Biosurveillance Information Service
BioServ

USAPHC
U.S. ARMY PUBLIC HEALTH COMMAND

PACIFIC DISASTER CENTER

Biosurveillance Information Service (Bioserv)

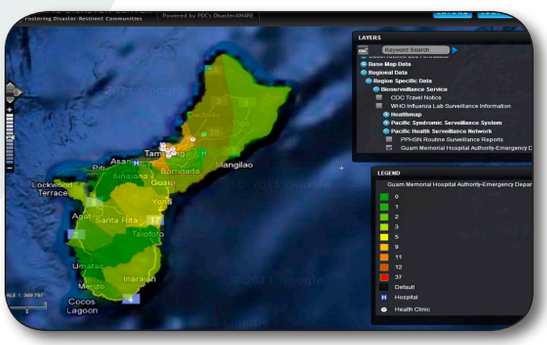
PDC and DoD Collaborate on Biosurveillance Information Service

Emerging infectious disease outbreaks and complex humanitarian emergencies are among the greatest challenges in disaster preparedness and public health. The increased mobility of modern populations means that infectious disease outbreaks spread faster and affect larger populations. Environmental change affects human health directly as well as indirectly through changes in animal health and vector populations and distribution. Human-caused and natural disasters impact health through changes in the physical and political environments.

Situational Awareness for Public Health Practitioners

To promote shared situational awareness during a broad spectrum of public health disasters an accessible, comprehensive, and timely information service that maps and displays significant global disease and health events is needed. Several data sources currently provide biosurveillance information to public health practitioners, but none tie together human, animal, and vector surveillance.

The large volume of data from numerous sources presents several challenges. Organizations may report information on similar topics, but with a narrow focus on their own geographic or thematic area. Formatting and access protocols among data sources are inconsistent. Data are not represented geospatially, creating obstacles to meaningful analysis of disease outbreaks with respect to population centers, transportation links, environmental changes, and health care resources.

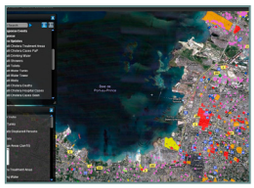


Total number of influenza cases per Guam municipality are displayed using data from the Pacific Public Health Surveillance Network

BioServ Goals

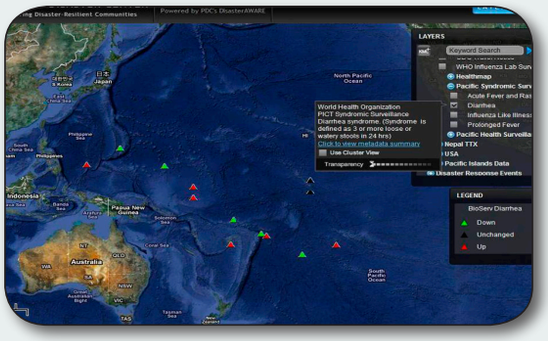
» Incorporate human, animal, and environmental data from open sources along with key infrastructure data into a single information service.

» Use PDC's DisasterAWARE for display, assessment and alerting of disparate disease and biosurveillance data in humans, animals, and vectors.



» Map and visualize disease and biosurveillance data to facilitate decision making for public health practitioners.

» Establish automated procedures to actively maintain a central repository for global open source health surveillance data.



Pacific Syndromic Surveillance System category with four different symptomatic layers (Acute Fever and Rash, Diarrhea, Influenza-like Illness and Prolonged Fever).

World Health Organization Influenza Laboratory Surveillance Information displaying Influenza-like Illness Activity (i.e. local outbreak, sporadic activity, no activity, etc.) by country.

Biosurveillance Service Pilot Project

PDC and DoD are collaborating on a pilot project to demonstrate a web-based biosurveillance information service. Five open source data layers are being incorporated into BioServ to test and refine preliminary data processing and display:

- HealthMap
- Centers for Disease Control (CDC) Travel Outbreak Notices
- World Health Organization (WHO) Influenza Laboratory Surveillance Information
- Pacific Syndromic Surveillance System
- Pacific Public Health Surveillance Network

This pilot project will focus on automating the data and integrating them with other information resources in DisasterAWARE, allowing operators to quickly identify health concerns within their areas of interest. A formal demonstration of the service, as well as training on using the DisasterAWARE platform, is also planned.

Integrating Disease and Health Warning Data via PDC's DisasterAWARE

Pacific Disaster Center (PDC), the U.S. Army Public Health Command (USAPHC), and the U.S. Naval Medical Research Unit 2 (NAMRU2) have teamed to pilot a GIS-based biosurveillance information service, BioServ, that will integrate authoritative data related to disease incidents and health warnings into PDC's DisasterAWARE decision support platform, linking animal and vector data with human health. Versions of DisasterAWARE—RAPIDS within the Department of Defense (DoD) and EMOPS for authorized civilian agencies—are already widely used to monitor geological and meteorological hazards, including tsunamis, earthquakes, hurricanes, floods, and volcanoes.

A web-based GIS biosurveillance system overcomes the limitations outlined above for existing systems and offers the following benefits to public health planners and decision makers:

- Facilitates decision making – information is presented in an easily-interpreted format;
- Aids in targeting interventions – disease distribution is visually represented, which
- Helps focus education efforts in appropriate areas – disease, injuries, and deaths are mapped along with population distribution; and
- Saves time – a robust picture of overall threats, as well as resource and guidance information, is available to health planners via one easily accessible web site.

For more information or to see a demonstration please contact:

- Malinda Braland (DC Metro Area)
  Pacific Disaster Center
  mbraland@pdc.org
- Captain Gail Hathaway (Hawaii)
  US Naval Medical Research Unit -2
  gail.hathaway@med.navy.mil
- Colonel Mike Brumage (Japan)
  US Army Public Health Command
  michael.brumage@us.army.mil

For authorized civilian agencies, request access to EMOPS by visiting www.pdc.org/emops

For the Department of Defense (DoD), request access to RAPIDS by visiting www.pdc.org/rapids

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