

# Behavior-Oriented Approaches to Reducing Youth Gun Violence

Marjorie S. Hardy

## SUMMARY

Advocacy groups on both sides of the guns issue frequently point to changing personal behavior—of both parents and children—as a key element in reducing gun violence among youth. Efforts to bring about these changes range from community-based campaigns, to laws and programs that encourage parents to store their guns safely, to educational initiatives that focus on keeping young children away from guns and encouraging youth to resolve disputes without violence.

Unfortunately, these behavior-oriented programs have not shown great success in reducing youth gun violence. This article reviews the research surrounding behavioral approaches to gun violence prevention and highlights obstacles that hamper the effectiveness of these programs.

Supportive communities can play a key role in protecting youth from violence in general, but the few community-based violence prevention programs that focus on youth have not been shown to decrease youth access to or use of guns.

- By and large, behavioral programs and legal interventions aimed at parents have not been proven to reduce youth gun violence. This may be due in part to parental misperceptions about children’s risk of injury and ability to protect themselves.
- Children and youth are particularly difficult targets for behavioral change programs. Cognitive immaturity among younger children and perceptions of invulnerability among adolescents may be part of the reason. Most programs that seek to persuade youth to stay away from guns have not been proven effective.

The author concludes that, although behavioral programs could be improved, overall they hold only limited promise for reducing youth gun violence.

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Public policy efforts to reduce gun-related deaths and injuries among youth often meet resistance from those who cite education as the key to “gun proofing” children. However, behavioral approaches to reducing firearm violence—programs to change the behaviors of parents and children regarding guns—rarely have been evaluated, and those that have been have not demonstrated great success. Though well-intentioned, many of these approaches are poorly designed, and some may even have the inadvertent effect of making the problem worse. Nonetheless, politics, legal considerations, and an intuitive sense that behavioral programs work ensure their continued use.

One explanation for the failure of behavioral programs may be found in research examining the prevention of injury and violence in general. According to this research, injury prevention efforts can be classified along a passive–active continuum, from eliminating hazards from the environment (passive) to teaching safe behavior (active). Passive prevention efforts require no effort at all on the part of individuals (for example, choosing not to own a firearm). Some active efforts require a one-time behavior (such as placing and keeping a trigger lock on a gun); others require a moderate amount of effort (such as locking up a gun after each use); and still others require constant effort (such as supervising children). Researchers agree that the more effort a prevention strategy requires, the more difficult it is to implement.<sup>1,2</sup> Modifying the behav-

ior of parents or children is thus more difficult than modifying the environment or the firearm itself. (See the article by Teret and Culross in this journal issue.)

Drawing upon lessons learned from general injury and violence prevention research, this article examines behavior-oriented approaches to reducing youth firearm injury and violence. First, it briefly describes community-based interventions that focus on reducing youth gun violence. Second, the article explores working with parents to reduce children’s unsupervised access to guns, and it assesses two approaches toward modifying parents’ behavior concerning gun ownership and storage. Third, it examines developmental considerations and difficulties in working with children and assesses several child-based approaches to reducing youth firearm violence. The article concludes with recommendations for improving educational approaches to reducing youth gun violence—and cautions that no matter how well such programs are designed, their ability to keep children safe from gun violence may be limited.

## Community-Based Interventions

Communities can play an important role in reducing youth violence. A recent study by the Group for the Advancement of Psychiatry found that access to firearms poses a particularly serious risk to youth who live in communities where violence is widespread. On the other hand, the study cited supportive communities as key to protecting youth from violence.<sup>3</sup>

For these reasons, many approaches to reducing youth violence target communities as a whole. These campaigns typically link community resources such as hospitals, law enforcement, businesses, schools, the media, and social service providers. The goal is to bring members of the community together to assess the extent of the problem and to empower them to be part of the solution.<sup>4</sup> Gun-free school zones, community revitalization efforts, after-school programs to keep children off the streets, and media promotions through billboards, mass mailings, and public service announcements are all examples of community activities aimed at modifying the behavior of individuals within communities.

Although community campaigns to reduce youth violence in general are common, few focus specifically on

## Box 1

### Model Community-Based Violence Prevention Programs

The National School Safety Center, a nonprofit organization that aims to prevent school violence and promote safe schools, describes model community violence prevention programs as incorporating the following:

1. Respect for the culture of the community as a whole and for individuals within the community
2. Problem-solving approaches
3. Acknowledgment of fear as a reality in the lives of children
4. Assessment of successful practices in other communities
5. Youth involvement
6. Formation of both formal and informal leaders
7. Ambitious but realistic program goals
8. Recognition of the community's limits and links
9. A means for assessment and evaluation

Source: Arrendondo, S., Aultman-Bettridge, T., Johnson, T.P., et al. *Preventing youth handgun violence: A national study with trends and patterns for the state of Colorado*. Boulder, CO: Center for the Study and Prevention of Violence, 1999.

reducing firearm violence. Two programs that have had this focus are the Safe Kids/Healthy Neighborhoods Injury Prevention Program in New York and Safe Homes and Havens in Chicago. Both programs were designed to target the neighborhood and to reduce children's exposure to handguns, educate residents about violence prevention, and provide children with a safe place in which to play. The Safe Kids/Healthy Neighborhoods Injury Prevention Program, which included a playground revitalization and supervision component, was found to reduce gunshot injuries in the community in which it was implemented. However, a similar finding was noted in a control neighborhood, suggesting a general trend in the community rather than an effect of the program.<sup>5</sup> The Safe Homes and Havens program was not evaluated and is no longer being implemented.

Because community campaigns are multifaceted, it is difficult to evaluate their effectiveness. Even for campaigns associated with reductions in gun-related injuries and deaths, it is nearly impossible to determine which of the many individual components of the campaign may be responsible. Nonetheless, the National School Safe-

ty Center believes that programs incorporating the elements described in Box 1 may be successful in reducing youth gun violence.

### Working with Parents

Parents are frequently the target of behavioral programs designed to keep children, particularly young children, safe. These programs usually seek to persuade parents either to remove guns from their homes or to store guns safely (unloaded and in locked storage areas). Working with parents to promote child safety is fraught with challenges, however. Two common approaches to changing how and whether parents store guns in their homes—Child Access Prevention (CAP) laws and pediatric-based counseling—appear to show only limited promise in convincing parents to change their gun ownership and storage practices.

### Challenges in Working with Parents

Several obstacles present challenges when working with parents to reduce their children's likelihood of injury, including gun injury. These include the level of parental interest and involvement in their children's lives, parental beliefs that their children are at little risk

## Parents seem to be especially unaware of their children's interest in guns and are unable to predict how their children will behave around guns.

of injury, and parental misperceptions about their children's ability to protect themselves.

First, children at risk for injury typically come from disadvantaged homes<sup>6-8</sup> and tend to be poorly supervised.<sup>7</sup> In addition, mothers of injured children tend to be less educated, to be emotionally overwhelmed, to lack energy, and to be less involved with their children. These mothers are often less assertive and energetic in dealing with their children and more resistant to behavioral change.<sup>8</sup>

Another obstacle to working with parents to reduce gun-related injuries to their children is that parents often hold false beliefs about their children's risk for injury. Most parents believe that their children are unlikely to be the victims of a serious injury. Furthermore, they view injuries as unavoidable products of fate.<sup>9,10</sup> Parents tend to believe that the environment, rather than the person, must change in order to protect children from injury, which may lead to complacency and a lack of faith in programs designed to alter parental behaviors or the behaviors of their children.<sup>9,10</sup>

Parents seem to be especially unaware of their children's interest in guns and are unable to predict how their children will behave around guns. In a recent study of boys ages 8 to 12, only 13% of the boys' parents believed that their sons had a high interest in firearms; 64% believed that their sons had a low interest. Apparently the parents were mistaken. Of the boys whose parents perceived them to have a low interest in guns, 65% handled a .38-caliber semiautomatic handgun when they found it in a drawer. Thirty-five percent pulled the trigger.<sup>11</sup>

Another misperception of parents is that a painful injury will teach their children to be more careful in the future.<sup>12</sup> Research has not supported this "once burned, twice shy" assumption. In fact, children at risk for injury are typically children who have been previously injured.<sup>13</sup> Other parents hold false optimism about the safety of their children—optimism that is reinforced every time their children engage in a dangerous behavior that does not result in injury.

The final obstacle to working with parents is their overconfidence in their children's ability to take care of themselves. Most parents believe that their children know more about safety than the children actually do,<sup>14,15</sup> and may therefore feel confident in leaving their children unsupervised for brief periods of time. In one survey, most parents agreed that preschool children require constant or close supervision, but felt that elementary-age children require constant supervision only in risky situations and close supervision in moderately risky areas.<sup>16</sup> Other parents make even more dangerous appraisals of their children's abilities. In one study, 13% of mothers of two-year-olds in Sweden believed that their children could safely cross a street on their own.<sup>17</sup> (The American Academy of Pediatrics [AAP] recommends that children ages seven and younger always be supervised when crossing a street.<sup>18</sup>) In another survey, 23% of a sample of gun-owning parents reported that they trust their 4- to 12-year-old children with a loaded firearm.<sup>19</sup>

### Gun Violence Prevention Approaches with Parents

Two very different approaches target behavior change among parents: legislative efforts to hold parents responsible for gun ownership and for their children's behavior, and gun safety counseling by health care providers. Although data are limited, research thus far indicates that these approaches are not very effective at convincing parents to alter their firearm ownership or storage practices.

### Child Access Prevention Laws

Seventeen states have enacted some type of CAP law, holding parents or other adults responsible for unsafe storage of guns in their home. The scope of this law varies widely across states, as shown in the appendix to this article. In most states, the law applies only if a minor gains access to the gun, and in most states, violation of the law is a misdemeanor.

Opponents have questioned the need for CAP laws. Some argue that the laws intrude upon the privacy rights of gun owners and upon the rights of parents to raise and supervise their children as they see fit.<sup>20</sup> Some researchers also assert that it is easier to persuade parents to behave differently than to legislate parental behavior change,<sup>5</sup>

and that positive approaches to behavior change are more effective than coercive approaches.

Others argue that enforcement of CAP laws is unlikely, because punishing parents who already suffer from tremendous guilt or from the loss of a child might be seen as cruel. Other laws that regulate parental behavior, such as laws mandating the correct use of car safety seats for children, are rarely enforced.<sup>21</sup> Likewise, experts agree that in the case of pediatric firearm deaths, judges and juries would be unlikely to convict grieving parents.<sup>22</sup> Thus far, only a handful of individuals have been cited for violating a CAP law. In one instance, for example, a mother was arrested when her eight-year-old son shot his nine-year-old half brother with a handgun. The neighbor of the mother was quoted in a news article as saying, “I don’t know [why] they need to charge her with something. To me, it seems like losing your son would be punishment enough.”<sup>23</sup>

The effectiveness of CAP laws in changing parents’ gun-storage practices has also come under scrutiny. Some argue that there is no evidence that criminal liability legislation holding parents responsible for the delinquent acts of their children (such as drug use or gang activity) has altered parents’ behavior.<sup>24</sup> Other critics assert that a child who wants access to a weapon can find one easily, even if one is not stored in the home. In 1992, for example, researchers surveyed 970 high school juniors in Seattle, Washington; 34% reported that they could easily obtain a handgun. When asked where they would get the gun, only 7% said they would obtain it from home.<sup>25</sup>

Young children, however, are more likely to be involved in unsupervised accidental firearm incidents than in homicides or suicides, and the guns they use are typically found in their own homes.<sup>26–28</sup> Up to 50% of parents who own guns keep them loaded and unlocked.<sup>29,30</sup> Gun owners may believe that their children do not know where their gun is or, if they do know, that they would not touch the gun without permission. In a survey of 109 children and parents, however, nearly 14% of children reported that they knew where their parents’ gun was kept, even though the parents of these children reported independently that the children did not know. Most alarmingly, 21% of the children who said their parents owned a gun reported having touched or played with that gun without permission.<sup>31</sup>

In support of the effectiveness of CAP laws, researchers in one study found that unintentional shooting deaths in 12 states, particularly among children under age 10, had declined by 23% in the years following the introduction of CAP laws from 1990 to 1994.<sup>29</sup> A follow-up study, however, found that firearm deaths declined significantly only in the 3 states in which violations of the law are a felony. In the other 14 states with CAP laws, where violation is a misdemeanor, the law had no statistically significant effect.<sup>32</sup>

### Gun Safety Counseling

The other approach to altering parent behavior is through education, typically delivered by health care providers. The AAP recommends counseling on home safety procedures as part of well-child visits, as the physician’s practice may be an ideal setting in which to intervene with at-risk populations.<sup>33</sup> A number of studies have demonstrated the effectiveness of messages from family physicians in increasing safety-related behavior, such as use of bicycle helmets, car seats, and cabinet latches.<sup>34,35</sup> Physicians also have counseled parents successfully on reducing the risk of sudden infant death syndrome (SIDS) by placing infants on their backs to sleep.<sup>36</sup>

Researchers have found that counseling is more effective when conducted face-to-face, when the parents are made to feel that the suggestions are in part their own, and when the course of action meets the parents’ needs; counseling is less effective when physicians simply distribute safety pamphlets.<sup>34,35</sup> One obstacle to counseling is that parents tend to become “overwhelmed or confused by the number and variety of safety practices recommended.”<sup>37</sup> Another is that one-on-one counseling takes time, something that physicians rarely have. In fact, less than two minutes of a well-child visit are typically spent on health education.<sup>38</sup> In a recent survey of health care providers who serve families with children ages five years and younger, 80% reported that they believe they should counsel on firearm safety, yet only 38% reported that they actually do.<sup>39</sup> One explanation may be that physicians underestimate the number of families in their practice who own guns. In a recent comparison of physicians’ predictions to actual gun ownership, pediatricians predicted a 0% likelihood of ownership for 33% of their families. Of those families, 30% reported owning at least one gun.<sup>40</sup>

Individual counseling may not be the most effective way to convince patient families to change their firearm use and storage practices in any case. In a survey of patients in 11 family practices, respondents reported that they did not view their physician as a credible source of information on firearm safety.<sup>41</sup> Furthermore, according to a recent randomized, controlled trial involving 311 families, a single 60-second firearm safety counseling session during a well-child visit did not result in significant changes in gun ownership or storage practices among the families who initially reported owning guns.<sup>42</sup> Even more discouraging are the results of a recent study involving parents of depressed youth. Among gun-owning families advised to remove the guns from their home because of the significant risk of suicide by their depressed adolescent, only 27% actually did so.<sup>43</sup>

One of the most widely used physician-based programs to educate parents about the risks of keeping a firearm in the home is the Steps to Prevent Firearm Injury program (STOP). This program was originally developed in 1994 by the Brady Center to Prevent Gun Violence and the AAP, and was replaced by STOP 2 in June 1998. Free of charge to physicians and parents, the program includes brochures and posters, a list of suggested readings, an audiocassette, and counseling tips. A recent study found that the STOP intervention did not result in a statistically significant decline in gun ownership or in improved gun-storage practices among families in a sample of inner-city pediatric patients.<sup>44</sup> Evaluation of the STOP program bears replicating, however, as this study was limited by the lack of a control group and an inadequate sample size.

Overall, interventions with parents have shown little success in decreasing children's access to guns in the home. Unfortunately, as the rest of this article indicates, interventions with children have not shown much promise for reducing youth gun violence either.

## Working with Children

Although the appropriate target of interventions designed to protect young children is the parent, the focus may change in later years when the child is less likely to be supervised. Like programs for parents, however, approaches directed toward children have not met with great success. Many factors contribute to the difficulty of

convincing children to change their behavior and make it unlikely that counseling children to stay away from firearms will succeed.

## Challenges in Working with Children

General injury and violence prevention research may help explain why behavioral programs targeted at children are rarely successful. Gender differences between boys and girls, cognitive immaturity among children, and an inability to apply lessons learned in a classroom all play roles in undermining the receptiveness of children to behavioral programs.

### Gender Differences

Multiple studies indicate that boys are at greater risk than girls for both injury and violence. Differences between the sexes in injury rates begin to emerge around age three and increase thereafter.<sup>26</sup> Researchers have concluded that boys seem "especially drawn to the items that could result in injury,"<sup>45</sup> and are more likely to incur most types of outdoor play injuries, including falls, drownings, burns, and bicycle accidents than are girls.<sup>46</sup> A study of the behavior of children around firearms also revealed that boys also are more likely than girls to play with a gun.<sup>47</sup>

The reasons why boys are at greater risk for injury present some obstacles to developing programs to prevent firearm injury. Compared to girls, boys tend to be more confident in their abilities and less fearful of injury.<sup>48</sup> Furthermore, boys rate potentially dangerous situations differently than do girls.<sup>49</sup> When appraising dangerous situations, girls ask themselves, "Will I get hurt?" Boys ask themselves, "How badly will I get hurt?"<sup>50</sup> Boys are more likely than girls to believe that they will not get hurt when engaging in risky behaviors, more likely to rate the potential injury severity as low, and more likely to attribute actual injury outcomes to bad luck than to their own behaviors.<sup>51</sup> These differing thought processes lead girls, but not boys, to avoid situations in which they have received a minor injury; boys are more likely than girls to repeat behaviors that have previously led to injury.<sup>52</sup> Interestingly, although parents accurately consider their boys to be at greater risk for injury than their girls,<sup>46</sup> they nonetheless give their boys more independence, supervise them less closely,<sup>17,46</sup> and even encourage their risk-taking behavior.<sup>46</sup>



### **Cognitive Immaturity**

The cognitive immaturity of children presents another challenge for designing effective behavioral programs to reduce gun-related injuries. Young children up through elementary school have difficulty making probability judgments (such as, “How likely is it that I will get hurt?”), and even more difficulty thinking carefully in ambiguous or uncertain situations.<sup>17</sup> They are less able than older children to identify hazardous situations, and when they do, they react slowly and have difficulty thinking of ways to keep themselves safe.<sup>48</sup> Children need to be able to make causal connections to determine if a situation or object is safe or unsafe (such as “fire causes burns”). Although preschool children can sometimes identify safe and unsafe situations, they have difficulty identifying the factors that may prevent an effect from occurring.<sup>51–53</sup>

For all of these reasons, injury prevention is a difficult concept for preschool and elementary school-age children. Safety education programs for young children should therefore include activities that help them develop an ability to understand causal relationships and preventative actions.<sup>52</sup> Though its effectiveness has not been evaluated, a good example of this type of activity can be found at the Web site of the Brady Center to Prevent Gun Violence (<http://www.bradycenter.org/clarence/>). As part of its STOP 2 program for physician-led counseling, the Brady Center has created an interactive storyboard in which children help “Clarence” make decisions about guns. Through the use of this program, children can make decisions (including poor ones) and observe the consequences.

Older children are more adept at quickly identifying hazardous situations and understanding the concept of prevention. However, older children also are at risk for engaging in dangerous behaviors for a number of reasons. They have decreased perceptions of vulnerability to injury, for example.<sup>48</sup> Even when adolescents clearly recognize certain activities as dangerous (such as drinking and driving), they underestimate the danger to themselves personally and fail to take precautions.<sup>54</sup> Therefore, children who handle a firearm once without incident may perceive the activity as safe and themselves as invulnerable to injury. Older children also are likely to experience peer pressure to act unafraid and to behave recklessly,<sup>17</sup> factors which place them at risk for injury.

**Inability to Apply Lessons Learned**

A final obstacle to working with children is their inability to hypothesize about situations that they have never experienced or that they have experienced only in an

artificial setting.<sup>51</sup> According to researchers at the University of Delaware, “The child who is competent at risk appraisal in a laboratory assessment may not behave competently on the street, on a playground, or in an empty house.”<sup>17</sup> Moreover, curiosity is often strong enough to overcome a child’s ability to think clearly or to draw on already-acquired coping strategies,<sup>17</sup> even when the child has previously demonstrated safe behavior in similar situations.

### **Gun Violence Prevention Approaches with Children**

Very few programs for children focus exclusively on firearm injury and violence, and only a few general injury and violence prevention programs incorporate lessons on gun safety into their curricula. In a review and evaluation of 84 violence prevention programs, only 5 included a firearm violence or safety component.<sup>55</sup>

Essentially, programs for children take one of two basic approaches: gun safety or gun avoidance. Evaluations of these programs remain very limited, and, unfortunately, no program has yet been proven to consistently succeed in keeping children from accessing and using guns.

### **Gun Safety Programs**

Gun safety programs, typically administered by local firearms dealers and clubs, are designed to teach older children and adolescents how to properly handle a firearm (typically for hunting). Although no study has systematically evaluated such programs for children, gun safety programs have been found to be ineffective in decreasing the firearm injury and death rate among adults<sup>56</sup> and to have had no positive effect on storage practices by gun owners.<sup>57,58</sup> Even worse, some researchers suggest that gun safety courses for children are likely to increase children’s interest in obtaining and using guns and that children cannot be expected to consistently use guns safely even with training.<sup>59</sup>

### **Gun Avoidance Programs**

Gun avoidance programs are more common than gun safety programs, particularly for young children. The curricula of gun avoidance programs depend upon the age of the targeted audience. For younger children, the focus is on avoiding accidental injury; for older children and adolescents, the focus is on preventing the intentional carrying and use of guns. See Table 1 for an overview of several gun avoidance programs.

### *“Just Say No” Programs*

Perhaps the most popular “Just Say No” curriculum for gun avoidance is the Eddie Eagle Gun Safety Program for prekindergarten children through sixth graders, developed by the National Rifle Association (NRA). According to the NRA, the Eddie Eagle program has reached 12 million children since 1988 and “isn’t [intended] to teach whether guns are good or bad, but rather to promote the protection and safety of children.”<sup>60</sup> The NRA compares Eddie Eagle, the program’s mascot, to Smokey Bear. The program advocates teaching children, “Stop! Don’t touch. Leave the area. Tell an adult.” The program does not give children a reason for avoiding guns (such as that guns are dangerous), but program developers do emphasize that children should be taught that real guns are not toys.<sup>61</sup>

The NRA offers no empirical evidence that its approach is effective but relies instead on testimonials, awards, and correlational data to demonstrate efficacy. A fact sheet published by the NRA argues, for example, “In just one year, from 1991 to 1992—while Eddie Eagle reached out to nearly a million youngsters—according to the National Safety Council, the rate of accidental firearm fatalities among children ages 14 and under fell by 13 percent.”<sup>60</sup> However, to argue that the Eddie Eagle Program is successful because the number of gun-related injuries among children decreased in one year fails to consider other variables that may be responsible for behavior change over that time period.

Only one study has empirically investigated a “Just Say No” approach to firearm use among children.<sup>62</sup> In that study, half of a sample of 48 preschool children were randomly assigned to participate in a firearm safety program in which they and their parents listened to a community police officer discuss the dangers of guns. After promising never to touch a gun if they saw one, the children were paired with a playmate who had not heard the officer speak and were observed in a setting where they had access to disarmed but real firearms. The children who had heard the officer speak were just as likely as the children in the control group to play with the guns. Furthermore, they were just as likely to play with the guns after the intervention as before.

“Just Say No” approaches have been found to be ineffective in other areas as well. For example, a program to

Table 1

## Educational Interventions to Reduce Youth Gun Injury and Violence

Program	Developer and/or Publisher	Type of Program	Target Age or Grade	Description of Program	Evaluation
<b>Eddie Eagle Gun Safety Program<sup>a</sup></b>	National Rifle Association (NRA)	“Just Say No”	Pre-K–grade 6	Motivational “big book” for children in Pre-K–grade 1, with easy-to-understand rhyme; activity books for grades 2–3 and 4–6; 7-minute video, reward stickers, parent letter, instructor guides, in-service video. The message: If you see a gun, stop! Don’t touch. Leave the area. Tell an adult.	NRA cites testimonials and reductions in accidental death rates between 1991 and 1992 as evidence of effectiveness.
<b>Straight Talk about Risks (STAR)<sup>b</sup></b>	Brady Center to Prevent Gun Violence <sup>c</sup>	Skills-based	Pre-K–grade 12	Between 11–14 lessons for four different grade-level groupings; unique focus on handgun violence; teacher training. Grounded in prevention research.	Inconsistent and inconclusive effects on attitudes and no change in behaviors. No evaluation has been published.
<b>Safe Alternatives and Violence Education (SAVE)<sup>d</sup></b>	San Jose Police Department, San Jose, CA	Skills-based	Juvenile offenders ages 10–18	One-day, six-hour violence awareness class for juvenile offenders and their parents.	Pretest-posttest evaluation found reductions in recidivism, even at two-year follow-up, but no control group was used.
<b>Options, Choices, and Consequences (Cops and Docs)<sup>a</sup></b>	Roy Farrell, M.D., Washington Physicians for Social Responsibility	Shock	Grades 7–8	Two-day, two-hour program presented by physician, police officer, and prosecutor; focus on medical and legal consequences of gun violence.	Unpublished evaluation demonstrated significant impact on knowledge, but limited impact on attitudes and behaviors.
<b>Hands without Guns<sup>a</sup></b>	Joshua Horwitz, Educational Fund to End Handgun Violence	Peer-based	Junior high and high school	Public health and education campaign providing a “forum for positive youth voices.”	Unpublished survey of more than 400 students found that 38% could identify the program; of those, 1.3% carried a gun. Of students who could not identify the program, 10.3% carried a gun. <sup>e</sup>
<b>Steps to Prevent Firearm Injury (STOP 2)<sup>f</sup></b>	Brady Center to Prevent Gun Violence	Physician-directed parent education	Parents	Preparation for pediatric health professionals to talk with parents about the risks of having a gun in the home as part of routine injury prevention counseling.	Evaluation has found that participation in STOP 2 did not result in a statistically significant decline in gun ownership or an improvement in gun-storage practices.

<sup>a</sup> LeBrun, E., Naue, G., Naureckas, S., and Witwer, M. *School-based curricula to prevent gun violence: A review and call for evaluation of programs*. Chicago: Handgun Epidemic Lowering Plan (HELP) Network, 1999.

<sup>b</sup> National Center for Injury Prevention and Control. *The prevention of youth violence: A framework for community action*. Atlanta, GA: NCIPC, 1993.

<sup>c</sup> As of Spring 2002, the Brady Center is no longer promoting this program because of difficulties in assessing the program’s effectiveness, and because the Center believes it should be the parent’s responsibility, not the child’s, to keep children safe from guns (Alicia Horton, Education Director, Brady Center to Prevent Gun Violence, personal communication, April 12, 2002).

<sup>d</sup> Arrendondo, S., Aultman-Bettridge, T., Johnson, T.P., et al. *Preventing youth handgun violence: A national study with trends and patterns for the state of Colorado*. Boulder, CO: Center for the Study and Prevention of Violence, 1999.

<sup>e</sup> Office of Justice Programs, Office of Juvenile Justice and Delinquency Programs. *Youth in Action*, no. 3. Washington, DC: OJJDP, July 1999.

<sup>f</sup> Oatis, P.J., Fenn Buderer, N.M., Cummings, P., and Fleitz, R. Pediatric practice based evaluation of the Steps to Prevent Firearm Injury program. *Injury Prevention* (1999) 5(1):48–52.

decrease drug use among youth, Drug Abuse Resistance Education (DARE), is similar in many respects to the Eddie Eagle program: Youth are taught in school settings, often by community police officers, to “Just Say No” to drugs. Although some studies have noted initial improvements in attitude toward drugs following participation in the DARE program, these attitude changes were not long-lasting, and studies have found no effect from the program on actual drug use, either in the short or the long term.<sup>63</sup>

It is not clear why “Just Say No” approaches are ineffective. One possibility is that children have difficulty resisting temptation, and temptation increases as objects are forbidden. In one study, fourth graders perceived a particular toy as being more attractive after they were told that they could not play with it.<sup>64</sup> Among older children, using firearms may be perceived as a forbidden adult privilege (akin to drinking alcohol, driving a car, and having sex), thus making gun use more enticing.<sup>65</sup> Because older youth also explore and test limits placed on them by adults, telling these children to “Just Say No,” without discussing why they should say no, may actually result in an increase in the forbidden behavior. Within the drug-resistance literature, researchers have found that programs focusing on why kids should say no to drugs are more effective than those that just say how to say no, and that some “Just Say No” programs may even have the unintended effect of increasing drug use.<sup>66,67</sup>

“Just Say No” programs also may be ineffective because they lead youth to believe that carrying and using guns is normative behavior among their peers. Norms set the standard for behavior, and people act in accordance with perceived norms so as to fit in or belong to a group.<sup>68</sup> Researchers have shown that adolescents tend to overestimate the extent to which their peers engage in risky or illicit behaviors,<sup>54</sup> which may influence their willingness to engage in those same behaviors. Moreover, when told not to do something, adolescents may believe that the forbidden behavior is more common than it really is, which can increase their personal involvement in that behavior.<sup>69,70</sup>

To counteract this tendency, experts recommend that health education programs minimize the prevalence of problem behaviors rather than promote the mispercep-

tion that the behaviors are common.<sup>66</sup> Perhaps, then, programs emphasizing that few adolescents carry guns would be more effective than programs suggesting that gun carrying is the norm.

Finally, “Just Say No” programs may not be comprehensive enough to help children develop and retain the skills needed to stay safe around guns. The injury prevention literature suggests that the following components make for a successful injury prevention program: (1) use of rewards and incentives, (2) rehearsal of skills learned, (3) demonstration and imitation of appropriate behaviors, (4) step-by-step verbalizations of appropriate behaviors, and (5) immediate feedback from the instructor.<sup>71</sup> Furthermore, effective violence prevention programs include activities to help youth develop anger management skills, empathy and perspective taking, social problem skills, negotiation skills, media resistance, resistance to provocation, communication skills, and relationship-building skills.<sup>55</sup>

#### *Skills-Building Approaches*

In response to the ineffectiveness of the “Just Say No” approach to preventing firearm violence, researchers have developed curricula that help children build the skills they need to resist peer pressure, make good choices, and resolve conflict. One of the most commonly used of these programs, Straight Talk about Risks (STAR), was developed by the Brady Center to Prevent Gun Violence for children in preschool through the 12th grade. Drug Strategies, a research institute in Washington, D.C., describes the program as well-organized and well-grounded in prevention research.<sup>55</sup> Most STAR lessons require several sessions to complete. Some of the lessons for younger children include “Making Safe and Smart Decisions,” “Having and Obeying Rules,” and “Solving Problems without Fighting.” Lessons for older children emphasize understanding emotions that might lead to conflict, messages in the media and peer pressure, and the ramifications of gun violence for victims and their families. Across all ages, the lessons are taught through role-play, art projects, group activities and discussions, repetition, and multimedia presentations.

Nevertheless, the evaluation of STAR has yielded inconsistent and inconclusive results, and the program has not been shown to modify the actual behavior of

## “Just Say No” programs may not be comprehensive enough to help children develop and retain the skills needed to stay safe around guns.

children.<sup>72</sup> One study evaluated the use of a firearm safety training program that incorporated many of the same lessons as STAR over a one-week period. The program was ineffective in deterring children’s play with guns, despite an increase in children’s knowledge about the dangers of guns.<sup>47</sup>

Another skills-based program, Safe Alternatives and Violence Education (SAVE), was developed by the San Jose Police Department in California to reduce violent youth activities and weapons possession, to teach youth how to manage anger and conflict situations, and to increase youth and parent interaction among juvenile offenders ages 10 to 18. In an evaluation of this program, 78% of the 1,231 juvenile offenders who participated were violation-free two years after the program ended. However, the results should be interpreted with caution as no comparison group was used.<sup>73</sup>

### *Shock Programs*

Another approach to reducing firearm violence, particularly among older children and adolescents, incorporates a focus on the consequences of gun violence. Typically, these programs use graphic depictions of gunshot victims with the intent of “shocking” youth into resisting future gun use.

Despite their appeal, scare tactics are unlikely to be effective. An unpublished evaluation of Cops and Docs, one program using such tactics, revealed a significant impact on student knowledge but no significant change in attitudes and behaviors.<sup>72</sup> Because adolescents are often susceptible to the belief that they are invulnerable to harmful outcomes,<sup>74</sup> gruesome images and messages of “this could happen to you” are unlikely to affect them. These programs may even be potentially harmful because susceptible youth who witness violence have been observed to become more violent as a result.<sup>55</sup> Borrowing from related literature, researchers have found that scare tactics make risky sexual practices more appealing to adolescents described as “sensation-seekers,”<sup>75</sup> increase stress and alcohol consumption in sexually active teens,<sup>76</sup> and are ineffective in deterring adolescents from using marijuana.<sup>77</sup>

### *Peer-Based Programs*

A final approach to teaching children, particularly older youth, about firearm violence is the use of peers as educators. Most peer-based programs focus on providing or suggesting alternative activities to gun violence and reducing rates of adolescent gun carrying. Such programs are based on the premise that only peers can convince youth to “put down their weapons.” However, most of these programs fail to provide adequate alternatives for solving conflict, and do not confront the other reasons youth have for using or carrying guns, such as attaining status, getting attention, retaliation, or fear for personal safety.<sup>73</sup>

Hands without Guns, developed by the Educational Fund to Stop Gun Violence in Washington, D.C., is perhaps the best-known peer-based program to reduce youth gun violence. Targeting junior high and high school students, Hands without Guns is both a public health and an educational campaign, using theater groups, art centers, video clubs, and other after-school projects to change youth attitudes about gun possession. The program includes an evaluation component: a survey to assess changes in attitude and self-reported behaviors among the youth who participate. The unpublished results of this survey of more than 400 students found that of the 38% of youth who could identify the program, only 1.3% carried a gun. Of the 62% who could not identify the program, 10.3% carried a gun.<sup>78</sup> These results should be interpreted with caution, however, because other more relevant variables may be correlated with being able to identify the program. For example, youth who are frequently truant from school and who may not therefore be able to identify a program presented during the school day may be more likely to carry guns. Moreover, self-reporting may overestimate the success of a program, particularly when individuals are asked to reveal illegal behavior.

Furthermore, similar peer-based programs designed to address other concerns of adolescence have not met with great success. For example, according to an evaluation of Students Against Drunk Driving (SADD), a

nationally known peer-based program to reduce the rates of drunken driving among adolescents, students at schools with SADD chapters and those at schools without SADD chapters reported similar rates of driving while intoxicated or of riding with a drunken peer.<sup>79</sup> Evidence regarding the effectiveness of peers in influencing youth to adopt healthy behaviors is limited, however; more research is needed.<sup>80</sup>

## Conclusion

It is difficult to conclude this review without a certain degree of pessimism. The few behaviorally oriented programs to reduce youth gun injury and violence that have been evaluated have not shown great success. In fact, some critics argue that these programs may actually do more harm than good—by giving kids the impression that gun carrying is the norm, for example, or by increasing children’s interest in using guns.

Given the limited potential of the programs discussed in this article, what advice can be given regarding the features of a behavioral program that is most likely to succeed? First, community-based approaches require an initial assessment of the needs of the community. Residents should be involved in planning and implementing the program, and a means of evaluating the program must be developed.

Second, programs directed toward parents should address the multiple false beliefs that can make parents resistant to behavior change. Parents must come to understand that their children are at risk for injury if a loaded gun is kept in the home, for example, regardless of any training their children may receive.

Third, physicians should be better trained to discuss the issue of firearms with their patient families. More effective counseling might include an emphasis on the risk of having a gun in the home, an attempt to assess and allay the fears that prompt parents to keep a gun, and alternative positions for the short term (such as encouraging gun-owning families to purchase safety devices rather than advising them to remove guns from their homes).<sup>81</sup> Also, because fathers (often the gun

owners in families) typically do not bring their children to the physician, and because mothers may not be aware of unsafe gun-storage practices in their own homes, physicians may need to customize their message about gun safety to the parent who appears in their office.<sup>82</sup>

Finally, before even attempting to develop programs for children, researchers, policymakers, and practitioners should question whether children are the appropriate targets for intervention. Believing that children can learn to make life-or-death decisions regarding their safety around firearms may provide parents with a false sense of security and lower their vigilance.<sup>22</sup> Young children, particularly boys, have difficulty identifying hazardous situations, taking preventative measures, and believing that they can be injured by a gun. Moreover, children trained to behave safely in a classroom setting may not generalize to a potentially fatal situation in their own home or in the home of a friend.

Older children, feeling invulnerable to injury and sensitive to peer pressure, may fail to heed safety messages they have learned. “Just Say No” programs may entice children to use guns, and skills-based programs may fail to adequately address the reasons that youth carry guns. Scare tactics and programs that lead adolescents to believe that carrying guns is the norm are especially problematic, have not demonstrated effectiveness, and—based on what researchers have learned about similar approaches to adolescent health issues—may even increase the very behavior they are designed to reduce. Peer-based approaches have shown mixed results thus far, and have not been adequately evaluated.

The AAP is especially doubtful of the educational approach to reducing firearm mortality and morbidity. In a policy statement released in April 2000, the AAP reaffirmed its stance that the most reliable and effective way to prevent firearm-related injuries in children and adolescents is to remove guns from children’s homes and communities.<sup>83</sup> It is difficult, in the face of the meager success of the behavior-oriented approaches reviewed here, to disagree.

## ENDNOTES

1. Christophersen, E.R. Improving compliance in childhood injury control. In *Developmental aspects of health compliance behavior*. N.A. Krasnegor, L.H. Epstein, S. Bennett, and S.J. Yaffee, eds. Hillsdale, NJ: Lawrence Erlbaum Associates, 1993, pp. 219–31.
2. Williams, A.F. Passive and active measures for controlling disease and injury. *Health Psychology* (1982) 1:399–409.
3. Group for the Advancement of Psychiatry, Committee on Preventative Psychiatry. Violent behavior in children and youth: Preventative intervention from a psychiatric perspective. *Journal of the American Academy of Child and Adolescent Psychiatry* (1999) 38(3):235–41.
4. Hausman, A.J., Siddons, K., and Becker, J. Using community perspectives on youth firearm violence for prevention program planning. *Journal of Community Psychology* (2000) 28(6):643–54.
5. Klassen, T.P., MacKay, J.M., Moher, A.W., and Jones, A.L. Community-based prevention interventions. *The Future of Children* (Spring/Summer 2000) 10(1):83–110.
6. Bijur, P.E., Golding, J., and Kurzon, A. Childhood accidents, family size, and birth order. *Social Science and Medicine* (1988) 26(8):839–43.
7. Glik, D.C., Greaves, P.E., Kronenfeld, J.J., and Jackson, K.L. Safety hazards in households with young children. *Journal of Pediatric Psychology* (1993) 18(1):115–31.
8. Matheny, A.P. Injuries among toddlers: Contributions from child, mother, and family. *Journal of Pediatric Psychology* (1986) 11(2):163–76.
9. Peterson, L., and Roberts, M.C. Complacency, misdirection, and effective prevention of children's injuries. *American Psychologist* (1992) 47(8):1040–44.
10. Peterson, L., Farmer, J., and Kashani, J.H. Parental injury prevention endeavors: A function of health beliefs? *Health Psychology* (1990) 9:177–91.
11. Jackman, G.A., Farah, M.M., Kellermann, A.L., and Simon, H.K. Seeing is believing: What do boys do when they find a real gun? *Pediatrics* (2001) 107(6):1247–50.
12. Tremblay, G.C., and Peterson, L. Prevention of childhood injury: Clinical and public policy challenges. *Clinical Psychology Review* (1999) 19(4):415–34.
13. Jacquess, D.L., and Finney, J.W. Previous injuries and behavior problems predict children's injuries. *Journal of Pediatric Psychology* (1994) 19(1):79–89.
14. Peterson, L., Mori, L., and Scissors, C. Mom or dad says I shouldn't: Supervised and unsupervised children's knowledge of their parents' rules for home safety. *Journal of Pediatric Psychology* (1986) 11:177–88.
15. Rivara, F.P., and Howard, D. Parental knowledge of child development and injury risks. *Developmental and Behavioral Pediatrics* (1982) 3:103–05.
16. Peterson, L., Ewigman, B., and Kivlahan, C. Judgments regarding appropriate child supervision to prevent injury: The role of environmental risk and child age. *Child Development* (1993) 64:934–50.
17. Hyson, M.C., and Bollin, G.G. Children's appraisal of home and neighborhood risks: Questions for the 1990s. *Children's Environments Quarterly* (1990) 7(3):50–60.
18. American Academy of Pediatrics. Writer bytes...Childhood injury: It's no accident. Available online at <http://www.aap.org/mrt/ciaccidents.htm>.
19. Farah, M.M., Simon, H.K., and Kellermann, A.L. Firearms in the home: Parental perceptions. *Pediatrics* (1999) 104(5):1059–63.
20. Maute, M.L. New Jersey takes aim at gun violence by minors: Parental criminal liability. *Rutgers Law Journal* (Winter 1995) 26(2).
21. See note no. 9, Peterson and Roberts.
22. Christoffel, K.K. Toward reducing pediatric injuries from firearms: Charting a legislative and regulatory course. *Pediatrics* (1991) 88(2):294–305.
23. Bardwell, S.K. Mom charged in gunplay death of son. *Houston Chronicle*, April 18, 2000, sec. A, at 13.
24. Graham, P.K. Parental responsibility laws: Let the punishment fit the crime. *Los Angeles Law Review* (June 2000) 4:1719–54.
25. Callahan, C.M., and Rivara, F.P. Urban high school youth and handguns: A school-based survey. *Journal of the American Medical Association* (1992) 267(22):3038–42.
26. Baker, S.P., O'Neill, B., Ginsburg, M.J., and Li, G. *The injury fact book*. 2nd ed. New York: Oxford University Press, 1992.
27. Wintemute, G.J., Teret, S.P., Kraus, J.F., et al. When children shoot children: 88 unintended deaths in California. *Journal of the American Medical Association* (1987) 257(21):3107–09.
28. Smith, D.R., Cohen, J., and Lautman, B. *Child's play: A study of 266 unintentional handgun shootings of children*. Washington, DC: Center to Prevent Handgun Violence, 1989.
29. Cummings, P., Grossman, D.C., Rivara, F.P., and Koepsell, T.D. State gun safe storage laws and child mortality due to firearms. *Journal of the American Medical Association* (1997) 278(13):1084–86.
30. Peter D. Hart Research Associates. Parents, kids and guns: A nationwide survey. Conducted for the Brady Center to Prevent Handgun Violence. October 31 to November 4, 1998.
31. Hardy, M.S. Firearm safety for children: Parent vs. child report. Paper presented at the Annual Meeting of Eastern Psychological Association. Boston, MA. February 1998.
32. Webster, D.W., and Starnes, M. Reexamining the association between child access prevention gun laws and unintentional shooting deaths of children. *Pediatrics* (2000) 106(6):1466–69.
33. Christoffel, K.K., Spivak, H., and Witwer, M. Youth violence prevention: The physician's role. *Journal of the American Medical Association* (2000) 283(9):1202–03.
34. Bass, J.L., Mehta, K.A., Ostrovsky, M., and Halperin, S.F. Educating parents about injury prevention. *Pediatric Clinics of North America* (1985) 32(1):233–41.
35. Bass, J.L., Christoffel, K.K., Widome, M., et al. Childhood injury prevention counseling in primary care settings: A critical review of the literature. *Pediatrics* (1993) 92(4):544–50.

36. Gibson, E., Dembofsky, C.A., Rubin, S., and Greenspan, J.S. Infant sleep position practices two years into the "Back to Sleep" campaign. *Clinical Pediatrics* (2000) 39(5):285-89.
37. DiGuseppi, C., and Roberts, I.G. Individual-level injury prevention strategies in the clinical setting. *The Future of Children* (Spring/Summer 2000) 10(1):53-82.
38. Reisinger, K.S., and Bires, J.A. Anticipatory guidance in pediatric practice. *Pediatrics* (1980) 66(6):889-92.
39. Barkin, S., Duan, N., Fink, A., et al. The smoking gun: Do clinicians follow guidelines on firearm safety counseling? *Archives of Pediatrics & Adolescent Medicine* (1998) 152(8):749-56.
40. Becker, E.C., and Christakis, N.A. Firearm injury prevention counseling: Are we missing the mark? *Pediatrics* (1999) 104(3):530-35.
41. Shaughnessy, A., Cincotta, J., and Adelman, A. Family practice patients? Attitudes toward firearm safety as a preventive medicine issue. *Journal of the American Board of Family Practice* (1999) 12(5):354-59.
42. Only 6.7% of gun-owning families reported removing any gun from their homes following the intervention. This was not significantly different from the 5.7% of families in the control group who did not receive counseling but who also removed guns from their homes. Similarly, gun-owning parents in the study group were no more likely to store their guns safely (for example, locked and unloaded) than parents in the control group. See Grossman, D.C., Cummings, P., Koepsell, T.D., et al. Firearm safety counseling in primary care pediatric: A randomized controlled trial. *Pediatrics* (2000) 106(1):22-26.
43. Brent, D.A., Baugher, M., Birmaker, B., et al. Compliance with recommendations to remove firearms in families participating in a clinical trial for adolescent depression. *Journal of the American Academy of Child and Adolescent Psychiatry* (2000) 39(10):1220-26.
44. Oatis, P.J., Fenn Buderer, N.M., Cummings, P., and Fleitz, R. Pediatric practice based evaluation of the Steps to Prevent Firearm Injury program. *Injury Prevention* (1999) 5(1):48-52.
45. Morrongiello, B.A., and Dawber, T. Toddlers' and mothers' behaviors in an injury-risk situation: Implications for sex differences in childhood injuries. *Journal of Applied Developmental Psychology* (1998) 19(4):625-39.
46. Rosen, B.N., and Peterson, L. Gender differences in children's outdoor play injuries: A review and an integration. *Clinical Psychology Review* (1990) 10(2):187-205.
47. Hardy, M.S. Teaching firearm safety to children: Failure of a program. *Journal of Developmental and Behavioral Pediatrics* (In press).
48. Hillier, L.M., and Morrongiello, B.A. Age and gender differences in school-age children's appraisals of injury risk. *Journal of Pediatric Psychology* (1998) 23(4):229-38.
49. Morrongiello, B.A., and Rennie, H. Why do boys engage in more risk taking than girls? The role of attributions, beliefs, and risk appraisals. *Journal of Pediatric Psychology* (1998) 23(1):33-44.
50. Morrongiello, B.A., and Dawber, T. Mothers' responses to sons and daughters engaging in injury-risk behaviors on a playground: Implications for sex differences in injury rates. *Journal of Experimental Child Psychology* (2000) 76(2):89-103.
51. Coppens, N.M. Cognitive development and locus of control as predictors of preschoolers' understanding of safety and prevention. *Journal of Applied Developmental Psychology* (1985) 6:43-55.
52. Coppens, N.M. Cognitive characteristics as predictors of children's understanding of safety and prevention. *Journal of Pediatric Psychology* (1986) 11(2):189-202.
53. Shultz, T., and Meldelson, R. The use of covariation as a principle of causal analysis. *Child Development* (1975) 46(2):394-99.
54. Benthin, A., Slovic, P., and Severan, H. A psychometric study of adolescent risk perception. *Journal of Adolescence* (1993) 16:153-68.
55. Drug Strategies. *Safe schools, safe students: A guide to violence prevention strategies*. Washington, DC: Drug Strategies, 1998.
56. Cole, T.B., and Patetta, M.J. Hunting firearm injuries, North Carolina. *American Journal of Public Health* (1988) 78(12):1585-86.
57. Cook, P.J., and Ludwig, J. Guns in America: National survey on private ownership and use of firearms. *National Institute of Justice Research in Brief*. Washington, DC: NIJ, May 1997.
58. Hemenway, D., Solnick, S.J., and Azrael, D.R. Firearm training and storage. *Journal of the American Medical Association* (1995) 273(1):46-50.
59. Wilson, M.H., Baker, S.P., Teret, S.P., et al. *Saving children: A guide to injury prevention*. New York: Oxford University Press, 1991.
60. The National Rifle Association. *Safety, education, and public service: Eddie Eagle*. Available online at <http://www.nrahq.org/safety/eddie/fact.asp>.
61. Exactly how children should be taught to distinguish between real and toy guns is not explained. Studies show that four- and five-year-old children cannot distinguish toy guns from real guns and that six- and seven-year-old children can make the distinction only if they pick up the gun to determine its weight. See Hardy, M.S., Armstrong, F.D., Martin, B.L., and Strawn, K.N. A firearm safety program for children: They just can't say no. *Journal of Developmental and Behavioral Pediatrics* (1996) 17(4):216-21.
62. See note no. 61, Hardy, et al.
63. Clayton, R.R., Cattarello, A.M., and Johnstone, B.M. The effectiveness of Drug Abuse Resistance Education (Project DARE): 5-year follow-up results. *Preventive Medicine* (1996) 25(3):307-18.
64. Allen, V.L., and Allen, P.S. On the attractiveness of forbidden objects. *Developmental Psychology* (1974) 10(6):871-73.
65. Cobb, N.J. *Adolescence: Continuity, change, and diversity*. 3rd ed. Mountain View, CA: Mayfield, 1998.
66. Botvin, G.J. Drug abuse prevention in school settings. In *Drug abuse prevention with multiethnic youth*. G.J. Botvin, S. Schinke, and M.A. Orlandi, eds. Newbury Park, CA: Sage, 1995, pp. 169-92.
67. Rosenbaum, D., and Hanson, G. Assessing the effects of school-based drug education: A six-year multi-level analysis of Project DARE. Unpublished manuscript. Department of Criminal Justice and Center for Research in Law and Justice, University of Illinois, Chicago, 1998.
68. Campbell, J.D., Tesser, A., and Fairey, P.J. Conformity and attention to the stimulus: Some temporal and contextual dynamics. *Journal of Personality and Social Psychology* (1986) 51(2):315-24.

69. Kossly, S.M., and Rosenberg, R.S. *Psychology: The brain, the person, the world*. Needham Heights, MA: Allyn and Bacon, 2001.
70. This effect has been noted in the drug resistance literature. Experts have found that some drug resistance programs that train youth how to say no to drugs create the impression of a pro-drug social norm and lead to increases in drug use. In addition, some eating disorder prevention programs have been found to inflate the perceived norm of eating disorders on campuses, resulting in an increase in the prevalence of anorexia and bulimia. See Berkowitz, A.D. From reactive to proactive prevention: Promoting an ecology of health on campus. In *Substance abuse on campus: A handbook for college and university personnel*. P.C. Rivers and E.R. Shore, eds. Westport, CT: Greenwood Press, 1997, pp. 119–39; and Carter, J.D., Stewart, D.A., Dunn, V.J., and Fairburn, C.G. Primary prevention of eating disorders: Might it do more harm than good? *International Journal of Eating Disorders* (1997) 22(22):167–72.
71. Roberts, M.C., Fanurik, D., and Layfield, D.A. Behavioral approaches to prevention of childhood injuries. *Journal of Social Issues* (1987) 43(2):105–18.
72. LeBrun, E., Naue, G., Naureckas, S., and Witwer, M. *School-based curricula to prevent gun violence: A review and call for evaluation of programs*. Chicago: Handgun Epidemic Lowering Plan (HELP) Network, 1999.
73. Arrendondo, S., Aultman-Bettride, T., Johnson, T.P., et al. *Preventing youth handgun violence: A national study with trends and patterns for the state of Colorado*. Boulder, CO: Center for the Study and Prevention of Violence, 1999.
74. Jessor, R. Adolescent development and behavioral health. In *Behavioral health: A handbook of health enhancement and disease prevention*. J.D. Matarazzo, N. Miller, A.J. Herd, et al., eds. New York: Wiley, 1984, pp. 69–89.
75. Witte, K., and Morrison, K. Using scare tactics to promote safer sex among juvenile detention and high school youth. *Journal of Applied Communication Research* (1995) 23:128–42.
76. Harvey, S., and Spigner, C. Factors associated with sexual behavior among adolescents: A multivariate analysis. *Adolescence* (1995) 30(118):253–64.
77. Rosenbaum, M. “Just say no” to teenagers and marijuana. *Journal of Psychoactive Drugs* (1998) 30(2):197–203.
78. Youth in Action. Unpublished survey of the Hands without Guns program to reduce youth gun violence. July 1999.
79. Klitzner, M., Gruenewald, P.J., Bamberger, E., and Rossiter, C. A quasi-experimental evaluation of Students against Drunk Driving. *American Journal of Drug and Alcohol Abuse* (1994) 20(1):57–74.
80. Parkin, S., and McKeganey, N. The rise and rise of peer education approaches. *Drugs: Education, Prevention, and Policy* (2000) 73(3):293–310.
81. Christoffel, K.K. Commentary: When counseling on guns doesn't work: Why don't they get it? *Journal of the American Academy of Child and Adolescent Psychiatry* (2000) 39(10):1226–28.
82. Azrael, D., Miller, M., and Hemenway, D. Are household firearms stored safely? It depends on whom you ask. *Pediatrics* (2000) 106(3):e31.
83. American Academy of Pediatrics. Firearm-related injuries affecting the pediatric population (RE9926). *Pediatrics* (2000) 105(4):888–95.

## APPENDIX

## Child Access Prevention Laws by State

State	Year Enacted	Description of the Law
Florida	1989	<ul style="list-style-type: none"> <li>▶ It is illegal to store or leave a loaded firearm within reach or easy access of a minor who then gains access to the firearm.</li> <li>▶ Dealers must provide purchasers with written warning about the law and must post a warning sign at the counter.</li> <li>▶ The law does not apply if the minor obtains access unlawfully.</li> <li>▶ Violation of the law is a misdemeanor unless the minor injures self or others, in which case it is a felony.</li> <li>▶ A minor is defined as anyone under age 16.</li> </ul>
Connecticut	1990	<p>All of Florida's provisions apply, plus:</p> <ul style="list-style-type: none"> <li>▶ Gun dealers must offer trigger locks for sale at the time of gun purchase.</li> <li>▶ The State Board of Education must develop firearms safety curriculum for children grades K–8.</li> <li>▶ Violation is a felony.</li> </ul>
Iowa	1990	<p>All of Florida's provisions apply, except:</p> <ul style="list-style-type: none"> <li>▶ Gun dealers are not required to post warnings.</li> <li>▶ Violation is a misdemeanor.</li> <li>▶ A minor is anyone under age 14.</li> </ul>
California	1991	<p>All of Florida's provisions apply, except:</p> <ul style="list-style-type: none"> <li>▶ Gun dealers are not required to provide written warning about the law or to post warning signs.</li> </ul>
Nevada	1991	<p>All of Florida's provisions apply, except:</p> <ul style="list-style-type: none"> <li>▶ Gun dealers are not required to provide written warning about the law or to post warning signs.</li> <li>▶ A minor is anyone under age 14.</li> </ul>
New Jersey	1991	<p>All of Florida's provisions apply, except:</p> <ul style="list-style-type: none"> <li>▶ Gun dealers are not required to provide written warning about the law or to post warning signs.</li> </ul>
Virginia	1991	<ul style="list-style-type: none"> <li>▶ It is unlawful to "recklessly leave a loaded firearm so as to endanger the life or limb of any child under the age of 14." (Note: The "reckless" standard makes prosecution difficult.)</li> <li>▶ Gun dealers are not required to provide written warning about the law or to post warning signs.</li> <li>▶ Violation is a misdemeanor.</li> </ul>
Wisconsin	1991	<ul style="list-style-type: none"> <li>▶ Florida's general provisions apply, but with the "reckless" standard set forth by Virginia's law.</li> <li>▶ If a child obtains a gun through negligent storage and exhibits it in public, the violation is a misdemeanor. If an injury occurs, the violation is a felony.</li> <li>▶ A minor is anyone under age 14.</li> </ul>

State	Year Enacted	Description of the Law
Hawaii	1992	<ul style="list-style-type: none"> <li>▶ This is the broadest law in the nation, applying to all stored guns, whether loaded or unloaded.</li> <li>▶ No incident must occur to incur criminal penalties.</li> <li>▶ Violation is a misdemeanor.</li> <li>▶ A minor is anyone under age 16.</li> </ul>
Maryland	1992	<p>All of Florida's provisions apply, except:</p> <ul style="list-style-type: none"> <li>▶ No exceptions apply to persons who negligently store a firearm (for example, if the weapon is negligently stored, the owner is liable even if a minor obtains the weapon unlawfully).</li> <li>▶ The penalty is a \$1,000 fine.</li> </ul>
Minnesota	1993	<p>All of Florida's provisions apply, except:</p> <ul style="list-style-type: none"> <li>▶ Violation is a misdemeanor.</li> <li>▶ A child is anyone under age 14.</li> </ul>
North Carolina	1993	<ul style="list-style-type: none"> <li>▶ The law was amended in 1994 to change the penalty for transfer of a handgun to a minor from a misdemeanor to a felony.</li> <li>▶ A minor is anyone under age 18.</li> </ul>
Delaware	1994	<ul style="list-style-type: none"> <li>▶ It is illegal to permit a minor access to a loaded firearm when access is intentional or reckless and when the minor accesses the firearm and uses it to inflict serious bodily injury or death upon self or others.</li> <li>▶ Violation is a misdemeanor.</li> <li>▶ A minor is anyone under age 18.</li> </ul>
Rhode Island	1995	<ul style="list-style-type: none"> <li>▶ It is illegal to store a loaded firearm when reasonable knowledge exists that a child is likely to gain access and when the child causes death or great bodily harm.</li> <li>▶ Violation is a misdemeanor.</li> <li>▶ A child is anyone under age 16.</li> </ul>
Texas	1995	<ul style="list-style-type: none"> <li>▶ The law is similar to the Rhode Island law and also requires gun dealers to post warning signs about the law.</li> <li>▶ Violation is a misdemeanor.</li> <li>▶ A child is anyone under age 18.</li> </ul>
Massachusetts	1998	<ul style="list-style-type: none"> <li>▶ It is unlawful to store any firearm (including a rifle or shotgun) that is not rendered inoperable by use of a locked container with a tamper-resistant mechanical lock or other safety device.</li> <li>▶ Dealers must post signs and provide written warning upon sale or transfer.</li> <li>▶ Violation is a misdemeanor for most firearms, but can be a felony in the case of a large-capacity weapon or machine gun.</li> </ul>
Illinois	1999	<ul style="list-style-type: none"> <li>▶ It is illegal to store or leave a loaded firearm where a minor can gain access without permission and use it to injure or kill.</li> <li>▶ Proper storage is defined as secured by a trigger lock, placed in a securely locked box, or placed in a location that a "reasonable" person would believe to be secured from a minor.</li> <li>▶ Violation is a misdemeanor.</li> <li>▶ A child is anyone under age 14.</li> </ul>

Source: The Brady Campaign to Prevent Gun Violence. Available online at <http://www.bradiycampaign.org/facts/gunlaws/cap.asp>.