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Assessing the use of syndromic surveillance data to identify and track heat illness in Nebraska, 2010–2011

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Objective

The purpose of this study was to develop methodology to accurately identify and track heat illness in a timely manner using syndromic surveillance data.

Introduction

Heat waves have serious health impacts such as heat exhaustion, heat stroke, dehydration and death. Heat illness morbidity and mortality can be reduced with the identification of vulnerable populations and targeted public health interventions. In June and July of 2011, a heat wave occurred in Nebraska in which 28 days reached 90 F or higher. Syndromic surveillance data were used to describe heat-related illness emergency department (ED) visits during this time.

Methods

Eight hospitals currently submit syndromic surveillance ED data to Nebraska Department of Health and Human Services (NeDHHS), representing approximately 18% of all ED visits for the state. Five hospitals reported complete data for the selected study period, June 1, 2010–August 10, 2011. The three hospitals not reporting complete data for the study period were excluded. These records represent approximately 15% of all ED visits in the state for June–August. Cases of heat-related illness were identifiedusing ICD9CM diagnostic and external cause of injury codes: 992, 705.1, 708.2 and E900. Additional cases were identified from the chief complaint field using the SAS INDEX function to locate the following words within the text field: 'HEAT', 'HEATED', 'DEHYDRATED' and 'HYPERTHERMIA'. Each record returned from these searches was examined to confirm the presence of heat illness. Chief complaint fields containing keywords but not involving heat-related illness, i.e., 'applied heat to swollen ankle', were eliminated.

Results

A total of 21,906 and 23,222 total ED records were available from five Nebraska ED facilities during June 1, 2010–August 10, 2011. ICD9CM codes identified 182 heat-related illness records in 2010 and 227 records in 2011. Searching the chief complaint field for keywords identified 119 and 188 records in 2010 and 2011, respectively. After reviewing records to confirm presence of heat illness, 64 chief complaint-identified records were excluded in 2010, and 100 chief complaint-identified records were excluded in 2011. In 2010 and 2011, there were 220 and 293 ED records, respectively, indicating heat-realted illness from ICD9CM codes or chief complaint key words. Preliminary results suggest crude rates for heat-related illness are slightly higher in 2011 than 2010. Heat-related illness visits were found in 10.0 records per 1000 visits in 2010 and 12.6 records per 1000 visits in 2011. Combining 2010 and 2011 data, patients with heat-related ED vists were 55% male (n = 273) with a median age of 34 years. Further analyses will assess correlation between heat index and heat illness in Nebraska.

Conclusions

The rate of heat-related illness ED visits was slightly higher in the summer of 2011 than in 2010. This system provides an effective method to identify and track heat illness. Timely identification of patients with heat illness using this system can facilitate rapid and focused public health response and reduce heat*related morbidity and mortality.

Keywords

Syndromic surveillance; heat illness; heat wave

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