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Children and Guns*

Susan DeFrancesco**

Guns kill and injure children in the United States at an alarming rate. In our inner cities, teenagers and young adults are literally dying in the streets from gunshot wounds. Young people are using guns as an effective means of suicide.

Gun death and injury, once approached exclusively as a criminal justice problem, now has the attention of public health researchers and advocates. Public health uses epidemiology¹ to study the extent of the gun death problem and identify how it is distributed within a population. Public health also focuses on prevention. After describing the epidemiology of gun death among children in the United States, I will describe some of the firearm injury prevention strategies we work on at the Johns Hopkins Center for Gun Policy and Research ("the Center").

I. Gun Ownership

Guns are ubiquitous consumer products. An estimated 192 million guns are in private hands in the United States.² Thirty-nine percent of households have at least one gun and twenty-four percent have a handgun.³ In 1996, U.S. gun makers manu-

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1. Epidemiology is defined as "the branch of medicine dealing with the incidence and prevalence of disease in large populations and with detection of the source and cause of epidemics of infectious disease." See RANDOM HOUSE UNABRIDGED DICTIONARY 476 (2d Ed. 1987).

2. See P.F. Cook & J. Ludwig, *Guns in America: Results of a Comprehensive National Survey on Firearms Ownership and Use*, POLICE FOUNDATION (1996).

3. See Johns Hopkins Center for Gun Policy and Research, National Opinion Research Center, NATIONAL GUN POLICY SURVEY: QUESTIONNAIRE WITH WEIGHTED FREQUENCIES 1-44 (1998).

factured nearly 4 million firearms, including about 1.5 million handguns.⁴ Another 882,000 guns were imported that year.⁵ People own guns for many reasons including hunting, target shooting, collecting, and self-protection. In a recent national survey, forty-six percent of gun owners and sixty-three percent of handgun owners cited protection against crime as their primary reason for owning a gun.⁶

II. Epidemiology of Gun Death

In 1995, nearly 36,000 people in the United States died due to gunshot wounds.⁷ That equates to nearly 100 deaths per day or one-quarter of all "injury deaths." Gun deaths are second only to motor vehicle deaths as a cause of injury death, and in six states and Washington, D.C., gun deaths actually outnumbered motor vehicle deaths in 1995.⁸ We do not know precisely how many nonfatal gun injuries there are. In the one year period from June 1994 through May 1995, an estimated 87,844 people were treated for nonfatal gun injuries in United States' hospital emergency rooms.⁹

Approximately ninety-five percent of all gun deaths are the result of intentionally inflicted wounds.¹⁰ In 1995, fifty-two percent of gun deaths were suicides, forty-four percent were homicides, three percent were unintentional, and one percent were of undetermined intent.¹¹ Gun deaths disproportionately affect young people. In the United States, gun death rates peak between the ages of 15 and 24.¹² Guns are the *second* leading

4. See A. Resnick, Bureau of Alcohol, Tobacco and Firearms, U.S. DEPARTMENT OF THE TREASURY, WRITTEN COMMUNICATIONS (1998).

5. See *id.*

6. See Cook, *supra* note 2.

7. See R.N. Anderson et al., *Report of Final Mortality Statistics, 1995*, 45 MONTHLY VITAL STATISTICS REPORT 54-56 (1997).

8. See R.N. Anderson et al., *Report on Final Morality Statistics, 1995*, 45 MONTHLY VITAL STATISTICS REPORT (1997); L.A. Fingerhut et al., NATIONAL CENTER FOR HEALTH STATISTICS, INJURY CHART BOOK (1997); J.L. Annett, CENTER FOR DISEASE CONTROL AND PREVENTION, PERSONAL COMMUNICATION (1997).

9. See D. Cherry et al., *Trends in Nonfatal and Fatal Firearm-Related Injury Rates in the United States, 1985-95*, 32 AM. EMERG. MED. 51-59 (1998).

10. See Anderson, *supra* note 7.

11. See *id.*

12. See *id.*

cause of all deaths for youths in the 10 to 14 and 15 to 24 age groups.¹³

Males in the U.S. are at much greater risk of gun death than females. The gun death rates for males between the ages of 15 and 24 are about eight times greater than the rate for females.¹⁴ For young black males, guns are the leading cause of death.¹⁵

Youth suicide rates increased dramatically from 1980-1994, largely due to gun-related suicides.¹⁶ In 1995, among young people ages 10 to 19 years old, more than 1,400 suicides were committed with guns.¹⁷

In addition to the human cost of gun death and injury, there is the financial cost. For firearm injuries that occurred in 1990, the estimated cost is more than \$20 billion.¹⁸ The cost of providing medical care for gun-related injuries in the United States in 1995 was estimated at \$4 billion.¹⁹ One study has shown that approximately eighty percent of the hospital costs of gun-related injuries are borne by the public.²⁰

Two recent studies by the Centers for Disease Control and Prevention (CDC) provide a global perspective. In one study, the CDC compared firearm-related deaths among children, ages 14 and younger, in the United States to 25 other industrialized countries.²¹ The firearm death rate among American children

13. See R.N. Anderson et al., *Report of Final Mortality Statistics, 1995*, 45 MONTHLY VITAL STAT. REP. 54-56 (1997); L.A. Fingerhut et al., NATIONAL CENTER FOR HEALTH STATISTICS, INJURY CHART BOOK (1997).

14. See L.A. Fingerhut et al., NATIONAL CENTER FOR HEALTH STATISTICS, INJURY CHART BOOK (1997).

15. See Anderson, *supra* note 7.

16. See S.P. Kachur et al., CENTERS FOR DISEASE CONTROL AND PREVENTION, NATIONAL CENTER FOR INJURY PREVENTION AND CONTROL, *Suicide in the United States 1980-1992* (1995); see also CDCwonder, Mort. File (database online, Atlanta, Georgia; Centers for Disease Control and Prevention — August 1997).

17. See CDCwonder, Mort. File (database online, Atlanta, Georgia; Centers for Disease Control and Prevention — August 1997).

18. See W. Max & D.P. Rice, *Shooting in the Dark: Estimating the Cost of Firearm Injuries*, 12 HEALTH AFF. 171-85 (1993).

19. See K.W. Kizer et al., *Hospitalization Charges, Costs, and Income for Firearm-Related Injuries at a University Trauma Center*, 273 JAMA 1768-73 (1995).

20. See G.J. Wintemute & M.A. Wright, *Initial and Subsequent Hospital Costs of Firearm Injuries*, 33 J. TRAUMA 556-60 (1992).

21. See CENTERS FOR DISEASE CONTROL AND PREVENTION, RATES OF HOMICIDE, SUICIDE, AND FIREARM-RELATED DEATH AMONG CHILDREN - 26 INDUSTRIALIZED COUNTRIES, 46 MORBIDITY & MORTALITY WKLY REP. 101-05 (1997).

was nearly 12 times higher than the combined rate in the other 25 countries.²² A cross-national comparison of 36 high-income and upper-middle-income countries reveals that the United States is unique in that it has the highest overall gun mortality rate, a high proportion of homicides that are the result of firearms, and the highest proportion of suicides that are the result of firearms.²³ Also, age-specific data shows that the impact of all gun mortality - homicide, suicide, and unintentional - is more pronounced in younger age groups (less than 25 years old) in the United States than in the other nations.²⁴

One explanation for the increases in the gun death problem in the United States may be the increase in the availability of guns. Gun death rates over time have increased as the annual number of new firearms available (domestically manufactured and imported) has increased.²⁵

III. Prevention Strategies

Gun policy in the United States has focused primarily on the criminal use of guns – more specifically, on controlling the possession and use of guns by criminals. There are several problems with focusing on the criminologic approach and excluding other strategies. For instance, criminal penalties are meant to punish and deter criminal behavior and behavior change is difficult, often ineffective, and can take a long time. Also, the criminologic approach ignores the fact that suicide is a large part of the gun problem and neglects the problem of unintentional shootings. Finally, in many cases, homicides occur in the course of an argument or some other noncriminal circumstance (over half of homicide victims knew their killer).²⁶

The works of the Johns Hopkins Center for Gun Policy and Research and many other public health researchers are based on a different approach that focuses on the gun itself and not on

22. *See id.*

23. *See* E.G. Krug et al., *Firearm-related Deaths in the United States and 35 Other High-and Upper-Middle-Income Countries*, 27 INT'L J. EPIDEMIOL. 214-21 (1998).

24. *See id.*

25. *See* G.J. Wintemute, *Firearms as a Cause of Death in the U.S., 1920-1982*, 27 J. TRAUMA 532-36 (1987).

26. *See* Federal Bureau of Investigation, U.S. DEP'T OF JUSTICE, UNIFORM CRIME REPORTS FOR THE UNITED STATES: 1996 (1997).

the user of the gun. Stephen Teret, Director of the Center, has written that gun policy would be more effective in reducing deaths if it were "redirected from an emphasis on use and possession of guns to an emphasis on the manufacture, marketing, and sale of guns."²⁷ This approach is based on other public health successes that have focused on the product itself. For example, when the focus was redirected toward changing the design of the car (by incorporating safety features such as air bags, center-mounted brake lights, dashboard padding, and collapsible steering wheels) rather than exclusively attempting to change driver behavior (i.e. educating the driver to drive carefully), motor vehicle crashes and deaths decreased dramatically.²⁸

Our Center's work focuses on the gun, but more specifically, on handguns because they are involved in most of the killings. Of all firearm homicides in 1996, in which the type of gun was known, eighty-seven percent were committed with handguns.²⁹ Handguns are also the weapon of choice for the suicide victims,³⁰ and are often involved in unintentional shootings.³¹ Handguns may be preferred because they are concealable, affordable, and easy to store and use.

How can a handgun be redesigned to prevent death and injury? Currently, most handguns are operable by young children.³² Technologies exist, however, to make handguns less dangerous to children. In fact, one such technology was employed by Smith & Wesson over a century ago. In 1884, Smith & Wesson designed a gun which it said "no ordinary child under

27. S.P. Teret & S.P. Wintemute, *Policies To Prevent Firearm Injuries*, 12 HEALTH AFF., Winter 1993 at 97-108.

28. See Centers for Disease Control and Prevention, DEATHS RESULTING FROM FIREARM-AND MOTOR-VEHICLE-RELATED INJURIES - UNITED STATES, 1968-1991, MMWR 37-42 (1994); NATIONAL HIGHWAY TRAFFIC SAFETY ADMIN., UNITED STATES DEPT OF TRANSPORTATION, TRAFFIC SAFETY FACTS 1996 (1997).

29. See FEDERAL BUREAU OF INVESTIGATION, U.S. DEPT OF JUSTICE, *supra* note 26.

30. See G.J. Wintemute et al., *The Choice of Weapons in Firearm Suicides*, 78 AM J. PUBLIC HEALTH 824-26 (1988); S.W. Hargarten et al., *Characteristics of Firearms Involved in Fatalities*, 275 JAMA 42-45 (1996).

31. See G.J. Wintemute et al., *When Children Shoot Children: 88 Unintended Deaths in California*, 257 JAMA 3107-09 (1987); A.L. Kellermann et al., *Injuries Due to Firearms in Three Cities*, 335 NEW ENG. J. MED. 1438-44 (1996).

32. See S. Naureckas et al., *Children's and Women's Ability to Fire Handguns*, 149 ARCH. PED. ADOLESC. MED. 1318-22 (1995).

eight can possibly discharge.”³³ The device used by Smith & Wesson was a grip safety, which required that a lever on the grip of the gun be depressed simultaneously while pulling the trigger in order for the gun to fire. Smith & Wesson believed that most children would not have the hand strength to pull the trigger and press the lever on the grip of the gun simultaneously.³⁴ The company produced nearly 500,000 of these child-resistant handguns but discontinued manufacturing them after 1940.³⁵ Today, only a small percentage of handguns are equipped with the grip safety.³⁶

Another way to make a handgun less dangerous to children is to personalize it. A personalized gun is one that, by design, can only be fired when operated by an authorized user. Technologies exist to personalize guns. In fact, many patents for personalized guns have been awarded in the past few decades. For example, a Massachusetts inventor was granted a patent in 1984 for a gun that would recognize the palm or fingerprint of the authorized user.³⁷ Colt's Manufacturing Company has developed prototypes of a personalized gun using radio frequency technology.³⁸ A tiny transponder is embedded in the authorized user's ring or wristband or is worn on an article of clothing. The transponder signals a unique code to the gun, and the personalized gun will only fire if the gun detects the presence of its transponder.³⁹ The protection offered by a personalized handgun extends beyond childproofing. The personalized gun also protects the despondent teenager who reaches for the family gun to commit suicide, and the potential victims of the criminal who

33. See NATIONAL MUSEUM OF AMERICAN HISTORY, SMITHSONIAN INSTITUTION, CAT. NO. 002043, SMITH & WESSON TRADE CATALOG (1895); R.G. JINKS, HISTORY OF SMITH AND WESSON (Beinfeld Publishing, Inc.) (1997); S.P. Teret et al., *Making Guns Safer*, ISSUES IN SCI. & TECH., Summer 1998, at 37-40.

34. See JINKS, HISTORY OF SMITH AND WESSON at 138-42.

35. See *id.*

36. See K.D. ROBINSON ET AL., PERSONALIZED GUNS: REDUCING GUN DEATHS THROUGH DESIGN CHANGES (The Johns Hopkins Center for Gun Policy and Research 2d ed., 1998).

37. See F.A. SHAW, PERSONALIZED SAFETY METHOD AND APPARATUS FOR A HAND HELD WEAPON, U.S. PATENT 4, 467, 545 (1984).

38. See ROBINSON, *supra* note 36.

39. See *id.*

steals a handgun from a home or who disarms a law enforcement officer.⁴⁰

There are no federal safety standards that regulate the safe design of guns manufactured in the United States. However, we do have federal standards that regulate other products. A handgun is easily operable by a four-year old child, but according to federal regulations, aspirin bottles must be child-resistant.⁴¹ Requiring child-resistant packaging on prescription drugs and aspirin bottles has prevented the poisoning death of over 700 children.⁴² With handguns, we still rely on parents to be responsible and keep guns away from children. However, studies show that gun owners with children keep loaded guns in their homes.⁴³ In fact, gun owners who have received some firearms training are more likely to keep a firearm loaded and unlocked than those who have received no firearm training.⁴⁴

Recently, there have been some federal and state efforts to regulate the safe design of guns. In 1997, the Massachusetts Attorney General used his consumer protection authority to promulgate the nation's first consumer protection regulations regarding handguns. The regulations require, among other things, that handguns sold in the state contain a safety mechanism that hinders use of the handgun by an unauthorized user, a safety mechanism that precludes a child under six from operating it, and a load indicator device.⁴⁵ The Mayor of Boston and the Governor of Massachusetts have sponsored state legislation that would hold handgun manufacturers and distributors liable for firearm injuries, but exempts manufacturers and distribu-

40. See S.P. Teret et al., *Making Guns Safer*, 14 ISSUES IN SCI. & TECH., Summer 1998 at 37-40.

41. See Poison Prevention Packaging Act of 1970, Pub. L. No. 91-601, 84 Stat. 1670 (1970).

42. See U.S. CONSUMER PRODUCT SAFETY COMMISSION, *Saving Lives Through Smart Government: Success Stories* (1996).

43. See Y.D. Senturia et al., *Gun Storage Patterns in United States Homes With Children: A Pediatric-Based Survey*, 150 ARCH. PED. ADOLESC. MED. 265-269 (1996); D.S. Weil & D. Hernenway, *Loaded Guns in the Home: Analysis of a National Random Survey of Gun Owners*, 267 JAMA 3033-37 (1992); D. Hernenway et al., *Firearm Training and Storage*, 273 JAMA 46-49 (1995).

44. See *id.*

45. See John Ellement, *Judge Blocks AG's Enforcement of Quality Control for Guns*, BOSTON GLOBE, July 2, 1998, at B4 (The gun lobby is challenging these regulations in the Massachusetts courts and was recently granted a request for a preliminary injunction that temporarily halts their implementation).

tors whose guns are personalized.⁴⁶ Two Federal Bills have been introduced that would 1) require all handguns to be sold equipped with a mechanism designed to prevent discharge by an unauthorized user and 2) permit the United States Consumer Product Safety Commission to conduct a study to test and evaluate ways in which the safety of handguns can be improved to prevent their unauthorized use.⁴⁷ Legislators in New Jersey, Pennsylvania, and New York have introduced bills, patterned after a model law written by our Center faculty, that would require guns to be personalized.⁴⁸

The results of two national telephone surveys conducted by our Center in collaboration with the National Opinion Research Center (NORC) show strong public support, even among gun owners, for government regulation of handgun designs in order to improve their safety.⁴⁹ In the most recent survey conducted in 1997/98, sixty-eight percent of those polled favored government safety regulations for the design of guns; and among gun owners sixty four percent favored design safety regulations.⁵⁰ Eighty-eight percent of those surveyed favored legislation requiring childproofing, including eighty percent of gun owners.⁵¹ Seventy-one percent of all respondents favored a law requiring all new handguns to be personalized; fifty-nine percent of gun owners favored such a law.⁵²

Litigation is another strategy that has worked to encourage the redesign of products to make them safer.⁵³ Our Center's faculty has provided assistance to attorneys working on cases in which they are attempting to hold gun manufacturers liable for failing to incorporate personalization technology and other

46. See H.B. 5953, 179th Gen.Ct. (Mass. 1996); H.B. 2508, 180th Gen. Ct. (Mass. 1997); H.B. 4200, 180th Gen. Ct. (Mass. 1997).

47. See H.R. 4073, 105th Cong. 2d Sess. (1998); S. 2185, 105th Cong. (1998).

48. See S. DeFRANCESCO ET AL., A MODEL HANDGUN SAFETY STANDARD ACT (The Johns Hopkins Center for Gun Policy and Research 2d ed. 1998).

49. See Stephen P. Teret et al., *Support for New Policies to Regulate Firearms: Results of Two National Surveys*, 339 NEW ENG. J. MED. 813-18 (1998).

50. See *id.*

51. See *id.*

52. See *id.*

53. See Stephen P. Teret, *Injury Control and Product Liability*, 2 J. PUB. HEALTH POL'Y 49-57 (1981).

safety devices into the design of their guns. The first of these cases will go to trial soon.⁵⁴

Our Center's faculty has also considered the regulation of firearm advertising as a way to prevent gun injury and death. Like other consumer products, handguns are advertised. Many advertisements for handguns contain the message that bringing a gun into the home is a protective measure. For example, an advertisement for a semi-automatic pistol manufactured by Colt Manufacturing, Inc., appeared in the southeast regional issue of the *Ladies Home Journal* in July 1992.⁵⁵ It features a mother tucking her daughter into bed at night – a dark window is in the background.⁵⁶ The advertisement headline reads: "Self-protection is more than your right . . . it's your responsibility."⁵⁷ The advertisement's text compares the home protection benefits of a Colt handgun to a home fire extinguisher.⁵⁸ It reads, "At Colt, we believe that the safe and responsible ownership of a firearm can play an important role in personal security. Like a home fire extinguisher, it may be better to have it and not need it, then to need it and not have it."⁵⁹ Gun manufacturer Beretta has an advertisement for one of its semi-automatic pistols that describes its gun as "Homeowner's Insurance."⁶⁰

These advertisements and others like them convey the message that bringing a gun into the home protects its occupants, in spite of public health data which contradicts this message. Although many gun owners keep a gun in the home for protection, studies have shown that guns are rarely used for this protective purpose and that the risks of keeping a gun in the home outweigh the benefits.⁶¹ In fact, in homes with guns, the homicide of a household member is almost three times more

54. See *Dix v. Beretta U.S.A. Corp.*, (Alameda County Super. Ct. Cal. filed May, 1995).

55. See Colt Mfg., Inc. Advertisement. *Ladies Home Journal*, July 1992.

56. See *id.*

57. *Id.*

58. See *id.*

59. *Id.*

60. Beretta USA Adver., *WOMEN AND GUNS*, May 1996, at 27.

61. See A.L. Kellermann et al., *Weapon Involvement in Home Invasion Crimes*, 273 JAMA 1759-62 (1995).

likely to occur than in homes without guns.⁶² The risk of suicide of a family member is increased by nearly five times in homes with guns; the risk is higher still for adolescents and young adults.⁶³

Under federal law, the Federal Trade Commission (FTC) has the authority to regulate advertisements to protect the public health.⁶⁴ Jon Vernick, Associate Director of our Center, has written,

For handgun advertisements that promise home protection, in particular, convincing arguments can be made that a number of these ads are unfair and /or deceptive. Given the potentially devastating consequences for consumers of a decision to bring a handgun into the home, it is particularly important that they have accurate information about this choice.⁶⁵

Based on research and analysis, our Center has petitioned the FTC to consider the legality of firearm advertisements that promise home protection. The FTC has yet to issue a ruling on the petition.

IV. Conclusion

Gun death continues to be a major public health problem in the United States which disproportionately affects young people. Proven public health interventions that focus on guns as consumer products can reduce gun death and injury. Legislation, regulation, and litigation can be used to encourage the manufacture of safer handguns and to address misleading gun advertising.

62. See A.L. Kellermann et al., *Gun Ownership as a Risk Factor for Homicide in the Home*, 329 NEW ENG. J. MED. 1084-91 (1993).

63. See A.L. Kellermann et al., *Suicide in the Home in Relation to Gun Ownership*, 327 NEW ENG. J. MED. 467-72 (1992).

64. See Fed. Trade Comm'n Act 38 Stat. 717 (1914) (codified as amended at 15 U.S.C. § 45 (1994)).

65. J.S. Vernick et al., *Regulating Firearm Advertisements that Promise Home Protection: A Public Health Intervention*, 277 JAMA 1391-97 (1997).