

ABSTRACT

Adapting a syndromic biosurveillance system to monitor veterans' health impact associated with the gulf coast oil spill

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Objective

To describe a surveillance system created to identify acute health issues potentially associated with the Deepwater Horizon oil spill among Veterans in the Gulf of Mexico coastal region.

Introduction

On 20 April 2010, an explosion on an offshore drilling rig in the Gulf of Mexico led to a prolonged uncontrolled release of crude oil. Both clean-up workers and coastal residents were potentially at high risk for respiratory and other acute health effects from exposure to crude oil and its derivatives, yet there was no surveillance system available to monitor these health effects. The Department of Veterans Affairs (VA) conducts routine surveillance for biological threats using the *Electronic Surveillance System for Early Notification of Community Based Epidemics* (ESSENCE).¹ ESSENCE captures specific patient care visit ICD-nine codes belonging to selected conditions that could represent a biological threat. VA operates 153 medical centers and over 1000 free standing patient care facilities across the United States. We describe the adaptation of ESSENCE to allow surveillance of health conditions potentially related to the oil spill.

Methods

VA facilities in the immediate gulf coast region were identified. The ICD-nine codes resulting from patient visits to 34 VA coastal emergency departments and outpatient clinics along the Florida gulf coast and panhandle and coastal areas of Alabama, Mississippi, Louisiana and Texas were downloaded weekly from ESSENCE starting on MMWR week 32 (27 June–03 July). ICD-nine codes were grouped into five syndrome categories; respiratory (excluding

Table 1 Summary of yellow and red alerts detected by ESSENCE at 34 VA gulf coast facilities, 26 June–28 August, 2010

State	Syndrome	Dates	Sustained?
Florida—Gulf Coast	Respiratory	July 4–10	No
Florida—Gulf Coast	Respiratory	July 11–17	No
Louisiana	Asthma	July 11–17	No
Mississippi	Heat Effects	July 25–31	No
Florida—panhandle	Respiratory	August 1–7	No
Louisiana	Gastrointestinal	August 15–21	No
Texas	Respiratory	August 15–21	No
Texas	Asthma	August 15–21	YES
Texas	Asthma	August 21–28	Pending
Mississippi	Respiratory	August 21–28	Pending
Louisiana	Asthma	August 21–28	Pending

asthma), asthma, gastrointestinal, heat effects and neurological. Weekly visits counts for each of these syndromes were summarized in tables by state. The current frequency for each syndrome was compared with the frequency during the same week in 2009. Current measures that were significantly above modeling predictions for at least 1 day during the week were flagged as yellow (above 95% CI) or red (above 99% CI) alerts, respectively, for further investigation.

Results

To date, there has been one sustained significant increase in the frequency of asthma noted in coastal Texas. Sporadic, non-sustained, increases in respiratory, digestive and asthma syndromes have been identified in other geographic regions and are being monitored (Table 1).

Conclusions

Monitoring acute health effects potentially associated with the Gulf oil spill is critical to provide an understanding of the

impact of the spill and improving the ability of the VA to care for those residing and/or working in the gulf coast area. VA has adapted ESSENCE to perform surveillance for medical syndromes to provide an early warning for acute health effects potentially associated with the spill. The ESSENCE modifications were rapidly developed and implemented using existing resources. The modified system is able to provide real-time indication of the health impact because of either natural or man-made environmental crises.

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Reference

- 1 Lombardo JS, Burkom H, Pavlin J. ESSENCE II and the framework for evaluating syndromic surveillance systems. *MMWR* 2004;53 (Suppl): 159–65.