The Myth of the lack of Public Health Research on Firearms

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It is an article of faith that the NRA has prevented research on gun violence and gun safety. News stories keep pointing to the 1996 Dickey Amendment, which imposed restrictions on Centers for Disease Control funding of firearms research. They claim that this legislation “stopped” or imposed a “virtual ban” on such research. Take some headlines that appeared in 2013 and 2014:

- The Washington Post proclaimed “Federal scientists can again research gun violence” and “Gun research is allowed again.” It even claimed that “[Academics] were forced to stop their work at the point of a gun—or at least at the insistence of National Rifle Association.”
- Reuters: “Research restrictions pushed by the National Rifle Association have stopped the United States from finding solutions to firearms violence.”
- ABC News noted on January 31, 2014: “In 1996, the NRA successfully lobbied Congress to pull millions of dollars out of government-funded firearms research. This has resulted in essentially a 17-year moratorium on major studies about gun injuries.”

According to Mayors Against Illegal Guns in January 2013, the Dickey Amendment “has driven many experts to abandon the field and kept young researchers from taking it up…. [T]he decline in federal research has undermined overall knowledge-creation because scholars are highly dependent on federal grants to support their research.” Of course, academics were only too willing to claim that they need more funding.

Professor Mark Rosenberg of Emory University, who used to head the CDC’s National Center for Injury Prevention and Control, described how cutting federal grants cultivated an atmosphere of fear and “terrorized people.” Jens Ludwig of the University of Chicago said that it is “very difficult” to do research without federal money. A number of academics signed an open letter demanding more federal funding for their research. In February 2019, 166 medical and research organizations, from the American Medical Association to the Wisconsin Public Health Association, sent a letter to Congress complaining that the Dickey amendment “created a chilling effect on public health research on firearm morbidity and mortality prevention at the federal level.”

Following the 2012 Newtown shooting, President Obama directed the federal government to begin awarding more research money. However, it takes a few years before the research is written
and published. The National Institute of Justice awarded its first four awards, totaling $2 million, in October 2013.\textsuperscript{10} The National Institute of Health started awarding proposals in 2014.\textsuperscript{11}

The first of these CDC-funded studies came out in November 2015.\textsuperscript{12} Using data for Wilmington, Delaware, the study discovered that the majority of young men who were involved in firearm crime were also involved in crime as juveniles. Many got expelled from school, were abused as children, dropped out of high school prior to graduation, or were unemployed. Then, the study simply asserts that government programs would help solve the problem. It suggests providing “life skills training,” “individual placement and support” for jobs, “multi-dimensional treatment foster care,” and something listed as “coping power”.

It isn’t surprising that research funded by a Democratic administration would reach these policy conclusions. Of course, one could have asserted with equal validity that school vouchers, more police, and eliminating the minimum wage would reduce crime by helping children become productive members of society. But politicians and their appointees just can’t keep politics out of their decisions about where to apportion money.

Other private funding quickly gained traction. There has been no dearth of private research funding. The Fund for a Safer Future by itself awarded more money for gun control research than the National Institute of Justice and the National Institute of Health—and even more than the $10 million that President Obama proposed for the CDC.\textsuperscript{13} Billionaire Michael Bloomberg had already given a large, but unknown amount, to the Johns Hopkins Bloomberg School of Public Health. The Fund for a Safer Future put together $16 million by the fall of 2013.\textsuperscript{14} Some of this money is also going toward “shaping the media conversation around the need for stronger gun laws” and developing grassroots organizations “demanding stronger gun laws.”\textsuperscript{15}

On January 8th, 2013, President Obama met with twenty-three large foundations to organize a national push for gun control. They included the McCormick Foundation, the Robert Wood Johnson Foundation, and the California Endowment.\textsuperscript{16} In 2018, the RAND Corporation announced a $20 million fund, which will “ultimately grow the fund to $50 million.”\textsuperscript{17}

In 2016, the California legislature moved forward with $5 million in funding for public health research on firearms.\textsuperscript{18} In 2018, New Jersey appropriated $2 million to fund public health research.\textsuperscript{19}

But research on gun control never actually declined, even after the 1996 Dickey Amendment. Federal funding declined, but research either remained constant or increased. After 2011, when the restriction on CDC funding was extended to all Health and Human Services agencies, firearms research actually steadily increased. Because doing research takes time, the publication increase in the past couple of years could not have been affected by last year’s changes in federal funding.

1. Changes in Firearm Research

The Bloomberg-funded Mayors Against Illegal Guns claimed in a January, 2013 report: “Academic publishing on firearm violence fell by 60% between 1996 and 2010.”\textsuperscript{20} Despite this widely publicized claim, no evidence was ever provided that firearms research actually declined in the wake of the Dickey Amendment. The same goes for the more extensive 2011 restrictions, which prevented the NIH and other federal health agencies from funding gun research.
What Mayors Against Illegal Guns actually measured is firearms research relative to all other research. After 1996, firearms research in medical journals did in fact fall as a percentage of all research (see Figure 1). However, up through 2013, when concerns over lack of firearms research surfaced, there was clearly no decrease in either the total number of research papers or pages. The amount of research exploded after that, well before even the smallest increase in federally funded studies.

The three funding amendments were passed in 1996, 2002, and 2011, but only took effect in the following years’ federal government appropriation bills (1997, 2003, and 2012). The number of medical journal articles pertaining to firearms was relatively flat between 1996 and 2012, before Obama’s changes in research funding could have had any effect. During that period, there was a 133% increase in all medical journal articles. By 2013 and 2014, the number of articles had soared to 121 and 196, respectively. These projects had surely been commenced before the new availability of federal funding. In 2015, 229 articles were published just through August of that year, for a likely total of around 344 that year.

Another measure of research output is the number of pages written. A couple of very short papers involve less work than a longer one. But looking at the number of pages also shows virtually no net decrease in medical journal research on firearms—rising from 459 pages in 1996 to 753 in 2002 and back down to 456 in 2012. After that, output soared to 651 pages in 2013 and 1,202 in 2014. 1,179 pages were published through August 2015, at an annual rate of 1,769.

Maybe additional government funding would have led to more research between 1996 and 2012. However, Figure 2 doesn’t show that experts were driven to “abandon the field.” And there certainly was no “virtual ban on basic federal research.”
Medical journal articles are required to mention any outside funding sources that they received. I collected data on funding sources for papers published from 1992 to 2013, and only 15% of them mention a funding source. Outside funding isn’t necessary for nearly all social science research, which just involves using data that has already been collected by organizations such as the FBI or CDC. Portions of academic salaries are already explicitly designated to covering research expenses.

Table 1: Funding Sources for Firearms Research: Assuming a 3 year lag in impact on research (1992 to 2013)

<table>
<thead>
<tr>
<th></th>
<th>Share of research mentioning any funding source</th>
<th>Share of research federally funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-2000</td>
<td>8.5%</td>
<td>2.9%</td>
</tr>
<tr>
<td>2000 and later</td>
<td>18.2%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Average over entire period</td>
<td>14.7%</td>
<td>3.2%</td>
</tr>
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</table>

Assuming that research is published within about three years after it is funded, both federal funding and funding generally increased after the 1996 Dickey Amendment. As Table 1 shows, just
8.5% of the pre-2000 papers mention any funding source. Among later firearm papers, 18.2% mention a funding source.23 From 1992 to 2013, only 3.2% of papers on firearms ever received US government funding. The research growth appears to have been driven entirely by private funding.

Among papers published in 2013, a record 23 received private funding. Still, that increase in private funding only supported about a quarter of the increase in the number of papers published between 2012 and 2013. Papers citing the federal government for funding their research only increased by one paper between 2012 and 2013.

2. How Much Money Should be Spent on Research

A widely referenced letter in the Journal of the American Medical Association by Stark and Shah claims: “Between 2004 and 2015, gun violence research was substantially underfunded and understudied relative to other leading causes of death, based on mortality rates for each cause.”24

But this claim assumes the value from a dollar spent on medical or public health research is the same across thirty different causes of mortality, from heart disease to shootings. There is no cost-benefit analysis on the life-saving effects of different studies. This diverse research is done by very different types of researchers. Studies of diseases are primarily done by doctors, whereas public health researchers dominate firearms research and use very different methodologies. Controlled, randomized testing of a drug is quite different from studying the social behavior of humans.

Stark and Shah compare of the federal funding on different types of research, but about 97% of all medical journal research on firearms is not federally funded (see Table 1). Much of it is funded by universities. This thus dramatically undercounts the resources devoted to medical journal research on firearms. Studies on disease may simply require more funding due to a need for costly laboratory equipment, so perhaps it makes sense for firearms research to appear relatively underfunded.

In addition, just looking at medical journals means excluding firearms research by economists and criminologists. While research on cancer and lung disease treatments will be published only in medical journals, that is definitely not true of firearms research. The benefits of additional funding depend on how much work is already being done, and just looking at federally funded medical research does not give anywhere near a full picture of the firearms research landscape.

Even if money spent on firearms research is as effective at saving lives as dollars spent on researching diseases, it’s hard to say whether firearms research is underfunded. Maybe the right amount is already being spent, and the most important research is already being done.

Stark and Shah’s 2017 letter also miss the big increase in federal funding that occurred after 2014. Federal RePORTER lists publications resulting from funded projects, and shows a 40% increase in publications per year from 2015 to 2018 compared to the previous 4 (or 7) years.

The vast majority of the funding measured by the Federal RePORTER was by the National Institute of Health. From 2015-18, 89% of the funding came from the NIH. During 2011-14, the NIH was the source of 98.8% of funding.
<table>
<thead>
<tr>
<th>Period</th>
<th>Number of years</th>
<th>Total Funds in millions</th>
<th>$/ Year in millions</th>
<th>Percent growth in annual funding in last period compared to</th>
<th>Number of Projects</th>
<th>Percent growth in annual number of projects</th>
<th>$/ Project</th>
<th>Percent growth in annual funding per project</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-2018</td>
<td>4</td>
<td>$43.2</td>
<td>$10.80</td>
<td></td>
<td>83</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2011-2014</td>
<td>4</td>
<td>$7.64</td>
<td>$1.910</td>
<td>465%</td>
<td>26</td>
<td>220%</td>
<td>$293,891</td>
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<tr>
<td>2008-2014</td>
<td>7</td>
<td>$20.98</td>
<td>$2.997</td>
<td>260%</td>
<td>58</td>
<td>151%</td>
<td>$361,658</td>
<td>43.9%</td>
</tr>
</tbody>
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3. The Incredibly Flawed Public Health Research

**Guns in the Home**

At a town hall at George Mason University in January 2016, President Obama said, “If you look at the statistics, there's no doubt that there are times where somebody who has a weapon has been able to protect themselves and scare off an intruder or an assailant, but what is more often the case is that they may not have been able to protect themselves, but they end up being the victim of the weapon that they purchased themselves.” The primary proponents of this claim are Arthur Kellermann and his many coauthors. A gun, they have argued, is less likely to be used in killing a criminal than it is to be used in killing someone the gun owner knows.

In one of the most well-known public health studies on firearms, Kellermann's “case sample” consists of 444 homicides that occurred in homes. His control group had 388 individuals who lived near the deceased victims and were of the same sex, race, and age range. After learning about the homicide victims and control subjects—whether they owned a gun, had a drug or alcohol problem, etc.—these authors attempted to see if the probability of a homicide correlated with gun ownership.

Amazingly these studies assume that if someone died from a gun shot, and a gun was owned in the home, that it was the gun in the home that killed that person. The paper is clearly misleading, as it fails to report that in only 8 of these 444 homicide cases was the gun that had been kept in the home the murder weapon. Moreover, the number of criminals stopped with a gun is much higher than the number killed in defensive gun uses. In fact, the attacker is killed in fewer than 1 out of every 1,000 defensive gun uses. Fix either of these data errors and the results are reversed.

To demonstrate, suppose that we use the same statistical method—with a matching control group—to do a study on the efficacy of hospital care. Assume that we collect data just as these authors did, compiling a list of all the people who died in a particular county over the period of a year. Then we ask their relatives whether they had been admitted to the hospital during the previous year. We also put together a control sample consisting of neighbors who are part of the same sex, race, and age group. Then we ask these men and women whether they have been in a hospital during the past year. My bet is that those who spent time in hospitals are much more likely to have died.
Would we take that as evidence that hospitals kill people? I would hope not. We would understand that although we controlled for the variables of age, sex, race, and neighborhood, the people who had visited a hospital during the past year were really not the same as people in the “control” sample. Obviously, the hospitalized people were sick or injured and faced a higher risk of death. You don’t want to compare a sick person with a healthy person, but with other sick people to see what would happen if one went to the hospital and the other didn’t.

Similarly, people who are at greater risk of being attacked are probably more likely to arm themselves. Even though they live within a mile of the deceased, they might still live in a more dangerous neighborhood or their homes might be more dangerous for another reason. Perhaps a small number of these people are involved in dangerous, illegal activities. Even with a gun, it might still be more likely for something bad to happen to them than to the comparison group, but less likely than the risk that they faced if they never got the gun.

The big problem for public health researchers is that they are trying to apply medicinal testing approaches to human behavior. In a drug test, some patients with a disease may be provided with the drug while others would be given a placebo. The drug and the placebo would be assigned randomly. A comparable approach for testing the link between homicide and gun ownership would be to randomly assign guns to some of the households. The remaining households would be gun-free if they wanted to have a gun. That way, gun ownership would not be affected by other factors that may be related to a person’s probability of being killed. Of course, it would probably be impossible to actually carry out such a study.

Economists solve this problem by looking at costs or prices. So if a local hospital closes down or if the price of medical care goes up, some sick people who previously received medical care no longer received it, the question is what happens to the mortality rate. Or, for guns, if it is more costly for some people who would previously owned guns not to own them, the question is what happens to the murder or accidental gun death rate.

While there are no official government statistics on people accidentally shooting people they know (having mistook them for intruders), we used Nexis news searches from 2011 to 2013 to get a rough idea of the frequency of these cases. Though each incident garnered news stories in major US media outlets (USA Today, CNN, Fox News, New York Daily News), it is amazing how rare these cases are. Eight tragedies occurred in 2013, eleven in 2012, and only five in 2011.26

The Risk to Children in the Home

The benefits of gun ownership have generally gone ignored in medical journals that have studied gun ownership, what is called the public health literature. There is no mention that widespread gun ownership deters criminals from breaking into homes, that gun ownership helps protect residents from harm in the event of a break-in, or that mass public shooters consistently attack gun-free zones where they don’t have to worry about victims being able to defend themselves. And gun owners—contrary to what the media advises—should not unquestioningly store their guns locked and unloaded. That defeats the purpose of being ready at a moment’s notice.
The media is doing quite a job of scaring people. A recent 2014 study in the journal *Pediatrics* received massive media attention, including extensive coverage in *USA Today* and an entire hour on *ABC News’ 20/20.* Here’s how ABC’s *World News Tonight* reported the findings:

Looking at children and guns, the most recent statistics from 2009. And take a look tonight, they are eye-opening. The new numbers are arresting…. 7,391 children rushed to the hospital every year because of those gun injuries, so often accidents in the home. Four hundred and fifty-three of those children die at the hospital.”

The vast majority of these “children” are actually young adults. These are not little kids who accidentally hurt themselves by firing their parents’ gun. Consider these facts:

- 76% of these injured “children” were 17, 18, or 19 years old.
- 62% of injuries were the result of criminal assaults.
- The injuries are overwhelmingly concentrated in large, urban areas.

All these deaths are clearly tragic. But they are largely a result of gang violence, a problem that won’t be solved by scaring law-abiding Americans into not owning guns.

**Universal Background Checks**

In early 2014 to a study by Dan Webster of the Bloomberg School of Public Health. He claimed that closing the so-called “gun-show loophole” for background checks—as Missouri did for a while—was effective in reducing murder. Between 1981 and 2007, Missouri had “universal background checks” in addition to the federal, “Brady Law” background checks. The “universal” checks required that private sales of handguns—as opposed to sales done through stores—also be subject to such checks.

In the five years after 2007, when universal background checks were abandoned, Missouri’s murder rate rose by 17%. However, in the five years before that change, it had actually increased by 32%. Missouri was already on an ominous path and the rate of increase slowed after the law was eliminated.

Note the cherry-picking needed for Webster to obtain even a biased result. Not only are other states with similar laws ignored, but if you just take Missouri, why not examine the change in crime rates when the law was adopted? If Webster had looked at the same five years before and after the adoption of the law, he would have found no evidence that Missouri’s crime rate fell relative to the rate in the rest of the US. When you examine all the states, there is no evidence to be found that these background checks affect murder rates.

In 2015, researchers from the Bloomberg School of Public Health, again looked at one state and claimed that “a 1995 Connecticut law requiring a permit or license—contingent on passing a background check—in order to purchase a handgun was associated with a 40% reduction in the state’s firearm-related homicide rate.”

First, homicide rates fell by 32% across the whole country over those same years. Possibly, they
could argue that homicide rates had fallen 8% faster in Connecticut, but there is no way they can assume that the entire 40% drop was due to the laws that they wanted to focus on.

For a study published in 2015, with much more recent data abounding, 2005 was also an extremely convenient and arbitrary end year to pick. Everything changes if 2006 or later were picked as the end year. Connecticut’s firearm homicide rate fell by only 16% between 1995 and 2006. Meanwhile, the US and the rest of the Northeast, with the exception of Connecticut, experienced much greater drops of 27% and 22%, respectively. A similar problem would also have occurred if they had looked at a shorter period.

**Rand Corporation Evaluation of Gun Policies**

A much long discussion could be provided of the Rand Corporation’s evaluation of “Gun Policy in America.” While dozens of peer-reviewed papers that find that right-to-carry laws reduce violent crime are excluded from their survey of the literature, unpublished non-refereed papers that claim to show these laws increase crime are included. Other work is mischaracterized, such as my book from the University of Chicago Press, which they dismiss because: “Many of Lott’s modeling results were presented as figures and did not indicate statistical significance. Detailed results were provided only for an analysis of homicide rates.” But that is simply false if one looks for example at Table 10.4 (p. 265). They ignore that the book also looked at issues such as city level crime data.

### 4. Conclusion

A lot of money is spent on firearms research, overwhelmingly just on Public Health research. The Dickey Amendment didn’t reduce Public Health research, nor grants given out by other parts of the government. By focusing on federal grants for Public Health researchers, many people have been mislead into thinking that gun violence has been understudied. Even looking at all published research by Public Health researchers misses all the research published by economists, criminologists, and law professors. The claims that too little firearms research is funded assumes without providing any evidence provided that all research on reducing mortality rates is equally productive. Given that Public Health research is so poorly done and misleading, the money spent is likely to be counterproductive to saving lives. If there are too few resources being devoted to firearms research, it lies in areas outside of Public Health. Any government funded research must strive to obtain quality research that will actually help save lives.

### End Notes


Letter from 166 Health Organizations Urge Congress to Appropriate $50 Million for CDC Gun Research to Congress members Nita Lowey, Kay Granger, Rosa DeLauro, and Tom Cole.


The 1997 appropriations bill stated: “None of the funds made available for injury prevention and control at the Centers for Disease Control and Prevention may be used to advocate or promote gun control.”

Bret Jesse, a research director in the biomedical industry, provided data for us on medical journal publications.

The impact on the research immediately after the Dickey Amendment doesn’t depend on whether a lag is used.


“Guns in America town hall with Obama transcript (full text),” January 7, 2016


