

**Maggie Scribner, MD**

**Tripler Army Medical Center Orthopedic Residency**

## **FIREWORKS-RELATED INJURIES PRESENTING TO US EMERGENCY ROOMS – AN EPIDEMIOLOGICAL STUDY**

### **INTRODUCTION**

Recreational use of fireworks is known risk factor for bodily injuries. Over the past 20 years, total consumption of fireworks in the United States has risen from 152 million to 405 million pounds per year. Driving the increase has been retail consumption; in 2020, 95% of fireworks were purchased by individual consumers as compared to 67% in 2000. This consumption leads to increasing numbers of patients presenting to the hospital with fireworks-related injuries. We sought to further clarify the incidence and characteristics of fireworks injuries in order to better educate physicians treating this patient population.

### **METHODS**

The National Electronic Injury Surveillance System (NEISS) database was queried for firework-related injuries from 2010-2019. Cases were examined and data including age of patient, date of injury, type of injury, location of injury, diagnosis, and hospital disposition were extracted.

### **RESULTS**

A total of 2,708 injuries were recorded, leading to a national estimate of 103,861 fireworks-related injuries over the 10 year period of 2010-2019 (95% CI 83,669-124,054). The most common type of injury was thermal burns (n=1,366, 50.4%) followed by contusions/abrasions (n=299, 11.0%), lacerations (n=229, 8.5%), and fractures (n=117, 4.3%). The hand was the most affected part of the body (n=598, 22.1%), with eye (n=410, 15.1%), finger (n=374, 13.8%), and facial (n=291, 10.7%) injuries being less common. Admission rates were low, with only 307 (11.3%) patients requiring hospital admission. Males comprised 69% of patients. Most patients were children or adolescents younger than 18 years of age (n=1,278, 47.2%), and the average patient age was 22 years old. The vast majority of firework injuries occurred in the month of July (n=1880, 69.4%), and most often on weekend days (Saturday n=454, 16.8% and Sunday n=498, 18.4%).

### **DISCUSSION and CONCLUSION**

Injuries from fireworks disproportionately affect young adult males, and the hand is the single most injured region of the body. Admission rates are low, however risk factors for admission include male sex, age between 18-30 years, and presence of a finger injury. Fireworks injuries in the United States appear to be concentrated in time of the year, age group, and gender.