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ABSTRACT

The use of NC DETECT ED data to examine heat-related illness

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Objective

To examine the utilization of NC emergency departments for heat-related illness by age, disposition and cause based on chief complaint and triage note categorization.

Introduction

NC DETECT provides near-real-time statewide surveillance capacity to local, regional and state level users across NC with twice daily data feeds from 119 (99%) emergency departments (EDs), hourly updates from the statewide poison center, and daily feeds from statewide EMS runs, select urgent care centers and veterinary lab data. The NC DETECT Web Application provides access to aggregate and line listing analyses customized to users' respective jurisdictions. Several reports are currently available to monitor the health effects of heat waves. Heat wave surveillance is essential as temperature extremes are expected to increase with climate change.[1]

Methods

NC DETECT has three reports related to heat waves: heat-related illness (HRI) by keyword, by ICD-9-CM codes and dehydration (keyword). The ICD-9-CM report captures the most visits for HRI compared with the HRI keyword and dehydration reports. Statewide data were extracted from the ICD-9-CM report for the months of May to September for 2008 ($n = 2314$) and 2009 ($n = 1671$) and May to July for 2010 ($n = 2168$). The burden of HRI ED visits compared with total ED visits was examined by age group (0–9; 10–14; 15–18; 19–24; 25–44; 45–64; 65 +) for each month under study. Patient disposition for HRI visits was also examined by age group. Finally, line-listing data were used to assign each HRI ED visit to one of the following categories: exercise/recreation, work, home (maintenance), negligence, no A/C, substance abuse or undefined. Visit categories were examined by age group over the study period.

Results

From May to September 2008 and 2009 and May to July 2010, visits by patients 25–44 years of age reflected the highest proportion of ED visits compared with the other age groups (range of 33.8–45.3%). Children 15–18 years of age had the highest percentage of HRI visits compared with all ED visits within their age group (0.23% average from 2008–2010). Those patients of 65 years and older were more commonly admitted to the hospital after a HRI ED visit than patients from other age groups (Figure 1). Approximately 79% of HRI visits had an undefined cause for the visit (Figure 2). The most common identified causes for all ED HRI visits were exercise/recreation (~10%) followed by work (~8%) and home maintenance (~3%).

Discussion

By conference time, ICD-9-CM comorbidities for heat-related ED visits will be examined and an analysis of NC regional temperatures and heat-related ED visits will be complete.

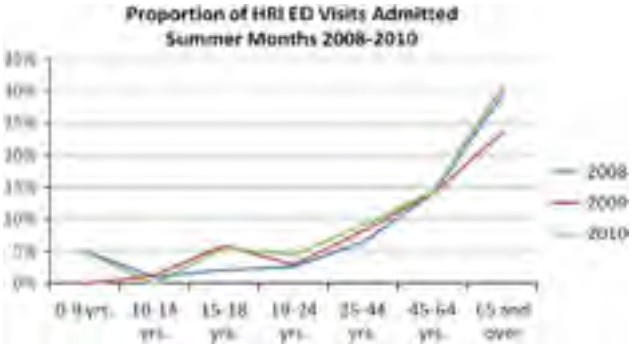

Figure 1 Proportion of HRI ED visits admitted.

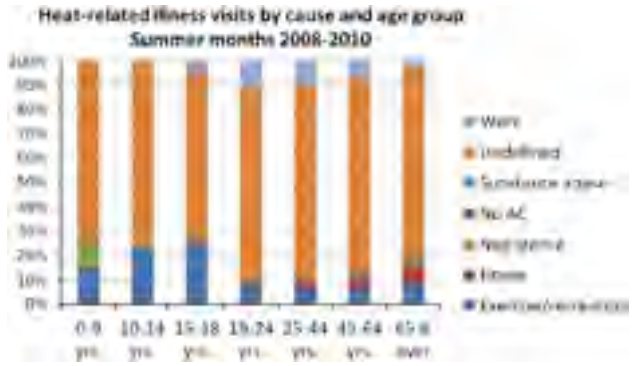

Figure 2 HRI by cause and age group.

Conclusions

NC DETECT receives triage notes for roughly 30% of all ED visits and this data element provide more detail than the chief complaint; however, detailed information about HRI cause was often absent. Of those that are able to be categorized, exercise/recreation is the most common cause of HRI ED visits. Prevention messages targeted to those supervising organized sports as well as those exercising individually may help to reduce these types of visits.

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Reference

1 Luber G, McGeehin M. Climate change and extreme heat events. *Am J Prev Med* 2008;**35:**429–35.