Gun Violence:
A Pediatric Health Care Crisis that Demands Physician Action

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Disclosures

- We have nothing to disclose
Objectives

- Brief update on Pediatric Firearm Injury Mortality
- Understand the Role of Secure Storage Counseling in Reducing Youth Firearm Morbidity and Mortality
- BeSMART successes in SC
The Major Causes of Death in Children and Adolescents in the United States

Rebecca M. Cunningham, M.D., Maureen A. Walton, M.P.H., Ph.D., and Patrick M. Carter, M.D.

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>No. of Deaths</th>
<th>Rate per 100,000 (95% CI)</th>
<th>Percent of Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>All causes</td>
<td>20,360</td>
<td>26.06 (25.70–26.12)</td>
<td>60.0</td>
</tr>
<tr>
<td>All injury-related causes</td>
<td>12,336</td>
<td>15.79 (15.53–16.07)</td>
<td>40.0</td>
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<tr>
<td>Motor vehicle crash</td>
<td>6,074</td>
<td>5.21 (5.06–5.38)</td>
<td>20.0</td>
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<tr>
<td>Firearm-related injury</td>
<td>3,143</td>
<td>4.02 (3.88–4.16)</td>
<td>15.4</td>
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<tr>
<td>Homicide</td>
<td>1,865</td>
<td>2.39 (2.28–2.50)</td>
<td>5.0</td>
</tr>
<tr>
<td>Suicide</td>
<td>1,102</td>
<td>1.41 (1.33–1.50)</td>
<td>3.0</td>
</tr>
<tr>
<td>Unintentional</td>
<td>126</td>
<td>0.16 (0.13–0.19)</td>
<td>0.3</td>
</tr>
<tr>
<td>Undetermined intent</td>
<td>50</td>
<td>0.06 (0.05–0.09)</td>
<td>0.0</td>
</tr>
<tr>
<td>Malignant neoplasm</td>
<td>1,653</td>
<td>2.37 (2.27–2.48)</td>
<td>6.2</td>
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<tr>
<td>Sufflection</td>
<td>1,480</td>
<td>1.83 (1.74–1.93)</td>
<td>4.7</td>
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<tr>
<td>Suicide</td>
<td>1,110</td>
<td>1.42 (1.34–1.51)</td>
<td>3.5</td>
</tr>
<tr>
<td>Unintentional</td>
<td>235</td>
<td>0.30 (0.26–0.34)</td>
<td>0.7</td>
</tr>
<tr>
<td>Drowning</td>
<td>995</td>
<td>1.27 (1.20–1.35)</td>
<td>3.0</td>
</tr>
<tr>
<td>Drug overdose or poisoning</td>
<td>982</td>
<td>1.26 (1.18–1.34)</td>
<td>3.0</td>
</tr>
<tr>
<td>Suicide</td>
<td>123</td>
<td>0.16 (0.13–0.19)</td>
<td>0.0</td>
</tr>
<tr>
<td>Unintentional</td>
<td>761</td>
<td>0.97 (0.93–1.01)</td>
<td>2.4</td>
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<tr>
<td>Congenital anomalies</td>
<td>979</td>
<td>1.23 (1.18–1.33)</td>
<td>3.1</td>
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<tr>
<td>Heart disease</td>
<td>599</td>
<td>0.77 (0.71–0.83)</td>
<td>2.0</td>
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<tr>
<td>Fire or burns</td>
<td>340</td>
<td>0.44 (0.39–0.48)</td>
<td>1.0</td>
</tr>
<tr>
<td>Unintentional</td>
<td>272</td>
<td>0.35 (0.31–0.39)</td>
<td>0.8</td>
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<tr>
<td>Chronic lower respiratory disease</td>
<td>274</td>
<td>0.35 (0.31–0.40)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Figure 1: Mortality Rates (Deaths per 100,000 Children and Adolescents) for the 10 Leading Causes of Death in the United States from 1999 to 2016. Data were obtained from the VitalSource/Ochlock Data for Epidemiologic Research (VODER) system of the Centers for Disease Control and Prevention (CDC). Data are CDC WONDER, according to the codes of the International Classification of Diseases, 10th Revision (ICD-10), for the leading causes of death among children and adolescents. Age was restricted to children and adolescents 1 to 19 years of age.
Firearm Injury Mortality Rates from 2001-2019 for US Youth Age 0-19 by Race/Ethnicity
Gun Violence in South Carolina

- Annual deaths: 908
- Annual non-fatal injuries: 1780
- 13th highest rate of gun violence in the US

- From 2010-2019:
  - rate of gun deaths increased 42%
  - rate of gun suicides increased 19%
  - rate of gun homicides increased 83%

COST OF GUN VIOLENCE
South Carolina has the 14th-highest societal cost of gun violence in the US at $1,220 per person each year. Gun deaths and injuries cost South Carolina $6 billion, of which $298 million is paid by taxpayers.

GUN DEATHS BY INTENT
In South Carolina, 56% of gun deaths are suicides and 41% are homicides. This is compared to 60% and 38% nationwide, respectively.
Gun violence costs South Carolina $6.1 billion each year, of which $297.5 million is paid by taxpayers.

The Numbers: Firearm Access

- 13 million US children live in a household with a gun
- 5.4 million US children live in a household with at least one loaded, unlocked gun
- The majority of children in gun-owning households are aware of where their parents store their guns
- More than 1/3 reported handling their parents’ guns
- 1/4 of these parents did not know that their children had handled the gun in their house


The Risks of Firearm Access

- Nearly 90% of unintentional gun deaths and injuries in children occur in the home.
- The firearm used in youth suicide comes from the home 9 out of 10 times.
- In incidents of gunfire on school grounds, 78% of shooters under the age of 18 obtained the gun from their home or the home of a friend or relative.


Prevention
Prevention Strategies: Firearm Access

- Preschool aged children, observed 1 week after informational intervention where they were told not to play with guns (“just say no”)
  - No difference in gun-playing behavior
- 4-7 year old children went through a week-long skills based gun safety training program
  - Just as likely as children with no training to approach or play with a handgun
- 4-5 year old children in two different gun safety programs
  - Able to verbally repeat gun safety message
  - Could not demonstrate gun safety skills in real-life assessments


Prevention Strategies: Responsible Storage

- Responsible storage is storing a gun LOCKED, UNLOADED and SEPARATE from ammunition
- Responsible storage is associated with decreased risk of firearm suicide and unintentional firearm injury among children
- Households with locked firearms and separate locked ammunition:
  - 78% lower risk of self-inflicted firearm injuries
  - 85% lower risk of unintentional firearm injuries


How can Pediatricians Help?

- Brief physician counseling combined with distribution of a cable gun lock is effective in increasing safe storage of home firearms

- AAP recommends pediatricians routinely screen for access to firearms and counsel about risk reduction

- On ASK day, June 21, the first day of summer, the AAP reminds parents to ensure their kids are safe by asking about gun safety and storage


SECURE all guns in your homes and vehicles
MODEL responsible behavior
ASK about unsecured guns in other homes
RECOGNIZE the role of guns in suicide
TELL your peers to Be SMART
Secure all guns in your homes and vehicles

- 13 million households with children contain at least one gun.¹
- One study found that the majority of children in gun-owning households knew where the gun was stored.²
- Store guns locked and unloaded, store ammunition separately.
- Hiding a gun is not “securing” a gun.

BE SMART

Model responsible behavior

- It is always an adult’s responsibility to prevent unauthorized access to guns, not a curious child’s responsibility to avoid guns.
- Make it part of the normal safety conversation you have with your children.
- Keep the language simple; for example: “If you see a gun, don’t touch it. Tell an adult right away.”
Ask about unsecured guns in other homes

- Make it part of your general safety conversation you have when sending your child to a new home.
- Try email or text.
- 5.4 million U.S. children live in a household with at least one loaded, unlocked gun.¹

¹ Personal communication from Deborah Azrael and Matthew Miller to Everytown based on 2021 National Firearm Survey. August 11, 2021.
Most people who attempt suicide do not die—unless they use a gun.\(^1\)

90% of suicide attempts with a gun result in death—a much higher fatality rate than any other means of self-harm.\(^2\)

This contributes to the fact that 40% of child suicides involve a gun.\(^3\)

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3. CDC, Underlying Cause of Death, 2015 to 2019.
A survey of high school students found that 17% had seriously considered attempting suicide within the last year.¹

And one study showed that 41% of adolescents in gun-owning households report having “easy access” to the guns in their home.²

Tell your peers to Be SMART

- Your voice and all voices are critical.
- Research shows that law enforcement, the military, and hunting or outdoor groups are particularly effective at communicating safe storage practices.¹
- Someone hears the Be SMART message every 21 minutes.

Be SMART Success in SC

- Partnership with Charleston county (Charleston chapter) and Be SMART materials regularly distributed in Charleston schools
- Partnership with Richland two school district and have done presentations and tabling events in different schools and district events. Be SMART material available in their website.
- MUSC adopting Be SMART education with patients in Children’s Hospital
- Partnership with Prisma Health where we have materials with their logo on the digital copy of the post card and poster which are available for printing through their intranet
- SC AAP endorsement and presentations regularly in AAP chapter meeting to improve provider knowledge. QTIP practices have adopted Be SMART and are regularly giving out materials in their offices
- Multi organizational Partnership in Midlands- Creation of the MOU with multiple organizations spearheaded by the school superintendent of richland 2 school dist.
MOU signing on Dec 9th 2021 included 8 school districts, 12 law enforcement agencies and 4 hospitals.
Social Media Support

You know what? Sometimes social media can really be a powerful force for good.

Last week I put up a post expressing frustration about the lack of outrage & action in response to recent school shootings and repeated instances of weapons being found on school campuses in the Midlands.

We all know discussions on FB can easily get twisted but that particular thread had great dialogue, suggestions & insight ... including a post from some moms in Richland School District Two who have been putting in the work to help stop the violence.

For the past few years, they’ve been volunteering with Be SMART for Kids (https://besmartforkids.org/), an educational program designed to help parents and adults normalize conversations about gun safety *and* take responsible actions that can prevent child gun deaths & injuries.
Links

Websites of Interest

- American Academy of Pediatrics
  - Dedicated to the Health of All Children
  - AAP Critical Updates on COVID-19

- American Academy of Pediatrics
  - Dedicated to the Health of All Children

- Be SMART for Kids Gun Safety Campaign

- Richland County Board of Education
  - Be SMART for School Safety

For more information about the program visit: be-smart-for-kids.org
How to locate and order Be SMART resources in Prismahealth system

Prisma Health network then some of these tools may not be accessible to you.
MUSC doctors will ask questions about guns in the home with new safety campaign

BY MARY KATHERING WILDEMAN MKWILDEMAN@POSTANDCOURIER.COM
JUL 2, 2019

MUSC physician Amna Afzaloes started an effort to encourage fellow pediatricians to open more conversations about gun safety with their patients' parents. Wade Spear/Staff
Improving the Frequency and Documentation of Gun Safety Counseling in a Resident Primary Care Clinic

Kelsey A.B. Gastineau, MD; Cassandra L. Stegall, DO; Laura K. Lowrey, MD; Barbra K. Giourgas, MD; Annie Lintzenich Andrews, MD, MSCR

Figure 4. Statistical process control chart. LCL indicates lower confidence limit; UCL, upper confidence limit; and WCC, well-child check.
“Anger that is motivated by compassion or a desire to correct social injustice, and does not seek to harm the other person, is a good anger that is worth having”

- The Dalai Lama
Joint Citizens and Legislative Committee on Children-2020 and 2021 Data Reference Book-Comparison

Child Homicide

S.C. CHILD HOMICIDE (2018)

46 homicide deaths, an increase of 5 deaths from 2017.
27 or 50% homicide deaths were caused by discharge of firearms.
2nd leading cause of death for children aged 1 to 4 years and 15 to 17 years.
3rd leading cause of death for children aged 0 to 1 year.
4th leading cause of death for children aged 10-14 years.

S.C. CHILD HOMICIDE DEATHS BY AGE, GENDER AND RACE (2018)

<table>
<thead>
<tr>
<th>Age</th>
<th>White males</th>
<th>Black males</th>
<th>White females</th>
<th>Black females</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 4</td>
<td>9</td>
<td>6</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>5 to 9</td>
<td>9</td>
<td>*</td>
<td>24</td>
<td>*</td>
</tr>
<tr>
<td>10 to 14</td>
<td>24</td>
<td>8</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>15 to 17</td>
<td>24</td>
<td>8</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>18 to 24</td>
<td>24</td>
<td>8</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

S.C. CHILD HOMICIDE DEATHS BY YEAR (1999-2019, N=673)

S.C. CHILD HOMICIDE (2019)

40 homicide deaths, a decrease of 6 deaths from 2018.
25 or 63% homicide deaths were caused by discharge of firearms.
1st leading cause of death for children aged 1 to 4 years.
2nd leading cause of death for children aged 5 to 9 years.
3rd leading cause of death for children aged 10 to 14 years.
4th leading cause of death for children aged 0 to 1 year and 10 to 14 years.

COMPARSED TO NATIONAL DATA (2019)

S.C. child homicide death rate (n=40): 3.6 per 100,000 population

HIGHER THAN
National rate (n=1,611): 2.21 per 100,000 population

PRISMA HEALTH
PRISMA HEALTH
Children's Hospital
Changing What's Possible | MUSCkids.org
Prevention Strategies: Physician Counseling

- The majority of health care providers agree they should provide firearm counseling, but they report many barriers:
  - lack of time
  - inadequate training
  - uncertainty of the effect

- A recent study demonstrated poor pediatric resident documentation of screening for firearm access in patients with suicidal ideation or homicidal ideation

- Another recent study demonstrated low rates of firearm screening and safe storage counseling by pediatric residents in the inpatient setting


Prevention Strategies: Physician Counseling

- A 2019 study showed that when prompts for firearm screening and smoke alarms were added to the Electronic Health Record (EHR), pediatricians and residents were significantly less likely to document firearm screening than smoke alarm counseling.

- A 2020 study assessed the impact of a firearm safety counseling workshop on pediatric resident knowledge, self-efficacy and self-reported practice patterns.
  - In pre-post analysis they found participants were 5x more likely to counsel their patients on firearms (6 months post compared to pre).
  - Reported greater comfort in asking about firearms.


Effectiveness of firearm safety education and intervention for safe practices by healthcare providers


Methods: Of the 1,233 patients who completed the enrollment questionnaire, 156 (13%) reported they had guns in their household and agreed to participate in the study. Post-intervention survey instruments were completed by 127 (81%) of participants. Participants received either no counseling, verbal counseling alone, or counseling and a gun safety brochure from their physician. Firearm storage habits were measured at baseline and 60 to 90 days after intervention.

Results: At the post-intervention interview, 64% of the group receiving verbal counseling and 58% of the group receiving verbal counseling plus written information made a safe change in gun storage compared with 33% of participants in the no-intervention group (P = .02). A logistic regression model controlling for demographics and gun ownership showed that compared with the no-intervention group, intervention participants were three times more likely to make safe changes.

Conclusions: Family physicians' brief counseling efforts made a significant positive impact in the firearm storage habits of their patients. With a verbal or written recommendation, a significant improvement was observed in firearm storage.


Counseling augmented by device provision can effectively encourage individuals to store their firearms safely.
Firearm safety discussions in a healthcare setting

• The National Firearms Survey included 4030 adult respondents, all of whom lived in homes with firearms (completion rate, 65%); 4011 answered all firearm safety questions.

• Of all respondents, 7.5% (95% CI, 6.6% to 8.6%) had ever discussed firearm safety with a provider (12.0% [CI, 9.9% to 14.6%] of those living with children vs. 5.3% [CI, 4.4% to 6.3%] in homes without children)

• Most encounters involved an outpatient medical visit

• Of respondents spoken to about firearms, 48.0% (CI, 41.1% to 54.9%) said that locking all firearms was discussed at their most recent visit, 31.8% (CI, 23.6% to 38.7%) that storing ammunition separately from firearms was discussed, and 15.9% (CI, 11.3% to 21.9%) that removing firearms from the home was covered

• Removing firearms was rarely discussed when the patient was a child (4.1% [CI, 1.1% to 9.4%]); when the patient was the respondent or another adult, however, conversations about removal were reported by one quarter or half of respondents, respectively.

Joint Citizens and Legislative Committee on Children-2020 and 2021 Data Reference Book

**Child Suicide**

**S.C. Child Suicide (2018)**
- 29 suicide deaths, an increase of 7 deaths from 2017.
- 1st leading cause of death for children aged 10 to 14 years.
- 2nd leading cause of death for children aged 15 to 17 years.
- 19 deaths, or 65% of child suicide deaths were caused by discharge of firearms.

**S.C. Child Suicide Deaths by Age, Gender and Race (2018)**

**Compared to National Data (2018)**
- S.C. child suicide death rate (n=29): 2.62 per 100,000 population
- Higher than
- National rate (n=1,854): 2.50 per 100,000 population

**S.C. Child Suicide Deaths by Year**

**Child Suicide**

**S.C. Child Suicide (2019)**
- 39 suicide deaths, an increase of 10 deaths from 2018.
- 1st leading cause of death for children aged 10 to 14 years and 15 to 17 years.
- 19 deaths, or 49% of child suicide deaths were caused by discharge of firearms.

**S.C. Child Suicide Deaths by Age, Gender and Race (2019)**

**Compared to National Data (2019)**
- S.C. child suicide death rate (n=39): 3.51 per 100,000 population
- Higher than
- National rate (n=1,646): 2.25 per 100,000 population

**S.C. Child Suicide Deaths by Year (1999-2019, N=378)**

Committee Website: sccommitteeonchildren.org
Improving the Frequency and Documentation of Gun Safety Counseling in a Resident Primary Care Clinic

Kelsey A.B. Gastineau, MD; Cassandra L. Stegall, DO; Laura K. Lowrey, MD; Barbra K. Giourgas, MD; Annie Lintzenich Andrews, MD, MSCR

<table>
<thead>
<tr>
<th>Date</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-May 2018</td>
<td>Baseline time period</td>
</tr>
<tr>
<td>May 2018</td>
<td>Be SMART lecture</td>
</tr>
<tr>
<td>June 2018</td>
<td>Resident initial survey</td>
</tr>
<tr>
<td>June 2018</td>
<td>Parent Safety Survey</td>
</tr>
<tr>
<td></td>
<td>Resident follow-up survey</td>
</tr>
<tr>
<td></td>
<td>Wear Orange Day</td>
</tr>
<tr>
<td>July 2018</td>
<td>Be SMART roll-out in PPC clinic</td>
</tr>
<tr>
<td>March 2019</td>
<td>EHR prompt added</td>
</tr>
<tr>
<td>June 2019</td>
<td>Wear Orange Day</td>
</tr>
<tr>
<td>July 2019</td>
<td>New intern class</td>
</tr>
<tr>
<td>October 2019</td>
<td>Email reminder prompt to residents</td>
</tr>
<tr>
<td>Weekly</td>
<td>Informal in-person reminders</td>
</tr>
</tbody>
</table>

1. Is there a gun in the home or vehicles? Yes/No
2. Is the gun stored locked, unloaded and separate from ammunition? Yes/No
3. Was a gunlock or other additional gun safety information such as Be SMART materials provided? Yes/No?
   a. If yes, what additional materials were provided:

Figure 3. EHR prompt for firearm safety screening questions. EHR indicates Electronic Health Record.