

Position paper

Adolescent firearm violence: Position paper of the Society for Adolescent Medicine

Naomi Duke, M.D., M.P.H.*, Michael D. Resnick, Ph.D., and
Iris Wagman Borowsky, M.D., Ph.D.

Department of Pediatrics, Division of General Pediatrics and Adolescent Health, University of Minnesota, Minneapolis, Minnesota

Scope of the Problem

Firearm violence is one of the most serious threats to the health of adolescents in the United States. In 2002, 277 youth aged 10 to 14 years and 2474 youth aged 15 to 19 years were killed by firearms [1]. Several-fold more are treated in emergency rooms each year for nonfatal injuries, many of them resulting in permanent disabilities. National estimates indicate that in 2003 there were 704 youth aged 10 to 14 years and 11,014 youth aged 15 to 19 years with emergency department visits for nonfatal gunshot injuries [1]. Among adolescents aged 15 to 19 years, firearm deaths outnumber deaths from any disease category and rank second only to motor vehicles among causes of injury-related deaths [1]. Within some demographic areas and subgroups, firearm deaths surpass deaths from any other cause.

Considerable evidence indicates that availability and access to firearms increases the risk of homicide, suicide, and unintentional gun injury in the home and in the community [2–6]. Yet firearms are present in 35% of U.S. households with children younger than 18 years, and 43% of these homes have at least one unlocked firearm [7]. Nationwide, 6% of youth completing the Youth Risk Behavior Survey in 2003 reported carrying a gun on at least one of the 30 days preceding the survey [8].

From 1983 to 1993, the sharp rise in homicides in the United States was tied to an increase in the use of firearms in the commission of crimes; likewise, the significant decline in homicide arrests from 1993 to 1999 can be traced largely to a drop in firearm use [9]. Among youth aged 15 to 19 years, firearm-related suicides accounted for 96% of

the increase in the rate of suicide since 1980 [10]. Despite recent declines, firearm death rates among children and adolescents in the United States remain vastly higher than the rates in other industrialized nations [11,12]. Although morbidity and mortality for firearms includes all guns, handguns are implicated in the majority of violent injury deaths [13].

In addition to death and physical injury, gun violence is associated with serious psychological, economic and social consequences in children, families, and communities [14]. Exposure to gun violence both as a direct victim and indirectly, as a member of a community where violence is common and through media portrayals of shootings, has been linked to negative effects on child development and poor outcomes. Effects include underachievement in school, withdrawal from family and friends, aggressive and delinquent behaviors, substance use and abuse, and development of mental illness, as well as violence perpetration in the future [14,15].

Factors Associated with Firearm Violence

Nationally and internationally, research data document the link between availability and access to firearms and death by firearms. The importance of gun availability as a contextual feature for gun violence has been identified in studies comparing rates of suicide and homicide in cities with differential gun control policies. Rates of suicide with handguns were found to be six times higher overall and almost 10 times higher among adolescents aged 15–24 years in King County, Washington when compared with Vancouver, British Columbia, where handguns were less available [16]. Similarly, with respect to homicide and assault, the relative risk of homicide by handgun and assault by firearm was significantly higher in Seattle, Washington than in

*Address correspondence to: Dr. Naomi Nichele Duke, Department of Pediatrics, Division of General Pediatrics and Adolescent Health, University of Minnesota, 200 Oak Street, Ste. 260, Minneapolis, MN 55455.

E-mail address: duke0028@umn.edu

Vancouver, British Columbia, a city with a more restrictive approach to gun control [4].

Gun ownership has been identified as an independent risk factor for homicide in the home; guns in the home have been associated with a threefold increased risk of homicide, usually by a family member or intimate acquaintance [3]. Risk of suicide in homes where guns are kept has been found to be fivefold higher than in homes without firearms and the associated risk increases in homes with loaded or unlocked firearms [17].

In addition to easy access to guns, factors associated with youth firearm violence perpetration include many of the factors associated with youth violence in general. Poverty, residing in high crime/socially disadvantaged neighborhoods, substance use, school failure, peer delinquency, other weapon carrying, previous delinquent behavior, transience and disconnection with community and/or adults, poor coping and problem-solving skills and anger/poor impulse control have all been linked to nonfatal and fatal violence involvement [13,18–20].

Interventions to Reduce Firearm Violence

The prevention of firearm violence requires a multifaceted approach that addresses the broad social, environmental, and behavioral factors that contribute to youth violence. Eliminating handgun accessibility from the environments of adolescents is an essential component of this approach. A recent case-control study of firearms found that safe storage practices, specifically keeping firearms stored unloaded, in a locked place, storing ammunition locked, and in a separate location, each had a protective effect against unintentional firearm shootings and suicide attempts among children and adolescents [21]. Several strategies to reduce accessibility of guns to youth have been proposed and are under evaluation, including the development of a comprehensive, national system for reporting firearm-related injuries and fatalities, firearm safety counseling, and media literacy for parents and youth, state and federal firearm restriction laws, firearm design modifications, and the development of community partnerships to reduce youth gun violence.

Public health strategies to prevent firearm violence advocate the need for a more detailed national firearm injury tracking system that requires identification of demographic, behavioral and environmental risk factors that will better define the problem. The system should include specific information on the injury event (e.g., crime- or gang-related, suicide, unintentional firearm discharge), the victim-offender relationship, place and geographic location of the injury, any impairment of the victim or offender via alcohol and other drugs, any contribution from emotional or mental health problems, firearm type, and involvement of medical services and health outcomes [13,14]. Expansion of the tracking system to include not only data on firearm injury and fatality, but also a mechanism to trace all guns used in

crimes through public health surveillance of violent events, has the potential to expand capacity for early detection of conditions that facilitate violence and expand strategies for early intervention [22].

An evaluation of the impact of clinician counseling on parents' gun practices including acquisition of new guns, removal of guns and purchase of gun safety devices, showed no significant effects [23]. However, the literature notes the receptivity of parents to counseling on gun injury prevention by their child's health care providers [24], and research has demonstrated that youth may also be receptive to counseling. A survey of high school students found that youth who have seen a gun in school, seen another person threatened with a gun, feared getting shot, have knowledge of a gun in their household, or hear gunshots in their neighborhood want to discuss guns with an adult [25]. As well, parents whose children make an emergency department visit for mental health assessment or treatment will take new action to limit access to firearms if instructed to do so [26]. Conversely, there is evidence that unless this discussion is held, parents will not take the necessary precautions on their own [27].

Research suggests that changing the delivery style of the message from solely dissemination of information to active participation of parents in developing firearm safety practices may have better impact on behaviors in the home environment [28]. Potential areas of further exploration in prevention counseling include a focus on dispelling false beliefs that make parents resistant to change, such as addressing the gap between parents' perceptions of safety and the reality of risk brought into the home by the presence of a firearm [28], strengthening the argument for storing firearms locked and unloaded or removing them from the home by helping gun-owning parents to recognize children's interest in guns despite messages to avoid them [28], advising parents to be aware of firearm practices in the homes of their child's friends and outside family members [29], counseling parents of youth with mental illness and at risk for suicide to remove or keep firearms out of the home, targeting fathers for prevention counseling [29], and media literacy including strategies to limit media viewing and exposure to violent role modeling.

The Task Force on Community Preventive Services recently completed a systematic review of selected federal and state firearm laws on violence-related outcomes [30]. Laws reviewed were bans on specified firearms or ammunition, restrictions on firearm acquisition, waiting periods for firearm acquisition, firearm registration and licensing of firearm users, "shall issue" concealed weapon carry laws, child access prevention laws, and zero tolerance laws for firearms in schools. For each law, the Task Force found insufficient evidence to determine effectiveness due to no studies or only a small number of studies, often with limitations in their design and execution or inconsistent findings. Thus, additional research is needed in all areas.

Additional interventions are directed at reducing the lethality of firearms through design modifications. Recognizing that attempts to affect the behaviors of individuals so that they act more safely as a single strategy for injury prevention have not proven adequate to address most injury problems, research from the injury prevention field suggests that modifying the physical environment for specific injury hazards, in this case product modification, may provide a more promising approach than behavior modification in reducing gun violence. The examples of tamper resistant/childproof packaging for medications and the development of collapsible steering columns, seatbelts, and energy-absorbing vehicle frames for motor vehicles to reduce injury provide strong rationale for development and implementation of safety technologies for guns [31]. Although much of the technology remains in the preliminary stages, changing the design of guns, particularly handguns, has the potential to reduce the incidence of firearm-related injury and death for youth [31]. Design modifications are aimed at reducing unintended injury as well as preventing unauthorized users of any age from firing a gun.

Development of partnerships at the community level to reduce youth gun violence is ongoing. Partnerships between local trauma centers and communities have demonstrated a model that is effective in acquisition and dissemination of data and in framing firearm injury as a public health problem, providing information that is unique to individual communities and beginning to develop community-based firearm prevention programs [32]. Partnerships between law enforcement and communities have been evaluated [33]. Partnerships that incorporate strengthening of community norms against gun violence [28], community needs assessment and mapping of crime incidents [28,34], community involvement in designing interventions, and a proactive policing framework focused on improving quality of life for residents show most promise [28,34].

Position

The Society for Adolescent Medicine supports the following strategies in an effort to reduce firearm-associated violence and injury in adolescents. Strategies are based on expert consensus and the best evidence wherever possible.

- Continued research on firearm violence, including scope of the problem of firearm injuries among youth, risk and protective factors for involvement in firearm violence, and the effectiveness of prevention and intervention strategies to reduce firearm morbidity and mortality;
- Evaluation of methods to promote safer gun storage practices, such as educational campaigns, clinician counseling and child access prevention (CAP) laws;
- Further development of an expanded national reporting system to collect better data about firearm-related fatalities and injuries, the development of a uniform coding system in classifying firearm deaths to facilitate comparisons and evaluative practices nationally and collection of data on recovered crime guns;
- Screening all youth and families for violence victimization, perpetration and the presence of a firearm in the home; treatment and appropriate referral of youth at risk for firearm injury, including those with a history of mental illness, especially depression and suicide risk, and youth engaged in physical fighting, weapon-carrying, substance use, or with exposure to family violence;
- Incorporation of regular firearm injury prevention counseling by adolescent health care providers that uses strategies of active participation of parents and teens in the development of safety practices. Counseling should include recommendations for the four specific practices of keeping a gun locked, unloaded, storing ammunition locked, and in a separate location.
- Development, implementation, and evaluation of programs designed to help youth exposed to firearm violence cope with trauma, as a means to make them less prone to violent acts in the future;
- Regulation of guns as consumer products with legislation and regulatory strategies to reduce availability of the primary source of firearm injuries among adolescents, handguns, including restricting purchase and possession of handguns by private citizens, closer oversight of licensed dealers, regulation of private sales, and mandated licensing of gun owners and registration of guns. Rigorous evaluation of restrictive acquisition and licensing laws are needed.
- Legislation and regulation supporting the advancement and evaluation of gun technology in promoting safety features such as grip safety mechanisms, loaded chamber indicators, magazine disconnect devices, and personalization of handguns;
- Participation of providers in the development of strong and active coalitions that bring together community members with diverse perspectives and expertise to promote the development and implementation of multidimensional, scientifically based strategies, interventions, and legislation to reduce firearm violence;
- Implementation of creative collaborations between law enforcement and communities recognizing the need for communities to play active roles in program development;
- In addition, the Society supports interventions that have been found to reduce delinquent and violent behavior more broadly among youth, including:
 - Increased positive parent involvement and monitoring of youth activities [35];
 - Early childhood programs that include home visitation and early education [34];
 - Parent training programs focusing on behavior

management, problem solving skills, strengthening family connections, and authoritative parenting [18,36–38];

- Development and evaluation of comprehensive violence prevention curricula that are age appropriate, incorporate problem solving skills through perspective taking and moral reasoning [18], youth social skills development as well as decision-making skills;
- Incorporation of classroom management strategies producing consistent discipline in the school environment with specific reward structures and careful behavioral monitoring that fosters safety, communication [36], and a connection between teachers and students [20,37].

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