

National Trends in the Cost Burden of Pediatric Gunshot Wounds Across the United States

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Background

- Pediatric firearm injury continues to engender devastating social and economic impacts in the United States (US). Nevertheless, there remains a paucity of literature examining firearm-related hospital costs in the pediatric population. Thus, the present study aimed to characterize hospitalization costs attributable to gun-related injuries in children across the US.

Objectives

- The primary objective of the study was to evaluate patient and hospital characteristics associated with GSW admissions in the HCT among surgical and non-surgical patients.
- Secondary outcomes included assessment of GSW frequency, mortality, overall costs, and length of stay (LOS).

Aims

- To characterize clinical outcomes and annual hospitalization costs attributable to gun-related injuries in children across the US
- Examine both hospital- and patient-level characteristics that would be associated with increased hospitalization costs.

Methods

- The 2005-2017 National Inpatient Sample (NIS) was used to identify all pediatric admissions for gunshot wounds (GSW). Patients were stratified by ICD-procedural codes for trauma-related operations. Annual trends in GSW hospitalizations and costs were analyzed with survey-weighted estimates. Multivariable regressions were used to identify factors associated with high-cost hospitalizations.

Results

- Over the study period, an estimated 36,283 pediatric patients were admitted for a GSW with 43.1% undergoing an operative intervention during hospitalization.
- Admissions for pediatric firearm injuries decreased from 3,246 in 2005 to 3,185 in 2017 (NPtrend<0.001).
- Median costs significantly rose from \$10,749 in 2005 to \$16,157 in 2017 (P<0.001).
- Compared to those who did not undergo surgical interventions, operative patients incurred increased median costs (\$18,576 vs \$8,942, P<0.001).
- Assault and self-harm injuries were independently associated with classification in the highest cost tertile.
- Patients who had head and neck (\$72,405), vascular (\$38,701), and neurosurgical (\$36,741) procedures incurred the highest median costs.
- Patients undergoing cardiac operations had the highest odds of mortality (AOR 11.4, 95% CI 6.2-20.8)

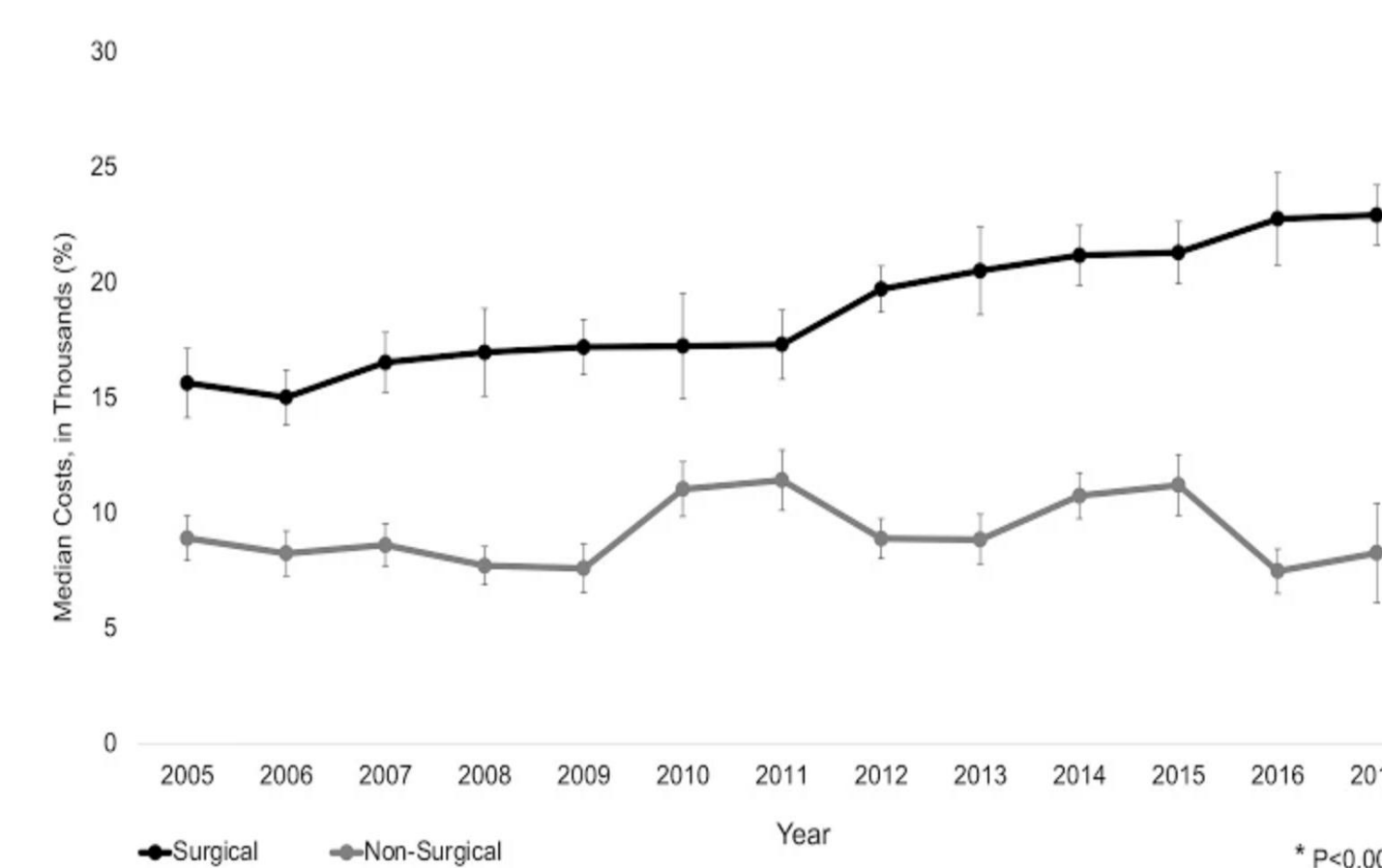


Figure 1: Trends in mean hospitalization costs for surgical and non-surgical patients

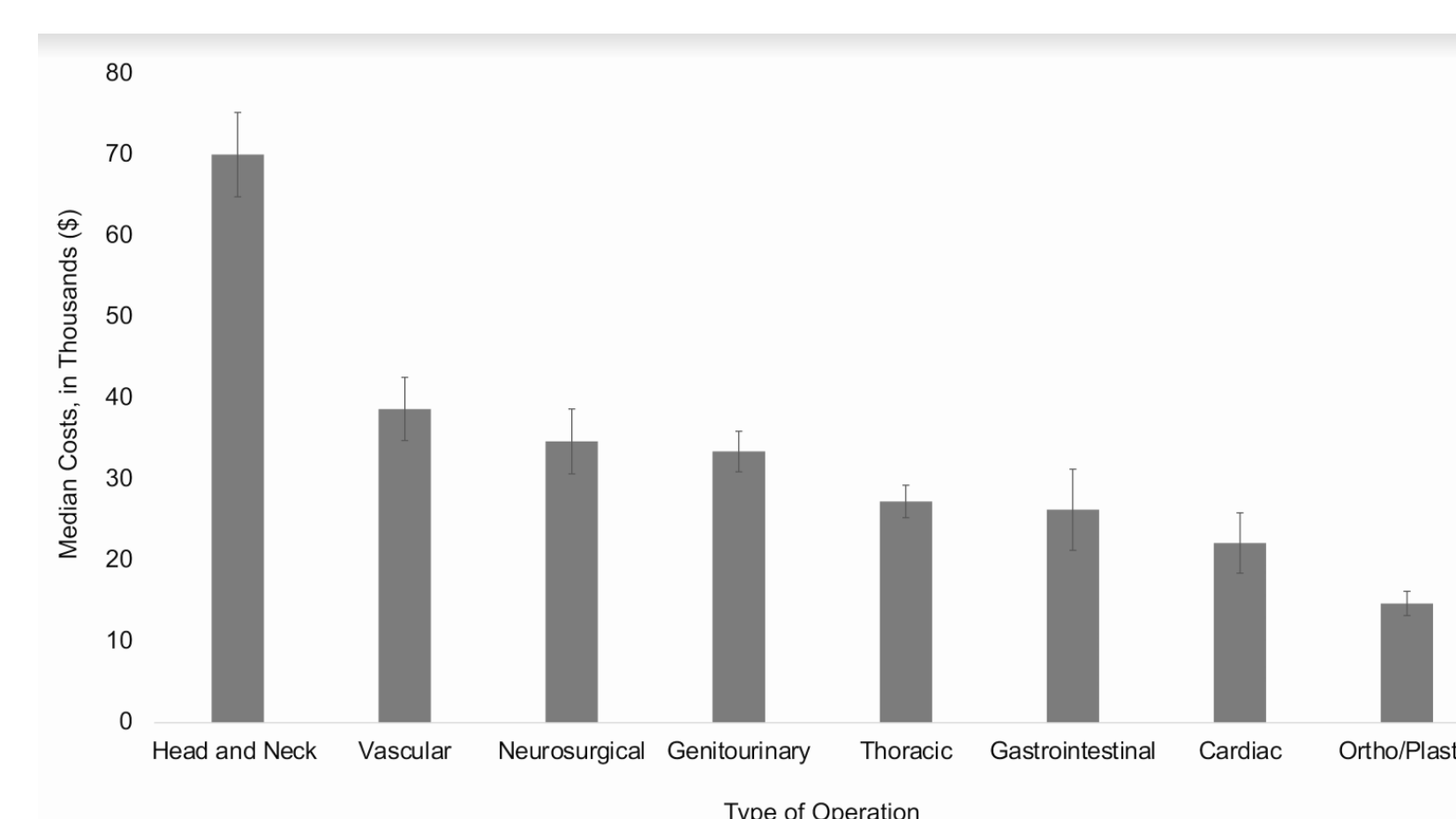


Figure 2: Mean hospitalization costs stratified by the type of surgical intervention

Conclusions

- Pediatric gun violence remains a major social and economic burden in the US with increasing resource utilization despite decreasing incidence.
- Firearm injuries caused by self-harm are increasing, while mortality rates have remained unchanged.
- Among patients requiring surgery, the type of intervention impacted resource use, with head and neck, vascular, and neurosurgical operations portending the highest costs.
- Mechanism of injury as well as several patient- and hospital-level factors were predictive of increased hospitalization costs.

Next Steps/Policy Implications/Significance

- This high resource burden demonstrates a significant need to research and employ programs to reduce gun violence and ameliorate its social, emotional, and financial impacts
- These findings suggest the need for further research, advocacy, and legislation to prevent pediatric gun violence and reduce the economic and social impacts.

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