Surveillance of poison center data using the National Poison Data System web service

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Objective

Enhance Oregon ESSENCE by integrating data from the Oregon Poison Center (OPC) in a cost-effective manner.

Introduction

Oregon Health Authority (OHA), in collaboration with the Johns Hopkins University Applied Physics Laboratory, recently implemented Oregon ESSENCE, an automated, electronic syndromic surveillance system. One way to strengthen syndromic surveillance is to include data from multiple sources. We are integrating data from emergency departments, state notifiable conditions and vital statistics and the Oregon Poison Center (OPC). Implementing ESSENCE in Oregon provided the opportunity to automate poison center surveillance, which was previously done manually. In order to achieve this, OHA needed a daily data feed of OPC data to upload into Oregon ESSENCE servers. For OPC to do this directly, they would have incurred significant costs to develop the necessary electronic infrastructure to query and send the data; furthermore, OPC does not employ IT staff. OHA does not currently have funding available to support IT system interoperability with Oregon ESSENCE; so, we sought a low-cost solution that would build upon existing systems that utilized the National Poison Data System (NPDS) web service.

Methods

OPC facilitated OHA access to the NPDS web service, which OHA could use free of charge. Access to the web service consisted of requesting approval from the local poison center and adhering to an NPDS web service data use agreement between OPC and OHA. We use FileMaker, a commercial off the shelf database application, to automatically query the NPDS web service on a daily basis. The queried data are then automatically sent from a local database temporarily storing the information to the ESSENCE servers. OHA already uses FileMaker for managing notifiable conditions data (i.e., communicable disease reporting); so, there were no new licensing costs associated with this method.

Results

OPC data are available within the ESSENCE application to OHA syndromic surveillance staff. Sending OPC data into ESSENCE allows OHA staff to monitor timely OPC data in an automated, routine manner. When alerts are generated within the ESSENCE system, they are first assessed by syndromic surveillance staff. Those that require follow-up trigger a call between OHA and OPC. Oregon is the first state to use the NPDS web service to upload poison center data into ESSENCE.

Conclusions

OHA previously monitored OPC data using two methods: (1) through the NPDS system using a web-based interface; and (2) through ToxiTrack, poison center database software. ToxiTrack software is a companion software to Toxicall®, the data collection software system utilized by OPC. Data from Toxicall were transferred via VPN to OHA, where ToxiTrack software was used to view data. Although both of these systems provide unique capabilities for viewing summarized case data, there are limitations in their functionality for situational awareness. ESSENCE offers OHA the ability to easily analyze and report on these data and geospatial graphing capabilities without having to use additional statistical and GIS software.

Integration of poison center data into Oregon ESSENCE supports the initiative to develop a statewide syndromic surveillance system that includes a variety of data sources. It also addresses the need for improved, timely communication between OPC and OHA that was identified following Oregon's response to the 2011 Japanese Earthquake and Radiation event. Because OPC data are integrated into ESSENCE, OHA staff members are able to develop an understanding of expected call volumes and types during day-to-day operations. This is an important component of ongoing situational awareness as we learn what to expect and also how to interpret data from OPC. This resource-effective solution can be applied to jurisdictions that use a variety of applications to monitor their poison center data.

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