

Geographic information helps provide public health intelligence at mass gatherings

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Infectious diseases are one of the many health issues that worry the organizers of mass gatherings, such as the Hajj and the World Cup. Geographers' tools of the trade can help event organizers to better plan, monitor and respond timely to such eventualities. The ways in which geographers gather, analyze, and visualize information provide health officials with clearer pictures of the transport routes and environmental factors that may further the spread of viruses to and from the attendees' home countries. In Chapter 3 of the new book *Health, Science, and Place: A New Model*, geographer and biologist Dr. Amy Blatt explains how geographic information is used for disease surveillance at mass gatherings.

"In 2013 alone, an estimated 1.1 billion travelers crossed international borders. Although many travelers report some health problems while traveling, most do not seek pre-travel advice - such as vaccinations and therapeutic medications. Because the risk of travel-related diseases is 2.3 times higher in those with underlying medical conditions than in healthy individuals, the potential for an existing infection to spread at a mass gathering event is very large," says Dr. Blatt.

The chances of an infectious disease spreading often depends on how crowded the accommodations and facilities are at the event, and the routes and modes of transport people use to travel to and from the host city. Environmental and seasonal factors influence how well a virus will possibly spread and adapt in new host countries.

Geographic information science provides real-time surveillance and monitoring of disease and injuries. Many electronic disease surveillance systems have a mapping module to allow public health officials to visualize disease outbreaks on the map. In addition, [geographic information systems](#) provide a baseline for monitoring and evaluating outbreak investigations at mass gathering events, so that the geographic progression of disease can be continually monitored.

Data collection and reporting of public health intelligence during a mass gathering event is challenging because of the large numbers of attendees, the rapid and large-scale movements of people, and their fairly short stay at the mass gathering event. Smart technology and wireless communication are now helping officials to collect volunteered geographic information. This, in turn, helps [public health officials](#) decide what to do about the spread and occurrence of diseases. Dr. Blatt says that such technology is a first step towards implementing robust data gathering methods, enhanced analytic capabilities, and improved capacity for electronic [disease surveillance](#).

"Medical geographers are well versed in the principles of disease ecology, especially as it relates to vector-host transmissions in changing environmental conditions. The recent advances in [geographic information](#) systems, collaborative mapping platforms, and geospatial data mining algorithms significantly enhances our understanding, detection, and response to illnesses and [disease](#) outbreaks at [mass gatherings](#)," says Dr. Blatt.

More information: Blatt, A. (2014). Health, Science, and Place: A New Model. Chapter 3: Using Geographic Information for Disease Surveillance at Mass Gatherings. [DOI: 10.1007/978-3-319-12003-4_3](https://doi.org/10.1007/978-3-319-12003-4_3)

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