Twenty years of pediatric gunshot wounds in our community: have we made a difference?

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Background

- Gunshot wounds (GSWs) carry significant morbidity/mortality for children
- In 2013, 9,718 children ages 0 - 18 survived a gunshot wound (GSW) in the United States; 1,670 died by gunshot¹
- Firearm violence is an increasing financial burden
- Various gun violence prevention and firearm safety education programs for parents and children are available, but have they had a direct impact in our local community?

Study Objectives

1. Evaluate 20 years of pediatric firearm injury demographics seen at our institution
2. Construct a risk map model triangulating areas of high incidence of injury with risk factors and outcomes

Materials and Methods

- Retrospective review of demographic, socioeconomic, and institutional variables surrounding the children (0-18yo) in our community who suffered a GSW in 1996-2016, as per the hospital trauma registry
- Multi-variable logistic regression models created to identify predictors of mortality
- Hospital charges normalized to 2016 values for cost analysis
- Geographic information system (GIS) mapping of incident location and home address to identify hot spots of high GSW incidence

Results

- N = 898 children who suffered GSWs over this 20 year period
- Mean age 15.6±3.4 years
- Gender: 86.4% male, 13.6% female
- Mean Injury Severity Score (ISS) 9.51±10.26
- The only significant predictor of mortality (n=18) was ISS (OR 1.19, 95% CI 1.15-1.22, p < 0.001)
- The majority (52.9%) of children required invasive procedures and/or operative intervention
- GSWs were most frequently a result of assault (81.5%), followed by unintentional injury (12.8%)
- Hospital charges showed a significant annual increase over time

Conclusions

- Geographic clustering of GSWs do not vary by year, despite variation in annual incidence observed
- Geographic regions of known lower socioeconomic resources have higher incidence of pediatric firearm violence in our community; this is unchanged over 20 years
- High crime impoverished regions suffer significant morbidity and mortality because of firearm violence

Social Justice Implications

1. Alternative firearm injury prevention methods are needed
2. Goal interventions should be community-based, aimed at neighborhood capacity building, and targeting economic strengthening

References