

The Association of Handgun Ownership and Storage Practices With Safety Consciousness

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Background: As with other injury prevention practices, education about safe firearm storage is recommended to prevent injuries to children.

Objective: To assess whether parents who are safety conscious in other respects also practice firearm safety.

Methods: Data come from responses to a baseline survey administered as part of an intervention study. Participants were consenting adults who brought a child into an emergency department. These analyses were restricted to those parents who had young children (<7 years) and who kept a firearm in their house. A safety consciousness score was developed; participants earned a point for each of 7 home and car safety behaviors they reported practicing. The relationship between safety consciousness with handgun ownership and firearm storage practices was assessed with Wilcoxon-Mann-Whitney test.

Results: Of the 221 participants, most reported that they keep poisonous substances out of children's reach (92%), always keep children restrained when in cars (90%), have the telephone number for a poison control center (82%), change smoke alarm batteries annually (73%), keep electrical outlets capped (72%), and keep their tap water temperature at 120°F (49°C) or less (65%). Only 22% reported checking smoke alarm batteries monthly. The median safety score was 4 (mean [SD], 3.99 [1.4]). Fifty-six percent said there was a handgun in their home, 27% reported an unlocked gun, 20% reported a loaded gun, and 7% reported a loaded and unlocked gun. Results were not consistent with safety consciousness being associated with safe firearm storage practices or the absence of a handgun.

Conclusion: Compliance with safety practices may not be associated with safe firearm storage.

Arch Pediatr Adolesc Med. 2002;156:763-768

TO PREVENT childhood injuries, the American Academy of Pediatrics (AAP) recommends injury prevention counseling, also known as anticipatory guidance, to parents during the routine medical care of young people.¹ In 1983, the AAP created The Injury Prevention Program to aid health care professionals in providing anticipatory guidance.^{1,2} The Injury Prevention Program includes age-appropriate counseling schedules, policy statements on injury-related issues, and materials to distribute to parents. Recognizing the magnitude of firearm-related injuries, in the early 1990s the AAP officially took the position that firearm safety education should be included in anticipatory guidance.^{3,4} Firearms are a common household safety hazard; they are reportedly present in the homes of about one third of children around the nation.⁵⁻⁸ Nearly 10% of parents with firearms are estimated to store at least one firearm both loaded and not

locked; storage of firearms in such a manner makes them easily accessible to a young person.

Determinants of firearm storage practices may be distinct from non-firearm-related safety behaviors, and this may therefore affect compliance with firearm safety recommendations. Those who do not practice general safety behaviors may not do so because of forgetfulness, lack of resources, or lack of knowledge. In contrast, unsafe firearm storage practices may be related to values such as personal freedom and keeping oneself and one's family safe. Additionally, there is little conflicting information about whether one should have a smoke alarm, cap electrical outlets, or store poisons safely, but there is a great deal of controversy about how guns should be stored to ensure safety. Values, conflicting information, and perceptions about personal protection provide unique challenges to encouraging individuals to store their firearms safely. Therefore, we examined whether safety consciousness among parents of

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PARTICIPANTS AND METHODS

Data for this investigation come from baseline surveys of participants undergoing an intervention study that tests the effect of home safety counseling, including firearm safety, on behavior change. After completion of the baseline survey, participants were randomized into the intervention or control group. The intervention group received information about home safety tailored to their responses on the baseline survey. Those in the intervention group who had household firearms received counseling about safe firearm storage. Participants in the control group received information about the importance of physical activity and healthy eating. Subsequent behavior change was assessed via telephone interviews. Participants completing the baseline survey received a gift and were not required to participate in the follow-up interview.

Potential participants were adults who took a child in their care to a pediatric emergency department (ED) in North Carolina. The level I trauma center is in a teaching hospital that trains emergency medicine and pediatrics residents and serves as a referral center for the state. It serves urban, suburban, and rural populations. Those meeting inclusion criteria were 18 years or older, had children younger than 18 years in their home, were able to speak English, and were willing to complete a survey. Adults were excluded if the child brought in had a medical condition serious enough to be categorized as triage levels 1 or 2. Additionally, caretakers suspected of being involved in child maltreatment or whose children were suicidal or physical or sexual assault survivors were not approached. The Institutional Review Board at the University of North Carolina at Chapel Hill School of Medicine approved the intervention, and all participants granted informed consent.

Enrollment took place between 3 PM and 11 PM, at least 3 to 6 days per week, including weekend nights. Graduate students who served as research assistants were responsible for inviting caretakers to participate in the study, administering safety counseling, and keeping logs of included and excluded persons. When individuals were invited to enroll in the study, they were told that the study was about home safety in general; firearms were not specifically mentioned. Before joining the project, research assistants underwent training on how to conduct safety counseling. Research assistants attempted to invite all eligible caretakers to participate. However, some eligible caretakers were not invited because the child was discharged too quickly to be seen by project staff or the ED staff requested that the family not be approached.

The baseline survey was a 21-item, self-administered questionnaire that asked about demographic characteristics, injury prevention practices, and firearm ownership and storage practices. The questionnaire was a modified version of the Childhood Injury Prevention Practices Survey, which was developed and validated at the Harborview Injury Prevention and Research Center at the University of

Washington in Seattle. Most response sets were yes or no, although some had Likert response sets (all of the time, most of the time, sometimes, rarely, never), and some had open-ended responses.

For the present cross-sectional investigation, we restricted the sample to adults with children 0 to 6 years of age in the home because young children are often the focus of anticipatory guidance and because we examined safety practices that aim to prevent injury to young children specifically (eg, electrical outlet covers). We further limited the sample to those participants who reported the presence of a firearm in their house.

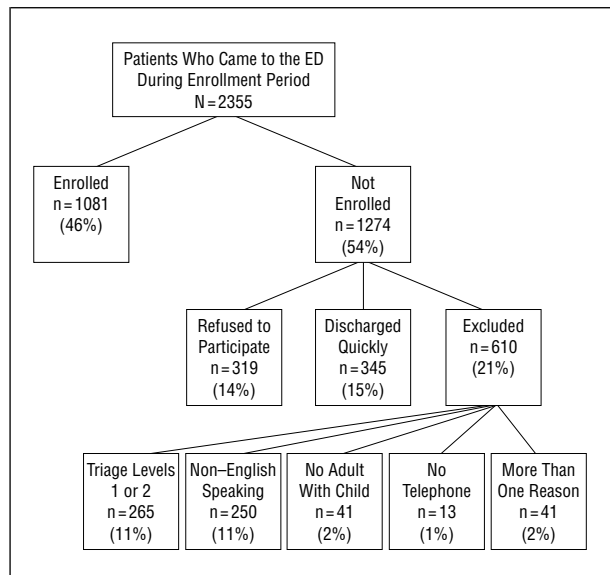
We developed a composite score of safety consciousness in which participants received a point for each of 7 safety practices to which they responded affirmatively; the possible range in the safety score, therefore, was 0 to 7. The practices included the following: (1) changing smoke detector batteries annually; (2) checking smoke detector batteries monthly; (3) keeping potentially poisonous substances out of the reach of children; (4) having the telephone number for the local poison control center; (5) having covers installed on electrical outlets; (6) always keeping children restrained in car seats, booster seats, or seatbelts while in the car (appropriateness of restraint determined by age and weight of child); and (7) having the household tap water temperature at or below 120°F (49°C). All of these safety practices are recommended by the AAP to parents with children younger than 7 years.⁹

We used AAP recommendations to assess the safety of firearm storage practices as well. If a parent is not willing or able to remove firearms from the home, the AAP recommends that all household firearms be stored unloaded and kept locked in a secure place. The ammunition should also be locked and stored separately from the firearms.⁴ Therefore, we measured the parent's report of (1) the presence of any unlocked guns, (2) the presence of any loaded guns, and (3) the presence of any guns that were both unlocked and loaded. We included the household presence of a handgun because they are associated with a greater proportion of injuries to children compared with long guns,¹⁰ and they can easily be operated by children.¹¹ We also examined reasons for gun ownership and number and type of guns owned to determine the degree to which they are associated with firearm storage practices.

All statistical analyses were conducted using SAS statistical software (SAS Institute Inc, Cary, NC). Descriptive statistics were generated as appropriate. The relationship between safety consciousness with the handgun ownership and firearm storage variables was assessed by exploring the difference in the mean safety score by the 2 levels of each firearm safety variable; Wilcoxon-Mann-Whitney test were used to test the statistical significance of associations. We used χ^2 tests and odds ratios with confidence intervals to assess the degree of statistical significance of associations of demographic characteristics with safety behaviors and firearm ownership and storage practices. $P = .05$ was used as the criterion for statistical significance for all analyses.

young children was associated with handgun ownership and safe firearm storage practices. The significance of this research question is that health care professionals who conduct anticipatory guidance should not assume that safety-conscious parents (ie, those who are in compliance with

safety recommendations) also practice safe firearm storage. Further understanding of the relationship between general childhood injury prevention practices and firearm storage may generate information to improve firearm safety promotion interventions.



Flow diagram of sample enrollment and exclusion of patients who came to the emergency department (ED) during the enrollment period. Percentages were determined with the number of patients who came into the ED during the enrollment period (N=2355) as the denominator.

RESULTS

SAMPLE

Among the 2355 pediatric patients that entered the ED during the enrollment period, 1081 (46%) were included in the study sample. The **Figure** depicts the sample enrollment and exclusion of patients who presented to the ED. Of the 1274 adults who were excluded, almost half (n=610, 48%) did not meet inclusion criteria. They were excluded for the following reasons: triage levels 1 or 2 (11%), non-English speaking (11%), no adult present with child (2%), more than one reason (2%), and no telephone (1%). Among the rest of those not enrolled and potentially eligible for participation in the study (n=664), 319 adults (14%) refused to participate and 345 (15%) were discharged quickly before staff could talk with them about the study.

DEMOGRAPHICS

Of 1081 participants who completed a baseline survey for the intervention study, the present investigation was restricted to the 221 who reported that there was a firearm in their house and who had children younger than 7 years. Respondents were predominantly white (78%) and female (76%). The mean age of study participants was 32.1 years (SD, 8.3 years; range, 18-73 years). Nearly all adults who brought a child into the ED were the child's parent (92%). We used type of health insurance coverage status as a proxy for socioeconomic status. Forty-four percent of participants' children were covered by private insurance, 32% had public health insurance (eg, Medicaid), and 24% had no insurance coverage. The racial and sex distribution of those individuals who came into the ED but were not enrolled in the study (n=1274) differed slightly from those who were enrolled. There were

Table 1. Affirmative Responses to a Safety Survey at a Pediatric Emergency Department in North Carolina*

Safety Behavior	No. (%) of Respondents (n = 221)
All poisons, medications, and vitamins kept out of reach of children	198 (92)
Always have child restrained in a car seat or booster seat with a seat belt	198 (90)
Have telephone number to the poison control center	175 (82)
Change smoke detector batteries annually	161 (73)
Check smoke detector batteries monthly	40 (22)
Cap electrical outlets	154 (72)
Keep temperature of hot water at 120°F (49°C) or lower	144 (65)

*Some behaviors may not total 221 because of missing data. The behaviors listed in the table are recommended by the American Academy of Pediatrics.

fewer whites (46%) and females (55%) and more Hispanics (21%).

SAFETY BEHAVIORS

Descriptive results of home safety practices are summarized in **Table 1**. Nearly all participants (99%, n=219) reported having at least 1 smoke alarm in their home. Although nearly three fourths of the participants reported that they changed the batteries in their smoke detector annually, less than one fourth reported checking batteries monthly. Most respondents reported practicing the remaining 5 safety practices. There were no statistically significant differences in safety practices by participants' age, sex, or child's health insurance coverage status. The coefficient of internal consistency reliability for the safety score, as computed by the Kuder-Richardson formula 20, was 0.48.

FIREARM OWNERSHIP AND STORAGE PRACTICES

Most respondents (62%) reported that there was more than one firearm in their home. Eighty percent reported the presence of at least one long gun, 57% reported the presence of at least one handgun, and 36% reported the presence of both handguns and long guns. When asked what their reasons were for having firearms in the household, 57% reported the firearm was for protection, 51% reported it was for hunting, and 25% reported it was for target practice. More than a quarter (27%) reported that there was at least one firearm stored unlocked, and 20% reported that there was at least one firearm stored loaded in their home. Seven percent reported keeping at least one firearm stored both loaded and unlocked (**Table 2**). Neither child's health insurance coverage status nor participant's age and sex were significantly associated with any firearm storage practices. However, participants who listed protection as one reason for firearm ownership were more likely to store their gun unsafely and own handguns (odds ratio, 4.17; 95% confidence interval, 2.33-7.46).

Table 2. Relationship Between Safety Consciousness and Firearm Safety Among a Clinical Sample of Parents*

Household Firearm Possession	No. (%) of Parents (n = 221)	Safety Score, Mean (SD)	P Value
A handgun			
No	91 (41)	4.01 (1.2)	.55
Yes	118 (53)	4.08 (1.4)	
Total	209 (95)	4.05 (1.3)	
A loaded gun			
No	160 (72)	4.03 (1.3)	.67
Yes	40 (18)	4.13 (1.3)	
Total	200 (90)	4.05 (1.3)	
An unlocked gun			
No	143 (65)	4.11 (1.3)	.41
Yes	54 (24)	3.85 (1.4)	
Total	197 (89)	4.04 (1.3)	
A loaded and unlocked gun			
No	181 (82)	4.06 (1.3)	.27
Yes	14 (6)	3.64 (1.7)	
Total	195 (88)	4.03 (1.3)	

*Totals do not sum to 221 due to missing data. Safety scores ranged from 0 to 7.

FIREARM STORAGE AND SAFETY PRACTICES

The median number of safety behaviors reported by subjects was 4 (mean [SD], 3.99 [1.4]). For the 4 firearm variables, the *U* test statistic obtained from the Wilcoxon 2-sample test for differences in means did not exceed the critical value. Therefore, the data do not suggest that safety scores differ by levels of firearm safety (Table 2). Although not statistically significant, those respondents with either an unlocked gun or a gun that was loaded and unlocked had a slightly lower safety score than those who did not have an unlocked gun or a loaded and unlocked gun in their home.

COMMENT

The purpose of this study was to determine whether firearm ownership, particularly handgun ownership, and storage practices are associated with general safety practices among a population of gun owners with young children. The results suggest that general home safety practices do not predict safe storage of firearms. Individuals who use most of the injury prevention practices we studied were no more likely to store household firearms safely than those with just a few injury prevention practices.

Research demonstrates that household access to a gun is associated with unintentional firearm injuries among children and suicides among adolescents.¹²⁻¹⁵ In this sample, 27% of participants reported storing a gun unlocked, 21% reported storing a gun loaded, and 7% reported storing a gun both unlocked and loaded. The reported gun storage patterns are generally consistent with previous studies that have examined gun ownership and storage in homes with children up to 18 years old with one exception. Studies^{5,8,16} of gun-owning parents of children younger than 18 years have generally had larger proportions of parents reporting storing at

least one gun unlocked (range, 40%-61%) compared with the 27% that was reported in our study. The proportion of parents who reported storing a gun loaded (20%) was consistent with what has been reported in other studies (range, 7%-21%).^{6,17} However, in one study,¹⁷ the proportion of reported guns stored loaded varied by who was asked; 7% of women reported a loaded gun, whereas 21% of men reported one. The proportion of parents reporting having at least one loaded and unlocked gun at home (7%) was consistent with other studies⁶⁻⁸ in which the prevalence of this storage habit among parents was 7% to 13%.

This is the first study to our knowledge that examines firearm ownership and storage exclusively among parents of young children. The fact that our sample was restricted to parents of children younger than 7 years likely affects how it compares with national firearm statistics. Parents in households with children younger than 13 years were shown in one study¹⁷ to be more likely to store a gun safely compared with parents with older children. It is therefore likely that the prevalence of keeping an unlocked gun in the home is lower in our population than in national studies because all of the parents in our sample had very young children. Most other studies⁶⁻⁸ have included parents who have children up to the age of 18 years. Because parents with young children tend to keep their guns stored more safely than other gun owners, it was disturbing that the proportion of adults keeping a gun stored loaded and loaded and unlocked was as high as the proportion for some national studies.

There are some limitations to this study. The study relies on self-report of home safety and gun storage practices and, therefore, it is likely that participants overreport their safety practices. Because the survey was conducted in a clinical setting, some participants might have misreported firearm storage practices or other unsafe behaviors, aiming to give a socially desirable response. Although it is unfortunate that there is the potential for reporting bias and prosocial responses, the study population does reflect those to whom guidance would be offered. Therefore, the responses obtained in this study are similar to what a primary care physician can expect to encounter in practice. Also with self-report, people may skip questions or misunderstand them.

Responses to questions about gun ownership and storage may vary by whether the respondent is the personal owner of the gun or merely lives in a household with a gun.¹⁷⁻¹⁹ The latter, usually the woman in a dual-adult family, tends to overreport how safely household guns are stored. Because most clinic-based studies on firearm ownership and storage have women as most of the respondents, there is probably a widespread underestimation of the number of guns owned and the prevalence of firearms stored loaded and/or unlocked. For example, one study¹⁹ found that husbands' reports of household gun ownership exceeded wives' reports by an average of 12 percentage points. In our study, most respondents were women. It is possible that the women in this study underestimated the number and/or presence of guns in their home and how the guns are stored. It is worrisome that safety practices, particularly

What This Study Adds

Anticipatory guidance has been an effective strategy for improving the home safety status of many young children (eg, poison and burn prevention). The main location from which young people gain access to firearms used in unintentional injuries is the home. Firearms are present in approximately one third of homes with children; nearly half of these firearms are unlocked, and 7% to 10% are unlocked and loaded. Before this study, it was unknown if there was any relationship between general home safety practices and firearm storage practices. This study, which examines firearm storage patterns exclusively among parents of young preschool-aged children, demonstrated that parents who were safety conscious were no more likely to store their firearms safely. Health care practitioners should not assume that compliance with other safety measures is predictive of safe firearm storage, and they should provide firearm safety counseling for all gun-owning parents. This study also suggests that other strategies, in addition to education and clinic-based counseling, such as determining how to make people feel safe in their homes or firearm design modifications (eg, personalization), may be useful in decreasing child access to firearms in the home.

as they relate to firearms, may have been underestimated, which would enable more young children to have easy access to firearms. Unfortunately, having a sample with mostly women respondents is a consequence of using anticipatory guidance in clinical settings as the primary medium for injury prevention counseling. Women continue to be the individuals who most commonly accompany children to the physician.

The sampling strategy that enrolled adults from one ED may have limited generalizability, particularly with regard to men and Hispanics, who were more likely to be excluded. Fortunately, few adults refused to participate (14%). It is impossible to know if those individuals who refused to participate in the baseline survey or who were discharged early would have been eligible for this study analysis. We cannot determine their eligibility because we do not have information about the age of the children in their home or their firearm ownership status. It is highly unlikely that most of those adults who refused to participate (14%) or who left the ED before staff could enroll them (15%) had children younger than 7 years living in their home and owned household firearms. However, it is possible that there was selection bias among those who participated. They had agreed to participate in a safety survey and may be more sensitive to safety issues than those who did not participate; therefore, our reports of safety behaviors may be overestimates.

It is of concern that even those parents with the safest homes do not store their guns in a secure manner. This may be because of parents' perception of the risk of firearm injury to their children or an underestimation of their child's capabilities and curiosity related

to firearms. Studies^{20,21} have demonstrated that parents tend to believe that approaches such as teaching children safety rules are effective in preventing children from handling or playing with guns. However, a recent study²⁰ found that parental estimates of children's interest in guns did not predict the child's actual behavior on finding a handgun. In that study,²⁰ 90% of the boys who handled a gun they found had been previously instructed not to touch firearms. Child development theories suggest that children's natural curiosity and fascination around guns may prevent them from adhering to the rules. Parental education on firearm safety should address these issues, ensuring that parents have an understanding of the curious and impulsive nature of children.

Given that a number of parents report they own their gun for protection (57%), they may feel that having a firearm in the home is actually a safety measure because they believe they are able to protect their children in the event of a home invasion or robbery attempt. Our study demonstrates that having a gun for protection is associated with unsafe storage. Gun ownership has been established as a risk factor for firearm injury and for keeping guns loaded and unlocked.^{22,23} Efforts should be made to acknowledge and address parents' fears, rationale for gun ownership, and other barriers and to help them develop alternative strategies to keep their families safe (eg, home security systems). It may be extremely difficult for education strategies to alter beliefs about whether guns in the home confer more or less safety, but other strategies to make individuals feel safer in their homes may decrease their belief that they need to have a firing-ready gun easily accessible.

In conclusion, the data demonstrate that individuals who are safety conscious may not store their firearms safely. Health care professionals should not assume that compliance with other safety measures will be predictive of safe firearm storage. Standard anticipatory guidance that focuses on gun injury risk to children may be insufficient to produce behavior change. In addition to education and clinic-based counseling, other strategies, such as determining how to make people feel safe in their homes or firearm design modifications (eg, personalization), may be useful in decreasing child access to firearms in the home.

Accepted for publication April 4, 2002.

This study was supported by the William T. Grant Foundation (New York, NY) through the Faculty Scholars Program (Dr Coyne-Beasley) and by the Robert Wood Johnson Foundation (Princeton, NJ) through the Minority Medical Faculty Development Program (Dr Coyne-Beasley).

We thank our project and ED staff for their contributions to this study, in particular Tamara Green, MD, MPH, Alicia Salvatore MPH, Michael Casteel, PhD, Janice Harris, BA, and Jonathan Wilson, BA. We also thank David Grossman, MD, director of the Harborview Injury Prevention and Research Center, for the use of the baseline survey and Carol Runyan, PhD, director of the University of North Carolina Injury Prevention Research Center, for her invaluable comments and assistance.

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REFERENCES

1. American Academy of Pediatrics, Committee on Injury and Poison Prevention. Office-based counseling for injury prevention. *Pediatrics*. 1994;94:566-567.
2. Bass JL. TIPP: the first ten years. *Pediatrics*. 1995;2:274-275.
3. American Academy of Pediatrics, Committee on Injury and Poison Prevention. Policy statement: firearm injury affecting the pediatric population (RE9234). *Pediatrics*. 1992;89:788-790.
4. American Academy of Pediatrics, Committee on Injury and Poison Prevention. Firearm-related injuries affecting the pediatric population. *Pediatrics*. 2000;105:888-895.
5. Senturia YD, Christoffel KK, Donovan M. Children's household exposure to guns: a pediatric practice-based survey. *Pediatrics*. 1994;93:469-475.
6. Senturia YD, Christoffel KK, Donovan M, Pediatric Practice Research Group. Gun storage patterns in US homes with children: a pediatric practice-based survey. *Arch Pediatr Adolesc Med*. 1996;150:265-269.
7. Stennies GR, Ikeda R, Leadbetter S, Houston B, Sacks J. Firearm storage practices and children in the home, United States, 1994. *Arch Pediatr Adolesc Med*. 1999;153:586-590.
8. Schuster MA, Franke TM, Bastian AM, Sor S, Halfon N. Firearm storage patterns in US homes with children. *Am J Public Health*. 2000;90:588-594.
9. American Academy of Pediatrics, Committee on Injury and Poison Prevention. *Injury Prevention and Control for Children and Youth*. Elk Grove Village, Ill: American Academy of Pediatrics; 1997.
10. Gotsch KE, Annett JL, Mercy JA, Ryan GW. Surveillance for fatal and nonfatal firearm-related injuries: United States, 1993-1998. *MMWR Morb Mortal Wkly Rep*. 2001;50(SS02):1-32.
11. Naureckas SM, Galanter C, Naureckas ET, Donovan M, Christoffel KK. Children's and women's ability to fire handguns. *Arch Pediatr Adolesc Med*. 1995;149:1318-1322.
12. Grossman DC, Reay DT, Baker SA. Self-inflicted and unintentional firearm injuries among children and adolescents: the source of the firearm. *Arch Pediatr Adolesc Med*. 1999;153:875-878.
13. Brent DA, Perper JA, Allman CJ, Moritz GM, Wartella ME, Zelenak JP. The presence and accessibility of firearms in the homes of adolescent suicides: a case-control study. *JAMA*. 1991;266:2989-2995.
14. Brent DA, Perper JA, Goldstein CE, et al. Risk factors for adolescent suicide: a comparison of adolescent suicide victims with suicidal inpatients. *Arch Gen Psychiatry*. 1988;45:581-588.
15. Brent DA, Perper JA, Moritz G, Baugher M, Schweers J, Roth C. Firearms and adolescent suicide: a community case-control study. *AJDC*. 1993;147:1066-1071.
16. Farah MM, Simon HK, Kellermann AL. Firearms in the home: parental perceptions. *Pediatrics*. 1999;104:1059-1063.
17. Azrael D, Miller M, Hemenway D. Are household firearms stored safely? it depends on whom you ask. *Pediatrics* [serial online]. 2000;106:e31. Available at: <http://www.pediatrics.org/cgi/content/full/106/3/e31>. Accessed March 18, 2002.
18. Coyne-Beasley T, Johnson RM. Gun storage: who's the right target? *Pediatrics*. 2001;108:823-824.
19. Ludwig J, Cook PJ, Smith TW. The gender gap in reporting household gun ownership. *Am J Public Health*. 1998;88:1715-1718.
20. Jackman GA, Farah MM, Kellermann AL, Simon HK. Seeing is believing: what do boys do when they find a real gun? *Pediatrics*. 2001;107:1247-1250.
21. Webster DW, Wilson MEH, Duggan AK, Pakula LC. Parents' beliefs about preventing gun injuries to children. *Pediatrics*. 1992;89:908-914.
22. Kellermann AL, Rivara FP, Rushforth NB, et al. Gun ownership as a risk factor for homicide in the home. *N Engl J Med*. 1993;329:1084-1091.
23. Kellermann AL, Rivara FP, Lee RK, et al. Injuries due to firearms in three cities. *N Engl J Med*. 1996;335:1438-1444.