

Pediatric Firearm Injury Emergency Department Visits From 2017 to 2022: A Multicenter Study

Background:

In 2020, firearms became the leading cause of death for US children and adolescents. During the coronavirus disease 2019 (COVID-19) pandemic, an unprecedented increase in firearm purchasing occurred, as communities grappled with alterations to daily life and economic stressors. Pediatric firearm deaths and non-fatal injuries increased substantially, but recent trends in firearm injury emergency department (ED) visits are not well described. This research aimed to assess how pediatric firearm injury ED visits during the pandemic differed from expected pre-pandemic trends.

These data can help guide tailored prevention strategies, efforts to mitigate the physical and emotional sequelae of firearm injuries, and attempts to reduce reinjury.

Citation:

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doi.org/10.1542/peds.2023-063129

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Methods:

Data Collection:

- This was a retrospective cross-sectional study using data from 9 children's hospital EDs participating in the Pediatric Emergency Care Applied Research Network (PECARN) Registry from January 2017 to November 2022.
 - The PECARN Registry comprises electronic health record data from every pediatric ED encounter at participating institutions, harmonized into a deidentified, central repository.
- ED visits by children <18 years old with any *International Classification of Diseases, 10th Revision, Clinical Modification* diagnosis code for a firearm injury, excluding non-powder firearm injuries and excluding codes for subsequent visits were identified.

Analysis:

- The authors described sociodemographic and clinical characteristics of the firearm injury visits during each time period using counts and percentages, analyzing differences using χ^2 tests.
- Race and ethnicity were examined as social constructs and included in analyses because of differential COVID-19 pandemic experiences and previously described differences in pediatric firearm injury rates.
- Observed 30-day firearm injury visit rates for each time period were calculated.
- Expected 30-day visit rates during the pandemic time period were estimated by fitting multivariable Poisson regression models to visit data from the prepandemic time period.
- Estimated visit rates and 95% CIs were plotted alongside observed visit rates for each calendar month for all firearm injury visits and by age group, sex, race and ethnicity, and Child Opportunity Index (COI) quintile.

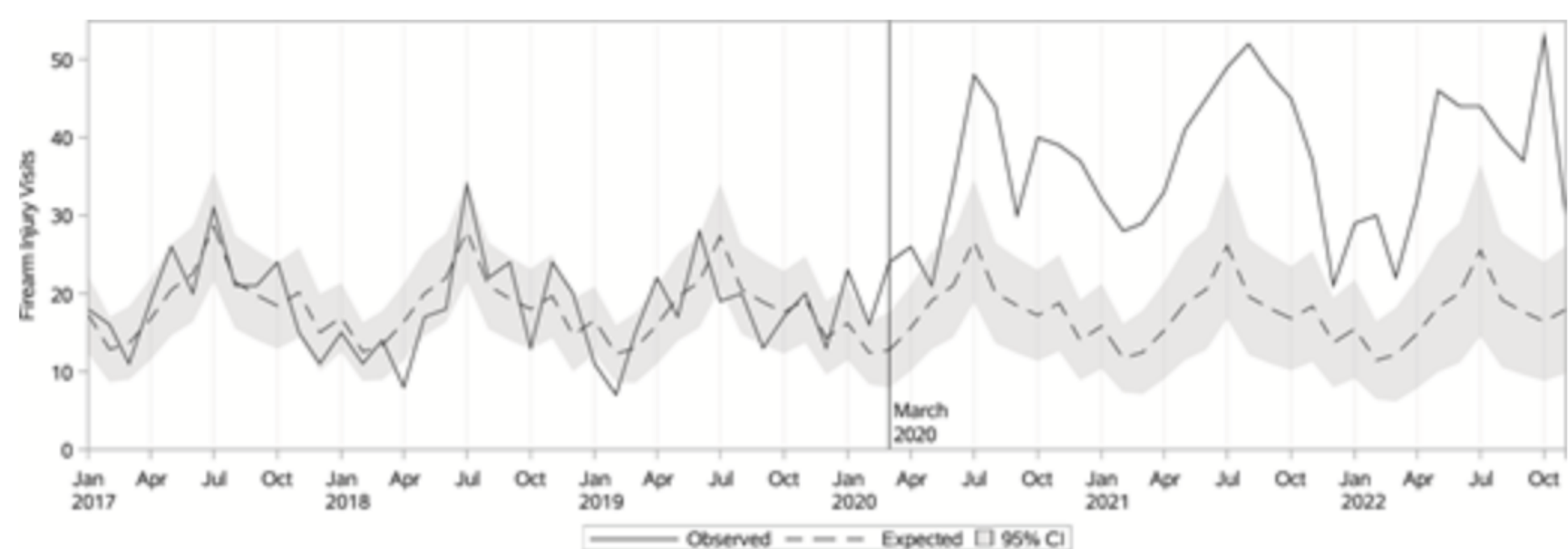


Figure 1: Observed versus expected pediatric firearm injury emergency department visits, January 2017 to November 2022.

Findings:

- During the pandemic, firearm injury ED visits per 30 days were higher than expected among children 10 to 14 years old and 15 to 17 years old.
- During the pandemic, firearm injury ED visits per 30 days were higher than expected for both female and male patients.
- Firearm injury ED visits per 30 days were 2.30 times higher than expected for Hispanic children, 1.88 times higher than expected for Black, non-Hispanic children, and 2.21 times higher than expected for publicly insured children.
- Firearm injury ED visits were higher than expected by children from COI areas classified as very low, low, and high.

Discussion:

Pediatric firearm injury ED visits per 30 days doubled during the pandemic, and mortality rates increased. Visit rates increased beyond expected rates for children >10 years old, for males and females, and for Hispanic and non-Hispanic Black children. A comprehensive approach to preventing pediatric firearm injuries must be rooted in public health principles. Investments at all levels are needed to mitigate the substantial morbidity and mortality associated with increasing pediatric firearm injuries.