

## FIREARMS RESEARCH ARCHIVES 1999-2003

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*(unpublished material is not to be cited w/o approval of authors)*

ARTICLES:

### I GUN PREVALENCE AND DEATH

#### A: ENTIRE POPULATION

##### 1. Guns and suicide (literature reviews).

We performed reviews of the academic literature on the effects of gun availability on suicide rates.

**Major Findings:** The preponderance of current evidence indicates that gun availability is a risk factor for youth suicide in the United States. The evidence that gun availability increases the suicide rates of adults is credible, but is currently less compelling. Most of the disaggregate findings of particular studies (e.g. handguns are more of a risk factor than long guns, guns stored unlocked pose a greater risk than guns stored locked) are suggestive but not yet well established.

**Publication:** Miller, Matt; Hemenway, David. "The Relationship between Firearms and Suicide: A Review of the Literature." *Aggression and Violent Behavior: A Review Journal*. 1999; 4:59-75. [PDF](#) (Reprinted with permission from Elsevier. [Aggression and Violent Behavior webpage](#))

**Publication:** Miller, Matt; Hemenway, David. "Gun Prevalence and the Risk of Suicide: A Review." *Harvard Health Policy Review*. 2001; 2:29-37.

##### 2. Gun availability and regional suicide rates.

We analyzed the relationship of gun availability and suicide among differing age groups across the 9 US regions.

**Major Findings:** Levels of gun ownership are highly correlated with suicide rates across all age groups, even after controlling for lifetime major depression and serious suicidal thoughts. After controlling for divorce, education, unemployment, poverty and urbanization, the statistically significant relationship holds for 15 to 24 year olds and 45 to 84 year olds, but not for 25 to 44 year olds.

**Publication:** Birckmayer, Johanna; Hemenway, David. "Suicide and Gun Prevalence: Are Youth Disproportionately Affected?" *Suicide and Life Threatening Behavior*. 2001; 31:303-310.

**Publication:** Hemenway, David; Miller, Matthew. "The Association of Rates of Household Handgun Ownership, Lifetime Major Depression and Serious Suicidal Thoughts with Rates of Suicide across US Census Regions." *Injury Prevention*. 2002; 8:313-16. [PDF](#)

### **3. Gun availability and state suicide rates**

We analyzed the relationship between firearm availability and suicide across 50 states over a ten year period.

**Major Findings:** After controlling for poverty and urbanization, for every age group, across the United States, people in states with many guns have elevated rates of suicide, particularly firearm suicide.

For Northeast states, where suicide attempt data were available, even after controlling for rates of attempted suicide, states with more guns had higher rates of suicide.

In the Northeast, state case fatality rates range from over 90% for firearms to 2%-3% for the most common methods of attempted suicide--drug overdoses and cutting and piercing. Hospital workers rarely see the type of suicide--firearm suicide--that is most likely to end in death.

**Publication:** Miller, Matthew; Azrael, Deborah; Hemenway, David. "Household Firearm Ownership Levels and Suicide across U.S. Regions and States, 1988-1997." *Epidemiology*. 2002; 13:517-524.

**Publication:** Miller, Matthew; Hemenway, David; Azrael, Deborah. "Firearms and Suicide in the Northeast." *Journal of Trauma*, in press.

**Publication:** Miller, Matthew; Azrael, Deborah; Hemenway, David. "The Epidemiology of Case Fatality Rates for Suicide in the Northeast." *Annals of Emergency Medicine*, in press.

### **4. Gun availability and state homicide rates**

We analyzed the relationship between firearm availability and homicide across 50 states over a ten year period.

**Major Findings:** After controlling for poverty and urbanization, for every age group, people in states with many guns have elevated rates of homicide, particularly firearm homicide.

**Publication:** Miller, Matthew; Azrael, Deborah; Hemenway, David. "Household Firearm Ownership Levels and Homicide Rates across U.S. Regions and States, 1988-1997." *American Journal of Public Health*. 2002; 92:1988-1993. [PDF](#) (Copyright APHA)

### **5. Guns availability and homicide rates across nations.**

We analyzed the relationship between homicide and gun availability using data from 26 developed countries from the early 1990s.

**Major Findings:** Across developed countries, where guns are more available, there are more homicides. These results often hold even when the United States is excluded.

**Publication:** Hemenway, David; Miller, Matthew. "Firearm Availability and Homicide Rates across 26 High Income Countries." *Journal of Trauma*. 2000; 49:985-88.

### **6. Gun availability and state unintentional firearm death rates**

We analyzed data for 50 states over 19 years to investigate the relationship between gun prevalence and accidental gun deaths across different age groups.

**Major Findings:** For every age group, where there are more guns there are more accidental deaths. The mortality rate was 7 times higher in the four states with the most guns compared to the four states with the fewest guns.

**Publication:** Miller, Matthew; Azrael, Deborah; Hemenway, David. "Firearm Availability and Unintentional Firearm Deaths." *Accident Analysis and Prevention*. 2001; 33:477-84.

## **B: CHILDREN**

### **7. Gun availability and deaths to children.**

We analyzed the relationship between firearm availability and unintentional gun death, homicide and suicide for 5-14 year olds across the 50 states over a ten year period.

**Major Findings:** Children in states with many guns have elevated rates of unintentional gun deaths, suicide and homicide. The state rates of non-firearm suicide and non-firearm homicide among children are not related to firearm availability.

**Publication:** Miller, Matthew; Azrael, Deb; Hemenway, David. "Firearm Availability and Unintentional Firearm Deaths, Suicide, and Homicide among 5-14 Year Olds." *Journal of Trauma*. 2002; 52:267-75.

## **C: WOMEN**

### **8. Gun availability and deaths to women.**

We analyzed the relationship between firearm availability and unintentional gun death, homicide and suicide for women across the 50 states over a ten year period.

**Major Findings:** Women in states with many guns have elevated rates of unintentional gun deaths, suicides and homicide, particularly firearm suicides and firearm homicides.

**Publication:** Miller, Matthew; Azrael, Deborah; Hemenway, David. "Firearm Availability and Unintentional Firearm Deaths, Suicide, and Homicide among Women." *Journal of Urban Health*. 2002; 79:26-38.

### **9. Gun availability and homicides of women across nations.**

We analyzed the relationship between gun availability and homicides of women with data from 25 high income countries.

**Major Findings:** Across developed nations, where guns are more available, there are more homicides of women. The United States has the most firearms and U.S. women are far more likely to be homicide victims than women in other developed countries.

**Publication:** Hemenway, David; Shinoda-Tagawa, Tomoko; Miller, Matthew. "Firearm Availability and Female Homicide Victimization Rates Across 25 Populous High-Income Countries." *Journal of the American Medical Women's Association*. 2002; 57:100-04.

## **II GUN THREATS, SELF-DEFENSE GUN USE and SHOOTINGS**

### **10. Gun use in the home.**

Using data from a national random-digit-dial telephone survey conducted under the direction of the Harvard Injury Control Research Center, we investigated how and when guns are used in the home.

**Major Findings:** Guns in the home are probably used more often to frighten intimates than to thwart crime; other weapons are far more commonly used against intruders than are guns.

**Publication:** Azrael, Deborah R; Hemenway, David. "In the Safety of your own Home:

Results from a National Survey of Gun Use at Home." *Social Science and Medicine*. 2000; 50:285-91. [PDF](#)  
(Reprinted with permission from Elsevier- [Social Science and Medicine](#) journal)

### **11. Hostile gun displays**

Using data from a national random-digit-dial telephone survey conducted under the direction of the Harvard Injury Control Center, we examined the extent and nature of offensive gun use.

**Major Findings:** Firearms are used far more often to frighten and intimidate than they are used in self-defense. All reported cases of criminal gun use, as well as many of the so-called self-defense gun uses, appear to be socially undesirable.

**Publication:** Hemenway, David; Azrael, Deborah R. "The Relative Frequency of Offensive and Defensive Gun Use: Results of a National Survey." *Violence and Victims*. 2000; 15:257-272.

### **12. Self-defense gun use**

We analyzed data from two national random-digit-dial surveys conducted under the auspices of the Harvard Injury Control Research Center.

**Major Findings:** Criminal court judges who read the self-reported accounts of the purported self-defense gun use rated a majority as being illegal, even assuming that the respondent had a permit to own and to carry a gun, and that the respondent had described the event honestly from his own perspective.

**Publication:** Hemenway, David; Miller, Matthew; Azrael, Deborah. "Gun Use in the United States: Results from Two National Surveys." [Injury Prevention](#). 2000; 6:263-267. [PDF](#)

### **13. The wounding of criminals.**

Using data from a survey of detainees in a Washington D.C. jail, we worked with a prison physician to investigate the circumstances of gunshot wounds to these criminals.

**Major Findings:** One in four of these detainees had been wounded, in events that appear unrelated to their incarceration. Most were shot when they were victims of robberies, assaults and crossfires. Virtually none report being wounded by a "law-abiding citizen."

**Publication:** May, John P; Hemenway, David; Oen, Roger; Pitts, Khalid R. "When Criminals are Shot: A Survey of Washington DC Jail Detainees" *Medscape General Medicine*. 2000; June 28. [www.medscape.com](http://www.medscape.com)

## **III GUN OWNERSHIP, STORAGE AND CARRYING**

### **14. Adolescent gun carrying:**

Using data from the Massachusetts Youth Risk Behavior survey, we analyzed risk factors for adolescent gun carrying.

**Major Findings:** A simple objective measure--whether a student is old for their grade--is an important predictor of gun carrying. This fact may help clinicians identify high-risk students and target prevention strategies.

**Publication:** Hayes, D Neil; Hemenway, David. "Age-within-School-Class and

Adolescent Gun Carrying." Pediatrics electronic pages. 1999; 103:e64.

### **15. Gun carrying in motor vehicles:**

Using data from a telephone survey in Arizona, we examined the relationship between road rage and gun carrying in motor vehicles.

**Major Findings:** Self-reported hostile actions (e.g. obscene gestures, cursing or shouting, aggressively tailgating) were more common among men, young adults, and individuals who carried a firearm in their car.

**Publication:** Miller, Matthew; Azrael, Deborah; Hemenway, David; Solop, Frederic I. "Road Rage in Arizona: Armed and Dangerous?" Accident Analysis and Prevention. 2002; 34:807-814.

### **16. Gun storage.**

We analyzed gun storage practices from data obtained from a 1999 national random-digit-dial survey of adults conducted under the auspices of the Harvard Injury Control Center.

**Major Findings:** Prior studies found that women appear to underreport household gun ownership. This study indicates that women, when they report a gun in the home, often incorrectly believe that it is stored unloaded and locked up.

**Publication:** Azrael, Deborah; Miller, Matthew; Hemenway, David. "Are Firearms Stored Safely in Households with Children? It Depends on Whom You Ask." Pediatrics electronic pages. 2000; 106: e31.

### **17. Guns on college campuses**

Using data from mailed surveys of 10,000-15,000 undergraduates in 1997 and 2001, we examined the prevalence of surveys. We provided the first information on the number of students who bring guns to college, and the risk factors for gun college gun possession.

**Major Findings:** In 1997, approximately 3.5% of undergraduates reported having a working firearm at college. Students with guns were more likely to be male, white, live in a fraternity, live off campus, binge drink, drive after drinking, and be injured severely enough to require medical attention. Students with guns at college are more likely to engage in alcohol-related behaviors that put themselves and others at risk of injury.

The 2001 survey confirmed these findings, and also showed that guns on college campuses were more common in regions with higher levels of gun prevalence, and that gun threats to college students were also more common in these regions.

**Publications:** Miller, Matthew; Hemenway, David; Wechsler, Henry. "Armed and Dangerous? Guns at College." Journal of American College Health. 1999; 48:7-12.

Miller, Matthew; Hemenway, David; Wechsler, Henry. "Guns and Gun Threats at College." Journal of American College Health. 2002; 51:57-65.

## **IV SOCIAL EFFECTS**

### **18. The external psychic costs of gun ownership.**

We analyzed whether perceptions of safety might be affected if more people in a community acquired firearms, using data from a national random-digit-dial survey of adults conducted under the auspices of HICRC.

**Major Findings:** By a margin of more than 3 to 1, Americans would feel less safe, not safer, as others in their community acquire guns. Among women, but not among men, those who have been threatened with a gun are particularly likely to feel less safe.

**Publication:** Miller, Matthew; Azrael, Deborah; Hemenway, David. "Community Firearms and Community Fear." *Epidemiology*. 2000; 11:709-714.

### **19. Attitudes about gun carrying.**

This paper uses data from two national random-digit-dial surveys to examine public attitudes about gun carrying.

**Major Findings:** By a margin of 5 to 1, Americans feel less safe rather than more safe as more people in their community begin to carry guns. By margins of at least 9 to 1, Americans do not believe that regular citizens should be allowed to bring their guns into restaurants, college campuses, sports stadium, bars, hospitals or government buildings.

**Publication:** Hemenway, David; Azrael, Deborah; Miller, Matthew. "U.S. National Attitudes Concerning Gun Carrying." *Injury Prevention*. 2001; 7:282-285. [PDF](#)

### **20. Gun prevalence and social capital.**

Working with experts on income inequality, social capital, and mortality, we analyzed the relationship between firearm availability and measures of social trust and civic engagement across US states.

**Major Findings:** States with more guns have lower levels of both mutual trust and civic engagement, after accounting for urbanization, poverty and median household income.

**Publication:** Hemenway, David; Kennedy, Bruce; Kawachi, Ichiro; Putnam, Robert D. "Firearm Prevalence and Social Capital." *Annals of Epidemiology*. 2001; 11:484-490.

### **21. The Second Amendment and the media.**

This paper examines how the media portray the "right to bear arms."

**Major Findings:** A content analysis of articles from five national newspapers that deal with gun legislation and also mention the Second Amendment shows that the mainstream print media give readers the mistaken impression that the U.S. Constitution guarantees individuals the right to bear arms.

**Publication:** Byck, Deanna; Hemenway, David. "The Second Amendment in the Media: Do Newspapers Tell us We Have the Right to Bear Arms?" Harvard Public Health dissertation 1999.

### **22. Firearms and race.**

We analyzed data from the General Social Surveys to investigate racial differences in support for gun control, and racial differences in youth victimization.

**Major Findings:** Blacks are more likely to support gun control than whites, even after controlling for a wide variety of demographic and experiential variables. Among youth, Blacks are no more likely than whites to have even been physically assaulted, but are far more likely to have been threatened with a firearm.

**Publications:** Browne, Ruth C; Hemenway, David; Blendon, Robert; Gortmaker, Steven L; Homel, Peter. "Racial Differences in Support for Gun Control." Harvard Public Health dissertation 1999.

Browne, Ruth C; Hemenway, David; Blendon, Robert; Gortmaker, Steven L; Homel, Peter. "Racial Differences in Youth Gun Ownership and Victimization." Harvard Public

Health dissertation 1999.

### **23. The public health approach to reducing gun violence.**

The public health approach to reduce the problems of motor vehicles, tobacco and alcohol is applied to firearms policy.

**Major Findings:** Manufacturers try to focus prevention efforts on the user rather than the product. Public health efforts emphasize systematic data collection and a multi-faceted policy approach that includes modifying the product and the environment.

**Publication:** Hemenway, David. "The Public Health Approach to Motor Vehicles, Tobacco, and Alcohol, with Applications to Firearms Policy." *Journal of Public Health Policy*. 2001; 22:381-402.

## **V SURVEILLANCE and DATA QUALITY**

### **24. Safer Guns**

Analysis of data from Maryland and Milwaukee shows that three safety devices (personalized guns, loaded chamber indicators and magazine safeties) could have prevented 44% of the firearm deaths deemed unintentional or of undetermined intent.

**Publication:** Vernick, Jon S.; O'brien, Mallory; Hepburn, Lisa M.; Johnson, Sara B.; Webster, Daniel W.; Hargarten, Stephen W. "Unintentional and undetermined firearm related deaths: a preventable death analysis for three safety devices." *Injury Prevention*. Dec 2003; 9: 307-311.

### **25. National violent death reporting system**

A broadened reporting system, not only for firearms but for all violent deaths (all suicides and homicides) will provide more useful data, at only a small increased cost. This article summarizes the need for such a surveillance system, and its status as of 8/01.

**Publication:** Azrael, Deborah; Barber, Catherine; Mercy, James. "Linking Data to Save Lives: Recent Progress in Establishing a National Violent Death Reporting System." *Harvard Health Policy Review*. 2001; 2:38-42.

### **26. Using a violent death reporting system for policy evaluation**

This article highlights the benefits of surveillance systems for various social issues (e.g. economics, crime, public health). It shows how the additional information provided by a national violent death reporting system can be used for policy evaluation.

**Publication:** Azrael, Deborah; Barber, Catherine; Hemenway, David; Miller, Matthew. "Data on Violent Injury." In: Jens Ludwig and Philip J. Cook, Eds. *Evaluating Gun Policy: Effects on Crime and Violence*. Washington D.C.: Brookings Institution. 2003.

### **27. Data completeness**

Using data from surveys of detainees in six jails from around the nation, we worked with a prison physician to determine whether criminals seek hospital medical care when they are shot.

**Major Findings:** Criminals almost always go to the hospital when they are shot. Statistics on medically treated nonfatal gunshot wounds probably do not substantially underestimate the actual number of nonfatal shootings.

**Publication:** May, John P; Hemenway, David; Oen, Roger; Pitts, Khalid R. "Medical Care Solicitation by Criminals with Gunshot Wound Injuries: A Survey of Washington DC Jail Detainees." *Journal of Trauma*. 2000; 48:130-132.

**Publication:** May, John P; Hemenway, David; "Do Criminals Go to the Hospital When They are Shot?" *Injury Prevention*. 2002; 8:236-238. [PDF](#)

### **28. Measure of gun accidents**

Do the vital statistics provide an accurate count of unintentional firearm deaths? We compared the Supplemental Homicide Report data on "manslaughter by negligence," which are considered to be accidents with the vital statistics data.

**Major Findings:** Only 23% of the negligence manslaughters were classified as accidents on the death certificates. Official vital statistics data almost certainly undercount firearm accident deaths when the victim is shot by another person.

**Publication:** Barber C, Hemenway D, Hochstadt J, Azrael D. "Underestimates of Accidental Firearm Fatalities: Comparing Supplementary Homicide Report Data with Vital Statistics." *Injury Prevention*. 2002; 8:252-256. [PDF](#)

### **29. Measures of firearm prevalence**

Various proxy measures for the prevalence of firearm ownership were compared with surveys-based estimates.

**Major Findings:** The percentage of suicides with a firearm performed consistently better than other measures in cross-sectional comparisons.

**Publication:** Azrael D, Cook PJ, Miller M. State and local prevalence of firearms ownership: Measurement, structure and trends. *Journal of Quantitative Criminology*, in press.

## **EDITORIALS, BOOK REVIEWS, LETTERS**

### **30. Firearm injury surveillance** (editorial)

HICRC has received funding from 6 foundations to pilot a national firearm injury reporting system. This editorial emphasizes the need for and benefits from such a data system.

**Publication:** Barber, Catherine; Hemenway, David; Hargarten, Stephen; Kellermann, Arthur; Azrael, Deborah; Wilt, Susan. "A Call to Arms for a National Surveillance System on Firearm Injuries." *American Journal of Public Health*. 2000; 90:1191-93.

### **31. The regulation of firearms** (editorial).

**Publication:** Hemenway, David. "Regulation of Firearms." *New England Journal of Medicine*. 339:843-45, 1998. See also response to letters, Hemenway, David. "Support for New Policies to Regulate Firearms." *New England Journal of Medicine*. 340:236, 1999.

This editorial explains the public health approach to gun policy.

### **32. Guns in schools** (editorial)

**Publication:** Hemenway, David. "Preventing School Lethal Violence." *Journal of Health Policy, Politics and Law*. 27:267-271, 2002. This editorial explains the public health approach to reducing gun violence in schools.

### **33. Firearm injuries** (commentary)

Blacks account for 7% of the firearm suicide deaths in the U.S., but 52% of the firearm homicides. This commentary provides a variety of findings from CDC fatal and non-fatal firearm surveillance data.

**Publication:** Hemenway, David. "The Epidemiology of U.S. Firearm Injuries." *Journal of Public Health Policy*. 2003, 24:380-85.

### **34. Encyclopedia**

**Publications:** Hemenway, David. "Guns and Suicide" "Firearm Injury Statistical System" "Gun Violence as a Public Health Problem" "Gun Accidents" "Motor Vehicle Laws as a Model for Gun Laws." Gregg Lee Carter, ed. *Guns in American Society: An Encyclopedia of History, Politics, Culture and the Law*. Denver: ABC-CLIO, 2003.

### **35. Book Reviews**

**Publication:** Hemenway, David. A review of Karlson, Trudy A; Hargarten, Stephen W. *Reducing Firearm Injury and Death: A Public Health Sourcebook on Guns*. *Journal of Public Health Policy* 19:376-78, 1998. This was a review of a book which provides lots of useful information on guns (types, terminology, etc.) and discusses how to improve their safety.

**Publication:** Hemenway, David. Review of Lott, John R. *More Guns, Less Crime: Understanding Crime and Gun-Control Laws*; and Diaz, Tom. *Making a Killing: The Business of Guns in America*. *New England Journal of Medicine*. 339:2029-30, 1998. See also Hemenway, David, "More guns less crime?" *New England Journal of Medicine*. 340:1599-60, 1999. These were two book reviews, one of a flawed econometric analysis of gun carrying laws, and the other of a fascinating, journalistic, account of gun manufacturing in the United States.

### **36. Responses/Letters:**

A 1997 article by Dr. Hemenway explained why huge overestimates are likely in surveys of rare events with social desirability response bias, such as self-defense gun uses. This response letter elucidates further that insight.

Hemenway, David. "On Defensive Gun Use Statistics, Reply." *Chance* (American Statistical Association). 2000; 13:5-6

Letters discussed flaws in pro-gun claims.

Hemenway, David. "Risks and Benefits of Gun Ownership." *JAMA*. 282:135-36. 1999.

Hemenway, David. "If firearms are so dangerous..." *Ottawa Sun*. September, 24, 1999