IS GUN VIOLENCE A PUBLIC HEALTH ISSUE?

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Yes!
Disclaimers

- I have current funding from the NIH and NHTSA to study injury
- I have no funding to study firearms or firearm injury
- I do have an opinion
OVERVIEW

- My background
- What is public health?
- Gun violence as a public health problem
- Evidence-based solutions
- Jacksonville
MY BACKGROUND

University of California—Berkeley ‘91
National Institute of Allergy and Infectious Disease (1yr)
UCLA-Drew School of Medicine ‘96
Rush-Cook County General Surgery (1996-2001)
University of Washington Surgical Critical Care and Masters in Public Health
Northwestern University 2003-2015
University of Florida Jacksonville 2015-present
CHICAGO TRAUMA DESERTS

Restrospective cohort study
Illinois State trauma registry, 1999-2009
Outcomes of interest: transport times and mortality for gunshot wounds

Results:
11,744 GSWs
4782 shot > 5 miles from a trauma center
Mean transport time was higher for those further away (16.6 minutes vs 10.3 minutes, p<0.001)
Risk-adjusted mortality was also higher (OR 1.23, p<0.03)

TABLE 3—Adjusted Odds of Mortality From Gunshot Wounds: Chicago, IL, 1999–2009

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1.1 (0.77, 1.55)</td>
<td>.61</td>
</tr>
<tr>
<td>Black</td>
<td>0.66 (0.44, 0.96)</td>
<td>.03</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.85 (0.56, 1.31)</td>
<td>.47</td>
</tr>
<tr>
<td>Age &gt; 55 y</td>
<td>1.14 (0.58, 2.23)</td>
<td>.7</td>
</tr>
<tr>
<td>Lack of insurance</td>
<td>2.27 (1.86, 2.77)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>ED SBP &lt; 90</td>
<td>16.93 (13.72, 20.91)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>ISS &gt; 16(^a)</td>
<td>8.06 (6.72, 9.66)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Trauma center &gt; 5 miles away</td>
<td>1.23 (1.02, 1.47)</td>
<td>.03</td>
</tr>
<tr>
<td>Suicidal intent</td>
<td>8.76 (5.04, 15.24)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Suicidal intent and White</td>
<td>16.06 (6.52, 39.54)</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval; ED = emergency department; ISS = injury severity score; OR = odds ratio; SBP = systolic blood pressure.
\(^a\)An ISS > 16 is associated with higher likelihood of mortality.

Figure 2: Gun Shot Wound Mortality
Wandling M, Behrens J, Hsia, Crandall M. Geographic disparities in access to urban trauma care: defining the problem and identifying a solution for gunshot wounds in Chicago American Journal of Surgery 2016;212(4):587-91
Chicago Protestors: We Need A Trauma Center, Not Obama's Presidential Library

In about-face, U. of C. Medicine to build adult trauma center on Hyde Park campus

South Side to get adult trauma center after years of protest
Public health is the art and science of preventing disease and promoting health among individuals and communities.

10 Essential Functions of Public Health:

- Monitor health
- Enforce laws
- Link to and provide care
- Assure a competent workforce
- Evaluate
- Develop policies
- Mobilize community partnerships
- Inform, educate and empower
- Diagnose and investigate
- Research

NEW INFO
STATISTICS—GUN VIOLENCE IS A PUBLIC HEALTH PROBLEM

- 30,000+ firearm-related deaths/year in the United States
- 110,000 firearm injuries that are brought to medical or legal attention
- 1200 children die/year
- Since 1968, more civilian firearm deaths than ALL deaths from every war the US has ever fought
SUICIDE AND FIREARMS

Am J Epi 2013;178:946-55
HOMICIDE AND FIREARMS

Soc Sci & Med 2007 64;656 – 64. Multivariate analysis for rates of aggravated assault, robbery, unemployment, urbanization, alcohol consumption, and resource deprivation (e.g., poverty), genders and all age groups.
Homicide rates for young black males are 10x that of young white males.

Nonfatal gunshot wound victims are overwhelmingly black and Latino, and >90% male.
Prevention of firearm-related injuries with restrictive licensing and concealed carry laws: An Eastern Association for the Surgery of Trauma systematic review

Marie Crandall, MD, MPH, Alexander Eastman, MD, Pina Violano, PhD, MSPH, RN-BC, Wendy Greene, MD, Steven Allen, MD, Ernest Block, MD, Ashley Britton Christmas, MD, Andrew Dennis, DO, Thomas Duncan, DO, Shannon Foster, MD, Stephanie Goldberg, MD, Michael Hirsh, MD, D’Andrea Joseph, MD, Karen Lommel, DO, MHA, MS, Peter Pappas, MD, and William Shillinglaw, DO. Jacksonville, Florida

BACKGROUND: In the past decade, more than 300,000 people in the United States have died from firearm injuries. Our goal was to assess the effectiveness of two particular prevention strategies, restrictive licensing of firearms and concealed carry laws, on firearm-related injuries in the US. Restrictive Licensing was defined to include denials of ownership for various offenses, such as performing background checks for domestic violence and felony convictions. Concealed carry laws allow licensed individuals to carry concealed weapons.

METHODS: A comprehensive review of the literature was performed. We used Grading of Recommendations Assessment, Development, and Evaluation methodology to assess the breadth and quality of the data specific to our Population, Intervention, Comparator, Outcomes (PICO) questions.

RESULTS: A total of 467 studies were initially identified, then seven more added after two subsequent, additional literature reviews. Of these, 3,623 remained after removing duplicates; 225 case reports, case series, and reviews were excluded, and 3,379 studies were removed because they did not focus on prevention or did not address our comparators of interest. This left a total of 14 studies which merited inclusion for PICO 1 and 13 studies which merited inclusion for PICO 2.

CONCLUSION: PICO 1: We recommend the use of restrictive licensing to reduce firearm-related injuries. PICO 2: We recommend against the use of concealed carry laws to reduce firearm-related injuries. This committee found an association between more restrictive licensing and lower firearm injury rates. All 14 studies were population-based, longitudinal, used modeling to control for covariates, and 11 of the 14 were multi-site. Twelve of the studies reported reductions in firearm injuries, from 7% to 40%. We found no consistent effect of concealed carry laws. Of note, the varied quality of the available data demonstrates a significant information gap, and this committee recommends that we as a society foster a nurturing and encouraging environment that can strengthen future evidence-based guidelines. (J Trauma Acute Care Surg. 2016;81:952–960. Copyright © 2016 Wolters Kluwer Health, Inc. All rights reserved.)

LEVEL OF EVIDENCE: Systematic review, level III.

KEYWORDS: Gun violence; firearm injuries; injury prevention.

7-40% reduction in firearm related injuries in states with stricter licensing. No effect with concealed carry laws.
13% reduction in firearm suicides.
Unlocked, loaded weapons much more likely to be associated with youth firearm injuries and suicides.
The presence and accessibility of firearms in the homes of adolescent suicides. A case-control study.


Abstract

OBJECTIVE: The presence of guns in the home, the type of gun, and the method of storage were all hypothesized to be associated with risk for adolescent suicide.

DESIGN: Case-control study.

SUBJECTS: The case group consisted of 47 adolescent suicide victims. The two psychiatric inpatient control groups were 47 suicide attempters and 47 never-suicidal psychiatric controls, frequency-matched to the suicide victims on age, gender, and county of origin.

SETTING: The cases were a consecutive community sample, whereas the inpatients were drawn from a university psychiatric hospital.

MAIN OUTCOME MEASURE: Odds of the presence of guns in the home of suicide victims (cases) relative to controls.

RESULTS: Guns were twice as likely to be found in the homes of suicide victims as in the homes of attempters (adjusted odds ratio, 2.1; 95% confidence interval, 1.2 to 3.7) or psychiatric controls (adjusted odds ratio, 2.2; 95% confidence interval, 1.4 to 3.5). Handguns were not associated with suicide to any statistically significantly greater extent than long guns. There was no difference in the methods of storage of firearms among the three groups, so that even guns stored locked, or separate from ammunition, were associated with suicide by firearms.

CONCLUSIONS: The availability of guns in the home, independent of firearms type or method of storage, appears to increase the risk for suicide among adolescents. Physicians should make a clear and firm recommendation that firearms be removed from the homes of adolescents judged to be at suicidal risk.

Guns 2x as likely in the homes of suicide victims as in homes of suicide attempters.
An Evidence-Based Program

In today's data driven world, communities demand evidence-based programs that have been proven successful through rigorous, independent, scientific evaluations. The Cure Violence Health Model has multiple independent evaluations - all showing large statistically significant reductions in violence. More evaluations are currently being conducted.

Below are the current independent evaluations of the Cure Violence model:

41-73% drops in shootings and killings in Cure Violence zones.
Number of Children/Youth (0-18) Received by UFHealth Trauma for GSW, by year 1996-2015
JACKSONVILLE

UFCOMJ zipcode=32209

Also majority of pediatric GSWs

High prevalence area unchanged in 20 yrs

Mean age: 15
86% male
73% African American
82% assault
12% unintentional

8% (n=74) mortality
JACKSONVILLE

SES
Housing
Food Deserts
Education
Employment
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