FY19 Epi-Tech Surveillance Training

Friday, October 05, 2018 - Monday, September 30, 2019
DCS, APG, MD

Provided By
U.S. Army Medical Command

Activity ID	Course Director	CME Planner
2018-1656	John Ambrose	Mimi C. Eng

Accreditation Statement

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of U.S. Army Medical Command and ARMY PUBLIC HEALTH CENTER. The U.S. Army Medical Command is accredited by the ACCME to provide continuing medical education for physicians.

Credit Designation

The U.S. Army Medical Command designates this Live Activity for a maximum of 5 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

This is a required handout. It must be disseminated to each learner prior to the start of the activity.

Statement of Need/Gap Analysis

The purpose of this CME activity is to address the identified gap(s):

1. Disease identification - verification of disease by established case definitions have been utilized by the local health departments, Centers for Disease Control and Prevention, World Health Organization, and the Department of Defense. With the every changing list of reportable medical events and new emerging infections, case definitions change rapidly. Army epidemiologist conduct verification studies that monitor the efficiency of reporting by local public health experts and have concluded that completeness percentages for reportable medical events range as low as 35% for select diseases.

2. Outbreak reporting - Recent evidence have demonstrated that outbreak reporting and communication between public health agencies is poor. In fact, the Army failed to report six outbreaks in the DRSi between June 2016 and September 2016.

3. Surveillance techniques - Surveillance of common communicable diseases continues to be a problem among local MTFs. In fact, cases of campylobacter were not investigated in 2015 for PACOM MTFS, while 2016 cases of salmonella were not investigated. Civilian public health agencies are required to conduct investigations into all reportable medical events. However, DoD facilities often do not take initiative to conduct this investigation.

Learning Objectives

1. Based on case presentation, enhance your ability to improve case finding and surveillance practices within your local MTF.

Target Audience / Scope of Practice

Target Audience: The intended audience for this educational activity includes preventive medicine physicians, community health nurses, public health nurses, and epidemiology technicians.

Scope of Practice: This activity will improve the performance of preventive medicine personnel who conduct surveillance activities in inpatient and outpatient settings.

Disclosure of Faculty/Committee Member Relationships

It is the policy of the U.S. Army Medical Command that all CME planning committee/faculty/authors disclose relationships with commercial entities upon invitation of participation. Disclosure documents are reviewed for potential conflicts of interest and, if identified, they are resolved prior to confirmation of participation.

Faculty Members

Gilmore, Jessica	- No information to disclose.
Graham-Glover, Bria	- No information to disclose.
Kebisek, Julianna	- No information to disclose.
Russell, Jamaal	- No information to disclose.
White, Duvel	- No information to disclose.

Committee Members

Ambrose, John	- No information to disclose.
Brown, Jodi	- No information to disclose.
Eng, Mimi	- No information to disclose.
Gibson, Kelly	- No information to disclose.
Graham-Glover, Bria	- No information to disclose.
Holbrook, Victoria	- No information to disclose.
Kebisek, Julianna	- No information to disclose.
Riegodedios, Asha	- No information to disclose.
Rudiger, Courtney	- No information to disclose.

Acknowledgement of Commercial Support

There is no commercial support associated with this educational activity.

Announcements

- **To register for the Monthly Disease Surveillance Trainings:**
  - Contact your service surveillance HUB to receive monthly updates and reminders
  - Log-on or request log-on ID/password: https://tiny.army.mil/r/zB8A/CME
  - Register at: https://tiny.army.mil/r/EQk1/EpiTechFY19
- **Confirm attendance:**
  - Please enter your full name/email into the DCS chat box to the right or email your service hub
  - You will receive a confirmation email within 48 hours with your attendance record; if you do not receive this email, please contact your service hub
- **Reminder:**
  - Mute your phones by pressing the mute button or pressing *6
  - DO NOT press the “hold” button as the rest of the conference will hear the hold music

Introduction to ESSENCE v5

Jamaal A. Russell, DrPH, MPH

Objectives

- Describe the new features in ESSENCE v5
- Understand the main functions that will be used at the local level on a routine basis
- Create an individual user view and understand how to use dashboards for routine surveillance

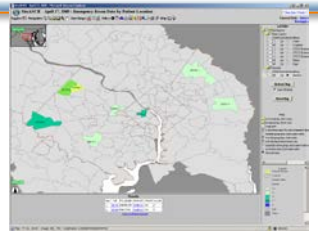
Mandate for Syndromic Surveillance

- ESSENCE is designated as the DoD interagency solution to improve real-time surveillance in the National Action Plan to Strengthen Implementation of the International Health Regulations as part of the Global Health Security Agenda (GHSA)
- ESSENCE is part of the Comprehensive Health Surveillance (CHS) enterprise which is a collection of DoD surveillance system when used together improves surveillance across the Services
- DoDD 6490.02E (Comprehensive Health Surveillance)
- DoDI 6200.03 (Public Health Emergency Management within the DoD)

ESSENCE v5: Major Features

Interactive Time Series & Anomaly Detection

Pie/Bar Charts & Detailed Line Listings

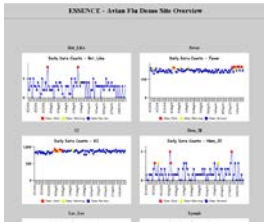


Interactive Mapping & Spatial Cluster Detection

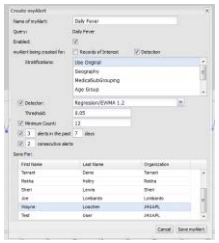
Table Builder: Crosstab & Pivots

Free-text & Advanced Querying

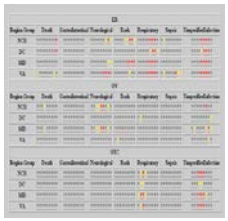
Event Communication



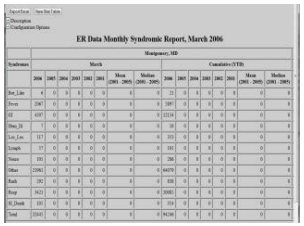
Overview Graphs



User customized myAlerts

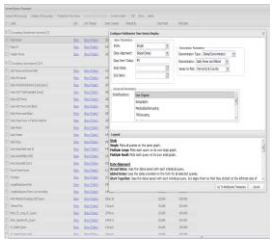


Temporal Detection

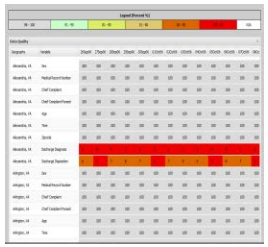


Statistical Report Builder

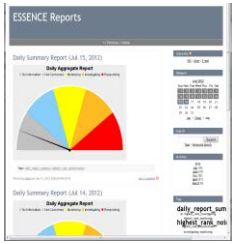
User customized myESSENCE Dashboards (e.g., plots, tables, maps)



Multi-Datasource & Denominator Queries



Data Quality Reports



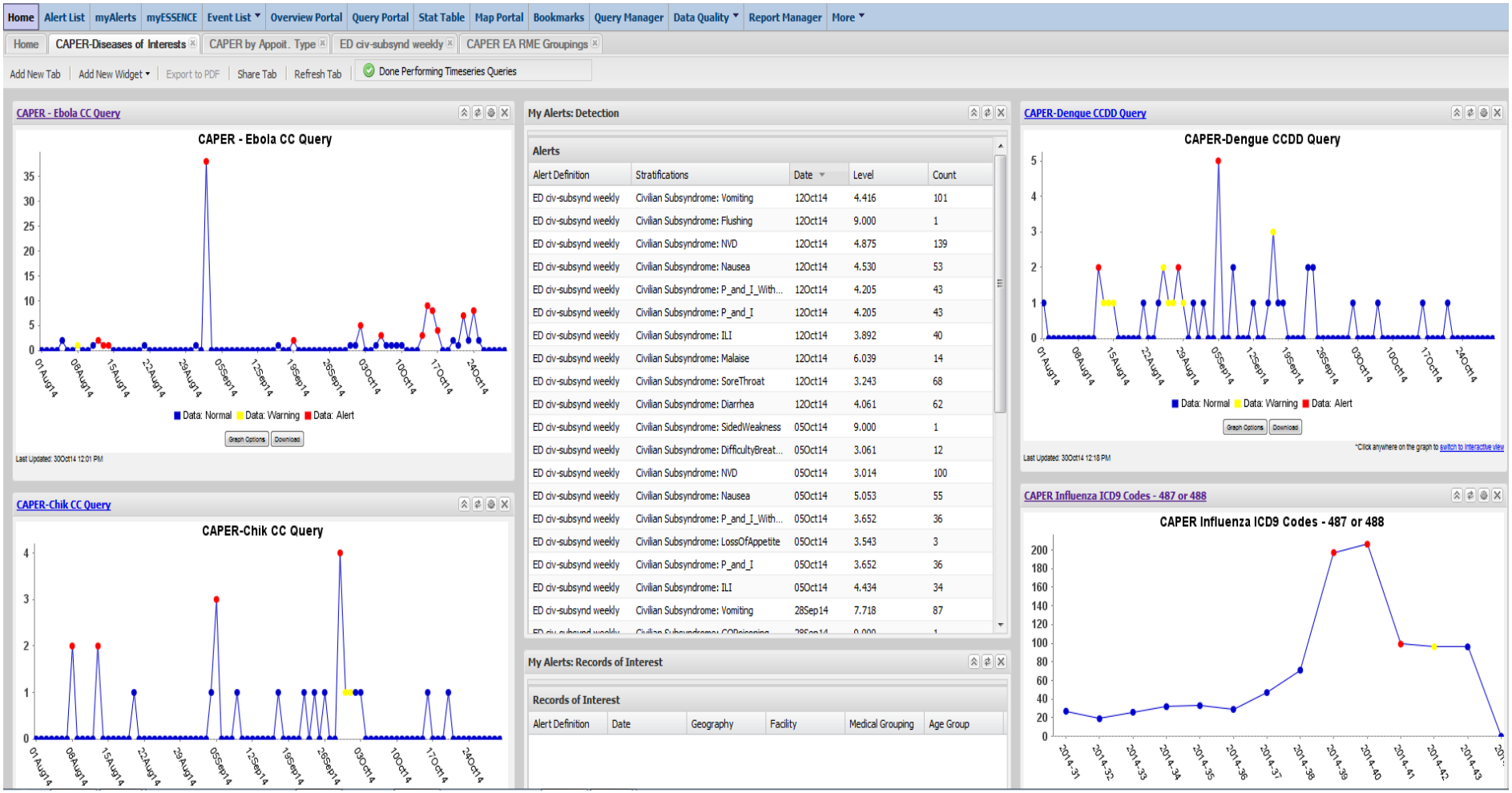
External Report Publishing

"Medically Ready Force…Ready Medical Force"

User Customized Workflows - "myESSENCE"

- User defined, multi-tabbed visualization dashboard
  - Time series
  - Maps
  - Data details "line-level" view
  - myAlerts – Detection and Records of Interest
  - Text boxes
  - Users can share their dashboards with other users

Example: myESSENCE Dashboard



"Medically Ready Force…Ready Medical Force"

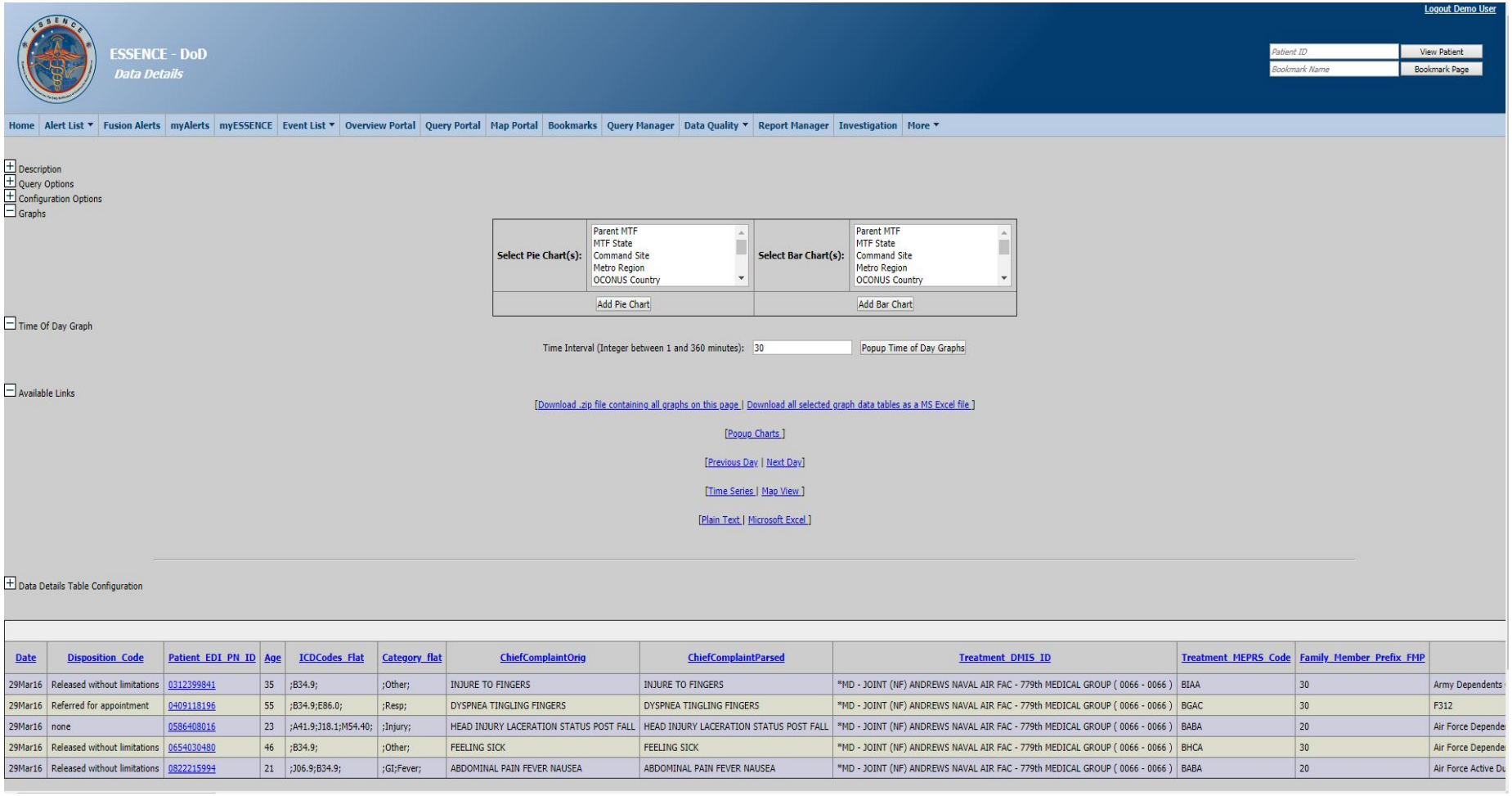
myESSENCE

- Check on “myESSENCE” tab to view preset and user customized dashboard

myESSENCE

- If alerts or unusual patterns are observed then investigate further by going into the data details

Data Details



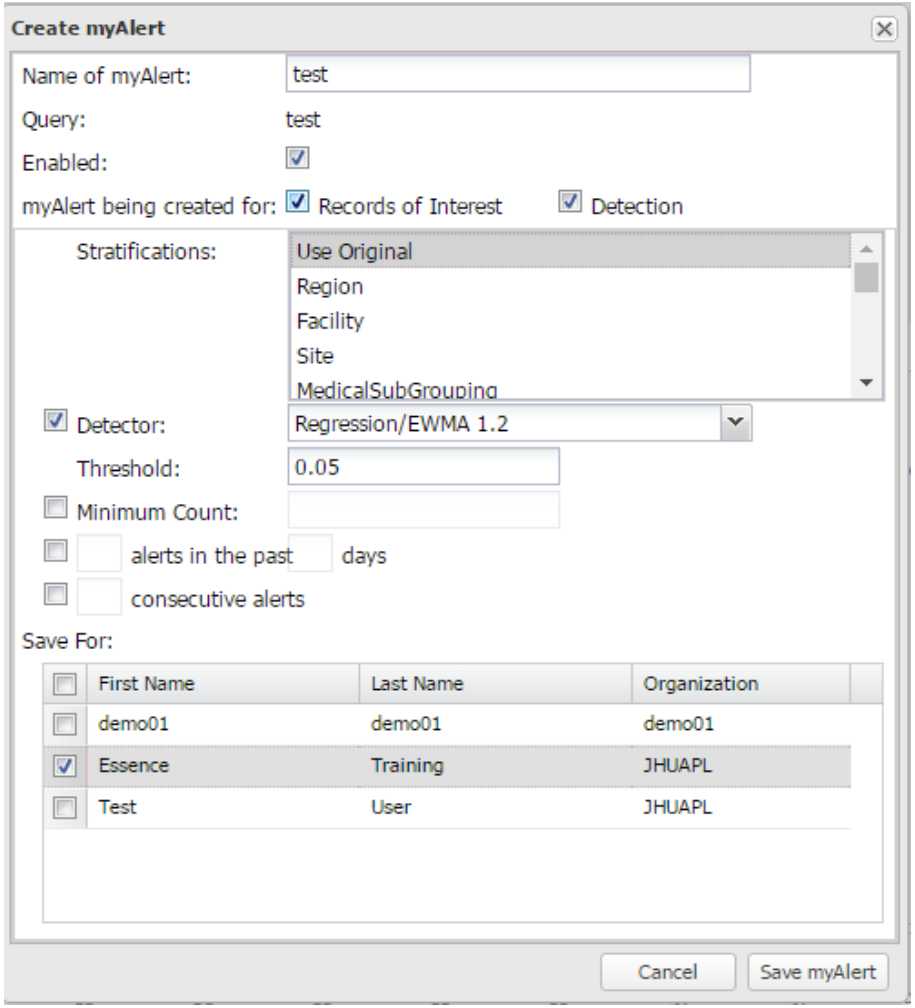
Date	Disposition_Code	Patient_EDI_PN_ID	Age	ICDCodes_Flat	Category_flat	ChiefComplaintOrig	ChiefComplaintParsed	Treatment_DMIS_ID	Treatment_MEPRS_Code	Family_Member_Prefix_FMP	
29Mar16	Released without limitations	0312399841	35	;B34.9;	;Other;	INJURE TO FINGERS	INJURE TO FINGERS	*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	BIAA	30	Army Dependents
29Mar16	Referred for appointment	0409118196	55	;B34.9;E86.0;	;Resp;	DYSPNEA TINGLING FINGERS	DYSPNEA TINGLING FINGERS	*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	BGAC	30	F312
29Mar16	none	0586408016	23	;A41.9;J18.1;M54.40;	;Injury;	HEAD INJURY LACERATION STATUS POST FALL	HEAD INJURY LACERATION STATUS POST FALL	*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	BABA	20	Air Force Depende
29Mar16	Released without limitations	0654030480	46	;B34.9;	;Other;	FEELING SICK	FEELING SICK	*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	BHCA	30	Air Force Depende
29Mar16	Released without limitations	0822215994	21	;J06.9;B34.9;	;GI;Fever;	ABDOMINAL PAIN FEVER NAUSEA	ABDOMINAL PAIN FEVER NAUSEA	*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	BABA	20	Air Force Active Du

- *Simulated data

User Customized Workflows - myAlerts

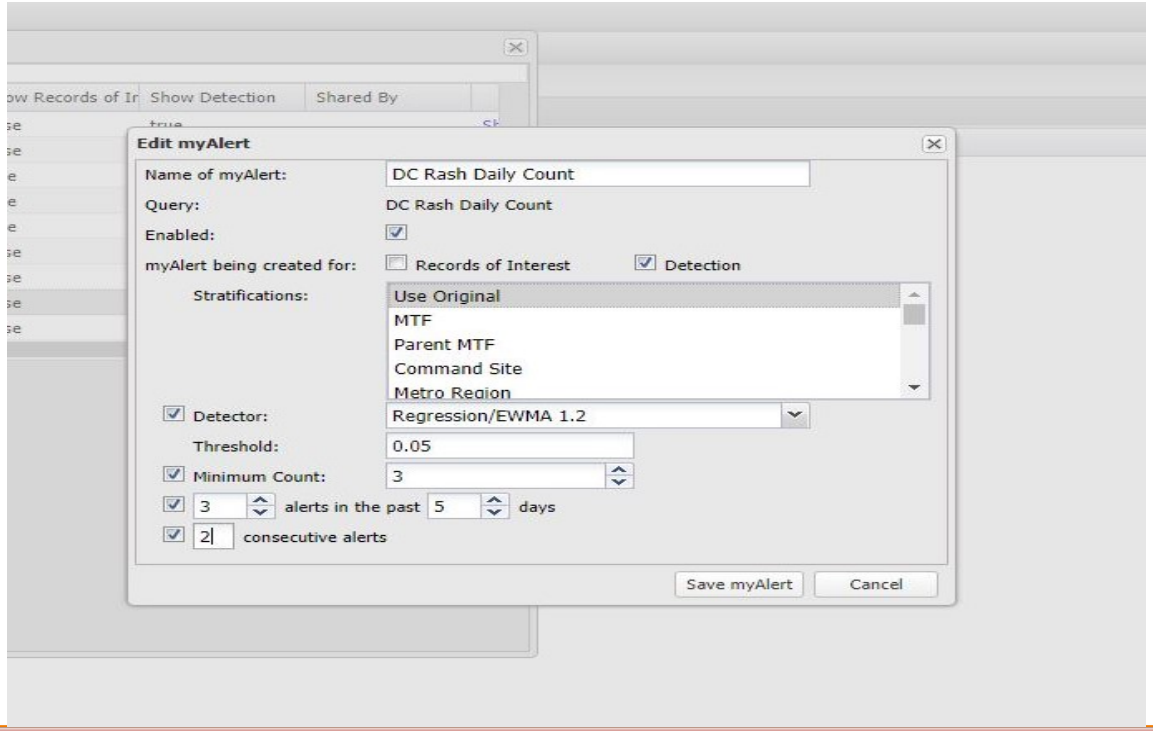
- Any query and data source can be saved by the user as a myAlert
- Detection
  - Statistically defined by user, and can include stratifications by additional categorical variables
- Records of Interest
  - Not statistically defined; presents a “line-level” record view whenever query definition is met
- Users can share their definitions with other users

Creating myAlerts



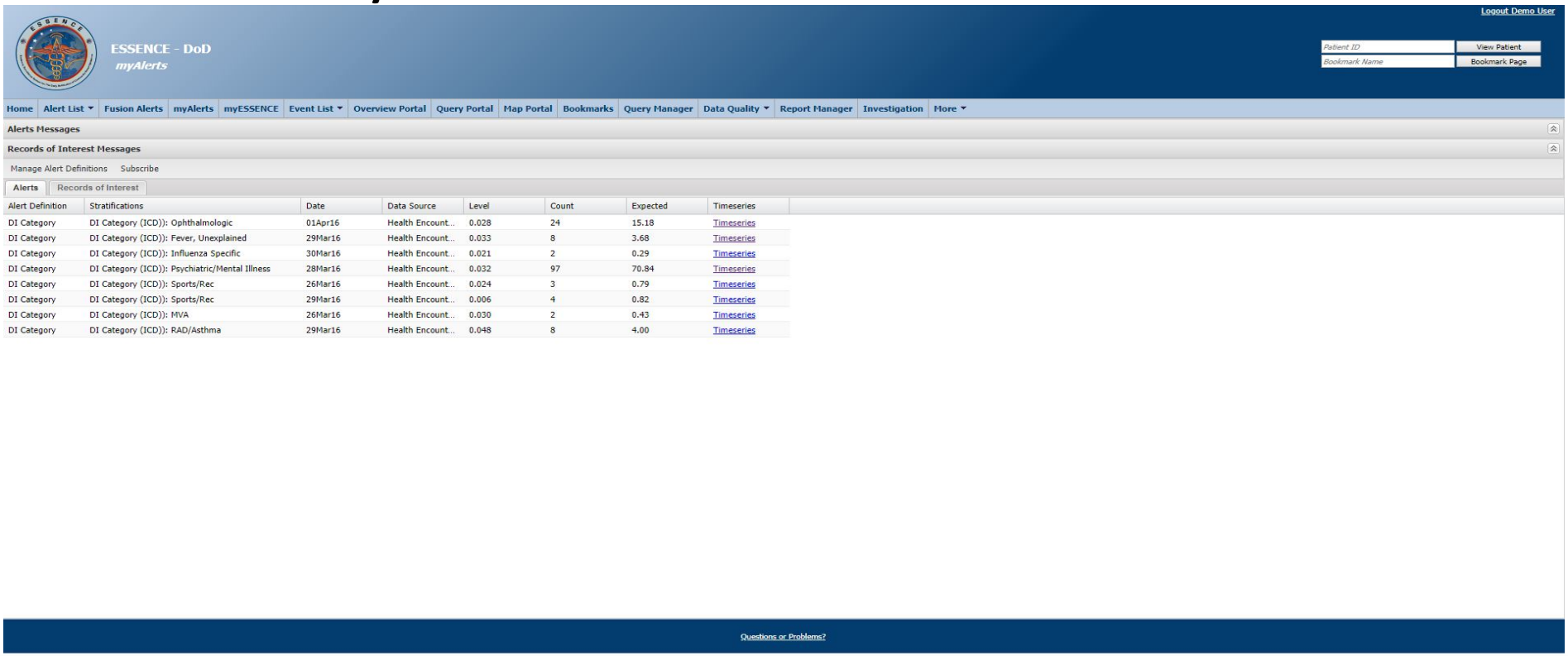
myAlerts Example

- Example- Rash myAlert using a minimum count of 3, notification of 3 alerts in 5 days, and 2 consecutive alerts.



myAlerts

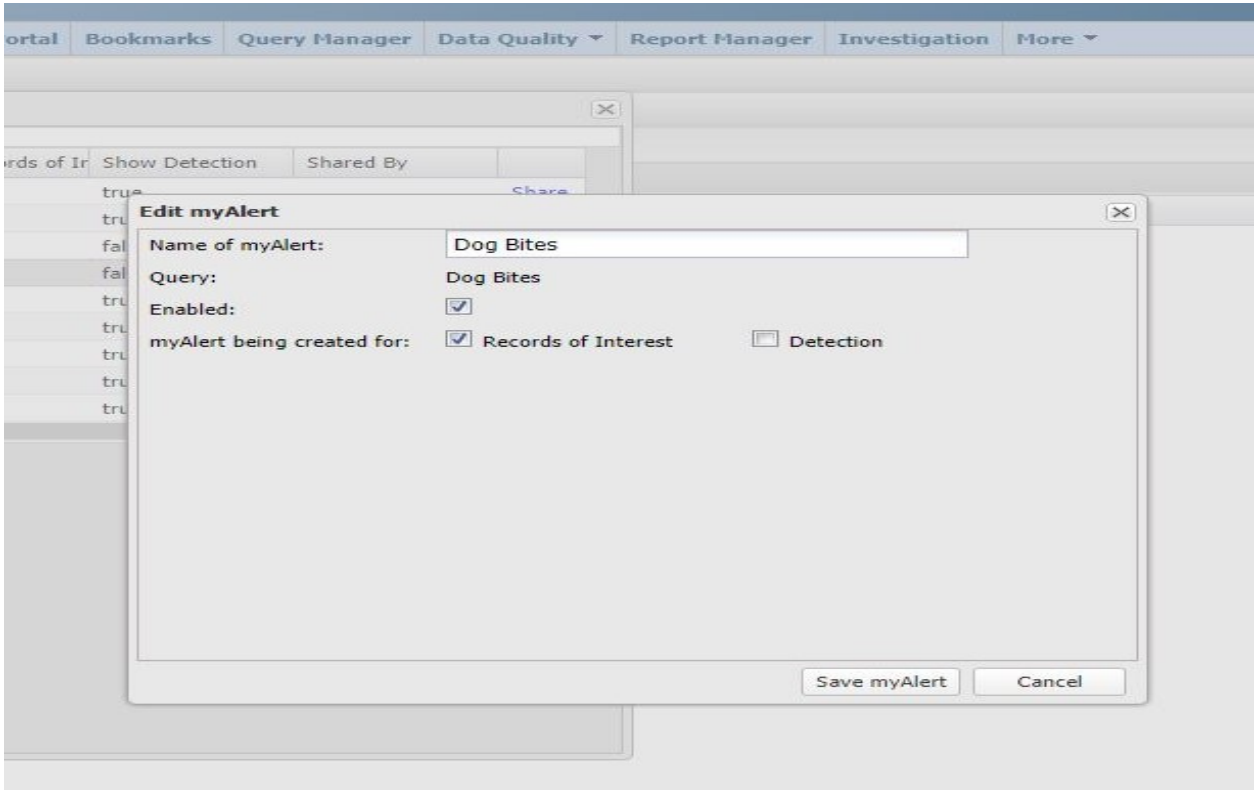
- New alerts are displayed in the “Alerts” tab under myAlerts



Alert Definition	Stratifications	Date	Data Source	Level	Count	Expected	Timeseries
DI Category	DI Category (ICD)): Ophthalmologic	01Apr16	Health Encount...	0.028	24	15.18	Timeseries
DI Category	DI Category (ICD)): Fever, Unexplained	29Mar16	Health Encount...	0.033	8	3.68	Timeseries
DI Category	DI Category (ICD)): Influenza Specific	30Mar16	Health Encount...	0.021	2	0.29	Timeseries
DI Category	DI Category (ICD)): Psychiatric/Mental Illness	28Mar16	Health Encount...	0.032	97	70.84	Timeseries
DI Category	DI Category (ICD)): Sports/Rec	26Mar16	Health Encount...	0.024	3	0.79	Timeseries
DI Category	DI Category (ICD)): Sports/Rec	29Mar16	Health Encount...	0.006	4	0.82	Timeseries
DI Category	DI Category (ICD)): MVA	26Mar16	Health Encount...	0.030	2	0.43	Timeseries
DI Category	DI Category (ICD)): RAD/Asthma	29Mar16	Health Encount...	0.048	8	4.00	Timeseries

Records of Interest- Example

- Example- A query to create a line listing of dog bites



Records of Interest- Example

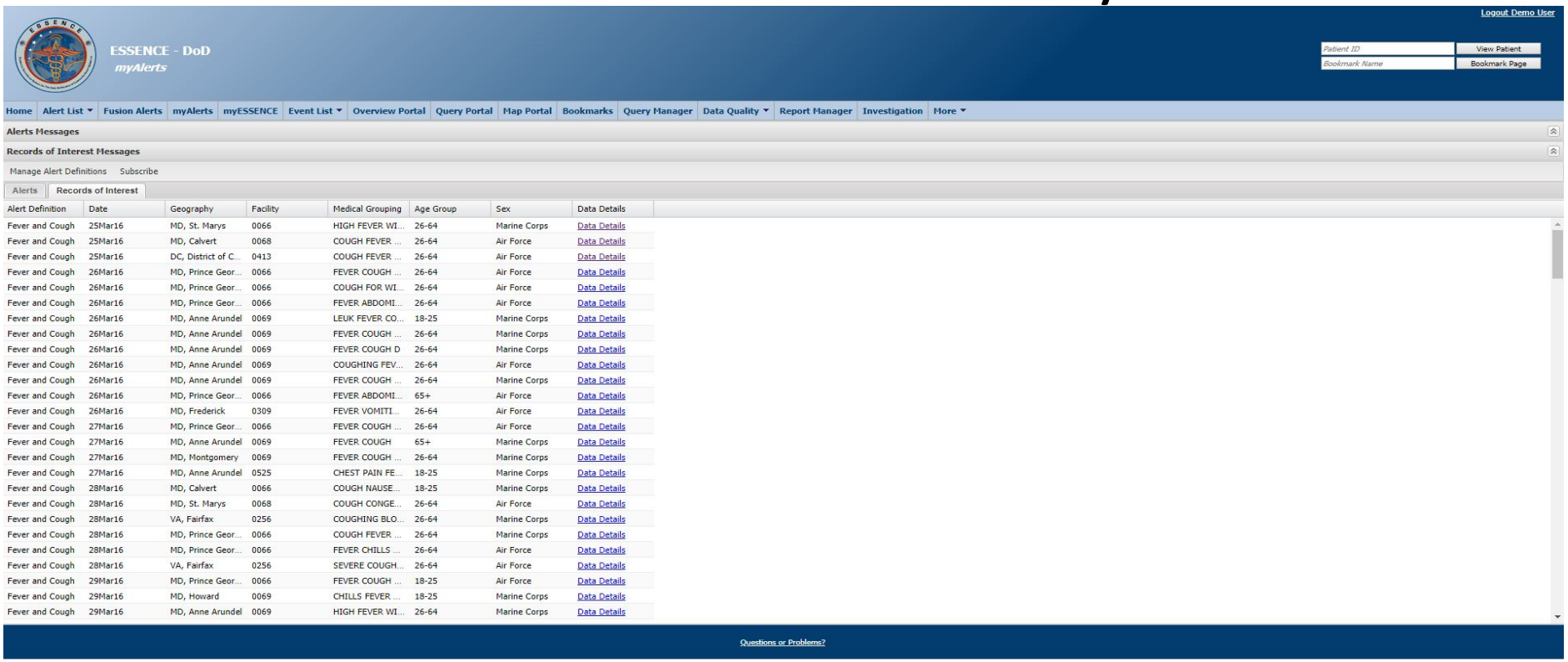
Data Details Table Configuration

Date	Disposition_Code	Patient_EDI_PN_ID	Age	ICDCodes_Flat	Category_flat	ChiefComplaintOrig	ChiefComplaintParsed	Treatment_DMIS_ID
15Feb16	none	0287021606	24	;F41.9;L73.1;	;Injury;	DOG BITES ON BOTH HANDS	DOG BITES ON BOTH HANDS	*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)
15Feb16	Released without limitations	0668230248	46	;Z23;	;Injury;	DOG BITES ON LEFT LEG	DOG BITES ON LEFT LEG	*MD - FT. MEADE - KIMBROUGH AMBULATORY CARE CENTER (0069 - 0069)

- *Simulated data

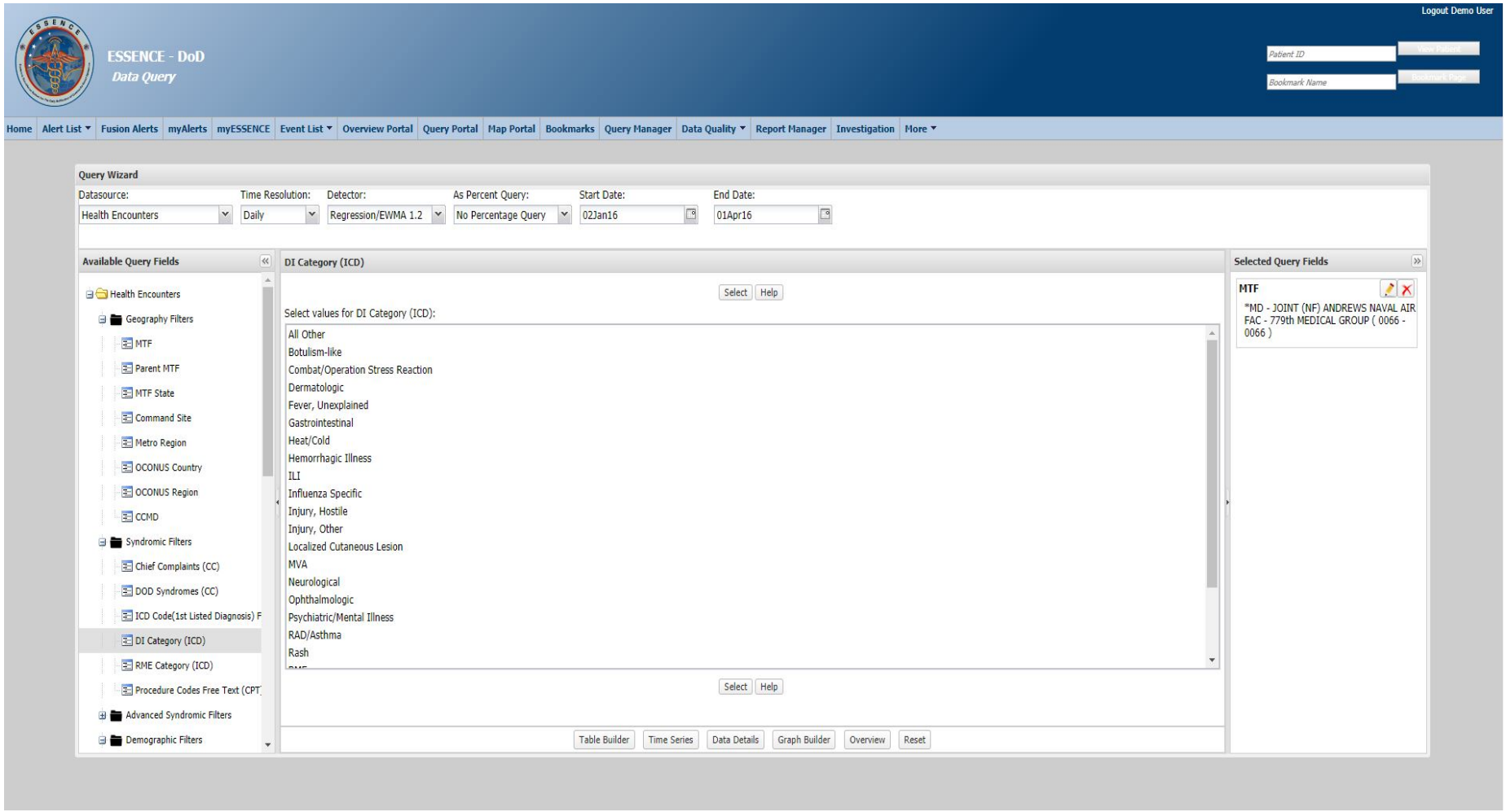
myAlerts

- Records of interest are displayed in the "Records of Interest" tab under myAlerts



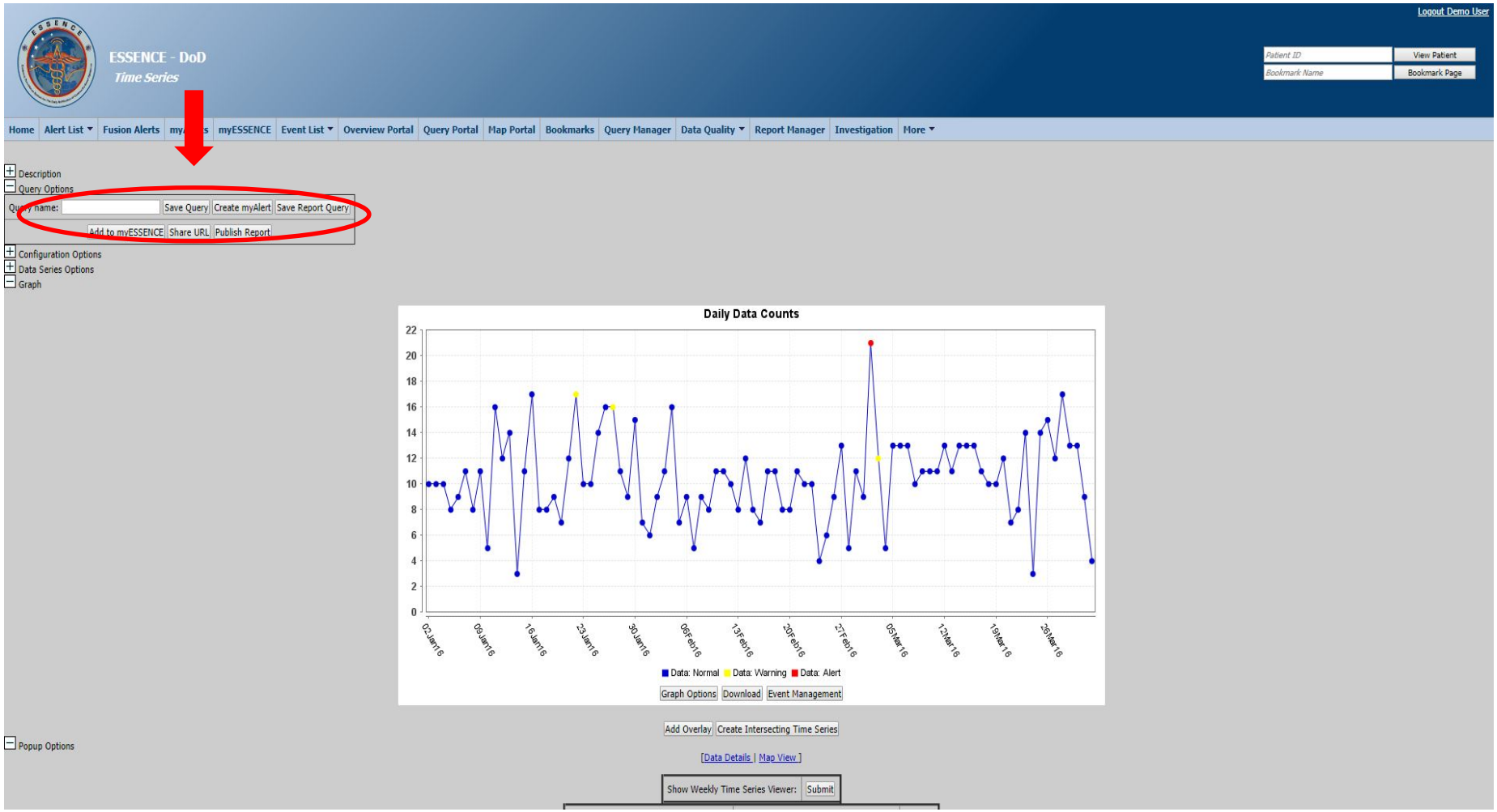
Alert Definition	Date	Geography	Facility	Medical Grouping	Age Group	Sex	Data Details
Fever and Cough	25Mar16	MD, St. Marys	0066	HIGH FEVER WI...	26-64	Marine Corps	Data Details
Fever and Cough	25Mar16	MD, Calvert	0068	COUGH FEVER ...	26-64	Air Force	Data Details
Fever and Cough	25Mar16	DC, District of C...	0413	COUGH FEVER ...	26-64	Air Force	Data Details
Fever and Cough	26Mar16	MD, Prince Geor...	0066	FEVER COUGH ...	26-64	Air Force	Data Details
Fever and Cough	26Mar16	MD, Prince Geor...	0066	COUGH FOR WI...	26-64	Air Force	Data Details
Fever and Cough	26Mar16	MD, Prince Geor...	0066	FEVER ABDOMI...	26-64	Air Force	Data Details
Fever and Cough	26Mar16	MD, Anne Arundel	0069	LEUK FEVER CO...	18-25	Marine Corps	Data Details
Fever and Cough	26Mar16	MD, Anne Arundel	0069	FEVER COUGH ...	26-64	Marine Corps	Data Details
Fever and Cough	26Mar16	MD, Anne Arundel	0069	FEVER COUGH D	26-64	Marine Corps	Data Details
Fever and Cough	26Mar16	MD, Anne Arundel	0069	COUGHING FEV...	26-64	Air Force	Data Details
Fever and Cough	26Mar16	MD, Anne Arundel	0069	FEVER COUGH ...	26-64	Marine Corps	Data Details
Fever and Cough	26Mar16	MD, Prince Geor...	0066	FEVER ABDOMI...	65+	Air Force	Data Details
Fever and Cough	26Mar16	MD, Frederick	0309	FEVER VOMITI...	26-64	Air Force	Data Details
Fever and Cough	27Mar16	MD, Prince Geor...	0066	FEVER COUGH ...	26-64	Air Force	Data Details
Fever and Cough	27Mar16	MD, Anne Arundel	0069	FEVER COUGH	65+	Marine Corps	Data Details
Fever and Cough	27Mar16	MD, Montgomery	0069	FEVER COUGH ...	26-64	Marine Corps	Data Details
Fever and Cough	27Mar16	MD, Anne Arundel	0525	CHEST PAIN FE...	18-25	Marine Corps	Data Details
Fever and Cough	28Mar16	MD, Calvert	0066	COUGH NAUSE...	18-25	Marine Corps	Data Details
Fever and Cough	28Mar16	MD, St. Marys	0068	COUGH CONGE...	26-64	Air Force	Data Details
Fever and Cough	28Mar16	VA, Fairfax	0256	COUGHING BLO...	26-64	Marine Corps	Data Details
Fever and Cough	28Mar16	MD, Prince Geor...	0066	COUGH FEVER ...	26-64	Marine Corps	Data Details
Fever and Cough	28Mar16	MD, Prince Geor...	0066	FEVER CHILLS ...	26-64	Air Force	Data Details
Fever and Cough	28Mar16	VA, Fairfax	0256	SEVERE COUGH...	26-64	Air Force	Data Details
Fever and Cough	29Mar16	MD, Prince Geor...	0066	FEVER COUGH ...	18-25	Air Force	Data Details
Fever and Cough	29Mar16	MD, Howard	0069	CHILLS FEVER ...	18-25	Marine Corps	Data Details
Fever and Cough	29Mar16	MD, Anne Arundel	0069	HIGH FEVER WI...	26-64	Marine Corps	Data Details

Query Portal



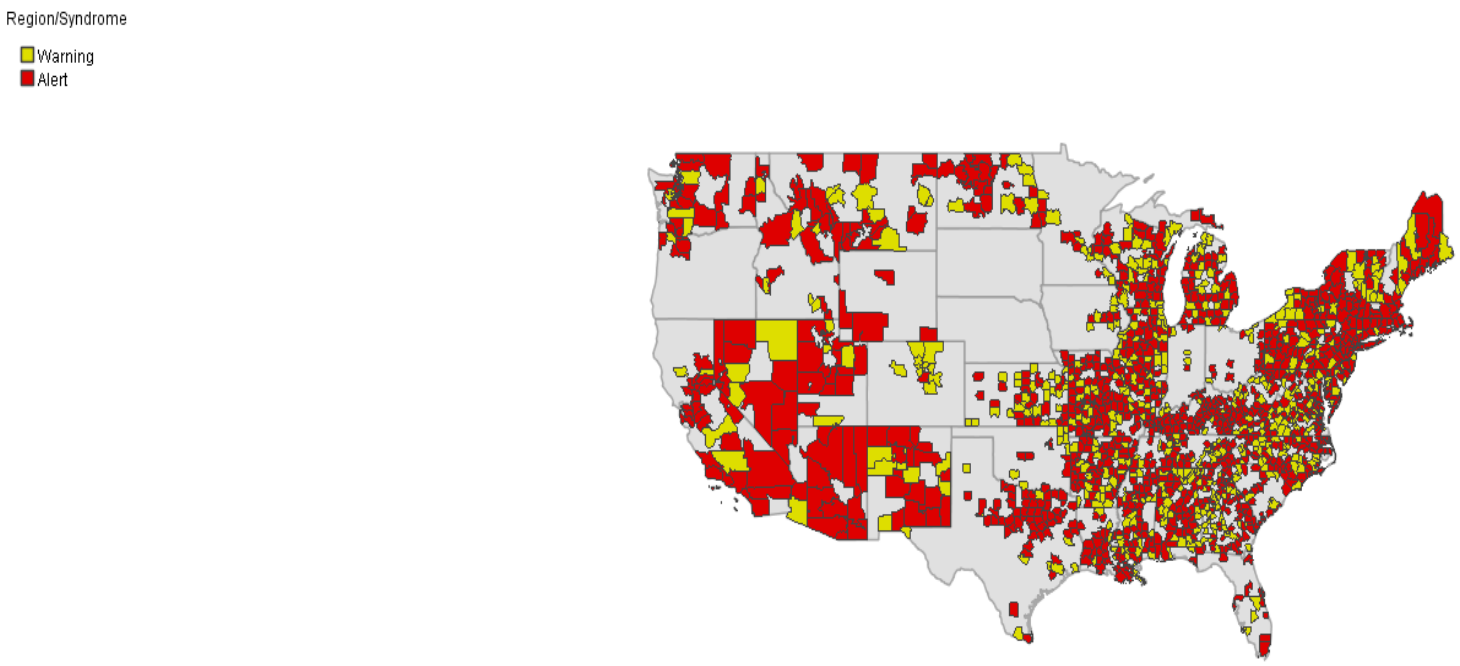
"Medically Ready Force…Ready Medical Force"

Query Portal



"Medically Ready Force…Ready Medical Force"

Maps



Automated Data Quality Checks

- File level metrics
  - Did I get the number of expected files or facilities on a given day?
- Variable level metrics
  - How complete was each variable within the file per day over time?
  - Were all values mapped correctly to the set values?
- Data quality alerts
  - Visualize changes in data quality per data source and quality factor over time

Data Quality

Legend (Percent %)						
96 - 100	91 - 95	81 - 90	51 - 80	06 - 50	00 - 05	N/A

Data Quality

Geography	Variable	01Feb16	02Feb16	03Feb16	04Feb16	05Feb16	06Feb16	07Feb16	08Feb16
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Sex	100	100	100	100	100	100	100	100
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	ICD Code,1st Listed Diagnosis	100	100	100	100	100	100	100	100
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Age	100	100	100	100	100	100	100	100
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Reason for Appointment	100	100	100	100	100	100	100	100
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Zipcode	100	100	100	100	100	100	100	99
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Discharge Diagnosis	100	100	100	100	100	100	100	100
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Family Member Prefix (FMP)	100	100	100	100	100	100	100	100
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Disposition Code	84	83	85	85	86	88	86	86
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Patient Category	100	100	100	100	100	100	100	100
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Chief Complaint	100	100	100	100	100	100	100	100
*MD - JOINT (NF) ANDREWS NAVAL AIR FAC - 779th MEDICAL GROUP (0066 - 0066)	Chief Complaint Parsed	100	100	100	100	100	100	100	100

Report Manager

- Template-based document for user created surveillance reports
- All graphics are linked to underlying system data and updated automatically when report it run
- Text boxes for describing the methods and data in your report

Report Manager- Template

VOLUME 1 ISSUE 2

ESSENCE Newsletter

Newsletter Date

Inside This Issue

1 Saving Queries
1 Time Series Graph Example
2 Mapping Example
2 Conclusion

HELP: You can change what graph gets displayed by right clicking on the image, selecting "Alt Text", and replacing the text between <!@@ and @@> with the query name from the Available Queries tab under the Report Manager section.

The time series image

Saving Queries

The ESSENCE report functionality allows users to save off time series and map queries to be used when building reports.

Saving a time series query:

1. When looking at a time series graph, fill in a "Query name" under the "Query Options" section in the upper left hand side of the screen.
2. Click the "Save Report Query" button; this will pop up a window that allows you to share your report query while saving.
3. Click the "save" button; your query will now show up in the Available Queries tab in the Report Manager section, and will be available for use when building reports.

Saving a map query:

1. When viewing a map, click the "Download Flattened Map Image" button.
2. Click the "Save For Report" button and follow the same steps that you did when saving a time series query.

Fever Time Series Graph Example

FILL IN ALT TEXT WITH URL

PAGE 2 ESSENCE NEWSLETTER

HELP: You can change what map gets displayed by right clicking on the image, selecting "Alt Text", and replacing the text between <!@@ and @@> with the query name from the Available Queries tab under the Report Manager section.

If no query matches, the image is left alone. The image must use the "In Line" layout option.

GI Example

FILL IN ALT TEXT WITH URL

Figure 2 - Example of an inserted alert map.

Conclusion

Create custom report using your own word templates and maps and charts pulled from ESSENCE.

Questions

Contact Information

- **Army**: APHC – Disease Epidemiology Division
  Aberdeen Proving Ground – MD
  COMM: (410) 436-7605 DSN: 584-7605
  Email: usarmy.apg.medcom-aphc.mbx.disease-epidemiologyprogram13@mail.mil

- **Navy**: NMCPHC Preventive Medicine Programs and Policy Support Department
  COMM: (757) 953-0700; DSN: (312) 377-0700
  Email: usn.hampton-roads.navmcpubhlthcenpors.list.nmcphc-threatassess@mail.mil
  Contact your cognizant NEPMU

  NEPMU2: COMM: (757) 950-6600; DSN: (312) 377-6600
  Email: usn.hampton-roads.navhospporsva.list.nepmu2norfolk- threatassess@mail.mil

  NEPMU5: COMM: (619) 556-7070; DSN (312) 526-7070
  Email: usn.san-diego.navenpvntmedufive.list.nepmu5-health-surveillance@mail.mil

  NEPMU6: COMM: (808) 471-0237; DSN: (315) 471-0237
  Email: usn.jbphh.navenpvntmedusixhi.list.nepmu6@mail.mil

  NEPMU7: COMM (int): 011-34-956-82-2230 (local): 727-2230; DSN: 94-314-727-2230
  Email: NEPMU7@eu.navy.mil

- **Air Force**: Contact your MAJCOM PH or USAFSAM/PHR
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