BioSense

Real-Time Biosurveillance

Overview

Picture a surveillance system that provides a real-time view of human health events as they unfold in a specific jurisdiction. Now imagine that view linked to current data collected across the nation. Access to such data will be invaluable in making public health decisions and coordinating a response to disease, bioterrorism, or catastrophe. BioSense, a national human health surveillance system developed and hosted by Centers for Disease Control and Prevention (CDC), was designed for just that purpose.

By giving real-time access to data, BioSense can:

- Help confirm or refute the existence of an event
- Monitor the size, location, and rate of an outbreak
- Provide local, state, and nationwide health situational awareness for suspect illnesses before, during, and after an outbreak.

In 2008 the BioSense Program will focus on:

- Using BioSense to monitor and direct the CDC's response to the 2008 influenza season
- Enhancing BioSense data warehouse to improve its efficiency and reduce maintenance costs
- Testing the effectiveness of connecting BioSense to the clinical care system through Health Information Exchanges and the Nationwide Health Information Network
- Evaluating technologies for federation of the BioSense database with existing state and local surveillance databases to create a nationwide biosurveillance system
- Testing integration of the BioSense system with the National Electronic Disease Surveillance System for automated laboratory reporting to state and local public health authorities
- Developing technologies for automated detection of suspected cases of infection with bioterrorism relevant agents from clinical data streams
- Developing an open-source strategy for maintenance and extension of BioSense with state and local public health partners

Better Coordination with Public Health

BioSense enhances coordination between all levels of public health and health care by providing access to the same data at the same time. Simultaneous data access produces a faster and more coordinated response in the community by reducing the phone calls and paperwork required by public health investigations.

Data Sources

BioSense is a "system of systems"— linking data from large hospital systems, data-aggregating systems, and state/county surveillance systems to provide a unified national view. BioSense seeks to align with the Cities Readiness Initiative, BioWatch, and other federal preparedness initiatives. The system also aims to enroll data sources that cover the largest population in each state. Data sources include:

- State/regional surveillance systems
- Local and regional hospitals and health care systems
- National laboratories
- Department of Defense (DoD)
- Department of Veterans Affairs (VA)

In the future, BioSense plans to include relevant over-the-counter drug sales and poison control data and to work with Regional Health Information Organizations as they become available.

New Uses of BioSense Data

BioSense will incorporate a new Influenza Module to collect data from distinct influenza surveillance sources. The new Influenza Module will collate data useful for detecting, monitoring, and preventing influenza and will present the data in a form that state public health officials and surveillance coordinators and CDC epidemiologists can all use.

In addition, the CDC BioIntelligence Center is studying how to use specific BioSense data for research into gastrointestinal illness. BioSense users will also be able to request increasingly complex data sets with an advanced query feature.

Visit the webpage at www.cdc.gov/biosense, or e-mail Biosensehelp@cdc.gov.

BioSense

Simultaneous Data Access for Local, State, and Federal Public Health Decision Makers

Data, Information, Knowledge

Response

Bioterrorism Attacks • Catastrophic Emergencies • Disease Outbreaks

DOD/VA

Healthcare Delivery Organizations

Existing Public Health Surveillance Systems

Laboratory Organizations

Poison Control Centers

RHIO's/HIE's

Emergency Dept. Data

Chief Complaint

Laboratory Tests

Results

Radiology

Results

Pharmacy

Orders

Hospital

Capacity

Interpret

Detect

Integrate

Real-Time Information

Monitor

Coordinate

Analyze

Assess

Activate Alert Systems

Stakeholder Response

Interventions

Response & Recovery

Safer Communities

Stakeholders

State and Local Health Departments

Hospitals

Federal Agencies

Business and Industry

Policy Makers

First Responders

Media

Public

Early Event Detection • Health Situational Awareness • Public Health Response

RHIO - Regional Health Information Organizations

HIE - Health Information Exchanges

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