# BioSense Sentinel Alert Experience: New Jersey, November, 2004

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### Objective

This paper describes a situation in November, 2004, regarding a Sentinel Infection Alert for Smallpox that appeared in the BioSense application.

### Background

BioSense is a national Centers for Disease Control and Prevention (CDC) initiative to improve the nation's capabilities for early event detection and situational awareness. BioSense data includes Department of Defense and Veterans Affairs ambulatory care diagnoses and procedures, as well as Laboratory Corporation of America lab test orders. The data are collected, assigned to syndromes based upon definitions developed by a multi-agency working group, analyzed using several detection algorithms, and displayed in various visualizations [2,3]. BioIntelligence Center (BIC) staff at CDC monitors BioSense national data on a daily basis and are available to support state and local public health officials' monitoring and investigations [3]. As part of its ongoing bioterrorism surveillance, the New Jersey Department of Health and Senior Services (NJDHSS) reviews the BioSense application for syndrome activity and disease alerts of potential public health importance. In November, 2004, staff noted a Sentinel Infection Alert for Smallpox two days before the Thanksgiving holiday. The investigation of this Sentinel Alert by NJDHSS was the first Sentinel Alert follow-up investigation by a state health department and helped state and CDC colleagues identify ways to enhance BioSense.

### Methods

In early November, 2004, the Sentinel Infection Alerts functionality was added to the BioSense application. Preliminary jurisdictional diagnosis records (received within the past five days) related to CDC classified Category A, B, and C diseases were displayed in a special section of the BioSense home page [3]. Detailed record information included diagnostic, demographic, facility, and patient identifying information (excluding names and social security numbers).

### Results

On Tuesday November 23, NJDHSS surveillance staff noted a Sentinel Infection Alert for Smallpox in the BioSense application and began investigating the situation. During the following 36 hours, numerous calls were made to technical help desk, CDC Director's Emergency Operations Center (DEOC), and BIC staff in an effort to obtain further information and assess the true threat potential of the situation. BIC staff queried the additional clinical information provided with the record and determined that the diagnosis was related to a vaccination reaction in a member of the military. There was no need for further NJDHSS follow up. As a result of this experience, several system enhancement needs were identified: 1) Technical Help Desk and DEOC personnel needed access to a list of BIC staff contacts to assist with clinical data questions and inquiries; 2) BioSense monitoring coverage after-hours at the BIC would enable better support for issues that arise during a holiday or in the evenings; and 3) Including vaccination-related diagnoses in the display increased the potential for "false alarms" and unnecessary investigations.

### Conclusions

As a result of this experience, BIC took the following actions: 1) Technical help desk personnel, DEOC, and BIC staff established communication pathways regarding state and local public health department inquiries; 2) BIC collaborated with DEOC staff to establish procedures regarding after-hours inquiries; 3) Diagnoses have been removed from both the Sentinel Infection Alert display and the BioSense syndrome categories if associated with a vaccination-related diagnosis or procedure code. BioSense continues to develop as a national early event detection and situational awareness system. Feedback from state and local public health officials is essential as CDC enhances the system. The New Jersey experience offered a unique opportunity to test the system in an urgent scenario and provided important direction for system improvements.

### References

[1] PHIN: BioSense. www.cdc.gov/phin/
[2] Syndrome Definitions for Diseases Associated with Critical Bioterrorism-Associated Agents. Accessed at: http://www.bt.cdc.gov/surveillance/syndromedef/index.asp
[3] Bradley CA, Rolka H, Walker D, and Loonsk J. BioSense: Implementation of a national early event detection and situational awareness system. Morbidity and Mortality Weekly Report; 54 (Supp):11-20.

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