

Burns Reported to the BioSense System During the Independence Day Holiday

William E. Lei, MPH¹, Stephen Benoit, MD, MPH², Gabriel Rainisch, MPH¹ and Jerome Tokars, MD, MPH²

¹SRA International, ²Centers for Disease Control and Prevention

OBJECTIVE

To describe burn injuries reported to the BioSense System during the 2008 Independence Day holiday.

BACKGROUND

Each year, more than two-thirds of all fireworks-related injuries occur during June 16-July 16 [1]. During the 2006 July 4th holiday weekend, thousands of people were treated in emergency departments (EDs) for fireworks-related injuries [2]. Over 50% of these injuries were burns, most often occurring on the extremities and face. CDC's BioSense System receives near real-time data from >11% of total U.S. ED visits. Most data is sent to BioSense by state or local systems. The system includes >540 hospital EDs; 522 facilities send patient chief complaints and 182 facilities also send physician diagnoses. BioSense maps chief complaint and diagnosis data to 11 syndromes and 78 sub-syndromes; burns are one of 13 injury-related sub-syndromes.

METHODS

We evaluated visits to EDs from July 4-July 5 2008, with final diagnoses (ICD-9 codes: 940-949) or chief complaint burn indicators among all facilities and metropolitan areas where BioSense receives data. Statistical significance was based on the modified C2 algorithm used by BioSense. Fireworks-related burns were identified by searching for the keyword "fireworks" in the chief complaint and diagnosis text. Patients were characterized by age, and gender. Anatomical location of injuries was categorized as facial ["face", "nose", "eye", "head", or "neck"], extremities ["palm", "hand", "wrist", "finger", "digit", or "arm"], and other [all else] by a search of the chief complaint and diagnosis text.

RESULTS

Among all BioSense hospitals, a total of 863 visits (mean: 431 visits/day) for burns occurred during July 4-5 compared with 223 visits per day during the preceding 28 days (excess visits for burns = 208 per day; Figure). Among 15 metropolitan areas with ≥ 5 facilities, four had significant increases in burns visits on July 4th, 5th, or both days. Among these four areas, burn visit counts ranged from 24 to 36 per day and rates from 0.8% to 2.4% of total ED visits. During July 4-5, among 199 burns visits in the four cities, the 20-49 age group had the most visits [n=80, 40.2%]. Males represented the majority of total visits [130, n=130]. These burns affected extremities [n=60, 30.2%], face [n=14, 7.0%], and other sites [n=125,

62.8%]. Only 17 (8.5%) of these burns visits could be identified as directly fireworks-related by available chief complaint or diagnosis text.

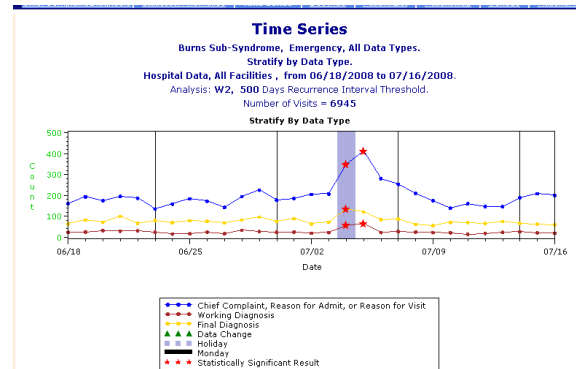


Figure. Time Series of ED visits for the Burns subsyndrome in the U.S. from June 18 – July 16, 2008.

CONCLUSION

These results show a large number of excess ED visits for burns during the Independence Day holiday. While only a small percent of these burns could be directly linked to fireworks due to current data limitations, burn injury visits exceeded baseline rates by two-fold nationally and by as much as three-fold within some metropolitan areas. Similar to historical data, a majority of these burns occurred in males and the 20-49 age group. The differences among metropolitan areas may be influenced by state and local consumer fireworks legislation. Aggregation of data supplied to BioSense from multiple state and local systems provides the opportunity to perform national and comparative analyses. This data is available in near real-time and may be a useful supplement to conventional systems for monitoring and preventing burns injuries.

REFERENCES

- [1] Greene MA, Joholske J. 2006 Fireworks Annual Report: Fireworks-Related Deaths, Emergency Department Treated Injuries, and Enforcement Activities During 2006. Washington (DC): U.S. Consumer Product Safety Commission; 2007 [cited 22 May 2008].
- [2] CDC. Brief Report: Injuries Associated with Homemade Fireworks --- Selected States, 1993–2004. MMWR 2004; 53(25);562-563.