Discussion of Paper 2021-1728

Re-Sighting the Gun Debate: Defining Patterns of Firearm-Related Death to Help Focus Prevention Efforts

**DR RONALD M STEWART** (San Antonio, TX): Previous papers identified that the percentage of homicide death related to firearms increased, and this was due to an increase in caliber, velocity, and rate of fire, so an engineered increase in lethality related to homicides.

I have a couple of questions and a couple of comments. It seems to me that the FBI data sets, which you use rather masterfully, were likely not designed for public health reporting or analysis, but these data do line up perfectly with the CDC public health data, just for the audience.

But for future work, could you supplement the FBI data set using CDC WONDER detailed mortality reporting system as an adjunct? These two data sets seem complementary but are infrequently used together. CDC WONDER does not have any of the detail with respect to the person doing the shooting, victim, weapon, number of victims, et cetera. It essentially is an epidemiologic and ecologic epidemiology tool, but it does really shine with respect to scientifically valid calculation of age‑adjusted death rates.

Have you used the CDC WONDER detailed mortality reporting system and compared your estimation of these rates using the FBI system?

My second question is related to the first. There is a striking difference in death rates by intention between small and large city size. Both have high firearm death rates, but self‑harm death rates are significantly higher in small cities; whereas, death rates related to harm to another are higher in large cities. Did you calculate the overall intentional firearm violence rates in small and large cities so we would have an idea of what the balance is? Again, have you compared this to CDC WONDER rates?

There is a parallel between the two previous papers from the Memphis group. Lethality matters. What do I mean by that? It matters in assault‑related harm to another person, and it matters in self‑harm. There are great opportunities for partnership with Lethal Means Safety, which starts with safe and responsible firearm storage, and there are some innovative, promising programs and partnerships, for example, with the National Shooting Sports Foundation and the injury prevention organizations. What are next steps for you and your team with this paper?

In closing, I congratulate the authors and applaud your ongoing work to really address the most neglected public health epidemic in the United States, and to add data to dialogue related to firearm injury prevention, suicide rates, and as you have shown, are increasing. Tragically, firearm‑related suicide rates are significantly increasing in children and adolescents.

As many in the audience know, the American College of Surgeons Committee on Trauma's approach is to work together to make firearm ownership as safe as reasonably possible while working to understand and address the root causes of violence.

So, for the members present here at the Southern Surgical, we each have the opportunity to lead in this space by, one, personally advocating for safe firearm storage, ie leading by example; two, using a friends‑helping‑friends approach. That means working with friends and family to be mindful, that if someone is in crisis or mental distress, that we (their friends) can offer to temporarily store the person in crisis’ firearms safely for them temporarily. Because in suicide, the experts believe that there is oftentimes about a ten‑minute window of action, and if the person in crisis can make it through that ten‑minute window, the great probability is I will never successfully complete a suicide.

The last comment is to remind us that we all are responsible for creating a culture of hope for our teams, our families, and our communities.

**DR PRESTON R MILLER** (Winston‑Salem, NC): Given that firearms research touches on topics that are emotionally laden to the public in the US, I think this is really important. It really is a discussion, at least in my opinion, about public health. It is a public health issue or, as Martin Croce says, "It's trying to figure out how to have fewer bullet holes in fewer people."

I will take a brief moment to editorialize on something Dr Stewart said, because in my experience it has absolutely held true. As a trauma surgeon for some years, when I speak to people who have failed suicide attempts, I cannot recall a person who, when I asked them, do you still feel like hurting or killing yourself, they said yes. They almost invariably say, "No, I do not. That was a stupid thought."

So, the main points of this work are that firearm‑related homicides in large and small cities have remained steady. The rate has remained steady over the last 18 years, whereas firearm‑related suicides have significantly increased in small and large cities. Additionally, while gun‑related homicides are most common in young black men, gun‑related suicides seem to be more concentrated in older white men.

The authors show clearly that firearm‑related suicide is a major problem in cities both large and small and that this problem is growing. Do you have any thoughts on possible interventions that might address this? Dr Stewart has touched on some possibilities.

Second, you look at data from cities, but there are data and indications that residents of rural areas may be at even higher risk of death from an across‑the‑board rate standpoint of suicide by firearm. Do you have any plans to continue this work or look at such rural areas?

Third, your paper included data on age, sex, and race. Do you have any data or perhaps thoughts on the possible role that poverty or socioeconomic status may play in this problem? This issue seems to be inextricably linked to homicide and other violent crimes and may also play an important role in suicide.

**DR BARBARA GAINES** (Pittsburgh, PA): I also believe that suicide is the forgotten part of the gun violence equation, the violence against self. Living in Pittsburgh, a moderate size city in a very large rural area, I also want to question you about the rural areas and whether adding those to your study may even highlight the issue related to suicide.

As a pediatric surgeon, I am also interested in where the accidental shootings fit into your model and whether you looked at all at accidental shootings.

**DR HAROLD BO LOVVORN, III** (Nashville, TN): I noticed that the increase in suicide by firearm paralleled the war on terror. Does this database allow you to identify what percentage or fraction of these decedents by suicide were military personnel? If not, how do you speculate the stressors of war would have on suicide rate?

**DR WILLIAM CHAPMAN** (St Louis, MO): I think everyone here recognizes that firearm ownership across the US occurs in the majority of homes, especially in rural America—I am curious if you know the percentage. It is just a common, everyday part of life in many or most parts of the US.

When you speak about gun storage, can you be more specific about ways that gun storage would prevent that impulsive move of someone to commit suicide?

**DR DIH‑DIH HUANG** (Phoenix, AZ): To address Dr Stewart's initial questions, we did not use the CDC data set to obtain any of our homicide information, but I think that would be an excellent next step to validate this study and to confirm that these rates are, in fact, as drastic as we did find.

We also did not calculate the overall firearm violence rates in large and small cities, but that would be an important thing to potentially obtain from the CDC WONDER data set.

I think the next steps would be to potentially validate these methods as well as use these methods to examine interventions and the effects that they have on public health measures.

With regard to possible interventions to address suicide, as seen with attempts at homicide prevention, there is no one clear solution to this. Firearm safety, education, as well as ongoing refresher courses on safe storage and other practices, may be a method to potentially address suicide prevention while still protecting individual rights of gun ownership.

I believe that the topic of mental health is a little more difficult as it would be unfortunate to discourage potential individuals from seeking out help when they truly need it. However, I think potentially addressing the lethality in restricting means, as Dr Stewart mentioned, would be important as well as partnering with sellers to reduce guns getting into violent hands.

With regard to examining further rural communities, we certainly saw that there was a much higher risk of firearm‑related suicides in rural communities. Unfortunately, due to the inherent small size and difficult decreased infrastructure, it was very challenging in our study to gather information. Further data would potentially be very challenging.

Regarding other factors, I do think there is a likely role of poverty and socioeconomic status that would play into the problem of firearm violence. Unfortunately, with our CDC data, we did not have that information on individuals who committed suicides; however, we do have that with our FBI data set in homicides. This would be an important next step at looking at other precipitating factors when examining firearm‑related violence.

To Dr Gaines' question about accidental shootings; unfortunately, the intent was not reported in either of these data sets, but I think it would be interesting to take an individual look, to potentially determine the intent of individuals that commit some of these acts.

We also did not have any indications of stressors, including existing mental health disease or the stressors of war or PTSD. Unfortunately, we do not have the demographics to include whether someone came from a military background, but that is an interesting thought.

To Dr Chapman's question about ownership; I think access is a very important topic that comes up quite frequently when discussing both homicides and suicides related to a firearm. I think with regard to storage, potentially even the simple measures of having it in a locked cabinet, potentially not having it loaded, so there are more steps that must be taken prior to being able to use and fire the weapon that would potentially deter from completion of any violent acts.