

Natural disasters and use of syndromic surveillance: Austin, Texas Metro Area 2011

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Objective

Using case studies of three natural disasters that occurred in the Austin, Texas Metro area in 2011, demonstrate the role syndromic surveillance and emergency medical services (EMS) data played during the response to each different type of disaster.

Introduction

Emergency management during a disaster entails innumerable challenges. Each disaster uniquely shapes the types and timing of information needed both to manage the disaster and to measure the impact on available resources, the environment and community systems. Traditional public health surveillance methods typically preclude providing a real-time, comprehensive estimate of public health impacts related to the disaster while the disaster is unfolding. Traditional methods can also be resource intensive and costly, require active cooperation of medical systems involved in a disaster response and are often conducted postdisaster.

Syndromic surveillance of emergency department (ED) chief complaints and over-the-counter (OTC) medication sales was reinstated in the Austin area in the fall of 2010. In 2011, the Austin area was hit with three natural disasters: a winter ice storm; a summer of extreme heat/extended drought; and a week of significant wildfires. Each disaster varied greatly in type, size, intensity and duration. The Austin/Travis County Health and Human Services Department (A/TCHHSD), in partnership with Austin/Travis County EMS (ATCEMS), was able for the first time to provide near-real time data to emergency managers on the potential health impact during each of the 2011 disasters using the syndromic and EMS electronic data systems. The data were used to provide situational awareness and guide selected response actions during the course of the disaster, as well as document potential areas for future mitigation efforts.

Methods

A/TCHHSD uses two syndromic surveillance systems: (1) Real-time Outbreak and Disease Surveillance (RODS) system—utilizes chief complaint data from emergency department visits in 14 Austin Metro area hospitals; and (2) National Retail Data Monitor (NRDM)—utilizes OTC medications sales data. ATCEMS has an automated system to track the types of calls to EMS and transport to area hospitals. All three systems also provide data on patient age, sex, home zip code and receiving hospital. Information on the use of syndromic surveillance and EMS systems for each natural disaster (ice, extreme heat and fire) will be presented. Each case study will provide information

on: (1) salient features of the natural disaster; (2) rationale for the type(s) of surveillance resources employed; (3) data analysis; (4) results; (5) data dissemination; (6) advantages and limitations; (7) lessons learned; and (8) process improvements.

Results

Ice storm: Piloted the use of 'keyword' surveillance in our jurisdiction. Local hospitals were asked to include the word 'weather' in the chief complaint of patients presenting to the ED. The major trauma hospital in the Austin area implemented keyword surveillance within 4 hours of the request. Keyword surveillance provided insight into the impact of injuries during the ice storm. This approach was essentially resource neutral, both for the health department and the hospitals. The RODS system was also used to track chief complaints of hyperthermia and exposure. Data were reported twice a day during the ice event.

Drought/heat: This is an ongoing surveillance effort. We will present RODS data and EMS data from May through September 2011 which describe the pattern of heat-related illness over time. The pattern of heat-related illness diverged over time from the heat index. These data were reported to emergency management daily during the most extreme heat index days and weekly for the rest of the summer.

Wildfires/smoke incident: We were asked to provide an estimate of the impact of air quality from the wildfires. We examined ED chief complaint data, OTC medication sales and EMS data. These data are still being analyzed.

Conclusions

Syndromic surveillance/EMS data systems are extremely valuable in providing situational awareness during an emergency incident. Use of electronic data systems are essentially resource neutral and can provide near real-time data. These systems do not replace the need for traditional disease/injury surveillance but can help fill a need during a crisis. Response partners must be educated as to the limitations of the systems.

Keywords

Syndromic surveillance; EMS; emergency management; natural disaster; public health

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