Biosurveillance: A Definition, Scope and Description of Current Capability for a National Strategy

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OBJECTIVE

Develop consensus for the definition, scope and assessment of current nationwide capability for biosurveillance based on diverse stakeholder input.

BACKGROUND

Homeland Security Presidential Directive – 21 (HSPD-21) requires the Department of Health and Human Services to establish a national biosurveillance capability that provides early warning and situation awareness for urgent public health events. Early concepts of biosurveillance focused primarily on syndromic surveillance methodologies; while recent descriptions call for a more comprehensive and integrated approach to determine a nationwide biosurveillance capability (1, 2).

METHODS

The HSPD-21 definition of biosurveillance was modified for precision and scope; a qualitative framework was developed by CDC for federal, state and local workgroups to assess current biosurveillance capability within their jurisdiction. Existing nationwide surveys, capability assessments and reviews of the literature supplemented the framework. To estimate current national capability, biosurveillance-related information sources were categorized (figure 1) and then characterized with regards to timeliness, representativeness, and information quality.

RESULTS

The definition of biosurveillance was modified by workgroups as the 'collection and integration of timely health-related information for public health action achieved through the early detection, characterization, and situation awareness of exposures and acute human health events of public health significance.' The scope of biosurveillance is all hazards and includes threats and exposures to human health (e.g., disease in animals, environmental exposures), diseases, and outbreaks (i.e., nationally notifiable diseases). Today's biosurveillance capability is a function of information from both structured and unstructured surveillance and investigation, consisting of data and information relevant to all non-mutually exclusive categories (figure 1), which is highly dependent on the public health workforce. Current biosurveillance capability limitations include effective and interoperable nationwide electronic information management systems (e.g., laboratory information management and electronic reporting, notifiable electronic disease surveillance, and outbreak management), appropriate methods for integration and sharing of information, and workforce development needs particularly in epidemiology, informatics and laboratory.

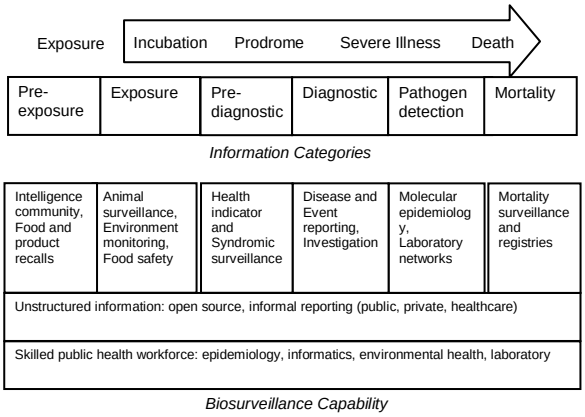

Figure 1– Example of an event of public health significance from time of exposure to illness and death with associated biosurveillance information categories and types of information.

CONCLUSION

Biosurveillance is the integration of both well-established surveillance and investigation (e.g., reportable disease and laboratory-based surveillance) and novel surveillance practices (e.g., syndromic surveillance, open source monitoring). Biosurveillance is concentrated at the local and state level, supported and supplemented at the national and international levels, and provides global value. A well-defined biosurveillance capability allows for the development of national strategies, provides opportunities for investment, and supports the International Health Regulations (2005).

REFERENCES

[1]Hoffman MA, Wilkinson TH, Bush, A, Myers W, Griffen RG, Hoff GL, Archer R. Multi-jurisdictional approach to biosurveillance: Kansas City. Emer Infect Dis. 2003; 9: 1281-86.

[2]Association of State and Territorial Health Officials. Position Statement. 2006. Accessed on June 3, 2008 at: http://www.astho.org/pubs/BiosurveillancePositionStatementFINAL030706.pdf.