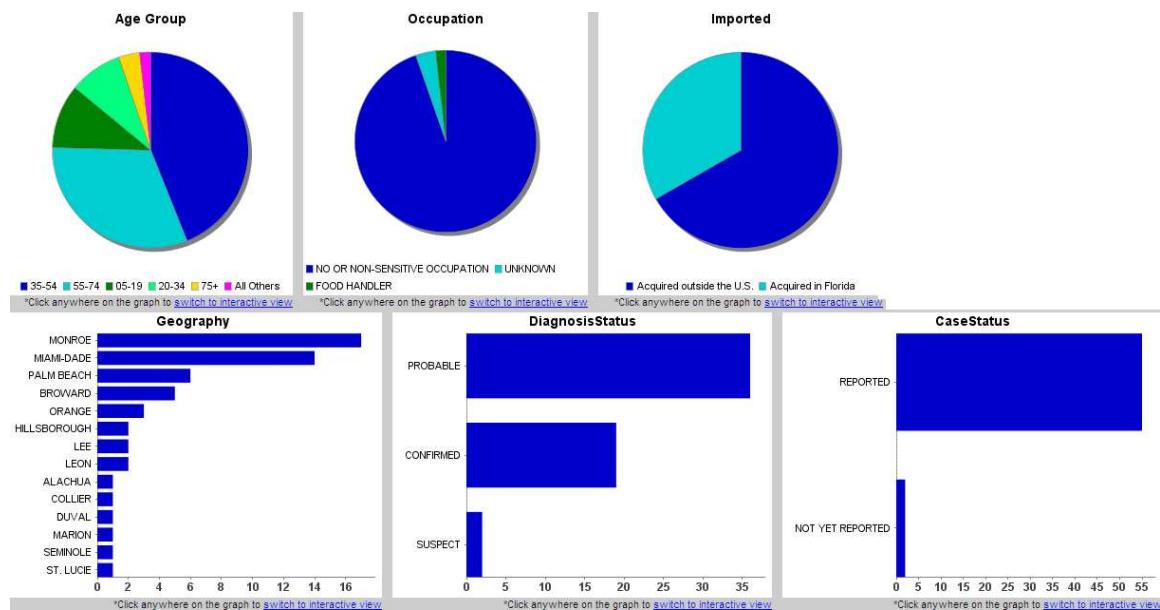
Data Configuration												
Select County:	<input type="button" value="All Counties"/> ALACHUA BAKER BAY BRADFORD				Select Reportable Disease:				<input type="button" value="All Reportable Diseases"/> AMERIC ENCEPHALITIS ANIMAL RABIES ANTHRAX ARSENIC			
Select Diagnosis Status:	<input type="button" value="All Diagnosis Statuses"/> CONFIRMED PROBABLE SUSPECT UNKNOWN				Select Case Status:				<input type="button" value="All Case Statuses"/> MARKED FOR DELETION NOT YET REPORTED REPORTED			
Select Race:	<input type="button" value="All Races"/> AMERICAN INDIAN/ALASKAN NATIVE ASIAN/PACIFIC ISLANDER BLACK OTHER				Select Ethnicity:				<input type="button" value="All Ethnicities"/> HISPANIC NHISPANIC UNKNOWN			
Select Sex:	<input type="button" value="All Sexes"/> Female Male Unknown				Select Age Group:				<input type="button" value="All Age Groups"/> Unknown 05-04 05-19 20-34			
Select Age Range:	<input type="button" value="Equal"/> <input type="text" value="1"/>				Select Occupation:				<input type="button" value="All Occupations"/> FOOD HANDLER HEALTH CARE WORKER ND OR NON-SENSITIVE OCCUPATION UNKNOWN			
Select Imported:	<input type="button" value="All Importeds"/> ACQUIRED IN FLORIDA ACQUIRED IN U.S. BUT NOT IN FLORIDA ACQUIRED OUTSIDE THE U.S. UNKNOWN				Select Daycare Associated:				<input type="button" value="All Daycare Associateds"/> ATTENDEE NO STAFF UNKNOWN			
Select Outbreak Status:	<input type="button" value="All Outbreak Statuses"/> OUTBREAK ASSOCIATED SPORADIC UNKNOWN				Select Date Type:				<input type="button" value="Event Date"/> <input type="button" value="Date Range"/>			
Select Detector:	<input type="button" value="EWMA 12"/> <input type="button" value="EWMA 24"/>				Select End Date:				<input type="text" value="16-Nov-09"/>			
	<input type="button" value="Table Builder"/> <input type="button" value="Time Series"/> <input type="button" value="Data Details"/> <input type="button" value="Overview Portal"/>											

Instead of clicking on the “overview portal” button in step 4 above, you can also click on “table builder” to see a tabular view of the data. Once you have clicked on table builder, you would need to select a column variable and a row variable in the next screen and click on “create table”. ESSENCE can generate tables that contain up to 30,000 cells at a time. The tables usually look like this:

Data Table													
		Syndrome											
		<input type="button" value="Show Totals"/> <input type="button" value="Hide Zero Count Rows"/>											
Date	Show Totals	<input type="button" value="Show Totals"/>											
		Bot_like	Exposure	Fever	GI	Hemr_ill	ILI	Injury	Neuro	Other	Rash	Resp	Shk_coma
14Nov09		229	11	811	2069	9	623	2027	667	7012	221	1899	192
15Nov09		236	12	923	2408	11	717	2001	633	7290	256	2242	188
16Nov09		281	16	825	2641	10	750	1868	812	8664	248	2470	174
17Nov09		293	13	802	2417	11	694	1801	772	7775	247	2230	206
18Nov09		331	11	800	2372	6	634	1719	762	7673	216	2124	202

Besides overview portal and table builder, you could also click on “data details” to see pie charts, bar graphs and a line list of the data. You can also examine variables pertaining to each case, including several dates associated with the reported case, case ID, disease name, disease code, sex, race, ethnicity, age, zip code of residence, county of residence, outbreak status, diagnosis status, reporting status, year reported, week

reported, daycare associated, occupation, imported status, and case status. Below is a snapshot of some of the graphs you will see and be able to include in your reports and presentations as needed.



[[Download .zip file containing all graphs](#)]  
[Time Series](#) | [Data Details](#) | [Map View](#)  
[Plain Text](#) | [Microsoft Excel](#)]

RowID	DATE	DateEvent	OnsetDate	DateofLab	DateReportedtoCHD	DateReportedtoEpi	WeekYear	MonthYear	QuarterYear	Year	CaseID	DiseaseName	DiseaseCode	Sex	Race
04Jul10	04Jul10	04Jul10	19Jul10	14Jul10	20Jul10	2010-27	2010-07	2010-3	2010		DENGUE FEVER	06100	Male	UNKNOWN	
	07Jul10	07Jul10	07Jul10	13Jul10	16Jul10	2010-27	2010-07	2010-3	2010		DENGUE FEVER	06100	Male	WHITE	
	08Jul10	08Jul10	08Jul10	20Jul10	20Jul10	2010-27	2010-07	2010-3	2010		DENGUE FEVER	06100	Female	WHITE	
	10Jul10	10Jul10	10Jul10	19Jul10	21Jul10	2010-27	2010-07	2010-3	2010		DENGUE FEVER	06100	Female	WHITE	
	27Jun10	27Jun10	27Jun10	16Jul10	16Jul10	2010-26	2010-06	2010-2	2010		DENGUE FEVER	06100	Male	OTHER	

For sharing purposes or to include in reports you can click on “download zip file containing all graphs” beneath the bar graphs to download and save the graphs to a different location. Alternatively you could right click on a graph and select copy image. You can then right click again in another setting (e.g. an email or Word document) and click paste.

Please note that not all columns in the line list are shown. Also, some of the fields are blocked out for confidentiality reasons.

## Accessing the Merlin data through overview portal:

- 1) Click on “overview portal” in the main toolbar.



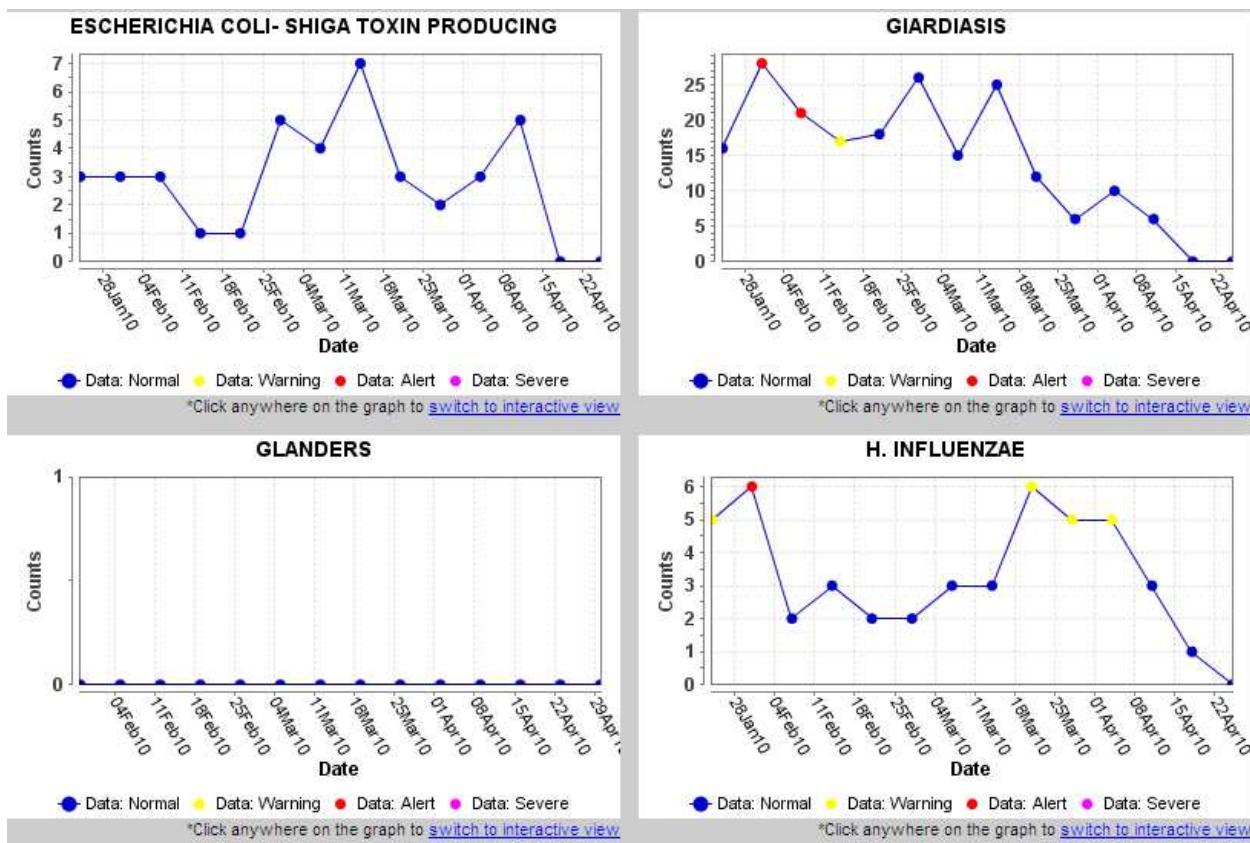
- 2) Select “Merlin reportable diseases data” from the “select data source” drop down menu and click submit.

Next Selections:	
Select Data Source:	<input type="button" value="Merlin Reportable Diseases Data"/>
<input type="button" value="Submit"/>	

- 3) From the “overview parameter” drop down menu, select “reportable disease” and click submit.

Overview Parameter	
Overview Parameter:	<input type="button" value="Reportable Disease"/>
<input type="button" value="Submit"/>	

ESSENCE will display graphs of all of Florida’s reportable diseases arranged in alphabetical order. Four of these graphs are shown below.



To further examine the data for a particular reportable disease, click anywhere on the graph or the “switch to interactive view” hyperlink at the bottom right corner of the graph.

You can click on the plus sign next to “description” to see the parameters selected for the most recent query.

**ESSENCE - Florida Overview**

+ Description + Configuration Options
<b>Overview Parameter</b> Overview Parameter: <input type="button" value="Reportable Disease"/> <input type="button" value="Submit"/>
<input type="button" value="Configuration Options"/>

The default date range for the graphs is for the previous three months, as is the case for most data sources in ESSENCE. To change the start and/or end dates, please click on the plus sign next to “configuration options”.

Also, the overview portal does not initially allow you to select specific counties, diseases, diagnosis status, date type, etc. before generating graphs. As such, you may need to return to the configuration options to make all the necessary

changes. The screenshot below shows the parameters that can be changed in the configuration options.

Configuration Options

Data Configuration			
Select County:	All Counties ALACHUA BAKER BAY BRADFORD	Select Reportable Disease:	All Reportable Diseases AMEBIC ENCEPHALITIS ANIMAL RABIES ANTHRAX ARSENIC
Select Diagnosis Status:	All Diagnosis Statuses CONFIRMED PROBABLE SUSPECT UNKNOWN	Select Case Status:	All Case Statuses MARKED FOR DELETION NOT YET REPORTED REPORTED
Select Race:	All Races AMERICAN INDIAN/ALASKAN NATIVE ASIAN/PACIFIC ISLANDER BLACK OTHER	Select Ethnicity:	All Ethnicities HISPANIC NON-HISPANIC UNKNOWN
Select Sex:	All Sexes Female Male Unknown	Select Age Group:	All Age Groups Unknown 00-04 05-19 20-34
Select Age Range:	Equal	Select Occupation:	All Occupations FOOD HANDLER HEALTH CARE WORKER NO OR NON-SENSITIVE OCCUPATION UNKNOWN
Select Imported:	All Imported ACQUIRED IN FLORIDA ACQUIRED IN U.S. BUT NOT IN FLORIDA ACQUIRED OUTSIDE THE U.S. UNKNOWN	Select Daycare Associated:	All Daycare Associates NO STAFF UNKNOWN
Select Outbreak Status:	All Outbreak Statuses OUTBREAK ASSOCIATED SPORADIC UNKNOWN	Select Date Type:	Event Date
Select Detector:	EWMA 12	Select Start Date:	28Mar2018
		Select End Date:	29Apr-2018
<input type="button" value="Table Builder"/> <input type="button" value="Time Series"/> <input type="button" value="Data Details"/> <input type="button" value="Overview Portal"/>			
<input type="checkbox"/> Graph			

## **Office of Vital Statistics Death Data**

This section focuses on the Office of Vital Statistics death data in ESSENCE. The mortality data include all deaths that occur in Florida. The variables sent to ESSENCE include a number of demographic variables to help describe person, place, and time, a variable describing pregnancy status, as well as cause of death information. The cause of death data includes the initial free text description on the death certificate, the underlying cause of death ICD-10 code (ICD\_CODE), and the ACME codes that describe how the nosologists ordered the underlying verses contributing causes of death.

ESSENCE initially receives only the demographic information for a death. A few weeks later, the Office of Vital Statistics sends updates to those previously sent records that include the initial free text descriptions of the cause of death. A few months later, Vital Statistics sends to ESSENCE the final nosologically categorized cause of death data that includes the ICD-10 codes. The timeliness of this data source is different in comparison to the other data sources. The user should expect these data to be delayed approximately 5-6 weeks.

You can find more information on the ICD-10 codes by going to  
<http://apps.who.int/classifications/apps/icd/icd10online/>

To access the death data,

- Click on query Portal.



- Select “Death Records Data” from the “select data source” drop down menu, click submit.

A screenshot of a modal dialog box titled "Next Selections:". It contains a "Select Data Source:" dropdown menu which is currently set to "Death Records Data". Below the dropdown is a "Submit" button.

- Select geography system of interest, death group, and time resolution.
- There are 3 pre-categorized groupings of the death data. The categories are defined at the national level, and include the 358, 113, and 130 select cause groups. Please note that the 130 select cause groups are designed for infants, so when you query the system based on this category, customize the age to only those equal to 0. The 3 categories are based

only on underlying cause of death. You can read some more about each of the categories under the syndrome definitions link at the top of the page. When done selecting a death group, click submit.

Next Selections:			
Select Geography System:	County	Select Time Resolution:	Daily
Select Death Group:	358 Selected Cause Groups		
Submit			

- In the next view, make all necessary selections and click on “table builder” to see a tabular view of your data; “time series” to see a time series graph; “data details” to see a line list of your data; or “overview portal” to look at multiple small graphs stratified on the variable of your choice.

Next Selections:			
Select County:	All Counties ALACHUA BAKER BAY BRADFORD	Select 358 Selected Cause Groups:	All 358 Selected Cause Groups Acute & Rapidly Progressive Nephritic Syndrome (N00-N01) Acute & Subacute Endocarditis (I33) Acute Bronchitis & Bronchiolitis (J20-J21) Acute Laryngitis & Tracheitis (J04)
Select Place of Death:	All Place of Deaths DEAD ON ARRIVAL DECEDENT'S HOME EMERGENCY ROOM/OUTPATIENT HOSPICE	Select Ethnicity:	All Ethnicities Central/South American Cuban Hispanic Mexican
Select Race:	All Races American Indian Asian Indian Asian Other Black	Select Sex:	All Sexes Female Male Unknown
Select Age Group:	All Age Groups Unknown 00-04 05-19 20-34	Select Age Range:	Equal
Select Date Type:	DateOfDeath	Select Detector:	No Detection
Select Start Date:	303n2018	Select End Date:	108n2018
<input type="button" value="Table Builder"/> <input type="button" value="Time Series"/> <input type="button" value="Data Details"/> <input type="button" value="Overview Portal"/>			

### Acme Codes and Literals

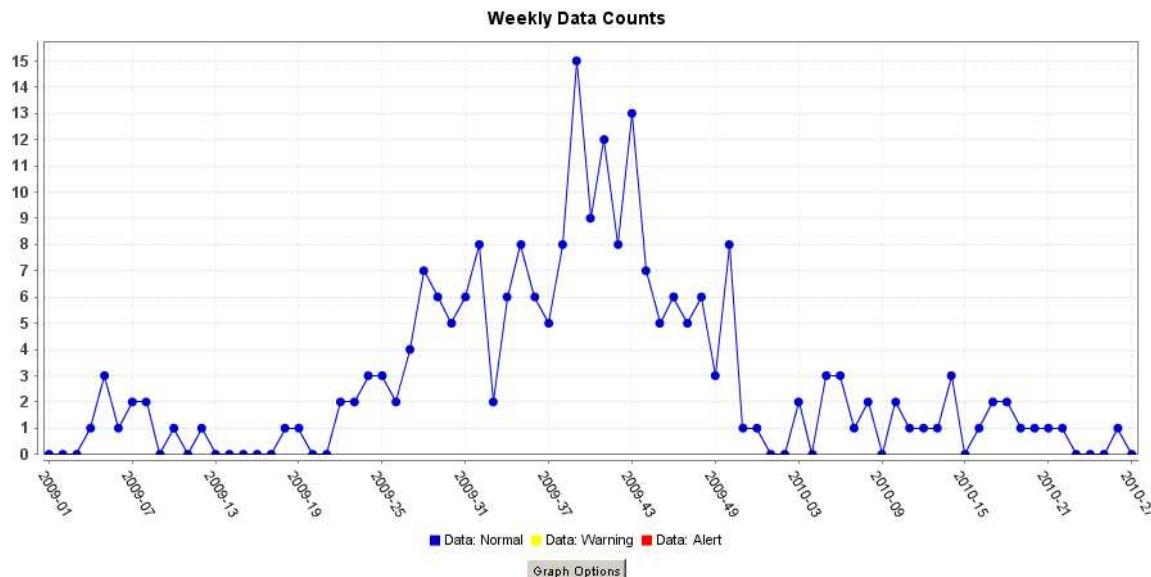
Instead of picking from one of the 3 death categories, you can select the ACME/literal combined death group which allows you to query both the free text cause of death statements and the ICD-10 coded fields. This option will bring you to this next view:

Next Selections:			
Select County:	All Counties ALACHUA BAKER BAY BRADFORD		
Select Underlying ACME Code:	Search String: <input type="text"/> Filter Unfilter Help Filtered Underlying ACME Code >> Selected Underlying ACME Code <<		
Select Initial Literal Cause Of Death:	<input type="text" value="all"/> tip	Select Underlying/Contributing Combined ACME Code:	<input type="text" value="all"/> tip
Select ACME/Literal Combined:	<input type="text" value="all"/> tip	Select Place of Death:	All Place of Deaths DEAD ON ARRIVAL DECEDENT'S HOME EMERGENCY ROOM/OUTPATIENT HOSPICE
Select Ethnicity:	All Ethnicities Central/South American Cuban Haitian Mexican	Select Race:	All Races American Indian Asian Indian Asian Other Black
Select Sex:	All Sexes Female Male Unknown	Select Age Group:	All Age Groups Unknown 00-04 05-19 20-34
Select Age Range:	Equal <input type="text"/>	Select Date Type:	DateOfDeath
Select Detector:	<input type="text" value="No Detection"/>		

There are 4 ways to query the cause of death records from this screen:

- i. *Select underlying ACME code* - Here you can type in the "Search String" box a code or name of a code. For example, to find deaths coded for influenza you might try typing in ^influenza^, and then click filter. Alternatively, if you know the ICD-10 code, you could type J10 to get to the influenza related codes.
- ii. *Select initial literal cause of death* - These are free text cause of death statements that are written on the death certificate and entered into the central database. You can only query words, not ICD codes. This does not differentiate between underlying and contributing causes of death.
- iii. *Select underlying/contributing combined ACME code* - This will search only the coded data under both underlying and contributing causes of death. You can string together a long list of codes using boolean operators like "and", "andnot", and "or" between entries, just as you might in the free text queries.
- iv. *Select ACME/literal combined* - This allows you to query both the free text cause of death statements and the ICD-10 coded fields across both underlying and contributing causes. The system preferentially looks for the ICD-10 coded field, but if a code is not yet available then it will look to see if the textual description you use in the query matches any records. For example, you could query influenza by typing ^influenza^,or,^j10^,or,^j11^.

Below is a time series graph of deaths in Florida that included influenza as one of the causes from week 1 of 2009 through week 27 of 2010.



To change your graph title, click on “graph options” below the time series graph.

*A note about querying the coded values using the ^ wildcard symbol:* If your intent is to capture all the codes j10, j10.0, j10.1, j10.8, then you only have to query ^j10^. If you only want those records that include j10.1, then you would query ^j101^. Please don't include the decimal in your query.

*Creating a bookmark for your query:*

Once you have run a query, you can bookmark that query so that you don't have to go through all of the steps each time. You can do this by typing in the name you would like to give the query and clicking on “bookmark page” in the top left corner of the page below the main toolbar.



You can access your bookmarks later by clicking on the bookmarks tab in the main toolbar.

Time series graphs can also be saved to the query manager by typing in a query name in the query name field above the time series graph.

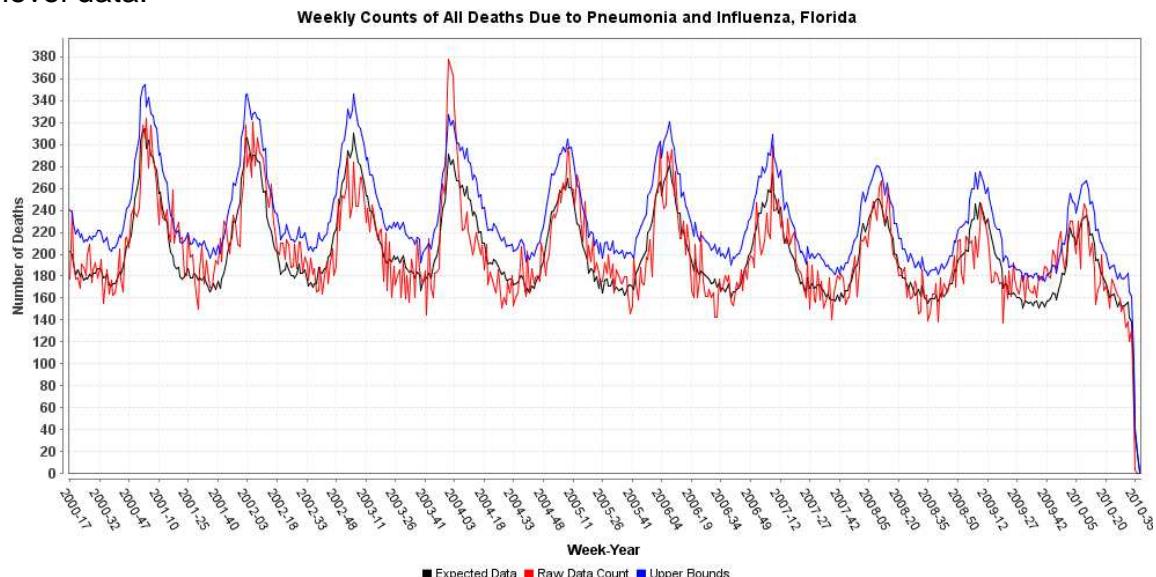


## Pneumonia and Influenza (P&I) Mortality Analysis

History of ESSENCE		Syndrome Definitions		Detector Algorithms		Data Dictionary		Help			
Alert List	my Alerts	Event List	Overview Portal	Query Portal	Matrix Portal	Weekly Percent	P&I Mortality	Map Portal	Remote Data	Bookmarks	Query Manager

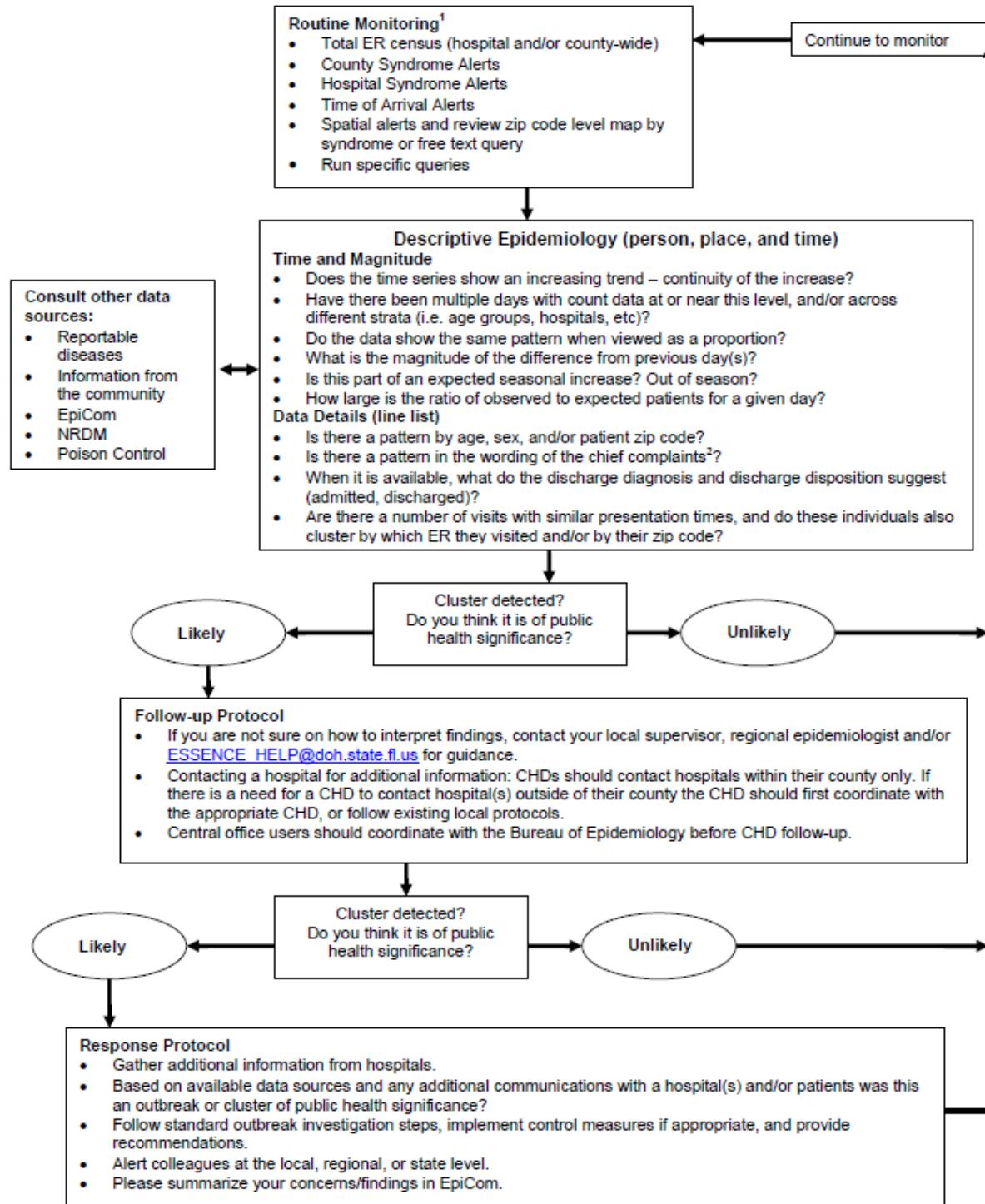
The P&I mortality analysis functionality searches the mortality data that is sent to ESSENCE from the Florida Office of Vital Statistics. This analysis includes text in the literal cause of death fields and underlying or contributing causes ICD-10 codes for deaths attributed to pneumonia and influenza. Mention of aspiration pneumonia is excluded. These data are assembled into a weekly time series, and presented in two graphs. One graph is presented as the number of P&I deaths per week, and the other as a proportion of total deaths (observed P&I deaths/total number of deaths)\*100). The seasonal baseline and epidemic threshold is calculated for the statewide data using a periodic regression model that incorporates data from the previous 3 years. An increase of 1.96 standard deviations above the seasonal baseline of P&I deaths is considered the epidemic threshold.

The link below the two statewide graphs, where it says “If you want to investigate more, click here” brings the user to a query portal page with the P&I query pre-selected. The user just has to pick the county or counties they would like to look at, and change the time resolution of the data if desired. Click “submit”, and the new graph will load to reflect the updated selections. Periodic regression analysis will not run on the county level data.



## Appendix 1: Flowchart for Analysis and Response to Syndromic Surveillance Data

### Florida ESSENCE - Flowchart for Monitoring, Analysis and Response to Syndromic Surveillance Data



<sup>1</sup> One way to approach the review of syndromic surveillance data is to begin with those categories that produced statistical alerts. However, in-depth analyses of syndrome categories and/or more specific free text chief complaint queries, regardless of alerting status, have been used successfully to discover previously unknown outbreaks. For example, say you use the query ^vomit^,or,^diarrhea^ and the normal number of cases in your county is ~30 per day. Then on X day you find that there are 25 patients in this query (there is no alert produced), but when you review the line list by time of ER visit and zip code you find that 8 patients visited the ER very close in time and lived in the same zip code. This clustering of cases is worth following up on even though no statistical alert was generated.

<sup>2</sup> It is important to become somewhat familiar with what a patient's chief complaint looks like in your county, and to understand the limitations. Generally the chief complaint is what the patient says is wrong with them to the triage clerk at the ER. The triage clerk could be a nurse, or someone who does not have much medical training. This can impact how much medical interpretation goes into the chief complaint text. A hospital might also utilize a standardized drop down selection of symptoms rather than typing in a free text description of the patient's statement, which often makes the chief complaint less descriptive.

## Appendix 2: Free text query examples

### **Display the total ER census**

^ (you can also simply leave the default “all” text, and click submit)

### **Carbon monoxide query**

^carbon^,or,^carbon monoxide^

### **Rabies query (people visiting the ER for rabies shots)**

^rabies^

### **Animal Bite query**

^cat bite^,or,^catbite^,or,^puppy^,or,^kitten^,or,^dogbite^,or,^dog bite^,or,^animal bite^,or,^raccoon^,or,^raccoon^,or,^fox^,or,^bobcat^,or,^bat bite^,or,^bitten^,andnot,^bugs^,andnot,^ants^,andnot,^child^,andnot,^fireants^,andnot,^insect^,andnot,^person^,andnot,^snake^,andnot,^rattle snake^,andnot,^pygmy rattler^,andnot,^red ants^,andnot,^red fire ants^,andnot,^something^,andnot,^spider^,andnot,^wasp^,andnot,^leg spider^

### **GI query 1**

^blood^,and,^stool^,or,^blood stool^,and,^blood urine^

### **GI query 2**

^fever^,andnot,^congestion^,andnot,^sore^,andnot,^cough^,and,^diarrhea^,andnot,^sore^,andnot,^back^,andnot,^cough^,or,^fever^,andnot,^sore^,andnot,^cough^,and,^vomit^,andnot,^congestion^

### **GI query 3**

^diarrhea^,or,^vomit^,andnot,^preg^,andnot,^pregnancy^

### **GI query 4**

^vomit^,andnot,^headches^,andnot,^headache^,or,^diarrhea^,or,^abdominal pain^,andnot,^polyps^,andnot,^headache^,andnot,^high blood suger^

### **Food poisoning query**

^food poison^,or,^food^,andnot,^NO FOOD^,andnot,^fatty food dinner^,andnot,^UNABLE TO EAT SOLID FOOD^,andnot,^CANT DIGEST FOOD^,andnot,^EATING LESS^,andnot,^PNEUMONITIS^,andnot,^stuck^,andnot,^choking^,andnot,^choke^,and not,^hot^,andnot,^esophagus^,andnot,^allergic^,andnot,^allergy^,andnot,^tray^,andnot,^gagging^,andnot,^trapped^,andnot,^tolerate^,andnot,^throat^,andnot,^bolus^,andnot,^consumption^,andnot,^intake^,andnot,^tube^,andnot,^impaction^,andnot,^swallow^,and not,^in throat^,andnot,^down^,or,^food poisoning^,andnot,^EATING LESS^

### **Skin infection query**

<sup>^</sup>MRSA<sup>^</sup>,or,<sup>^</sup>staph infection<sup>^</sup>,or,<sup>^</sup>spider bite<sup>^</sup>,or,<sup>^</sup>skin lesion<sup>^</sup>,or,<sup>^</sup>staff infection<sup>^</sup>

### **Fever and Rash query**

<sup>^</sup>rash<sup>^</sup>,and,<sup>^</sup>fever<sup>^</sup>,or,<sup>^</sup>chickenpox<sup>^</sup>,or,<sup>^</sup>chicken pox<sup>^</sup>,or,<sup>^</sup>measles<sup>^</sup>

### **Viral query**

<sup>^</sup>virus<sup>^</sup>,andnot,<sup>^</sup>BRONCHIOLITIS<sup>^</sup>,andnot,<sup>^</sup>upper<sup>^</sup>,andnot,<sup>^</sup>SYNCYTIAL<sup>^</sup>,andnot,<sup>^</sup>stomach<sup>^</sup>,or,<sup>^</sup>viral<sup>^</sup>,andnot,<sup>^</sup>SYNCYTIAL<sup>^</sup>,andnot,<sup>^</sup>stomach<sup>^</sup>,andnot,<sup>^</sup>gastritis<sup>^</sup>,andnot,<sup>^</sup>gastroenteritis<sup>^</sup>,andnot,<sup>^</sup>upper respiratory infection<sup>^</sup>,andnot,<sup>^</sup>uri<sup>^</sup>,andnot,<sup>^</sup>HUMAN IMMUNODEFICIENCY<sup>^</sup>

### **ILI query**

<sup>^</sup>fever<sup>^</sup>,and,<sup>^</sup>sore throat<sup>^</sup>,or,<sup>^</sup>fever<sup>^</sup>,and,<sup>^</sup>cough<sup>^</sup>,or,<sup>^</sup>flu<sup>^</sup>,andnot,<sup>^</sup>shot<sup>^</sup>,andnot,<sup>^</sup>leaking<sup>^</sup>,andnot,<sup>^</sup>reflux<sup>^</sup>,andnot,<sup>^</sup>flush<sup>^</sup>,andnot,<sup>^</sup>fluid<sup>^</sup>,andnot,<sup>^</sup>flushed<sup>^</sup>,andnot,<sup>^</sup>flutter<sup>^</sup>,andnot,<sup>^</sup>diarrhea<sup>^</sup>,andnot,<sup>^</sup>nausea<sup>^</sup>,andnot,<sup>^</sup>vomit<sup>^</sup>

### **Possible Reportable Disease query**

<sup>^</sup>crypto<sup>^</sup>,or,<sup>^</sup>cryptosporidiosis<sup>^</sup>,or,<sup>^</sup>cyclos<sup>^</sup>,or,<sup>^</sup>cyclosp<sup>^</sup>,or,<sup>^</sup>mercury<sup>^</sup>,or,<sup>^</sup>encephalitis<sup>^</sup>,or,<sup>^</sup>botulism<sup>^</sup>,or,<sup>^</sup>smallpox<sup>^</sup>,or,<sup>^</sup>shigellosis<sup>^</sup>,or,<sup>^</sup>shigella<sup>^</sup>,or,<sup>^</sup>salmonellosis<sup>^</sup>,or,<sup>^</sup>salmonellae<sup>^</sup>,or,<sup>^</sup>hepatitis<sup>^</sup>,andnot,<sup>^</sup>alcoholic<sup>^</sup>,or,<sup>^</sup>anthrax<sup>^</sup>,or,<sup>^</sup>ciguatera<sup>^</sup>,or,<sup>^</sup>dengue<sup>^</sup>,or,<sup>^</sup>malaria<sup>^</sup>,or,<sup>^</sup>measles<sup>^</sup>,or,<sup>^</sup>mumps<sup>^</sup>,or,<sup>^</sup>varicella<sup>^</sup>,or,<sup>^</sup>chicken pox<sup>^</sup>,or,<sup>^</sup>lead poisoning<sup>^</sup>,or,<sup>^</sup>pertussis<sup>^</sup>,or,<sup>^</sup>meningitis<sup>^</sup>,or,<sup>^</sup>whooping cough<sup>^</sup>,or,<sup>^</sup>campylobacteriosis<sup>^</sup>,or,<sup>^</sup>cholera<sup>^</sup>,or,<sup>^</sup>creutzfeldt<sup>^</sup>,or,CJD,or,<sup>^</sup>diphtheria<sup>^</sup>,or,<sup>^</sup>ehrlichiosis<sup>^</sup>,or,<sup>^</sup>ecoli<sup>^</sup>,or,<sup>^</sup>escherichia coli<sup>^</sup>,or,<sup>^</sup>glanders<sup>^</sup>,or,<sup>^</sup>haemophilus<sup>^</sup>,or,<sup>^</sup>leprosy<sup>^</sup>,or,<sup>^</sup>hansen<sup>^</sup>,or,<sup>^</sup>hantavirus<sup>^</sup>,or,<sup>^</sup>legionell<sup>^</sup>,or,<sup>^</sup>leptosp<sup>^</sup>,or,<sup>^</sup>listeriosis<sup>^</sup>,or,<sup>^</sup>listeria<sup>^</sup>,or,<sup>^</sup>lyme<sup>^</sup>,or,<sup>^</sup>melioidosis<sup>^</sup>,or,<sup>^</sup>meningococcal<sup>^</sup>,or,<sup>^</sup>meningococcemia<sup>^</sup>,or,<sup>^</sup>mercury<sup>^</sup>,or,<sup>^</sup>pesticide<sup>^</sup>,or,<sup>^</sup>plague<sup>^</sup>,or,<sup>^</sup>polio<sup>^</sup>,or,<sup>^</sup>psittacosis<sup>^</sup>,or,<sup>^</sup>q fever<sup>^</sup>,or,<sup>^</sup>rabies<sup>^</sup>,or,<sup>^</sup>rocky mountain<sup>^</sup>,or,<sup>^</sup>rubella<sup>^</sup>,or,<sup>^</sup>streptococcal<sup>^</sup>,or,<sup>^</sup>toxoplasm<sup>^</sup>,or,<sup>^</sup>trichinosis<sup>^</sup>,or,<sup>^</sup>tularemia<sup>^</sup>,or,<sup>^</sup>typhoid<sup>^</sup>,or,<sup>^</sup>typhus<sup>^</sup>,or,<sup>^</sup>vibrio<sup>^</sup>,or,<sup>^</sup>yellow fever<sup>^</sup>,or,<sup>^</sup>hemorrhagic<sup>^</sup>,or,<sup>^</sup>expos<sup>^</sup>

## **Emergency Department Section References**

- 1) Centers for Disease Control and Prevention (2001). Updated Guidelines for Evaluating Public Health Surveillance Systems: recommendations from the guidelines working group. Morbidity and Mortality Weekly Report, 50(RR-13), 1-35. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5013a1.htm>
- 2) Centers for Disease Control and Prevention (2004). Framework for Evaluating Public Health Surveillance Systems for the Early Detections of Outbreaks: recommendations from the CDC working group. Morbidity and Mortality Weekly Report, 53(RR-05), 1-11. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5305a1.htm>