**Use of early biological detection data by decision makers to minimize the consequences of no-notice infectious disease outbreaks**

**Author:** Kircher, Amy Lynn

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**Abstract:** New and reemerging diseases pose significant challenges to the United States. Providing decision makers with data early to help characterize the event may allow for better-informed decisions and the initiation of appropriate responses. There is a limited amount of literature on the factors that lead decision makers to implement the appropriate response. The purpose of this study was to generate knowledge about the use of early biological detection by decision makers. A case study design of two cities was employed to determine if early biological detection capability affected the decisions to implement public health interventions. Multiple methodologies were used to collect and analyze data from primary and secondary sources. A review of previous outbreaks provided insights into disease characteristics and response activities which were used to build realistic disease scenarios for use in key informant interviews. Interviews with decision makers in each of two cities were conducted to understand how early biologic data were used, the availability of data, and to determine decision making processes. Several overarching themes emerged: data types, sources, and confidence is varied among different professional types of decision makers; strong relationships support the notification of an event and assist in effective, rapid response; public relationships and the media are beneficial partners in response with ability to rapidly communicate guidance; authority for decision making is unclear during crisis; significant events initiated preparedness activities in each city; and the 2009 H1N1 experience tested the US's capability to respond to a public health crisis.

Federal and local stakeholders have a role to play in improving the level of preparedness of cities for a public health emergency. At the federal level, an assessment of federally funded biological detection capabilities and an appropriate realignment of federal support based on actual threat is required to improve the capacity for our cities to rapidly respond. In addition, the federal government has a unique opportunity to identify and fund cities to participate in National Special Security Events and National Level Exercises which improves their preparedness posture as a community. Our nation's cities have the responsibility to understand their information requirements and create an infrastructure that supports appropriate decision making. This study presents a plan to help local governments assess their information requirements and create an information network.

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