

Syndromic Surveillance Reporting via CDC's Public Health Information Grid

Michael Klompas, MD MPH,^{1,2} Richard Platt, MD MSc,^{1,2} Ross Lazarus, MBBCh MPH^{1,2}

¹CDC Center of Excellence in Public Health Informatics, Department of Ambulatory Care and Prevention, Harvard Medical School and Harvard Pilgrim Healthcare, Boston, MA; ²Channing Laboratory, Brigham and Women's Hospital, Boston, MA.

OBJECTIVE

To implement a syndromic surveillance system on CDC's public health information grid, capable of securely distributing syndromic data streams ranging from aggregate case counts to individual case details, to appropriate personnel.

BACKGROUND

CDC is building a public health information grid to enable controlled distribution of data, services and applications for researchers, Federal authorities, local and state health departments nationwide, enabling efficient controlled sharing of data and analytical tools.[1] Federated aggregate analysis of distributed data sources may detect clusters that might be invisible to smaller, isolated systems. Success of the public health grid is contingent upon the number of participating agencies and the quantity, quality, and utility of data and applications available for sharing. Grid protocols allow data owners to control data access, but requires a model to control the level of identifiability of depending upon the user's permissions. Here, we describe a work currently in progress involving the design and implementation of an ambulatory syndromic surveillance data stream generator for the public health grid. The project is intended to broadly disseminate aggregate syndrome counts for general use by the public health community, to develop a model for sharing varying levels of identifiable data on cases depending upon the user, and to facilitate ongoing development of the grid.

METHODS

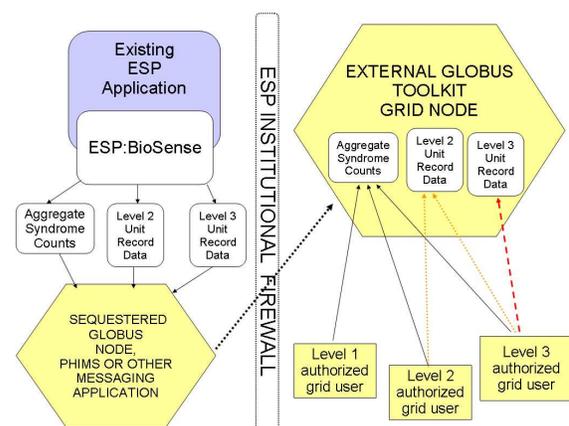
A grid node has been deployed to serve Atrius Health, a large multisite, multispecialty ambulatory medical practice serving over 600,000 patients predominantly in eastern Massachusetts. Standard CDC-defined ICD9- and temperature-based syndrome algorithms developed for the National Bioterrorism Demonstration Project[2] will be applied to ambulatory encounter data gathered nightly by the Electronic medical record Support for Public Health system (ESP).[3]

RESULTS

Implementation is currently underway. ESP comprises a dedicated server populated with nightly extracts of ambulatory encounter data from the electronic medical record system of Atrius Health. ESP currently analyzes this data to submit fully-identifiable case reports on patients with notifiable conditions to the state health department.[4]

The syndromic surveillance ESP module will vary the level of report granularity to suit a range of user access privileges for controlled access. Reports will range from de-identified aggregate counts stratified by time period and zip code for users with the lowest access privileges, to semi-identified unit records with age, gender, and geocode for users with intermediate access privileges, to fully identifiable unit records with patient names and addresses accessible only to highly privileged users such as state health department officials investigating an incident. The system architecture is depicted in Figure 1.

Figure 1: Proposed system architecture overview



CONCLUSIONS

Automated and controlled distribution of syndromic surveillance and other public health data such as VAERS reports through the CDC's nascent public health grid will leverage a new paradigm for sharing public health information and applications.

SUPPORT

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