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Missouri Emergency Department Visits for Carbon Monoxide Poisoning

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Objective

To obtain accurate estimates of the carbon monoxide (CO) poisoning burden and guide prevention efforts. This study employs the current Missouri CO poisoning surveillance systems and describes the recent status of emergency department (ED) visits due to CO poisoning in Missouri.

Introduction

CO poisoning poses a significant public health burden. It is preventable, yet it remains a leading cause of poisoning in the United States. An effective surveillance system is very important for targeting and monitoring CO poisoning.

Methods

ED data was analyzed from the Missouri Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE). The ED chief complaints of CO poisoning in ESSENCE contain keywords such as “carbon” or “monoxide”. The Missouri Health Strategic Architectures and Information Cooperative (MOHSAIC) database was used to collect the other information about the CO poisoning cases. Statistical Analysis Software (SAS) (version 9.3) was applied for all the analyses in this study.

Results

This study was performed to estimate the ED visits from January 1, 2012 through June 30, 2013 in Missouri from all-causes (work-related, non-work-related, intentional, unintentional, fire, non-fire and unknown) of CO poisoning. There were 119 ED visits for confirmed cases of CO poisoning in Missouri during this time period. Most ED visits for CO poisoning were among adults (70.6%, 18-65 year-old) and whites (64.7%). No significant difference was observed between males and females. More poisonings occurred at the beginning of the winter months and the end of the winter months, which were October and February, respectively. St. Louis County, St. Louis City and Jackson County (includes large portion of Kansas City) had the highest numbers of CO poisoning during the study time period. All the ED visits in this study had carboxyhemoglobin (COHb) levels available, the 50% median of the COHb tests was 3.0%.

Conclusions

This study demonstrated the utility and importance of ED data as a surveillance tool as cases of CO poisoning were identified in ESSENCE that were not identified in the passive surveillance system (MOHSAIC). The study also demonstrated the potential of ED data to assist in developing effective, more targeted prevention strategies for CO poisoning.

Keywords

Carbon Monoxide Poisoning; Emergency Department visits; ESSENCE

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