

Racial and Ethnic Disparities in Firearm-Related Pediatric Deaths Related to Legal Intervention

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In 2018, more than 500 people died of a firearm injury sustained from law enforcement in the United States.¹ The American Public Health Association recognizes police violence as a public health crisis.² This crisis has received national attention in light of recent events, and concerns of systemic racism among law enforcement have been reignited.

Firearms are the second leading cause of pediatric death in the United States, with noted racial and ethnic disparities.³ We sought to measure racial and ethnic differences in adolescent mortality rates related to firearm injury from law enforcement over a 16-year period.

METHODS

In this cross-sectional study, we used data from the Centers for Disease Control and Prevention Web-Based Injury Statistics Query and Reporting System (WISQARS). WISQARS collects data from death certificates compiled by the National Center for Health Statistics. This study included adolescents aged 12 to 17 years who died of firearm injury from legal intervention (*International Classification of Diseases, 10th Revision* code Y35) from 2003 to 2018.¹ We used 17 years as the upper age limit to prevent inclusion of law enforcement who were killed on or off duty. Poisson regression was used to generate mortality rates, relative risk (RR), and 95% confidence intervals (CIs) overall

and by race and/or ethnicity (non-Hispanic [NH] white, NH Black, Hispanic, and other) by using the comparable US Census population data as the denominator.

RESULTS

During the 16-year study period, 140 adolescents died by legal intervention, and of those deaths, 131 (92.9%) involved firearms. The average annual mortality rate was 0.32 (95% CI: 0.27–0.38) per 1 000 000 adolescents. The majority were boys (93.18%) with a mean age of 15.94 (± 1.80) years (Table 1).

Figure 1 reveals firearm-related mortality rates (per 1 000 000) due to legal intervention by race and/or ethnicity during the study period (NH white: 0.15 [95% CI: 0.10–0.20]; NH Black: 0.88 [95% CI: 0.65–1.11]; Hispanic: 0.41 [95% CI: 0.27–0.54]; other: 0.28 [95% CI: 0.07–0.59]). Overall, NH Black (RR 6.01 [95% CI: 3.92–9.22]) and Hispanic (RR 2.78 [95% CI: 1.73–4.64]) adolescents had a higher risk of death from legal intervention by firearm compared with NH white adolescents.

DISCUSSION

Over a 16-year period, there were marked racial and ethnic differences in firearm-related mortality rates due to legal intervention among adolescents. Such deaths disproportionately burden

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Ms Badolato conceptualized and designed the study, conducted the initial analyses, drafted the initial manuscript, and reviewed and revised the manuscript; Ms Boyle assisted with data analysis, critically reviewed the manuscript for important intellectual content, and revised the manuscript; Dr McCarter designed the study, supervised the data analysis, critically reviewed the manuscript for important intellectual content, and revised the manuscript; Drs Zeoli and Terrill critically reviewed the manuscript for important intellectual content and revised the manuscript; Dr Goyal conceptualized and designed the study, supervised the data analysis, critically reviewed the manuscript for important intellectual content, and revised the manuscript; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

DOI: <https://doi.org/10.1542/peds.2020-015917>

Accepted for publication Sep 16, 2020

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

To cite: Badolato GM, Boyle MD, McCarter R, et al. Racial and Ethnic Disparities in Firearm-Related Pediatric Deaths Related to Legal Intervention. *Pediatrics*. 2020;146(6):e2020015917

youth of color compared with NH white youth.

Our population-based findings of racial and ethnic disparities in firearm-related death by legal intervention among adolescents parallel those described for firearm-related deaths overall as well as among older adolescents and adults.^{3–5} During the same time period, there were 6512 deaths in adults, with NH Black (3.45 per 1 000 000) and Hispanic adults (2.45 per 1 000 000) having higher mortality rates than white adults (1.30 per 1 000 000).¹ In contrast to our study, Joudi et al⁶ reported higher mortality rates due to legal intervention among white children compared with Black youth. This study was limited to children admitted to the hospital and could not account for children who died before admission. These tragedies have broad-reaching effects, affecting both the physical and psychological health of affected communities.⁷

Although this study does not address the underlying causes of these disparities, evidence suggests a role for structural racism as well as explicit and implicit bias among police officers.⁸ A recent report suggests a victim's race may be associated with use of police force. In addition, the authors of this report also found that white officers were more likely to use firearms in minority neighborhoods.⁹ Further research is needed to address underlying causes and develop evidence-based interventions to reduce police shootings, especially among adolescents of color.

TABLE 1 Characteristics of Study Population, 2003–2018, *N* = 131

	Firearm-Related Mortality by Legal Intervention, <i>n</i> (%)
Race and/or ethnicity	
NH white	34 (26.52)
NH Black	55 (41.98)
Hispanic	35 (26.71)
Other	7 (5.34)
Sex	
Female	9 (6.87)
Male	122 (93.13)
Urbanization classification	
Metropolitan areas	1254 (94.66)
Nonmetropolitan areas	7 (5.34)
US census region	
Northeast	16 (12.21)
South	46 (35.11)
Midwest	26 (19.85)
West	43 (32.82)

These results should be considered in the context of some limitations. Our analysis only included reported firearm deaths by legal intervention and does not address nonfatal or police shootings coded as assault. Firearm deaths due to legal intervention may be underreported in WISQARS, which relies on vital statistics data. Although the National Violent Death Reporting System (NVDRS) captures more deaths because of its use of multiple sources and provides contextual information

about the deaths, we did not use NVDRS data because NVDRS does not provide national estimates.¹⁰ Our findings may underestimate the true toll of police shootings in adolescents. However, it is unlikely that these limitations resulted in differential bias by race and/or ethnicity.

We found that NH Black and Hispanic adolescents are disproportionate victims in fatal police shootings. As an ongoing public health crisis, it is critical that interventions and policies are implemented to mitigate these tragedies.

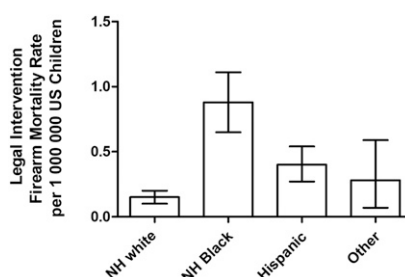


FIGURE 1 Firearm-related mortality rate due to legal intervention in adolescents, 2003–2018.

ABBREVIATIONS

CI: confidence interval
 NH: non-Hispanic
 NVDRS: National Violent Death Reporting System
 RR: relative risk
 WISQARS: Web-Based Injury Statistics Query and Reporting System

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: Dr Goyal is a member of the *Pediatrics* editorial board; the other authors have indicated they have no potential conflicts of interest to disclose.

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Pediatrics 2020;146;

DOI: 10.1542/peds.2020-015917 originally published online November 24, 2020;

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