Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Gun violence research is surging to inform solutions to a devastating public health crisis

The COVID-19 pandemic has perhaps been the defining event worldwide in the 21st century, impacting all people and all facets of life. The consequences of the pandemic have been devastating for gun violence in the United States (US), with the firearm homicide rate increasing nearly 35% after the start of the pandemic, widening already existing racial, ethnic, and economic disparities; Overall firearm suicide rates remained stable after the pandemic, but notably increased among people aged 10–44 and among indigenous populations (Kegler et al., 2022). Further, the purchase of firearms in the US has risen dramatically since the pandemic and ghost guns present new challenges in firearm regulation (Schleimer et al., 2021). The impact of the pandemic on gun violence is directly and indirectly woven throughout the articles of this special issue.

The surge of firearm violence has been met with an important surge in research about all aspects of this public health crisis. The 32 articles in this special issue represent the leading edge of gun violence prevention research, and a hopeful path for the future. Collectively, they remind us that high-quality, policy-relevant science, especially work that is rooted in the power of those most directly impacted by gun violence, can be a guidepost for us all. The authors are diverse across a range of demographics, including race, ethnicity, gender, and academic rank, and remind us what an intentionally inclusive approach in academia can look like. Finally, we are reminded that the work does not stop with the publication of this special issue. Rather, this new knowledge, blended with our existing understanding of prevention, must be used to inform action at all levels.

1. The public health impact of firearm violence is devastating to communities

The devastating consequences of firearm violence impacts victims, their families and friends, and entire communities. This is particularly salient for individuals living in segregated Black neighborhoods, where intentional firearm violence is largely concentrated in the United States due to historical and ongoing structural racism (see section on neighborhoods). The first set of papers in this special issue explores how youth and adults experience living in communities with high levels of firearm violence and the impact on their health and wellbeing, information that is vital to creating and implementing prevention and mitigation programs.

Patton et al. leverage a unique combination of semi-structured interviews, focus groups, and mining of over 12 million tweets to hear directly from people most impacted by gun violence – specifically Black individuals living in New York City public housing (Patton et al., 2022). They shed light on the unique role that social media can play in perpetuating violence and as an underexplored tool for violence prevention. Participants describe the layering of co-occurring pandemics (firearm violence, COVID-19, anti-Black racism) as "hell" and "a big ball of bad." Participants shared nuanced views of police presence in their neighborhood, calling for drastic change in the structure of policing and the education of officers around racism, while acknowledging the challenges of the job and for some the apprehension of defunding the police all together. Ideas for prevention focused on addressing long term systemic issues including the need for affordable housing, economic opportunity, neighborhood conditions, and mental health services.

The next two papers focus on the mental health impacts of exposure to firearm violence. Buggs et al. explore the impact of spatially proximate firearm homicide on anxiety and depression symptoms in youth across the United States, and if that impact varies based on community-level characteristics (Buggs et al., 2022). Across 3086 youth, those living in the most disadvantaged neighborhoods who were exposed to a firearm homicide in the blocks around their home or school had increased likelihood of symptoms depression. The relationship did not hold for those in more advantaged neighborhoods. Black boys experienced the largest impact on their mental health. The authors conclude that the accumulated stressors associated with structural disadvantage may make Black boys particularly vulnerable to the negative impacts of living in a neighborhood with high rates of firearm violence.

Sharpe and Iwamoto evaluate the relationship between racial and culturally-bound manifestations of coping and the development of PTSD symptoms among a group of Black adults who have experienced the murder of at least one family member or friend (Sharpe and Iwamoto, 2022). They find that Black survivors who are more aware of historical and contemporary experience with anti-Black racism (cultural trauma) and understand the systematic ways it influences their worldview (culture of homicide), and rely on culturally relevant coping resources, are more protected against developing PTSD symptoms. Their results validate a previously designed Model of Coping for African American Survivors of Homicide Victims and highlight the need to tailor coping intervention strategies that account for socio-cultural context in Black individuals experiencing traumatic loss.

Finally, Hureau et al. focus on the mental health of a population that is vital to violence prevention efforts – community violence interventionists, performing the first systematic evaluation of their risk of secondary trauma (Hureau et al., 2022). There is inherent risk in the work done by this group, including direct violence exposure and indirect exposure through the experiences of the people they work with and have developed deep relationships with. Among 181 individuals surveyed in Chicago (nearly all of the community violence interventionists in the city), more than 50% experienced half of the Secondary Traumatic

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Stress Scale symptoms, and 94% experienced at least one of the symptoms in the past 7 days. Almost 60% of interventionists reported witnessing a shooting while working, nearly 19% had been shot themselves while on the job, and 50% experienced the violent death of a client. Not surprisingly, interventionists who reported more traumatic experiences had higher likelihood of experiencing symptoms. A focus on the mental health of community violence interventionists must be a standard part of how violence intervention organizations operate.

2. Understanding key behaviors associated with firearm injury

There are myriad types of behaviors related to firearms injury risks and multiple approaches for scholars to understand those behaviors. Five articles in this Special Issue use five different methods to shed light on a multitude of behaviors.

Ranney et al. examine the YouTube searches of over 70,000 representative American adults. Per day, about 0.5% of adults perform a firearm-related search (Ranney et al., 2022). The authors created seven content firearm YouTube ecosystems: "Guns & Gear," "Hunting & Fishing," "Fun" (e.g., nerf guns), "Movies," "Music," Gaming" (e.g., video games), and "News & Hot Topics" (often heated political arguments between extremists). The "Guns & Gear" ecosystem was largely about preparing and training for shooting people. Like "Hunting & Fishing," this ecosystem was inhabited primarily by older, white men. Online social narratives - including YouTube - should be part of the discussion about who and how Americans learn about and conceive of firearms and firearm use.

Brunson et al. conducted over 50 face-to-face interviews with high-risk young Black men living in disadvantaged neighborhoods in New York City who had been shot at (Brunson et al., 2022). Three quarters had illegally carried a firearm. These men are at pervasive risk of being a firearm victim, rarely have had formal firearm training, engage in unsafe storage practices (e.g., they stash they guns in easily accessible locations), and often share guns. Pelletier et al. interviewed over 1300 young people (aged 16–29) seeking Emergency Department treatment at a Level-1 trauma center in Flint, Michigan; 17% of respondents had possessed a firearm within the past three months (Pelletier et al., 2022). Males, those who were relatively older, and those with peers who have firearms were most likely to possess firearms. Attitudes about using firearms (e.g., endorse using firearms to solve disputes) were more associated with gun possession among females than gun possession among males. The authors conclude that effective prevention activities may need to be somewhat different for young women compared to young men.

Gaylord-Harden et al. examine the firearm behavior (decisions to acquire, carry and use firearms) of Black adolescents (Gaylord-Harden et al., 2022). The paper provides a review of the literature and argues for the usefulness of a trauma-informed approach for preventing risky firearm behavior. For example, a trauma-informed approach to gun carrying for this demographic does not focus on what is wrong with the adolescent, but what has happened to them. Including trauma exposure and symptoms in screening instruments may help to maximize the ability of providers to match youth to appropriate interventions.

Shen et al. examines whether shootings are contagious—whether one shooting leads to the next, as may happen with revenge homicides (Shen and Sharkey, 2022). They use news data from the Gun Violence Archive for 98 large cities to determine if shootings in one week increase the likelihood of shootings in the subsequent week. They find little evidence for contagiousness of shootings—except when cities were going through sharp increases in gun violence. Then the prevalence of shootings in a given week had a strong, positive, causal effect on the number of shootings in the following week.

3. Firearms and suicide

In the United States, most firearm deaths are suicides, and most suicides are firearm suicides. Many studies have examined the relationship between all-race household gun ownership levels and all-race firearm suicide rates. That relationship is dominated by White households, since there are many more White households than Black households, a higher percentage of White households contain firearms, and a higher percentage of White Americans die by firearm suicide. Little is known about the gun-suicide relationship for Black Americans. Two articles in this issue that focus on suicide compare the Black vs White gun ownership-firearm suicide relationship, one in terms of patterns the other in terms of trends.

Hemenway & Zhang examine a point in time and find that the patterns of Black and White household gun ownership are quite similar (Hemenway and Zhang, 2022). For example, older men are more likely to live in homes with guns than younger men. For White men, firearms suicide rates follow the same patterns as their firearm ownership rates. However, the same is not true for Black men. For example, for Black men, suicide rates are highest among younger adults.

Gutierrez et al. examine the race-specific relationships (White and Black) between gun ownership levels and firearm suicide rates for adolescents over time (Gutierrez et al., 2022). Over the past four decades, *handgun* ownership rates increased in White households as did firearm suicide rates. However, for Black adolescents, there was no relationship between the trends in Black household handgun ownership and Black firearm suicide. Both the Hemenway & Zhang and Gutierrez et al. studies demonstrate the importance of disaggregating by race when examining the relationship between gun ownership and gun suicide.

4. The first step in the public health approach to injury prevention is to create good surveillance (data) systems

The US finally has a comprehensive surveillance system for violent deaths (including all firearm deaths) in all 50 states and the District of Columbia. The National Violent Death Reporting System (NVDRS) collects consistent and comparable data on the circumstances of violent deaths, and includes a summary of the narratives of both the police and medical examiner/coroner.

Unfortunately, gaps in data for all other aspects related to firearm injuries (e.g., gun ownership and storage) are so substantial that the Arnold Foundation commissioned a panel on improving the US firearms data infrastructure (Roman & Cook, 2020) (Roman and Cook, 2020). Two data papers in this issue focus on non-fatal firearm injuries. The first discusses the strengths and limitations of the available US data and the second imputes some of the missing and inaccurate information on intent.

Cook, Barber & Parker provide an excellent overview of the current state of affairs with respect to the two main sources of non-fatal firearm injuries data—police and hospitals (Cook et al., 2022). Too few police departments currently participate in the system to make reliable national estimates, and while the largest national hospital data system (HCUP-NEDS) can provide good estimates on the total number of treated nonfatal firearm injuries, it currently misclassifies many firearm assaults as accidents.

A smaller hospital data system (NEISS-FISS) reliably codes intent but is not large enough to provide stable estimates of the number of these events, and historically placed too many cases in the undetermined category. Carpenito et al. use the NEISS data to impute the intent of the cases in the larger HCUP-NEDS data (Carpenito et al., 2022). For 2017, their point estimates are that 78% of non-fatal gunshot wounds were from assault, 17% were unintentional, and 4% were self-harm.

Finally, Jacoby et al. call into question the common practice among firearm injury researchers of using 'recidivism' as an outcome that demonstrates the effectiveness of an intervention (Jacoby et al., 2022). They urge that the term 'recidivism' can insinuate racialized criminality and serve to stigmatize, criminalize, and racialize firearm injured people. The term may even shape clinical care and patient outcomes by reinforcing implicit and explicitly biases about which patients are or are

not deserving of care. Instead, they offer a series of terms in use in the literature including "risk of reoffending," "reinjury," or "recurrent violent injury."

5. The role of healthcare in driving gun violence prevention

Over the past decade, there has been a major increase in the role of medical providers—including hospitals and physicians—in gun violence prevention. The "this is our lane" movement is one example (Rubin 2019) (Rubin, 2019).

Two articles in this special issue focus on counseling the parents of children and adolescents about firearms. Seewald et al. conducted a national web-based survey of parents of teenagers (Seewald et al., 2022). The results were discouraging, especially given that firearms are the leading cause of death among high school aged teens. Among parents reporting that their teen received any anticipatory guidance from their primary care provider, firearm was the least discussed topic (15%), and most parents did not think firearm safety was an important issue for providers to discuss in the first place, nor did their trust their physician to counsel about firearm safety.

To increase physician counseling about firearms with parents of children and youth, clinics at Kaiser Permanente Colorado and Henry Ford Health Michigan will conduct a randomized trial of ways to encourage their doctors to engage in a brief discussion on firearm storage and to distribute free cable locks. A second article (Hoskins et al) describes an implementation pilot for that trial, to examine for signs of potential inequities (Hoskins et al., 2022). A major finding is that clinicians are more likely to deliver the program to parents of boys rather than girls.

A third article (Wical et al.) is a qualitative case study of the effects of the COVID pandemic on the hospital-based violence intervention programs–designed to reduce repeat violent injury–at the two busiest trauma centers in Maryland (Wical et al., 2022). The pandemic led to reduced program funding, staffing shortages, and lower recruitment due to restrictions on in-patient care. In Maryland, during the period when gun violence was increasing rapidly, the ability to provide effective psychosocial services to the affected population decreased.

6. Structural factors that shape neighborhood conditions represent an important component of violence prevention efforts

Gun violence is largely concentrated is segregated Black neighborhoods in cities across the United States. In Philadelphia, for example, 57 street blocks experienced 10 or more shootings since 2015, whereas more than 75% of blocks in the city had no shootings in that time (Palmer et al., 2021). What the 57 blocks, and the neighborhoods in which they sit, have in common is historical and sustained disinvestment from both the government and private entities such as banking and real-estate. The next set of articles in the special issue explores the role of structural racism in shaping neighborhoods and how neighborhood-level investments might reduce violence.

Mehrandbod et al. evaluate the relationship between the racist practice of government sponsored redlining in the 1930s to present day firearm violence across 21 United States cities (Mehranbod et al., 2022). Redlining represents a form of social and economic marginalization, the consequences of which have reverberated across time to impact current day health and safety. They find a dose-response relationship between how neighborhoods were classified in the 1930s and the level of firearm deaths in 2019, at the zip-code level. This relationship varies across cities, indicating that implementation may have varied locally, and emphasizing that structural racism is the result of mutually reinforcing inequitable systems. The findings of this study remind us to shift a focus away from blaming individuals for the presence of violent crime and focus on intervening on systems and structures that create environments where crime is allowed to thrive.

Similarly, MacDonald et al. explore to what extent the rise in gun violence since the COVID-19 pandemic has been concentrated in gun violence hot spots, which are typically microenvironments of concentrated disadvantage (MacDonald et al., 2022). Across 3 large United States cities, the authors find that the rise in gun violence was disproportionally concentrated in a small number of geographic hot spots, thus further widening racialized spatial disadvantage of individuals living in those neighborhoods. The authors argue for a place-based approach to gun violence prevention including concentrating resources in the areas most impacted.

Kagawa et al. focus on a prominent neighborhood condition associated with disinvestment and deindustrialization that is often associated with violent crime – abandoned buildings (Kawa et al., 2022). The authors study the impact of building demolition in Detroit, MI on violent crime in 2017. Among over 2600 demolition across 1700 blocks, the authors find that in the 3 months after demolition, observed crime rates are the same as crime rates projected based on crime 9 months prior to demolition. In other words, counter to much of the prior literature, demolition does not appear to be protective against crime. The results suggest that the timing of demolition, the type of demolition, and what happens to the space after demolition all may be factors in determining if demolition is an effective violence prevention strategy.

Jay et al. study another neighborhood condition that is linked to structural racism and disinvestment that may be linked to firearm violence – tree canopy (Jay et al., 2022). The authors evaluate if racial segregation and presence of tree canopy are associated with firearm violence and if achieving tree equity across neighborhoods would impact firearm violence. Across 6 cities in the United States, in a fully adjusted model, a 1-standard deviation increase in tree cover in a census tract was associated with a 9% reduction in firearm violence. Achieving tree-cover equity across neighborhoods in a city would have an impact on firearm violence, although significant racial disparities in violence exposure would persist. The authors conclude that significant and sustained investments in neighborhood conditions, along with investments in other systems such as housing, education, and economic opportunity are needed to address firearm violence.

Finally, K-12 public schools are ubiquitous local neighborhood institutions that play an outsized role in shaping the lives of children and families across the country. Since 2015 there have been approximately 275 intentional shootings at schools across the country. Rajan et al. highlight the need to move from a strategy that prioritizes active shooter drills to a comprehensive public health prevention framework that aims to stop gun violence from ever occurring in schools (Rajan et al., 2022). The authors call for community investments including more green space and improving housing conditions; investments in the school environment including programs that promote prosocial skill development among youth; and tertiary prevention including mental health resources and trauma-informed schools.

7. Research to inform policy

Several contributions to the special issue of Preventive Medicine sought to identify effective firearm policies, describe the implementation of firearm policies, highlight challenges to policies intended to keep firearms from individuals at high-risk, or measure public support for policies intended to reduce firearm violence.

Very few studies to inform firearm policies use individual-level data on large populations of individuals that allow one to isolate individuals prohibited from having firearms in contrast to lawful firearm possessors. Swanson and colleagues conducted a longitudinal study of arrests and convictions for offenses for 51,059 young adults in North Carolina (Swanson et al., 2022). They found that those who committed serious offenses as juveniles had rates of subsequent firearm offenses that were nine times higher than that of the same age group in North Carolina. Having a felony firearm prohibiting event as a juvenile was associated with a 5-fold increased risk of firearm offending relative to those with minor juvenile offenses. Incarceration as a juvenile was also associated

with a 5-fold increased risk of firearm offending. The authors highlight the need for better enforcement of laws to prevent illegal transfers and stronger measures to prevent offending and juvenile incarceration. Rich and colleagues offer a novel analytic method using cross-sectional data on gun laws and firearm mortality at the state level to ascertain which laws or combination of laws best distinguish states with relatively high rates of firearm homicide and suicide from states with lower rates (Rich et al., 2022).

Two other contributions to this special issue on research on firearm highlight challenges to polices to keep firearms from prohibited persons. Gobaud et al. found an excess of gun shows in counties lacking universal background check laws near states with these regulations (Gobaud et al., 2022). This finding is consistent with studies using data from crime gun traces showing the flow of guns from states with weak gun sales regulations to those with stricter regulations. Braga et al. used data on crime guns recovered by law enforcement in Oakland, California to show a dramatic increase in the criminal use of privately made firearms, also known as "ghost guns." Such firearms evade federal and state background check regulations. They also show sharp increases in the number and share of crime guns that move swiftly from retail sale to crime involvement as gun violence increased dramatically in Oakland and around the US in 2020 (Braga et al., 2022). The need for policies to curtail ghost guns and policies to curtail gun trafficking are discussed.

This special issue has two important research contributions to our understanding of a relatively new policy intended to prevent multiple forms of gun violence, Extreme Risk Protection Order (ERPO) laws. Zeoli et al. gathered data from 6 states with ERPO laws and court petitions to have firearms removed when petitioners claimed that someone was threatening to shoot three or more people – 10 % of all ERPO petitions in those states (Zeoli et al., 2022). The most common of these 662 ERPO petitions involved threats to commit mass shootings in K-12 schools and workplaces followed by those involving (ex)intimate partners and their children or extended family members. Judges granted ERPOs for 93% of the petitions involved mass shooting threats at the temporary ERPO stage and final ERPOS in 84% of the cases held. Prior research has shown that in cases where firearms are removed from persons threatening mass shootings, none of the defendants subsequently went on to commit a mass shooting (Wintemute et al., 2019).

From an in-depth analysis of ERPO petitions and outcomes in California, Pear et al. examine the important and understudied issue of racial disparities in the use of laws intended to prevent gun violence. They present data from a 2020 survey of Californians and data from ERPO petitions in California. Black survey respondents reported ERPOs were at least sometimes appropriate 54% to 64% of the time across different scenarios. In contrast, white participants said ERPOs were at least sometimes appropriate 79% to 88% of the time. No family or household members petitioned for an ERPO for Black or Hispanic respondents. Racial disparities were also evident in ERPO respondents being arrested and legal representation in court. The Safer Communities Act of 2022 provides significant federal funding to strengthen system responses to crises and offer opportunities to improve the implementation of ERPO laws so that they are both fair and effective in preventing mass shootings as well as suicides.

Given the importance of access to firearms as a risk factor for suicide, efforts have been underway to encourage firearm retailers and gun ranges to store firearms for individuals who are having suicidal thoughts and to make gun owners aware of businesses offering this service. Barnard et al. surveyed firearm retailers and gun ranges in Colorado and Washington and report that one third of firearm retailers and ranges offered temporary, voluntary out-of-home storage of firearms (Barnard et al., 2022). Most had not heard of gun storage maps in those their states. Survey respondents indicated that the ability to offer liability waivers for firearms may influence more businesses to offer temporary firearm storage services.

While most studies of policies addressing firearm violence have focused on the regulation of firearms, Rowhani-Rahbar et al. offer an important systematic review of research on the effects of income support policies on firearm violence. Each of the 4 studies identified found income support policies were associated with reductions in inter-personal firearm violence (Rowhani-Rahbar et al., 2022). Researchers interested in potential policy solutions to gun violence should examine other policies that impact the economic and social welfare of those at greatest risk of involvement in violence.

Events during the Covid pandemic, widespread protests against police violence and historic surge in gun violence during 2020 helped drive efforts advocacy efforts to reform policing and promote alternatives to crisis response led by police. Ward et al. present national survey data showing broad support for funding police and mental health co-responder models for mental health crisis response, diversion from incarceration for people with symptoms of mental illness, stronger laws to assure police accountability, and funding for community-based gun violence prevention programs. Support for redirecting funding from the police to social services was more variable (White: 35%, Black: 60%, Hispanic: 43%). Using data from the same 2021 national survey, Stone et al. report broad support for most policies to restrict or regulate firearms, but support for some of these policies declined since 2019 among Republicans and among non-gun-owners.

The findings across these studies underscore opportunities and challenges for policies to reduce firearm violence. Yet much more rigorous, policy-relevant research is needed to fully understand if and how policies influence access and misuse of firearms. Public health has stressed the importance of "upstream" or supply-side policies to prevent firearm violence in large part by prevent firearm access to high-risk individuals or under high-risk conditions. A recent Supreme Court decision both expanded individuals' rights to possess firearms outside the home and created a more difficult and confusing test for determining whether a firearm restriction violates the Second Amendment. While courts previously had to consider whether a restriction on firearms was in the interest of public safety, under the new legal test, the only interest is whether or not a restriction was consistent with the text, history, and tradition of laws in the late 18th and early 19th centuries. Firearm laws are likely to change and new laws and strategies will emerge to address the enormous public health problem of gun violence. Findings from this Preventive Medicine's special issue along with much other research will need to inform these efforts.

References

Barnard, L.M., Johnson, R.L., Brandspigel, S., Rooney, L.A., McCarthy, M., Meador, L., Rivara, F.P., Rowhani-Rahbar, A., Knoepke, C.E., Fortney, J.C., Peterson, R., Betz, M. E., 2022. Voluntary, temporary out-of-home firearm storage: a survey of firearm retailers and ranges in two states. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107220.

Braga, A., Barao, L.M., Wintemute, G.J., Valle, S., Valente, J., 2022. Privately manufactured firearms, newly purchased firearms, and the rise of urban gun violence. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107231.

Brunson, R.K., Wade, B., Hitchens, B., 2022. Examining risky firearm behaviors among high-risk gun carriers in new York City. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107179.

Buggs, S., Zhang, X., Aubel, A., Bruns, A., Kravitz-Wirtz, N., 2022. Heterogeneous effects of spatially proximate firearm homicide exposure on anxiety and depression symptoms among U.S. youth. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107224.

Carpenito, T., Miller, M., Manjourides, J., Azrael, D., 2022. Using multiple imputation by super learning to assign intent to nonfatal firearm injuries. Prev. Med. 163 https://doi.org/10.1016/j.ypmed.2022.107183.

Cook, P., Barber, C., Parker, S.T., 2022. The emerging infrastructure of US firearms injury data. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107129.

Gaylord-Harden, N., Alli, J., Davis Stober, C.P., Henderson, H., 2022. Trauma-informed approach to understanding firearm decision-making among Black adolescents: implications for prevention. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107305.

Gobaud, A.N., Morrison, C.N., Mehranbod, C.A., Hoofnagle, M.H., 2022. Gun shows and universal background check laws across state lines. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107094. YPMED-21-2273R1.

Gutierrez, C.M., Prickett, K.C., Hollowell, C., Teiko, P., Caton, L., 2022. Type of household firearm ownership and firearm suicide among adolescents, 1976-2018. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107244.

Hemenway, D., Zhang, W., 2022. Patterns of household gun ownership and firearm suicide among Black men compared to White men. Prev. Med. 164 https://doi.org/10.1016/j.ypmed.2022.107261.

Hoskins, K., Linn, K.A., Ahmedani, B.K., et al., 2022. Equitable implementation of S.A.F.E firearm: a multi-method pilot study. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107281.

Hureau, D., Wilson, T., Rivera, W., Papachristos, A.V., 2022. The experience of secondary traumatic stress among community violence interventionists in Chicago. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107186.

Jacoby, S.F., Smith, R.N., Beard, J.H., 2022. Rethinking "recidivism" in firearm injury research and prevention. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107221.

Jay, J., Kondo, M.C., Lyons, V.H., Gause, E., South, E.C., 2022. Neighborhood segregation, tree cover and firearm violence in 6 U.S. cities, 2015–2020. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107256.

Kawa, R., Calnin, B., Smirniotis, C., Cerda, M., Wintemute, G., Rudolph, K.E., 2022. Effects of building demolitions on firearm violence in Detroit, Michigan. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107257.

Kegler, S.R., Simon, T.R., Zwald, M.L., et al., 2022. Vital signs: changes in firearm homicide and suicide rates — United States, 2019–2020. MMWR Morb. Mortal. Wkly Rep. 71, 656–663. https://doi.org/10.15585/mmwr.mm7119e1external icon.

MacDonald, J., Mohler, G., Brantingham, P.J., 2022. Association between race, shooting hot spots, and the surge in gun violence during the COVID-19 pandemic in Philadelphia, New York and Los Angeles. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107241.

Mehranbod, C.A., Gobaud, A.N., Jacoby, S.F., Uzzi, M., Bushover, B.R., Morrison, C.N., 2022. Historical redlining and the epidemiology of present-day firearm violence in the United States: a multi-city analysis. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107207.

Palmer, C., Purcell, D., Orso, A., Duchneski, J., Griffin, J., 2021. Gun violence has been concentrated in just a handful of neighborhoods and several dozen blocks, leaving behind a breathtaking level of fear and trauma among a freaction of resident. Philadelphia Inquirer. September 16. Philadelphia shootings surge in 2021, in communities historically affected by poverty, blight and systemic racism (inquirer.com).

Patton, D.U., Aguilar, N., Landau, A., Thomas, C., Kagan, R., Ren, T., Stoneberg, E., Wang, T., Halmos, D., Saha, A., Sudarshan, A., McKeown, K., 2022. Community implications for gun violence prevention during co-occurring pandemics; a qualitative and computational analysis study. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107263.

Pelletier, K., Schmidt, C.J., Seewald, L., Cunningham, R.M., Zimmerman, M.A., Walton, M.A., Resnicow, K., Carter, P.M., 2022. Understanding factors associated with firearm possession: examining differences between male and female adolescents and emerging adults seeking emergency department care. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107286.

Rajan, S., Reeping, P.M., Ladhani, Z., Vasudevan, L.M., Branas, C.C., 2022. Gun violence in K-12 schools: moving towards a preventive (versus reactive) framework. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107280.

Ranney, M.L., Conrey, F.R., Perkinson, L., Friedhoff, S., Smith, R., Wardle, C., 2022. How Americans encounter guns: mixed methods content analysis of YouTube and internet searches. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107258.

Rich, J.A., Miech, E.J., Semenza, D.C., Corbin, T.J., 2022. How combinations of state firearm laws in the U. S link to low firearm suicide and homicide rates: a configurational analysis. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107262.

Roman, John K., Cook, Philip J. (Eds.), 2020. A Blueprint for a US Firearms Data Infrastructure: Implementation Papers. NORC at the University of Chicago, Chicago, IL.

Rowhani-Rahbar, A., Schleimer, J.P., Moe, C.A., Rivara, F.P., Hill, H.D., 2022. Income support policies and firearm violence prevention: a scoping review. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107133.

Rubin, R., 2019. Physicians are steering the conversation about gun violence. JAMA. 321, 133–135.

Schleimer, J.P., McCort, C.D., Shev, A.B., et al., 2021. Firearm purchasing and firearm violence during the coronavirus pandemic in the United States: a cross-sectional study. Inj. Epidemiol. 8, 43. https://doi.org/10.1186/s40621-021-00339-5.

Seewald, L., Myers, M., Zimmerman, M.A., et al., 2022. Firearm safety counseling among parents of high-school age teens: results from a national survey. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107285.

Sharpe, T.L., Iwamoto, D.K., 2022. Psychosocial aspects of coping that predict PTSD for African American survivors of homicide victims. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107277.

Shen, Y., Sharkey, P., 2022. When and where does violence beget violence? Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107184.

Swanson, J., Tong, G., Easter, M., Sivaraman, J.C., Gifford, E.J., Gardner, B.O., Donnelly, E.A., Evans, K.E., Copeland, W.E., Swartz, M.S., Bonnie, R.J., 2022. Gun violence among young adults with a juvenile crime record: implications for firearm restrictions based on age and risk. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107279. Published online 30 September.

Wical, W., Harfouche, M., Lovelady, N., et al., 2022. Exploring emergent barriers to hospital-based violence intervention programming curing the COVID-19 pandemic. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107232.

Wintemute, G.J., Pear, V.A., Schleimer, J.P., et al., 2019. Extreme risk protection orders intended to prevent mass shootings: a case series. Ann. Intern. Med. 171 (9), 655–658. https://doi.org/10.7326/M19-2162.

Zeoli, A.M., Frattaroli, S., Barnard, L., Bowen, A., Christy, A., Easter, M., Kapoor, R., Knoepke, C., Ma, W., Molocznik, A., Norko, M., Omaki, E., Paruk, J.K., Pear, V.A., Rowhani-Rahbar, A., Schleimer, J.P., Swanson, J.W., Wintemute, G.J., 2022. Extreme risk protection orders in response to mass shooting threats in six U.S. states: A descriptive study. Prev. Med. 165PA https://doi.org/10.1016/j.ypmed.2022.107304.

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