

ABSTRACT

Identification and tracking of heat-related illnesses using syndromic surveillance

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Objective

This paper describes the use of the electronic surveillance system for the early notification of community-based epidemics, a syndromic surveillance system, to monitor heat-related illnesses throughout the state of Maryland during the summer of 2010.

Introduction

The summer of 2010 in Maryland was characterized by unusually high temperatures. This type of increased and prolonged heat can potentially make residents sick, and extreme exposure can even kill people at highest risk. Numerous deaths throughout the state were attributed to this heat wave. The Maryland Department of Health and Mental Hygiene (DHMH) addressed this public health issue by using public messaging and maintaining constant situational awareness through the electronic syndromic surveillance. Thus, the electronic surveillance system for the early notification of community-based epidemics (ESSENCE) was used to monitor heat-related illnesses throughout the state.

Methods

All acute care hospitals in the state of Maryland ($n = 45$) report data on emergency department (ED) visits to ESSENCE in near real-time manner. Therefore, ED visits for heat-related illnesses were reviewed closely on a daily basis throughout the summer months (1 May to 8 August 2010). DHMH used its syndromic surveillance system as a tool to enhance case finding efforts as well as to monitor levels of heat-related illnesses across the state. Daily reports were provided to public health leaders to enhance situational awareness and inform decision making. The counts of ED visits for heat-related illnesses were also compared with the daily temperature data collected at the Baltimore–Washington International Thurgood Marshall Airport, located in Anne Arundel County, to assess the relationship between air temperature and the number of ED visits for heat-related illnesses.

Results

The age group with the highest number of heat-related illnesses was 65 + years old, with 18–44 years old and 45–64

years old having the next highest number of cases, respectively. The region of Maryland with the highest proportion of cases was Baltimore City. There were more female cases than male cases. The peak of emergency department visits for heat-related illnesses occurred on 7 July 2010, corresponding with a 3 day stretch of extremely high temperatures from 5 July to 7 July 2010, with maximum temperatures ranging from 100°F to 105°F. Overall, there was a positive correlation between air temperature and the number of ED visits for heat-related illnesses (Figure 1).

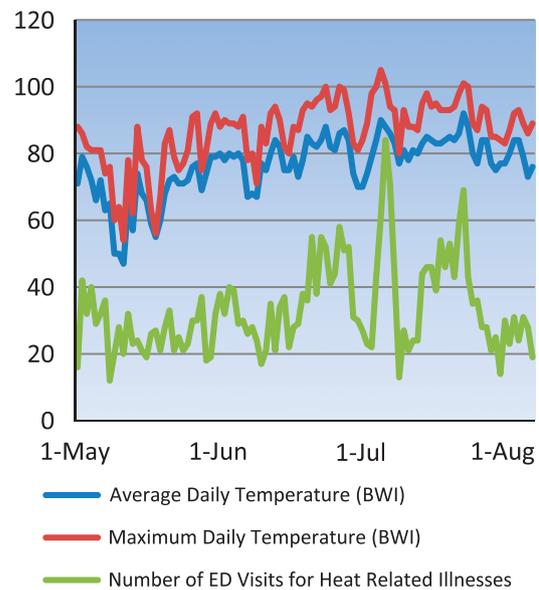


Figure 1 Daily Temperature and Emergency Department (ED) visits for Heat Related illness in Maryland During the Summer of 2010.

Conclusions

Syndromic surveillance proved to be a vital tool in supporting decision makers by providing timely and ongoing

situational awareness of heat-related illnesses. The data indicated that there was a positive correlation between air temperature and the number of ED visits for heat-related illnesses. These results demonstrate yet another useful way in which electronic surveillance, and specifically ESSENCE, can be used to help protect the public's health. DHMH is continuing to monitor this data closely to maintain

situational awareness of heat-related illness activity in Maryland.

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