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Addressing the void: firearm injury prevention in the USA

The COVID-19 pandemic has forced health systems worldwide to address the foundational meaning of disease prevention and harm reduction. While global attention has focused on this unprecedented pandemic, in the USA, an accelerating shift over the past decade has occurred in the leading cause of death among children and adolescents aged 0–19 years. According to the most recent data from the Centers for Disease Control and Prevention (CDC) published in 2022, firearms are the leading cause of death among young people in the USA, due to both a sharp increase in firearm fatalities (83% increase since 2013) and a progressive decrease in motor vehicle fatalities (51% decrease since 2000).[1] The increase in firearm deaths is largely due to increased firearm homicides, as nearly 60% of firearm deaths among young people since 2010 were homicides.

Firearm injuries and deaths in young people show serious racial and ethnic disparities in the USA (appendix). Black, non-Hispanic young people aged 0–19 years had an unprecedented 40% increase in firearm fatalities between 2019 and 2020 (from 11·9 deaths per 100 000 to 16·7 per 100 000). In 2020, Black, non-Hispanic adolescent boys (aged 15–19 years) died by firearm homicide at a rate that was 21 times higher than that for White, non-Hispanic adolescent boys (90·3 per 100 000 *vs* 4·2 per 100 000). In the past two decades, an estimated 136 292 firearm injuries occurred among Black, non-Hispanic adolescents (194·3 injuries per 100 000) compared with 45 525 injuries in White, non-Hispanic adolescents (18·1 per 100 000). These considerable racial disparities are rooted in poverty and structural and cultural racism, resulting in a victim-blaming and biased perception of firearm-related violence in minoritised populations, which lessens the sense of urgency to reduce this violence.[2] By contrast, classic firearm risk behaviour, namely firearm carriage among young people, differs from these trends, as firearm carriage rates in 2015–19 were highest among White, rural, and higher-income adolescents.[3]

The reasons for this shift in the leading cause of death among US youth are complicated and multifactorial. Although firearm fatality rates started to increase in 2014, the societal upheaval of the COVID-19 pandemic probably accelerated this increase with the escalation of mental health stressors and worsening of wellbeing.[4] This shift in the daily lives of young populations during the pandemic occurred in the context of an absence of prevention efforts in the past decades to decrease firearm injuries and deaths. The foundations for firearm injury prevention are only beginning to be established, which contrasts with other instituted injury prevention systems; for example, motor vehicle injury prevention has an infrastructure, which has focused on continuous improvement since the 1970s in the USA. For motor vehicle collisions, these intentionally implemented approaches have led to large decreases in deaths among young people in the USA over time. For firearms, the absence of an intentional and methodical public health approach has led to the opposite results.[5]

A crucial piece of the prevention infrastructure are robust data systems for firearm injuries and deaths. In the USA, the National Highway Transportation Safety Administration serves as the federal road-traffic crash prevention agency, maintaining a comprehensive data system with all motor vehicle-related deaths and a nationally representative sample of police-reported crashes. Although created in 2002, the US National Violent Death Reporting System database, which includes data on all firearm-related deaths, has only collected data from all 50 states since 2019. Surveillance

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For the **CDC data on firearm injuries and deaths** see https://www.cdc.gov/injury/wisqars/index.html

See **Online** for appendix

For the **National Highway Traffic Safety Administration database** see https://www.nhtsa.gov/data

For the **US National Violent Death Reporting System** see https://www.cdc.gov/violenceprevention/datasources/nvdrs/index.html

For more on the **CDC surveillance funding** see https://www.cdc.gov/violenceprevention/firearms/funded-surveillance.html

for non-fatal firearm injuries only began in 2020 in ten state health departments with funding from the Centers for Disease Control and Prevention.

To optimise the use of these data systems, increased research funding is needed to advance scientific understanding around firearm injury prevention. After the US Congress passed the Dickey Amendment in 1996, federal funding of firearm research was effectively halted,[6] until 2019 when US$25 million in research funding was allocated. This support is much less than research funding for other paediatric issues and does not meet the current needs to advance the field.[7] Congress has continued to fund firearm research at this same level for the past 3 years; meanwhile, total firearm deaths increased by 14%, from 39 707 deaths in 2019 to 45 222 in 2020, the highest number of civilian fatalities ever recorded in US history. Studies estimate $600 million should be allocated in fiscal years 2022–26 to support data infrastructure and fund firearm injury prevention research.[8]

In addition to an increased understanding of the risk factors and protective factors for firearm injuries and deaths, funding is essential to develop, implement, and evaluate firearm injury prevention interventions at the individual, hospital, community, and policy levels. At the individual level, technological solutions, including so-called smart guns that allow only the authorised user to fire the firearm, is one approach that should be investigated. At the hospital level, effective interventions providing firearm safety counselling and safe storage devices should be explored for more widespread implementation in US health-care systems. At the community level, additional research is needed to understand both the positive and negative influence of social networks and the built environment on violence incidence and prevention. At the policy level, states with more restrictive firearm laws show decreased firearm deaths;[9] however, less is understood about compliance with enforcement and the intersectionality of multiple laws.

Ultimately, firearms are the causative agent of injury and death. The medical community and society at large should not conclude that having firearms as the leading killer of young people in the USA is inevitable—much less acceptable. The absence of injury prevention interventions must be addressed with measures concentrated on addressing firearms with a multipronged public health approach focused on science and interventions. We must also acknowledge and address the health inequities related to firearm homicides. We know that a public health approach is an essential component of the efforts to reduce firearm injuries and deaths, and now we must fully commit to preventing them.

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