POLICY FORUM: PUBLIC HEALTH

Regulating Firearms as a Consumer Product

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In 1997, 43,458 persons died from motor vehicle crashes, and 32,436 died from firearms (*1*). The number of vehicle-related deaths would be even higher if it were not for the efforts of safety engineers, the commitment of the automobile industry, and regulation and oversight by a federal agency, which have led to injury-reducing designs such as collapsible steering columns and restraint systems (*2*). There is no "magic bullet" for reducing firearm-related injuries and deaths. However, a design approach to firearms, analogous to those applied to motor vehicles, medication packaging, and other consumer products, has been proposed by researchers in public health (*3*, *4*).

For example, manufacturing guns that require a certain grip strength of the user might reduce children's accidental shootings of playmates or themselves. The technology for such a design is available; Smith and Wesson first manufactured and marketed as "child-proof" a handgun using this principle over a century ago (*5*).

Accidental shootings by children are a small component of the problem; most firearm-related deaths are suicides or homicides (*1*). Another design possibility is to personalize firearms so that, through the use of a fingerprint, transponder, or other mechanism to identify a specific individual, they can be fired only by an authorized user. The National Institute of Justice funded the development of prototypes of personalized handguns, and Colt's Manufacturing Company, Inc., and Fulton Arms, Inc., have indicated their intent to market personalized firearms in the near future (*3*). Handguns, in particular, are a logical product choice because they, rather than rifles or other long guns, are used in a majority of suicides and homicides (*6*). Personalized firearms might reduce nonfatal injuries and the occurrence of some crimes (*7*). Personalized handguns would prevent handgun shootings by adolescents, who are more likely than their older counterparts to use a firearm in the commission of a suicide or a homicide (*8*) and who obtain their guns most often through family, friends, and other personal contacts (*9*). Annually, personalized handguns might prevent many of the deaths of children under the age of 14 who are accidentally shot and killed (*1*). Their use also would prevent the in-the-line-of-duty deaths of about half a dozen law enforcement officers annually (*10*). Whether such numbers are large enough to merit design regulation is a value judgment. The point is that technology might be used to prevent these deaths.

At the same time, firearms are durable. They last longer than many other consumer products, including many automobiles. A large number of guns are already in U.S. homes and, most likely, out of reach of future safety standards. Establishing standards for firearms is a long-term public health strategy.

Firearms, however, are not currently subject to federal safety standards or other comprehensive governmental quality controls. A recent Institute of Medicine report called for the establishment of firearm safety regulations (*11*). A key question is whether governmental safety standards for firearms would find broad support among the general population.

SUPPORT FOR GOVERNMENT REGULATIONS ON THE DESIGN OF FIREARMS (IN PERCENT) BY RESPONDENT CHARACTERISTICS

Category (number)	Safety standards	Congressional hearings	Sue manufacturers	Ban personal possession	Child-proofing	Ban Saturday Night Specials	Personalized handguns	U.S.-made shd meet import standards
Overall (1204)	74.9	75.3	36.9	38.5	87.9	56.5	72.2	94.9
Gender								
Men (533)	71.9‡	67.6‡	31.8‡	28.0‡	84.4‡	56.4	68.2‡	94.4†
Women (671)	84.4	85.1	48.2	50.5	92.9	61.8	78.3	97.5
Ethnicity								
Whites (924)	79.2	74.7‡	37.6‡	37.1‡	90.5	59.9	73.3	96.4
Non-Whites (268)	78.0	85.9	52.8	52.1	86.5	58.7	76.3	95.1
Age in years								
18–34 (322)	80.2	80.9*	40.1†	43.0†	92.8	53.8	79.3†	96.3
35–49 (425)	81.0	74.5	36.9	37.0	87.4	61.8	74.8	96.7
50–64 (240)	77.8	72.8	39.4	35.2	87.2	62.3	65.4	96.6
65+ (202)	73.6	82.2	52.9	50.3	90.1	60.5	71.8	93.5
Education								
<12 years (116)	71.9	85.0‡	51.7	50.0	83.1	56.0	69.3	89.0‡
High school grad (213)	73.6	83.7	41.3	39.6	89.6	59.8	74.4	98.1
Some college (463)	80.9	78.6	38.4	36.5	89.7	55.5	73.4	97.0
College grad (233)	82.3	69.0	38.3	41.9	90.8	61.9	76.0	97.0
Postgrad (176)	79.6	71.9	43.1	43.7	89.0	68.0	74.0	94.9
Income per year								
<$40,000 (466)	77.2	82.6‡	47.5‡	44.7†	89.4	57.0	72.8	94.2‡
$40,000+ (622)	81.7	73.1	36.5	36.6	89.0	60.7	74.0	97.7
Political identity								
Liberal (250)	84.2‡	81.5*	49.2‡	50.6‡	90.6†	68.9‡	78.6*	96.4*
Middle (349)	85.3	79.9	43.2	36.9	92.5	59.5	75.7	98.3
Conservative (558)	73.3	73.2	34.3	37.2	86.0	55.2	70.0	94.6
Gun ownership								
None (761)	81.9‡	82.4‡	50.2‡	54.3‡	91.9‡	63.2‡	79.0‡	97.4*
Handgun (262)	70.0	64.3	16.5	9.2	83.7	47.3	59.8	94.3
Rifle or long-gun only (151)	81.8	79.7	40.1	32.0	90.0	65.6	76.5	94.0
Registered to vote								
Yes (1003)	78.7	76.2	39.8	39.7	89.1	59.2	73.2	95.7
No (197)	79.4	82.4	46.2	44.0	89.2	60.7	77.1	98.0

All data were weighted to the U.S. population. For details, see (*12*).
Chi-square tests were used to assess whether support for the issues differed between the groups. For example, support for safety standards differed significantly by gender; fewer men than women supported the idea. *$P < 0.05$. †$P < 0.01$. ‡$P < 0.001$.

Survey of Public Support

Data were collected from 1204 adults living in all 50 states who completed a 20-minute telephone interview (*12*). Although a major-

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ity (62.6%) believed that "government does too many things already," and only 44.2% believed that "government programs usually are effective," 74.9% favored "government safety regulations for the design of guns." About half (51.3%) mistakenly believed that guns are already regulated by federal safety standards; 19.1% did not know.

Handgun and long-gun owners often are lumped together as one group, but when it comes to favoring safety regulation, they part company. Three subsets of individuals [men, self-described conservatives (*13*), and handgun owners (see table)] were associated with less support, albeit a substantial majority still favored safety standards for firearms (*14*).

Policies addressing specific design issues also garnered substantial support. Strong backing was found for making firearms child proof (87.9%) and for personalizing handguns (72.2%). A slight majority favored a ban on small, easily concealed, and inexpensive handguns that are known as Saturday Night Specials (56.5%). The idea of U.S.-made firearms needing to meet the same quality standards as imported guns received broad support; among those who favored this idea, 95.8% indicated that they would continue to support it even if it meant that firearms would cost more.

Of those surveyed, 75.3% supported congressional hearings on the firearms industry, similar to hearings conducted to investigate the tobacco industry. In contrast, only about one-third supported the idea of cities and states "suing gun manufacturers for the medical costs of gun victims and injuries" or a "ban on the possession of handguns except by the police and other authorized persons."

As before, men, self-identified conservatives, and handgun owners were less likely to support the policies described in the survey. Both whites and those with annual incomes of at least $40,000 were less likely to support congressional hearings, suing manufacturers, and banning personal possession of handguns. Those who did not complete high school were less likely than those who did to support the idea of requiring U.S.-made guns to meet standards for imported guns but were more likely to support the idea of congressional hearings. Whether the respondent was registered to vote was not associated with any of the policy options examined (*14*).

Implications for Policy

Even among those least likely to support governmental design regulations for guns, support for safety standards was at or above 70%. There was also substantial support for congressional hearings into the firearms industry. At present, firearm manufacturing is concentrated in privately held companies, whose practices, policies, and profits are not open to public scrutiny. Safety standards and congressional hearings garnered far more support than suing manufacturers or imposing an outright ban on personal possession of handguns.

Some states (such as California and Massachusetts) have taken action in the absence of federal safety standards to regulate the manufacture of firearms in their jurisdictions. Multiple, diverse, and sometimes conflicting ordinances will make it difficult for the firearms industry to comply. Federal regulations may be preferable to a patchwork of state legislation and local ordinances.

If firearm design was to be regulated by the federal government, where might this effort be best located? One choice would be the Consumer Product Safety Commission, which was established by Congress to "protect the public against unreasonable risks of injuries and deaths associated with consumer products." (*15*). Although some of the agency's law enforcement actions have been controversial in recent years, the Bureau of Alcohol, Tobacco and Firearms (ATF), which focuses primarily on the criminal aspects of firearms use, might be an alternative home for regulatory authority over firearms (*16*). Establishing a separate agency to regulate firearms is another option. The National Highway Safety Traffic Administration (NHTSA) is an example of federal efforts to regulate a commonly used, widely available, and potentially highly lethal consumer product (*17*).

Whether safety standards for firearms are properly within the purview of the federal government and how such an effort might best be administered are questions to be addressed by elected officials, agency personnel, and the public. Results from this survey indicate that the general public in the United States substantially supports the idea of safety standards for firearms.

References and Notes

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3. K. D. Robinson, S. P. Teret, J. S. Vernick, D. W. Webster, *Personalized Guns: Reducing Gun Deaths Through Design Changes* (Johns Hopkins Center for Gun Policy and Research, Baltimore, MD, ed. 2, 1998.)
4. S. P. Teret and S. P. Baker, *Injury Prevent.* **1**, 139 (1995); G. J. Wintemute, *JAMA* **275**, 1749 (1996); G. J. Wintemute *et al.*, *Pediatrics* **81**, 316 (1988).
5. *Smith and Wesson Trade Catalog, 1895.* Trade Catalog Collection: Catalog 002043, Dibner Library, National Museum of American History, Smithsonian Institution; R. G. Jinks, *History of Smith and Wesson* (Beinfeld Publishing, North Hollywood, CA, 1977).
6. J. A. Fox and M. W. Zawitz, *Homicide Trends in the United States* (U.S. Department of Justice, Bureau of Justice Statistics, Washington, DC, 1999); S. W. Hargarten *et al.*, *JAMA* **275**, 42 (1996); G. J. Wintemute *et al.*, *Am. J. Publ. Health* **78**, 824 (1988).
7. For example, half to three-fourths of the guns used by felons are stolen [J. D. Wright and P. H. Rossi, *Armed and* Considered *Dangerous: A Survey of Felons and Their Firearms* (de Gruyter, Hawthorne, NY, ed. 2, 1994)]. Firearms that can be fired only by the owner could render many of these weapons useless in the hands of criminals. The crime-reduction potential may be overstated, however. A substantial proportion of recently traced guns were obtained from rogue firearms dealers rather than being stolen [J. Wachtel, *Policing: An International Journal of Police Strategies and Management* **21**, 220 (1998).]
8. S. B. Sorenson and R. A. Berk, *Injury Prevent.*, in press.
9. D. A. Brent *et al.*, *JAMA* **266**, 2989 (1991); J. F. Sheley and J. D. Wright, *In the Line of Fire: Youth, Guns, and Violence in Urban America* (de Gruyter, Hawthorne, NY, 1995).
10. http://www.fbi.gov/publish/killed.html.
11. R. J. Bonnie *et al.*, Eds., *Reducing the Burden of Injury: Advancing Prevention and Treatment* (Committee on Injury Prevention and Control, Institute of Medicine, National Academy Press, Washington, DC, 1999).
12. After state-of-the-art pretesting, data collection began on 10 September 1998, and ended on 15 November 1998. Participating households were identified through random-digit dialing; the respondent in each household was selected by the most-recent-birthday method. The obtained response rate of 60.5% is comparable to the response rate for other recent national telephone surveys. For more methodological details, see A. M. Kuby, L. Imhof, H. Shin, *Fall 1998 National Gun Policy Survey Methodology Report* (National Opinion Research Center, Chicago, 1999). The methodology is substantially similar to that used in two previous national surveys on gun policies [S. P. Teret *et al.*, *N. Engl. J. Med.* **339**, 813 (1998)]. Two questions with slightly different wording were used with two issues (that is, Saturday Night Specials and personalized guns) in order to assess whether participants respond differently based on question wording; one-half of the sample was asked one question, the other half was asked the other question. The findings differed slightly depending on the wording of these questions; the pattern of results was consistent for all but one question regarding Saturday Night Specials and all but two regarding personalizing handguns. Refusals and "don't know" responses were relatively few for each question; the highest were 0.4% refusing on personalized firearms and 2.2% saying "don't know" about state and local regulations. The largest percentage who said that they neither favor nor oppose a measure was 2.1% on the question about suing firearm manufacturers.
13. If the variable had three or more categories, follow-up chi-square tests were performed on the weighted data to identify the nature of the association. All 18 follow-up chi-square tests reported herein were statistically significant at $P \leq 0.05$ (10 at $P < 0.001$), with two exceptions: $P < 0.06$ and $P < 0.11$.
14. Logistic regression was used to take into account respondent characteristics (the variables listed in the table) when predicting support for government regulation of firearms. Results were generally consistent with the bivariate analyses with a few additional findings. When respondent support for federal safety standards was added to the model, it is the most powerful predictor of support for each of the policies proposed; nonetheless, the observed background differences remain statistically significant. Logistic regression findings are available from the author.
15. http://www.cpsc.gov/about/who.html. The 94th Congress exempted firearms from the authority of the Consumer Product Safety Commission (Public Law 94-284, 90 Stat. 503, 11 May 1976).
16. http://www.atf.treas.gov/about/mission.htm.
17. http://www.nhtsa.dot.gov/nhtsa/whatis/overview.

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