

# Epidemiology of Severe Ocular Trauma Secondary to Paintball Gun Injuries

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## Introduction and Objective

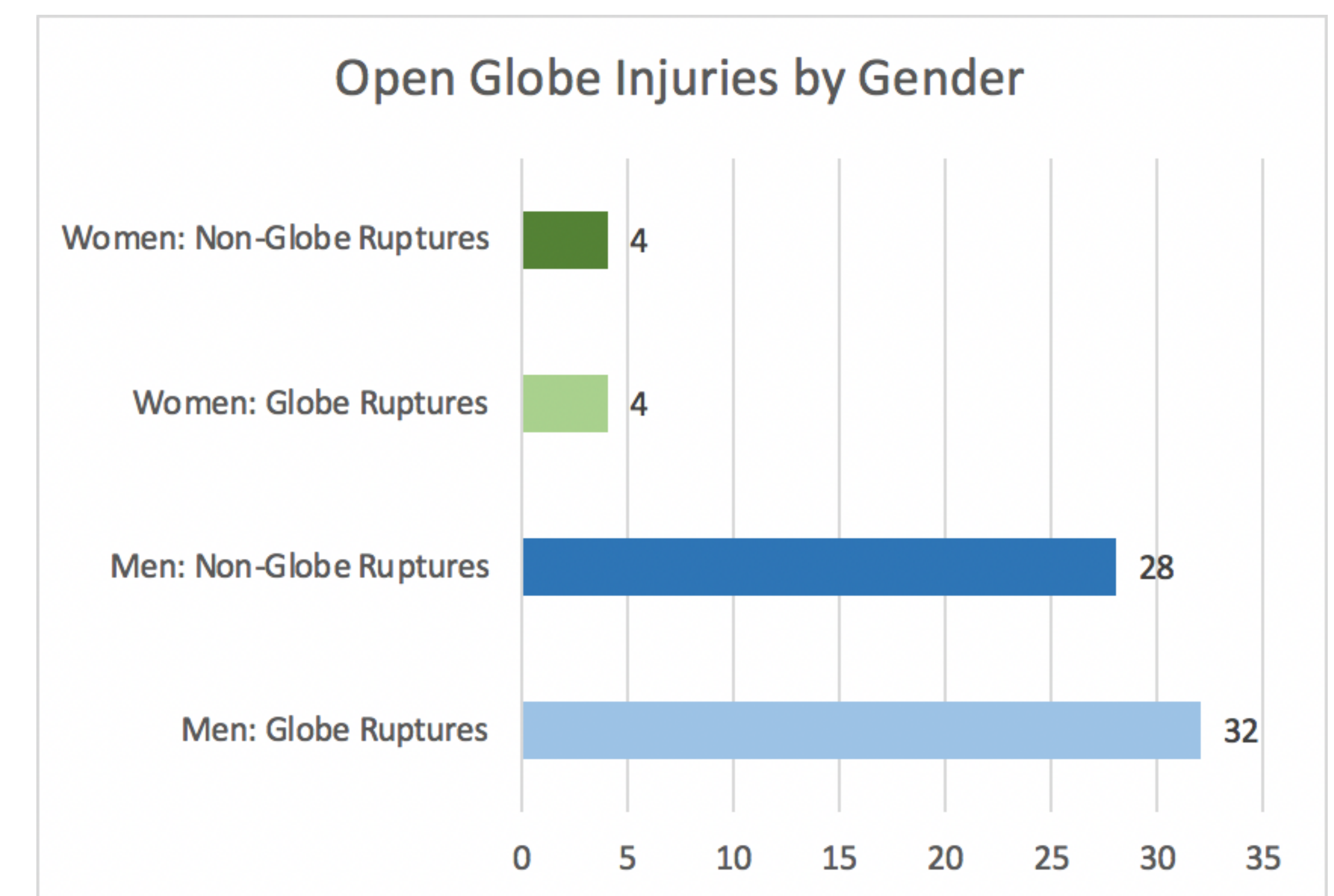
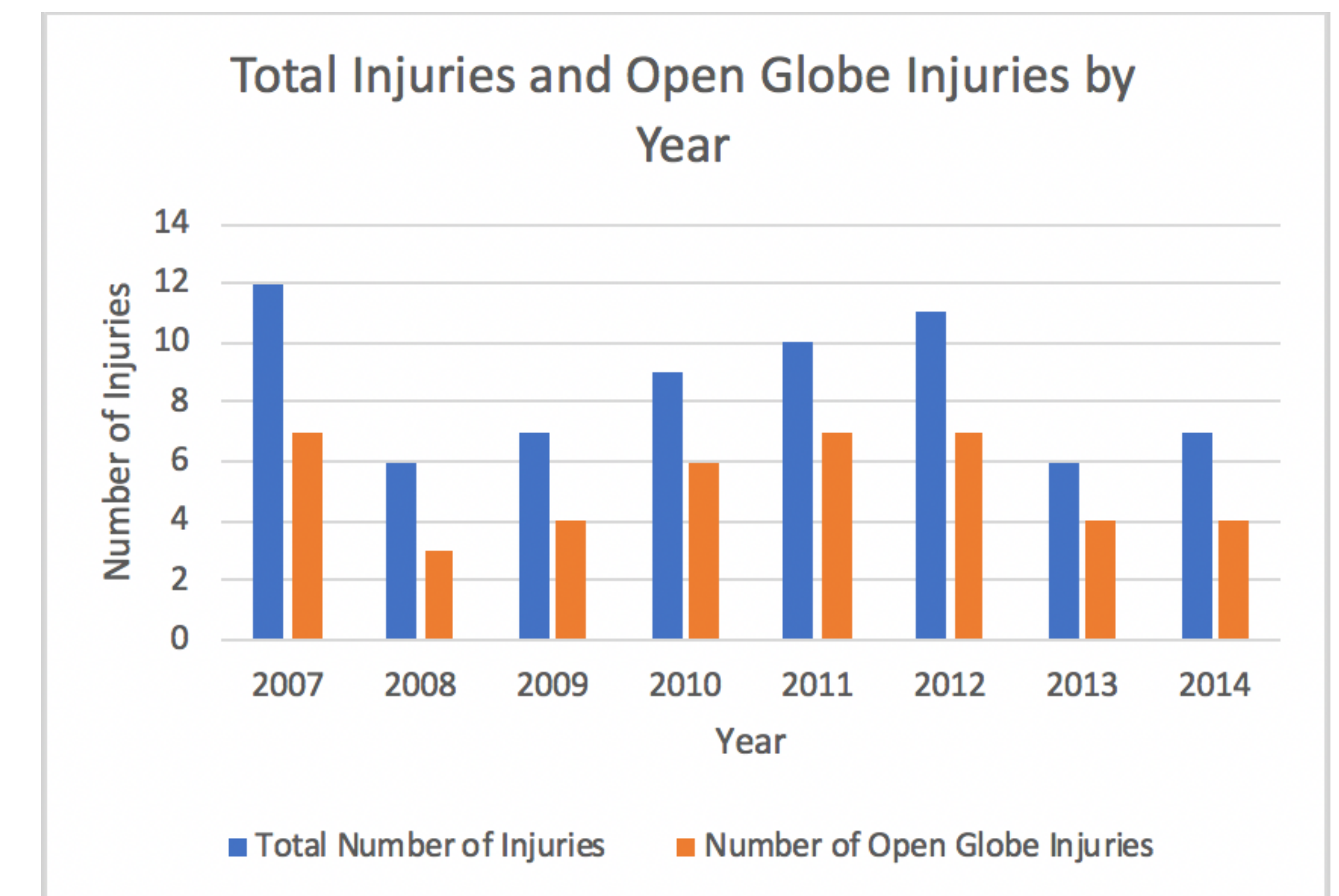
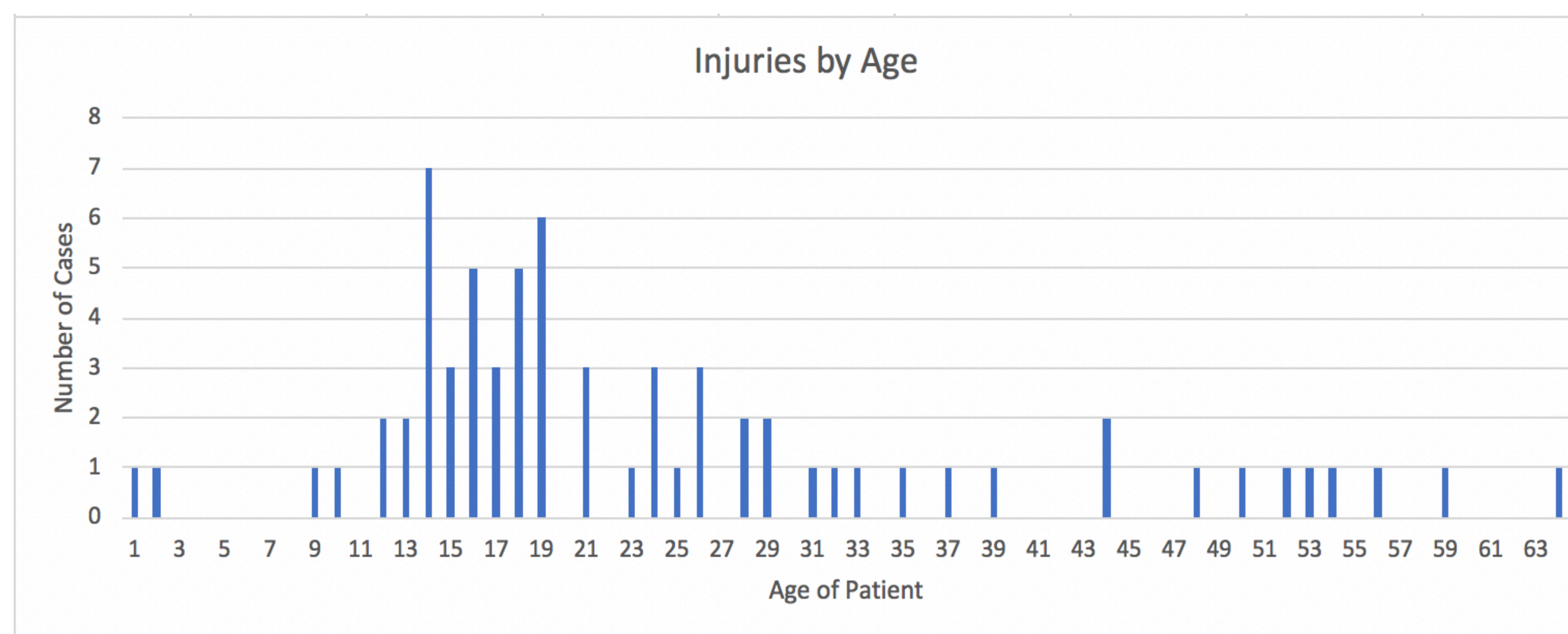
- Ocular injuries secondary to paintball guns can have lasting and devastating consequences to vision and ocular health.
- The objective of this study is to investigate ocular and adnexal trauma secondary to paintball guns.

## Materials and Methods

- This study utilizes data from the 2007-2014 National Trauma Databank (NTDB) to identify cases of severe ocular and adnexal injury secondary to paintball guns.
- The NTDB is a national trauma registry that contains information on cases of trauma that present to its 900+ member institutions; the dataset provides information on patient demographics, hospital course, injury etiology, and administered patient care.
- Severe ocular and adnexal injury was defined as injury requiring hospital admission or transfer to a higher-level trauma center for further management.
- Ocular and adnexal injury were defined using diagnosis codes (D-Codes) from the *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)*.
- Cases of paintball gun-associated injury were identified using external causes of injury codes (E-Codes) from ICD-9-CM.
- Patients of all ages, ethnicities, and genders were included in this study.
- IBM SPSS 23 was used to perform statistical analysis.

## Results

- Between the years of 2007 and 2014, there were 68 cases of severe paintball gun-associated ocular injury that presented to NTDB member institutions.
- The mean age of injury was 24.4 years (median = 19 years; range = 1 - 64). There was no statistically significant difference in the age of injury in men (23.6 years) and women (29.9 years) ( $p = 0.235$ ).
- By location, 50% of injuries occurred at home or at a recreational facility.
- Majority of injuries (57.4%) occurred White patients. By ethnicity, 14 (20.6%) patients were Hispanic.
- Regarding disposition from the ED, 20 (29.4%) injuries were taken directly to the operating room from the ED, 7 (10.3%) were discharged home, 12 (17.6%) were transferred to another hospital, 2 (3.0%) did not have a documented disposition, and the rest were admitted to an observation unit, medical floor, or ICU.
- By injury classification, 11 (16.2%) patients had orbital fractures, 18 (26.5%) injuries involved an open wound of the ocular adnexa, and 42 (61.8%) cases had an open globe injury.
- Of the 42 patients who presented with an open globe injury, 4 (9.5%) were women and 38 (90.5%) were men. The average ages of patients with OGI (25.0 years) and without OGI (23.4 years) were similar ( $p = 0.642$ ).
- The average length of stay was 1.8 days; one person required admission to the ICU, and the length of ICU stay was 2 days.



## Conclusions

- In cases of severe ocular trauma secondary to paintball guns, OGIs were present in over 50% of patients in this cohort.
- Majority of these injuries occurred in men and in younger patients.
- Though all of these cases were admitted to the hospital or transferred, the average length of stay was short.

## Financial Disclosures

- None of the authors have any financial disclosures relevant to the material being presented.