



# Gun Violence:

A Public Health Crisis that Demands Physician Advocacy and Action

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# Disclosures

- ▶ I have nothing to disclose

# Objectives

- ▶ Understand the epidemiology of pediatric firearm injury in the US
- ▶ Appreciate the role of secure firearm storage in the prevention of firearm injury among youth
- ▶ Consider opportunities for physician engagement in addressing gun violence as a public health crisis



THE NEW ENGLAND JOURNAL of MEDICINE

SPECIAL REPORT

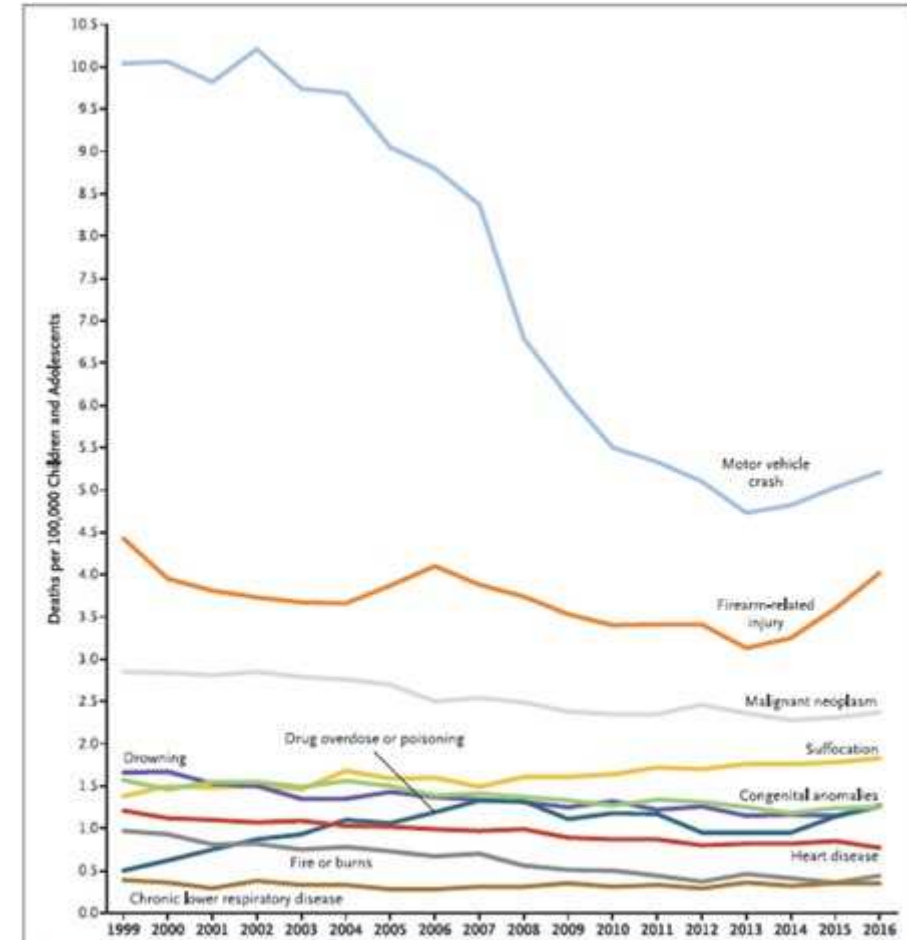
**The Major Causes of Death in Children and Adolescents  
in the United States**

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



**Table 1.** The 10 Leading Causes of Child and Adolescent Death in the United States in 2016, in Order of Frequency.\*

Cause of Death	No. of Deaths	Rate per 100,000 (95% CI)	Percent of Deaths
All causes	20,360	26.06 (25.70–26.42)	
All injury-related causes	12,336	15.79 (15.51–16.07)	60.6
Motor vehicle crash	4,074	5.21 (5.06–5.38)	20.0
Firearm-related injury	3,143	4.02 (3.88–4.16)	15.4
Homicide	1,865	2.39 (2.28–2.50)	
Suicide	1,102	1.41 (1.33–1.50)	
Unintentional	126	0.16 (0.13–0.19)	
Undetermined intent	50	0.06 (0.05–0.09)	
Malignant neoplasm	1,853	2.37 (2.27–2.48)	9.1
Suffocation†	1,430	1.83 (1.74–1.93)	7.0
Suicide	1,110	1.42 (1.34–1.51)	
Unintentional	235	0.30 (0.26–0.34)	
Drowning	995	1.27 (1.20–1.36)	4.9
Drug overdose or poisoning	982	1.26 (1.18–1.34)	4.8
Suicide	123	0.16 (0.13–0.19)	
Unintentional	761	0.97 (0.91–1.05)	
Congenital anomalies	979	1.25 (1.18–1.33)	4.8
Heart disease	599	0.77 (0.71–0.83)	2.9
Fire or burns	340	0.44 (0.39–0.48)	1.7
Unintentional	272	0.35 (0.31–0.39)	
Chronic lower respiratory disease	274	0.35 (0.31–0.40)	1.3



**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 Wide-ranging Online Data for Epidemiologic Research (WONDER) system of the Centers for Disease Control and Prevention (CDC), known as CDC WONDER,<sup>2</sup> according to the codes of the *International Classification of Diseases, 10th Revision (ICD-10)*,<sup>1</sup> for the leading causes of death among children and adolescents. Age was restricted to children and adolescents 1 to 19 years of age.

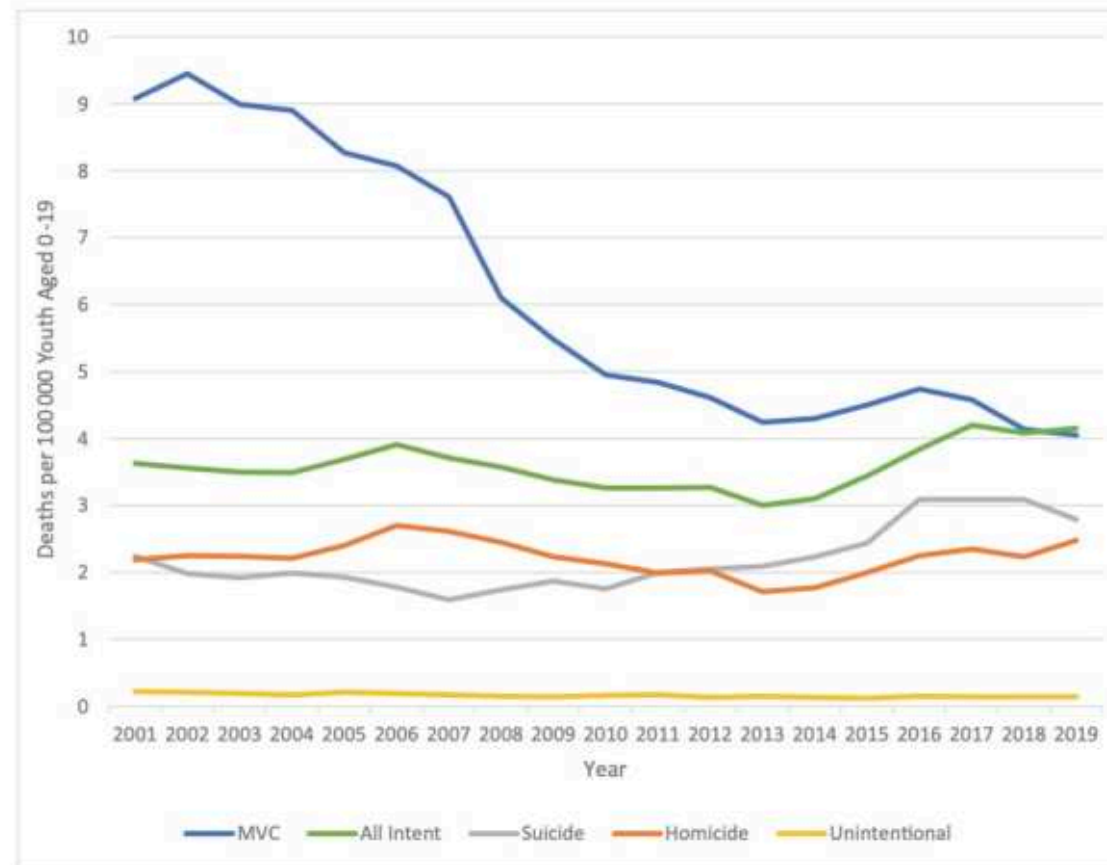


# Pediatric Firearm Injury Mortality Epidemiology

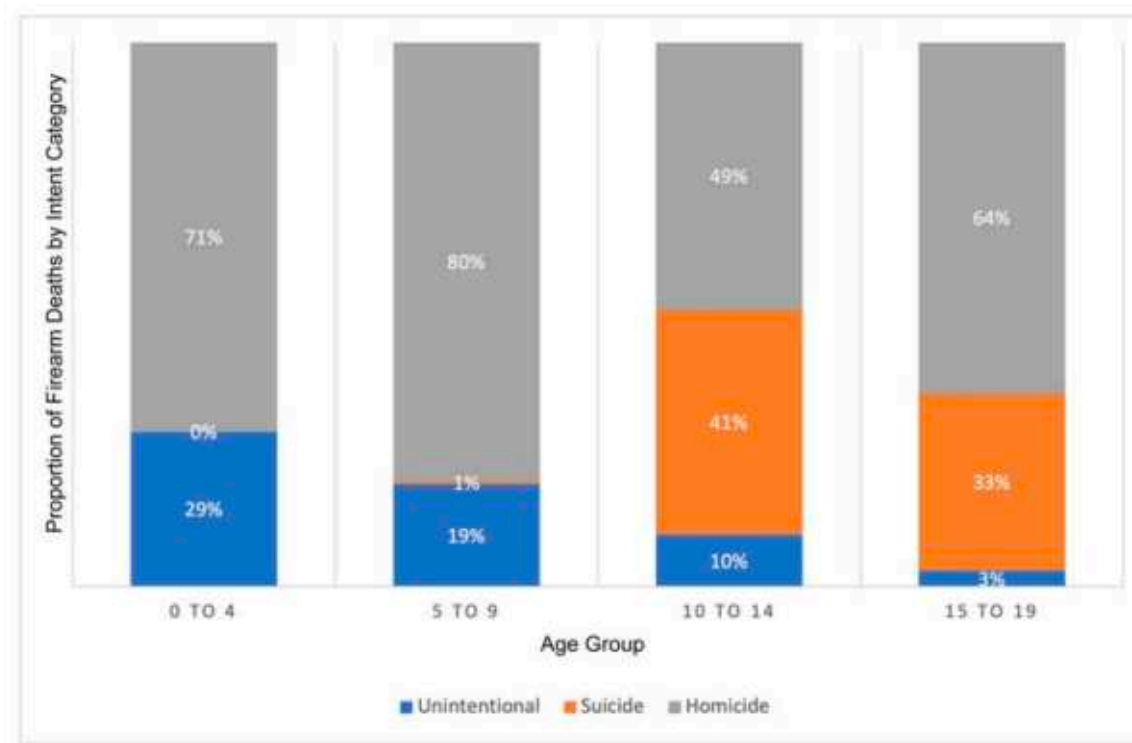
Annie L. Andrews, MD, MSCR,<sup>a</sup> Xavier Killings, MS,<sup>b</sup> Elizabeth R. Oddo, MD,<sup>a</sup> Kelsey A.B. Gastineau, MD,<sup>c</sup>  
Ashley B. Hink, MD, MPH<sup>d</sup>



# Firearm Injury and Motor Vehicle Collision Mortality Rates from 2001-2019 for US Youth Age 0-19



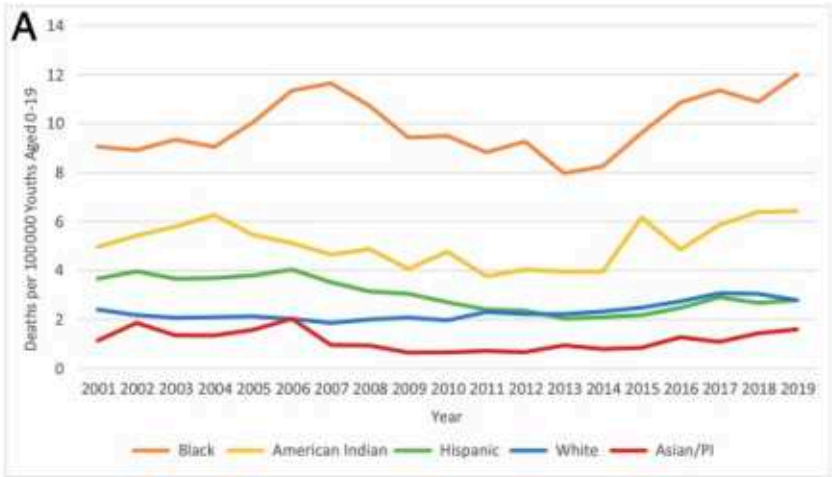
# Firearm Violence Death by Age and Intent, CDC 2001-2019



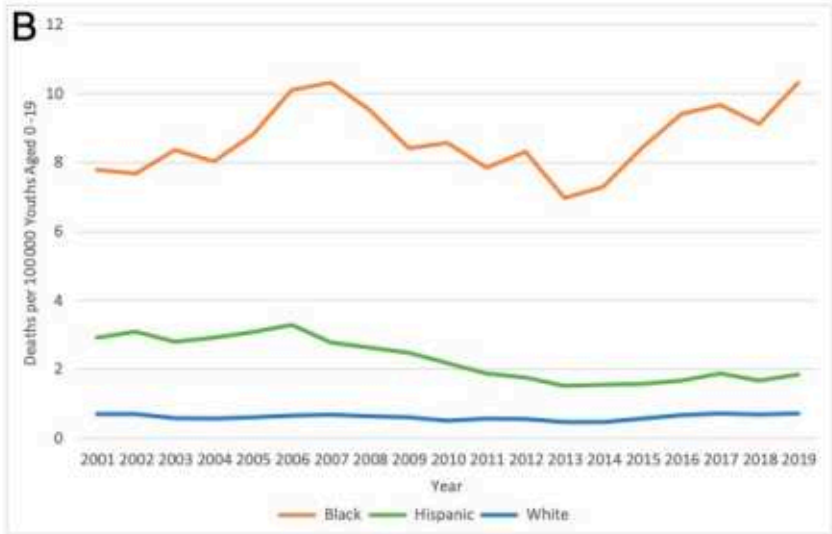




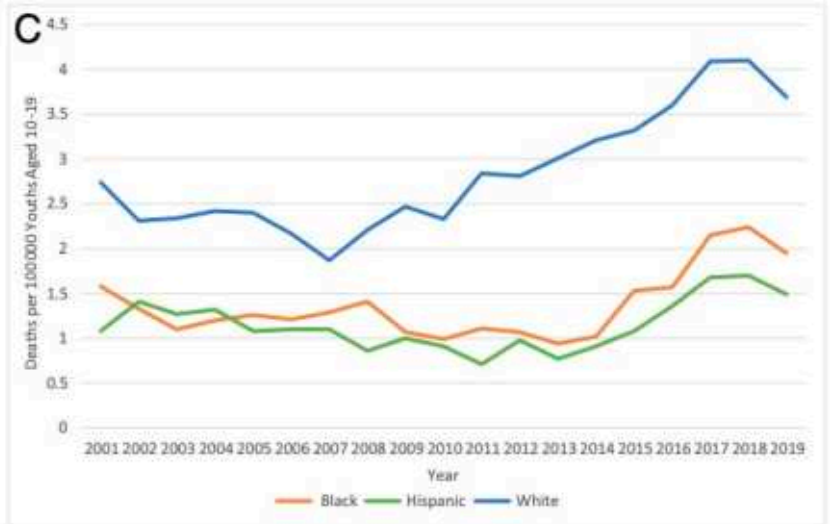
All Intent



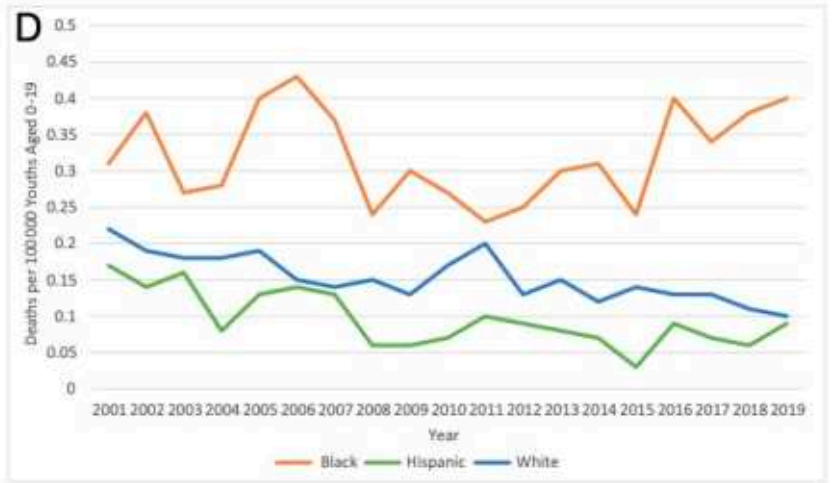
Homicide



Suicide



Unintentional





# Gun Violence in South Carolina

## Coroner identifies 5-year-old killed in Summerville shooting

by ABC News 4 | Thursday, August 6th 2020

## Unsecured guns were used in dozens of child deaths in SC in recent years, report says

[Anna Lee](#) The Greenville News

Published 6:25 a.m. ET Jun. 28, 2019 Updated 10:11 a.m. ET Aug. 11, 2019

### CHARLESTON COUNTY

## 4-year-old killed in accidental shooting in North Charleston

LOCAL

### North Charleston teen killed in gun play

### Child, 5, dead after accidental shooting in North Charleston, police say

### Toddler, shot by brother, dies four months later

### TRI-COUNTY

## 13-year-old charged after gun found in backpack at Charleston Co. middle school, police say

### Loaded gun found at North Charleston school on day of national gun violence walkouts





# Gun Violence in South Carolina

## Gun violence is the leading cause of death for children in South Carolina

- ▶ In an average year (children and adults):
  - ▶ 1,056 deaths
  - ▶ 2,820 injuries
- ▶ South Carolina has the **6<sup>th</sup> highest** rate of gun violence in the US
- ▶ The rate of gun deaths in South Carolina **increased 37%** from 2013 to 2022
  - ▶ Compared to increase of 36% nationwide
  - ▶ Suicides increased 9% (18% nationwide)
  - ▶ Homicides increased 83% (70% nationwide)





# The Numbers: Firearm Access

- ▶ 30 million US children live in a household with a gun
- ▶ 4.6 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

Miller M, Azrael D. Firearm Storage in US Households With Children: Findings From the 2021 National Firearm Survey. *JAMA Netw Open*. 2022 Feb 1;5(2):e2148823. doi: 10.1001/jamanetworkopen.2021.48823. PMID: 35191973; PMCID: PMC8864510.

Baxley F, Miller M. Parental misperceptions about children and firearms. *Archives of pediatrics & adolescent medicine*. 2006;160(5):542-547





# 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

Li G, Baker SP, DiScala C, Fowler C, Ling J, Kelen GD. Factors associated with the intent of firearm-related injuries in pediatric trauma patients. *Archives of pediatrics & adolescent medicine*. 1996;150(11):1160-1165.

Grossman et al. Self-inflicted and Unintentional Firearm Injuries Among Children and Adolescents: The Source of the Firearm. *JAMA Pediatrics*. 1999

Everytown for Gun Safety, Gunfire on School Grounds Database. 2013-2018.



# Firearm Access and Unintentional Injuries

- ▶ In 2024 there were at least 360 unintentional shootings by children, resulting in 136 deaths and 231 injuries nationally
- ▶ Majority of children are shot by other children or themselves
- ▶ Most unintentional shootings occur in the home, with the gun of a parent, friend, or relative



Everytown for Gun Safety, #NotAnAccident Index. 2022.

Hemenway, D., Solnick, S.J. Children and unintentional firearm death. *Inj. Epidemiol.* 2, 26 (2015).  
<https://doi.org/10.1186/s40621-015-0057-0>

Grossman et al. Self-inflicted and Unintentional Firearm Injuries Among Children and Adolescents: The Source of the Firearm. *JAMA Pediatrics.* 1999



# Firearm Access and Suicide

- ▶ Firearms are the most lethal method of suicide attempt
  - ▶ >80% case fatality rate compared to 61% for suffocation/hanging, 1.5% for ingestion
- ▶ Overwhelming evidence that the presence of a firearm in the home significantly increases risk for youth suicide
  - ▶ Systematic review found access to firearms has a pooled risk of >3x for completed suicide
- ▶ Up to 32% of firearm related deaths could be avoided with safe storage counseling interventions

Spicer et al. Suicide Acts in 8 States: Incidence and Case Fatality Rates by Demographics and Method. American Journal of Public Health. 2000

A. Knopov et al. Household gun ownership and youth suicide rates at the state level, 2005–2015  
Am J Prev Med 2019.

Anglemeyer et al. The Accessibility of Firearms and Risk for Suicide and Homicide Victimization Among Household Members. Annals of Internal Medicine. 2014

Manuteaux et al. Association of Increased Safe Household Firearm Storage With Firearm Suicide and Unintentional Death Among US Youths.  
JAMA Pediatrics 2019.







# Firearm Access and School Shootings

- ▶ While school shootings represent a fraction of pediatric firearm injuries and deaths, from 2013 to 2019, there were 549 incidents of gunfire on school grounds
  - ▶ Of these, 347 occurred on the grounds of an elementary, middle, or high school, resulting in 129 deaths and 270 people wounded
- ▶ In a study analyzing 41 incidents of targeted school violence from 2008 through 2017 finding that of the 25 incidents that involved firearms, 76 percent of shooters acquired the gun(s) used in the incidents from their home or that of a relative

National Threat Assessment Center, "Protecting America's Schools: A US Secret Service Analysis of Targeted School Violence" (US Secret Service, Department of Homeland Security, 2019), <https://bit.ly/2U7vnwa>.

## LOCAL NEWS

# Student shot, killed at Tanglewood Middle, suspect charged

by: [Bethany Fowler](#), [Robert Cox](#), [Joshua Kuhn](#)  
Posted: Mar 31, 2022 / 12:58 PM EDT





# 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

Hardy MS, Armstrong FD, Martin BL, Strawn KN. A firearm safety program for children: they just can't say no. *J Dev Behav Pediatr.* 1996;17(4):216-221.

Hardy MS. Teaching firearm safety to children: failure of a program. *J Dev Behav Pediatr.* 2002;23(2):71-76.

Himle MB, Miltenberger RG, Gatheridge BJ, Flessner CA. An evaluation of two procedures for training skills to prevent gun play in children. *Pediatrics.* 2004;113(1 Pt 1):70-77.





# 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

Grossman DC, Mueller BA, Riedy C, et al. Gun storage practices and risk of youth suicide and unintentional firearm injuries. *JAMA : the journal of the American Medical Association*. 2005;293(6):707-714.

Parikh K, Silver A, Patel SJ, Iqbal SF, Goyal M. Pediatric Firearm-Related Injuries in the United States. *Hosp Pediatr*. 2017;7(6):303-312.



# Why Should Physicians Get Involved?

- ▶ The American Academy of Pediatrics (AAP) recommends pediatricians routinely screen for access to firearms and counsel about risk reduction
- ▶ Studies show parents do want to discuss firearm safety with their pediatrician but are rarely asked
- ▶ Brief physician counseling combined with distribution of a cable gun lock is effective in increasing safe storage of home firearms

## GUN SAFETY and CHILDREN

If you own a firearm, the AAP recommends it be **stored unloaded, locked up** (lock box, cable lock, or firearm safe), with the ammunition stored separately.



## El manejo seguro de armas fuego donde hay niños

Si usted es dueño de un arma de fuego, la AAP le recomienda que la **guarde descargada y bajo llave** (caja fuerte, candado con cable o caja de seguridad para armas), y que almacene las municiones por separado.



Barkin SL, Finch SA, Ip EH, et al. Is office based counseling about media use, timeouts, and firearm storage effective? Results from a cluster-randomized, controlled trial. Pediatrics. 2008;122

Parikh K, Silver A, Patel SJ, Iqbal SF, Goyal M. Pediatric Firearm-Related Injuries in the United States. Hosp Pediatr. 2017;7(6):303-312.





# 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 low rates of firearm screening and safe storage counseling by pediatric residents in the inpatient setting
- ▶ Another recent study demonstrated poor pediatric resident documentation of screening for firearm access in patients with suicidal ideation or homicidal ideation

Webster DW et al. Firearm injury prevention counseling; a study of pediatricians' beliefs and practices. Pediatrics. 1992

Naureckas Li C et al. Screening for access to firearms by pediatric trainees in high-risk patients. Academic Pediatrics. 2019.

Monroe KK et al. Firearms screening in the pediatric inpatient setting. Hospital Pediatrics. 2020.





# 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

Stipelman CH et al. Home gun safety queries in well-child visits. JAMA Pediatrics. 2019.

McKay S et al. Addressing Firearm Safety Counseling: Integration of a Multidisciplinary Workshop in a Pediatric Residency Program. Journal of GME. 2020



Safe Storage Education

Be SMART



BE SMART

# BE SMART

**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**





S

**Secure all guns in your  
homes and vehicles**

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

1. Azrael D, et al. Firearm storage in gun-owning households with children: Results of a 2015 national survey. *Journal of Urban Health*. 2018.

2. Baxley F, et al. Parental misperceptions about children and firearms. *Archives of Pediatrics & Adolescent Medicine*. 2006.



M

**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."





A

**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.
- 4.6 million U.S. children live in a household with at least one loaded, unlocked gun.<sup>1</sup>

1. Azrael D, et al. Firearm storage in gun-owning households with children: Results of a 2015 national survey. *Journal of Urban Health*. 2018.



## EXAMPLE

He isn't allergic to anything.

One other safety question.  
Do you guys have guns in  
the home? I know kids are  
curious & just want to make  
sure if you do have any that  
they are securely stored.

Screen time is ok? Just in case  
they want to play and we have  
time. If not then that's ok too.  
No guns.

Great! Yes. Video games are ok.





# R

## Recognize the role of guns in suicide

- Most people who attempt suicide do not die — unless they use a gun.<sup>1</sup>
- 85% of suicide attempts with a gun result in death—a much higher fatality rate than any other means of self-harm.<sup>1</sup>
- This contributes to the fact that 40% of child suicides involve a gun.<sup>2</sup>
- Nearly half of those who survive a suicide attempt report spending 10 minutes or less deliberating before the actual attempt.<sup>1</sup>

1. Everytown for Gun Safety, *Disrupting Access: Addressing Firearm Suicide in the U.S.* 2018.

2. CDC, *Fatal Injury Reports*. 2013-2017.



T

**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.<sup>1</sup>
- Someone hears the Be SMART message every 21 minutes.

1. Crifasi CK, et al. Storage practices of US gun owners in 2016. *American Journal of Public Health*. 2018.



# The Post and Courier

FOUNDED 1803  WINNER OF THE PULITZER PRIZE

## MUSC doctors will ask questions about guns in the home with new safety campaign

BY MARY KATHERINE WILDEMAN MKWILDEMAN@POSTANDCOURIER.COM

JUL 2, 2018



MUSC physician Annie Andrews started an effort to encourage fellow pediatricians to open more conversations about gun safety with their patients' parents. Wade Speer/Staff

BUY NOW



# 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

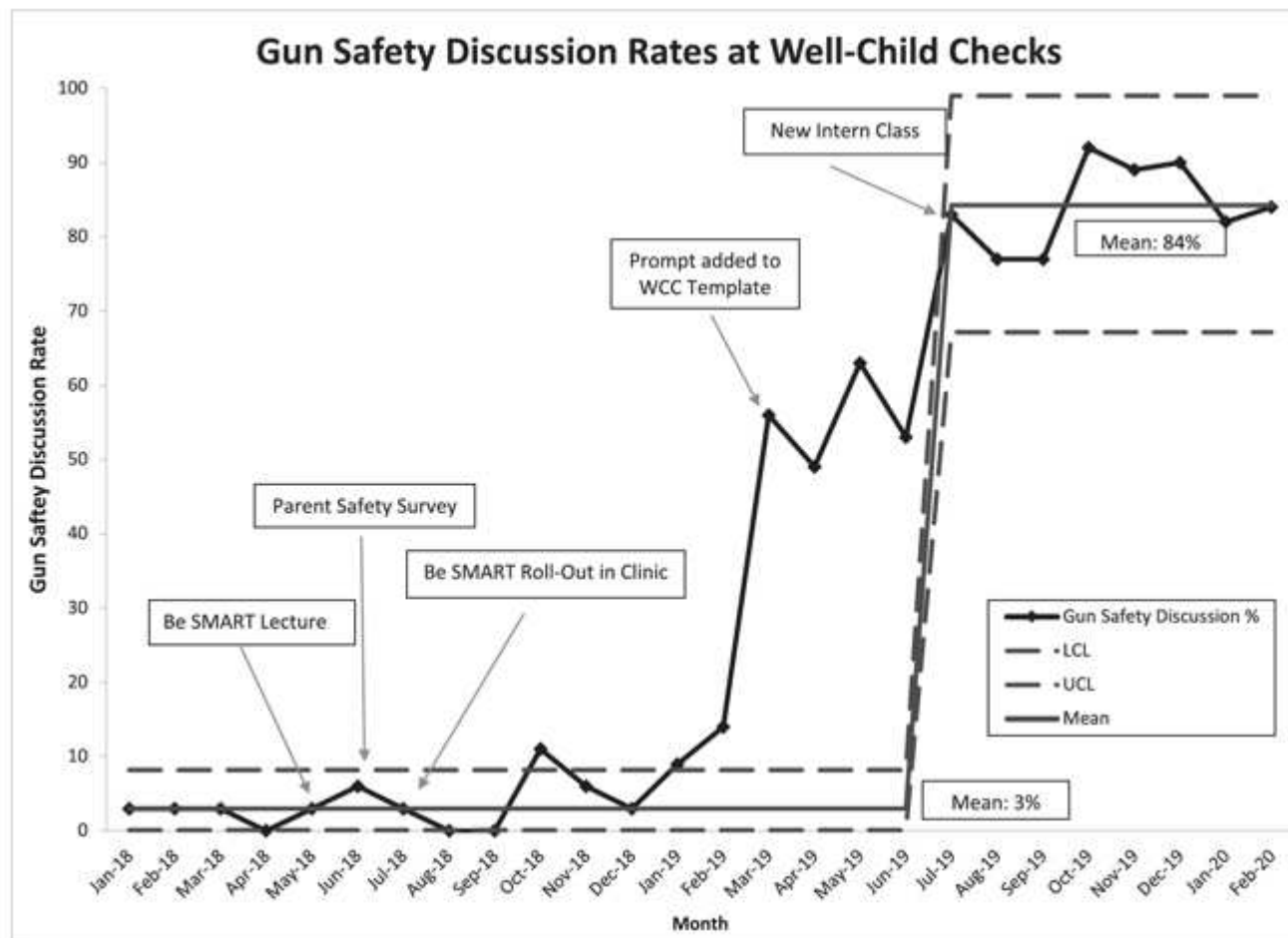


Figure 4. Statistical process control chart. LCL indicates lower confidence limit; UCL, upper confidence limit; and WCC, well-child check.

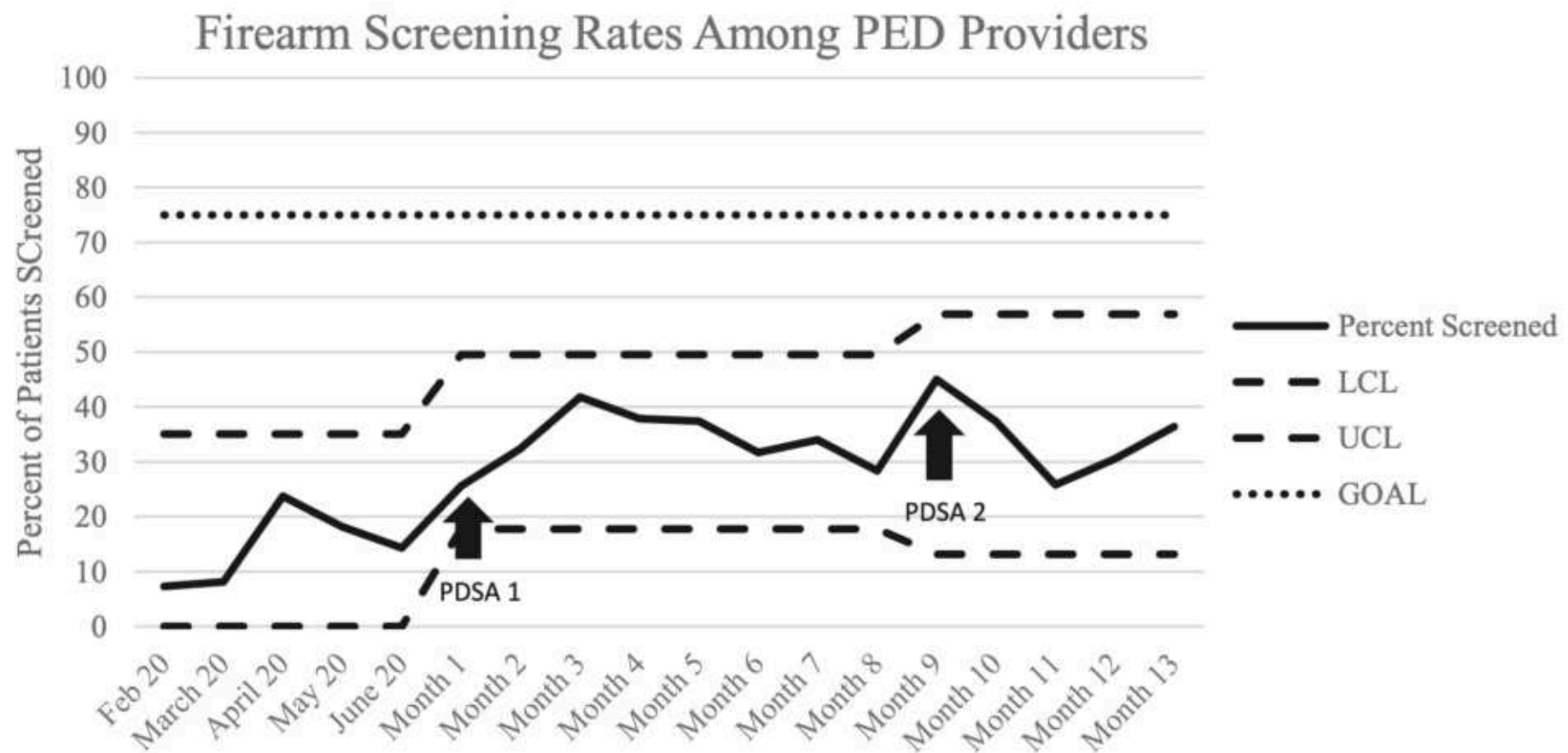
1. Is there a gun in the home or vehicles? Yes/No
2. Is the gun stored locked, unloaded and separate from ammunition? Yes/No
3. Was a gunlock or other additional gun safety information such as Be SMART materials provided? Yes/No?
  - a. If yes, what additional materials were provided:

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

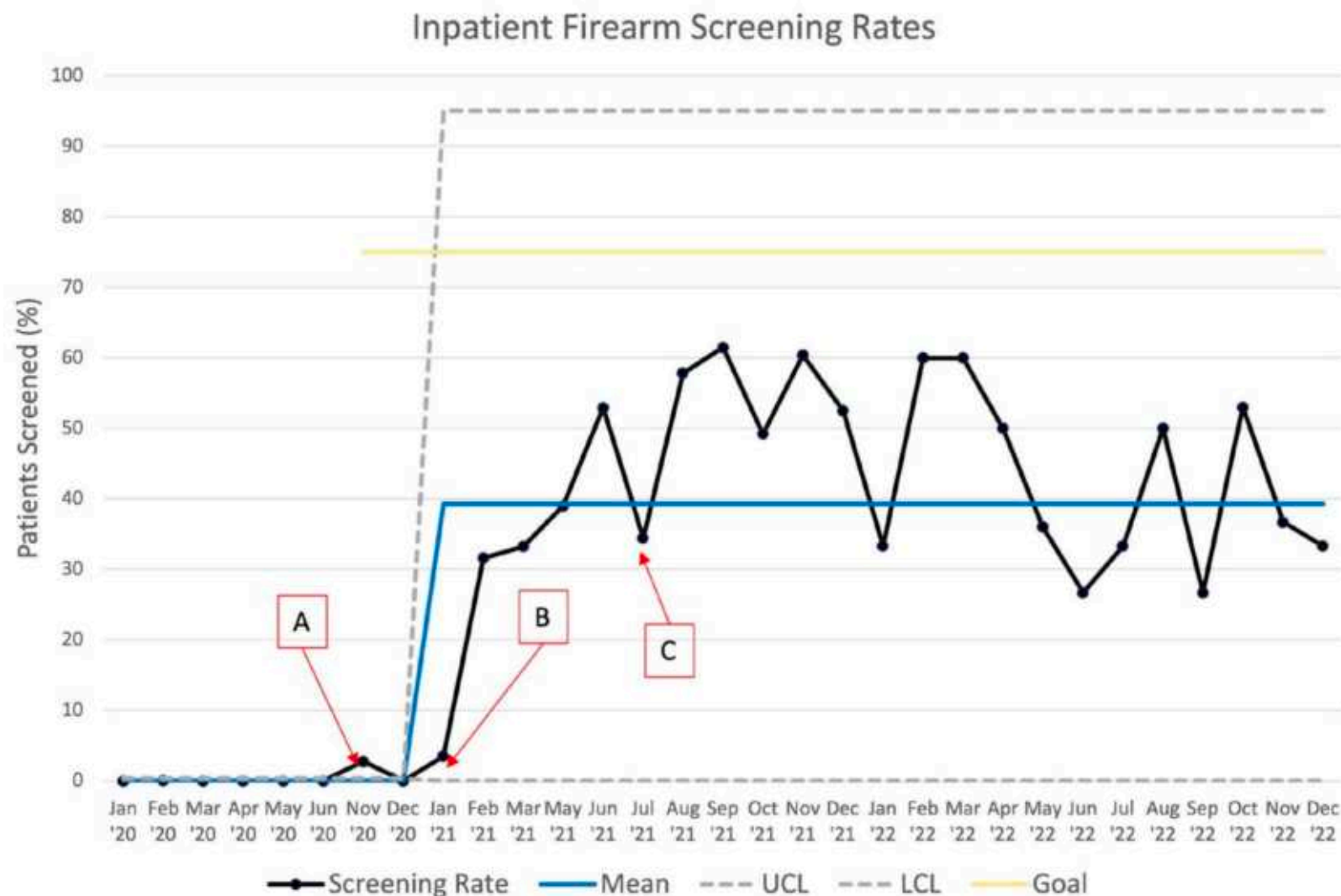




# Be SMART in the Peds ED



# Be SMART in the Inpatient Setting



- A – EHR prompt, Be SMART materials and video, cable gun lock distribution
- B – Reminders, PHM division meetings, nursing staff meetings
- C – Intern Community Orientation Day







## Counseling Tips



# Specific Language Tips

- ▶ Instead of asking “Do you have a firearm in the home?” ask “If firearms are present where your child lives or plays, how are they stored?”
  - ▶ **If they say their firearms are kept away from children**
    - ▶ Explore how they are stored to make sure their definition of safe storage is the same as yours
  - ▶ **If they say their firearms are not stored away from children**, this is an opportunity for education
    - ▶ Safe storage = locked, unloaded, and with the ammunition stored separately
    - ▶ Offer to move the playdate to a neutral area (park, playground)
  - ▶ **If the response is “we don’t own firearms”**
    - ▶ Encourage parents to talk to other family and friends where their child visits to ask about safe storage of firearms in those homes

From AAP SAFER





# Specific Language Tips

- ▶ “Let's talk about some everyday safety issues. Many families I see have firearms in their homes, and I talk with each of them about how to help keep their families safe. If you have firearms, can we talk about how you store them?”
- ▶ “Kids can be curious and they like to explore everything. And we know that even the best kids don't always follow the rules.”
- ▶ “Teens can be impulsive, and if they get depressed or some unexpected crisis happens, if guns are accessible, they might use it to harm themselves. And when guns are used in a suicide attempt, it's almost always fatal.”

Oddo, ER, Andrews, AL, Hink, AB, Shapiro, M, Bosslet, GT. Preventing gun violence: Catalyzing action. J Hosp Med. 2022; 1- 4. doi:10.1002/jhm.13018







# Counseling Tips

## ▶ **Counseling Tips**

- ▶ Ask questions to understand the patient's perspective.
- ▶ Share solutions that work for their situation.
- ▶ Provide concrete options for safe storage.
- ▶ Assess interest with open-ended questions.

## ▶ **Swimming Pools**

- ▶ **Frame the conversation of safe storage in terms of risk mitigation.** Just as having a pool in the backyard increases the risk of drowning, having a firearm in the home increases the risk of firearm injury. To prevent drowning, you put a fence around the pool and a cover over it. To prevent firearm injury, you secure the firearm away from non-owners by locking it up and removing the ammunition.

From AAP SAFER





## Legislative Solutions





# Legislative Solutions for Child Firearm Access

- ▶ Secure storage laws are an important tool for reducing child gun deaths.
  - ▶ These laws mandate that gun owners secure firearms when they are not in the owner's possession.
  - ▶ There is currently no federal law specifically addressing secure storage.
- 
- ▶ Eight states and the District of Columbia have laws mandating that owners secure their firearms. (CA, CO, OR, DC, MA, MN, NV, NY, VA)
  - ▶ Eighteen states have passed another form of firearm storage laws, known as child access prevention (CAP) laws. These laws create liability for a person who fails to adequately secure a firearm if a minor accesses the firearm. (CT, DE, FL, HI, IA, IL, ME, MD, MI, NC, NH, NJ, NM, RI, TX, VT, WA, WI)



# Legislative Solutions: Do They Work?

- Strong child access prevention laws are **associated with a significant reduction in all firearm-related injuries** including self-inflicted and unintentional
- Policies mandating secure storage and provision of locks are associated with a significant reduction in adolescent firearm suicide
  - Expanding requirements to mandate locks be provided by all dealers, not only federal firearm licensees, were linked to a significant 35% decrease in adolescent firearm suicide
- **In general – states with stricter gun laws have fewer gun deaths.**

Hamilton et al. Variability of child access prevention laws and pediatric firearm injuries. Journal Trauma Acute Care Surg, 4/2018

Azad et al. Child Access Prevention Firearm Laws and Firearm Fatalities Among Children Aged 0-14 Years, 1991-2016 JAMA Peds 3/2020

Kivisto et al. Adolescent Suicide, Household Firearm Ownership, and the Effects of Child Access Prevention Laws. Journal of American Academy of Child and Adolescent Psychiatry. Pre-print.





# Effective Physician Advocacy



# Becoming a Physician Advocate

## Find your passion.

- ▶ It might find you. Listen to it.
- ▶ It needs to be authentic.
- ▶ Passion can grow as you learn more about the issue.

## Do your research.

- ▶ Read the literature.
- ▶ Find experts and follow them.
- ▶ You do not need an advanced degree.
- ▶ You need your experience, a willingness to learn, and your voice.



# Becoming a Physician Advocate

**Start small. Then grow.**

- ▶ **Community advocacy**
  - ▶ Partner with community organizations.
    - ▶ They need your voice and you need their support.
  - ▶ Speak out in your community
    - ▶ Letter to the editor
    - ▶ Op Ed
    - ▶ Media interview



# Becoming a Physician Advocate

**Start small. Then grow.**

- ▶ **Legislative Advocacy**

- ▶ Contact your elected officials
  - ▶ Congress.gov
  - ▶ SCstatehouse.gov
  - ▶ Phone/email/letter/social media
- ▶ State/local level
  - ▶ Public testimony
    - ▶ SC Joint Citizens and Legislative Committee on Children
  - ▶ “Lobbying”
- ▶ Federal level





# Becoming a Physician Advocate

**Align advocacy with your other work.**

- ▶ QI projects, health services research to inform the policy debate.
- ▶ Work on an advocacy curriculum.
- ▶ Identify trainees interested in advocacy and mentor them.
- ▶ Use your unique skillset to further your cause.



# Becoming a Physician Advocate

Recognize the power of your voice.

- ▶ **Physicians are respected community members.**
- ▶ **Talking with people about difficult issues in a way that is easily understandable (often in high-stakes situations) *is what you already do every day.***

Stay focused and disciplined.

- ▶ **Do not quiet the anger and frustration you feel, that is your fuel.**
- ▶ **Build momentum and build your team.**
- ▶ **Passion is contagious.**

## America's Most & Least Trusted Professions

Share of U.S. respondents rating the honesty/ethical standards of the following professions as high/low



1,020 U.S. adults (18+ y/o) surveyed Nov. 9-Dec. 2, 2022  
Source: Gallup





*"It is not enough, however, to work at the individual bedside in the hospital. In the near or dim future, the pediatrician is to sit in and control school boards, health departments, and legislatures. (S)He is the legitimate advisor to the judge and the jury, and a seat for the physician in the councils of the republic is what the people have a right to demand."*

- Abraham Jacobi, 1904