Preliminary Findings from the BioSense Evaluation Project

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Objective

This paper describes preliminary observations from case study investigations of the uses of BioSense and other surveillance resources in public health practice.

Background

In October 2006, the Centers for Disease Control and Prevention (CDC) funded four institutions, including Emory University, to conduct evaluations of the BioSense surveillance system. These evaluations include investigations of situations that represent actual or potential threats to public health in order to describe: 1) the pathways that health departments follow to assess and respond to such threats, 2) the role of various forms of surveillance, including BioSense and other syndromic surveillance systems, in enabling health departments to achieve critical milestones along these pathways, and 3) whether and how surveillance information informs healthcare practice during these events. We anticipate that these case studies will 1) identify approaches to improving BioSense and other syndromic surveillance systems, 2) describe the characteristics of events where syndromic surveillance is most apt to be useful, and 3) provide a baseline for assessing future impacts of advances in the development of BioSense and other forms of public health surveillance. This paper describes preliminary observations from initial case studies conducted by the Emory University team.

Methods

With general guidance from CDC and in collaboration with the other project grantees, we developed a shared strategy for conducting case studies, including selection of study sites that represent a spectrum of health department investments in syndromic surveillance and events that represent a spectrum of epidemic and disaster-related threats to public health. The Emory team includes epidemiologists, an emergency medicine physician, a business information systems expert, and a medical anthropologist. Our initial case studies have focused on events in Georgia, including a large common-source salmonella outbreak, a tornado that destroyed a community hospital, the 2006-2007 influenza season, and a wildfire that caused substantial smoke exposure in communities in south Georgia and north Florida. Case studies have involved interviews with state and local public health officials from multiple disciplines and emergency healthcare providers.

Results

These events variously called into play a mix of surveillance methods, including laboratory-based surveillance, state or locally initiated syndromic surveillance for ED visits or 911 calls, sentinel surveillance, ad hoc active surveillance based on telephone contacts between public health and healthcare personnel, and, to a very limited extent in one situation (the wildfire), use of BioSense data. The use and utility of syndromic surveillance was determined primarily by whether or not systems had been implemented in areas affected by these events, by the flexibility of systems to meet situation-specific information needs, or by the extent of event-associated morbidity. Among the four events, the utility of syndromic surveillance was greatest for monitoring the influenza season. In virtually every instance, the utility of each form of surveillance was shaped by the level of trust, respect, and familiarity shared by public health and healthcare personnel. In addition, respondents reported multiple benefits of investments in public health preparedness that enhanced their capacity to respond to these situations, ranging from better cross-agency links, the availability of syndromic surveillance, enhanced laboratory and epidemiologic capacity, better public communications capacity, and benefits of training in incident command procedures. Interviews for these case studies are ongoing; qualitative analyses are pending; and additional case studies are planned.

Conclusions

Our preliminary findings are not representative of all BioSense or syndromic surveillance users (or non-users) or of the full range of public health emergencies. Nonetheless, these findings reaffirm well-recognized principles of good surveillance practice [1] and emphasize the importance of both personal and technological links between the public health and healthcare sectors.

References

[1] Buehler JW. Surveillance (chapter), in Rothman KJ and Greenland S, eds., *Modern Epidemiology, 2nd Edition*, Lippencott-Raven, Philadelphia, 1998, pp 435-457.

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