

Why we need to talk about guns in pediatrics

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Disclosures

- In the past 12 months, We have not had a significant financial interest or other relationship with the manufacturer(s) of the product(s) or provider(s) of the service(s) that will be discussed in my presentation.
- This presentation will not include discussion of pharmaceuticals or devices that have not been approved by the FDA.
- Dowd was one of the primary authors of the AAP's policy statement on firearm injury prevention, October 2012

Objectives

- Describe the magnitude of current child firearm injury morbidity and mortality
- Understand the importance of child development in considering prevention interventions.
- Give examples of what providers can do in their practices and communities to help diminish firearm injury among children.
- Discuss the layers of protection approach to firearm injury prevention for children
- Understand basic approaches to gun storage

Young child hurt in accidental shooting in KC, expected to survive – Sept. 21, 2017

1-year-old girl killed in accidental shooting in Lawrence, police say – Sept. 22, 2017

5-year-old boy died after he reportedly shot himself inside an apartment in the 9600 block of Lydia Avenue in south Kansas City – Aug. 6, 2017.

10-year-old boy was hospitalized after shooting himself in the leg when he found a gun left in a house near 23rd Street and Poplar Avenue in Kansas City – July 21, 2017.

8-year-old girl was critically wounded when she was shot in the head by a juvenile on a playground at 20th Street and Park Tower Road in Kansas City- June 25, 2017.

Read more here: <http://www.kansascity.com/news/local/article174703051.html#storylink=cpy>



US Gun Deaths

Total in one year: 38,658 (105 per day)

Suicide 59%

Homicide 37%

Legal Intervention 1.5%

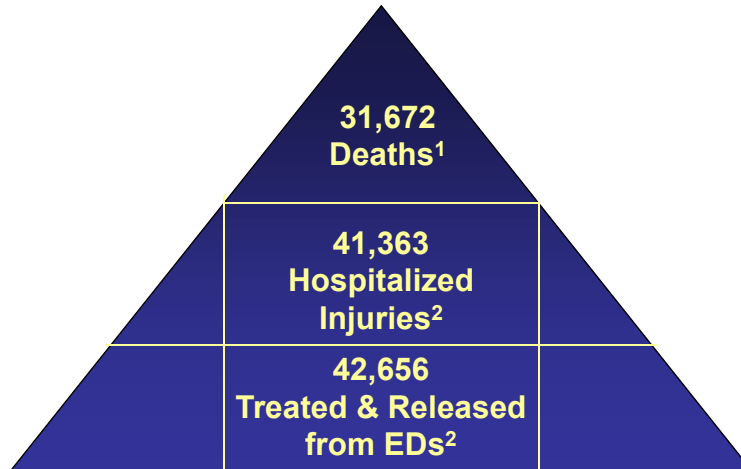
Unintentional 1.5%

Undetermined 1%

Fatal Injury Reports, 2016, CDC

NB: Total MV Traffic Deaths in 2016 = 38,748

Firearm Injury Pyramid



¹ Centers for Disease Control National Vital Statistics, 2010

² Estimates from the CDC Firearm Injury Surveillance Survey

US Gun Deaths Children and Teens (<18y)

Total in one year: 1297

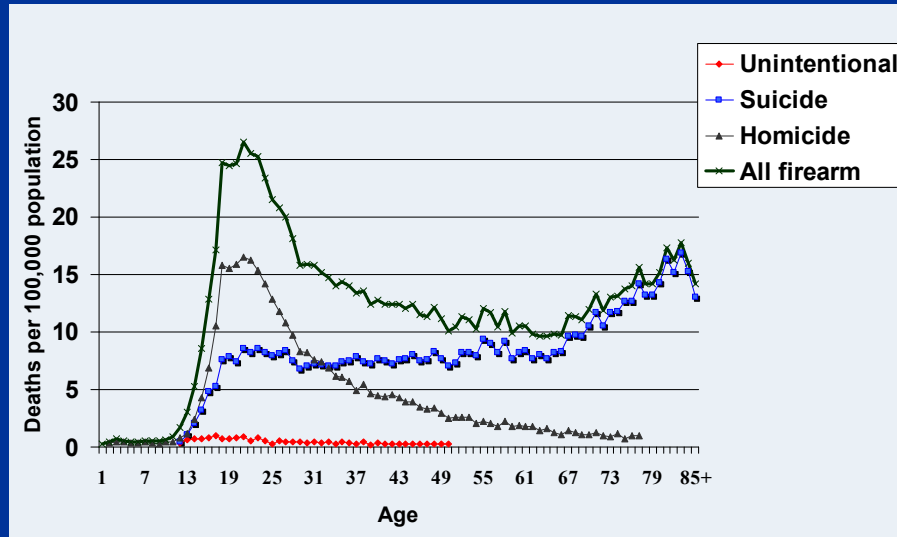
493 were Suicide (38%)

693 were Homicide (53%)

82 were Unintentional (6%)

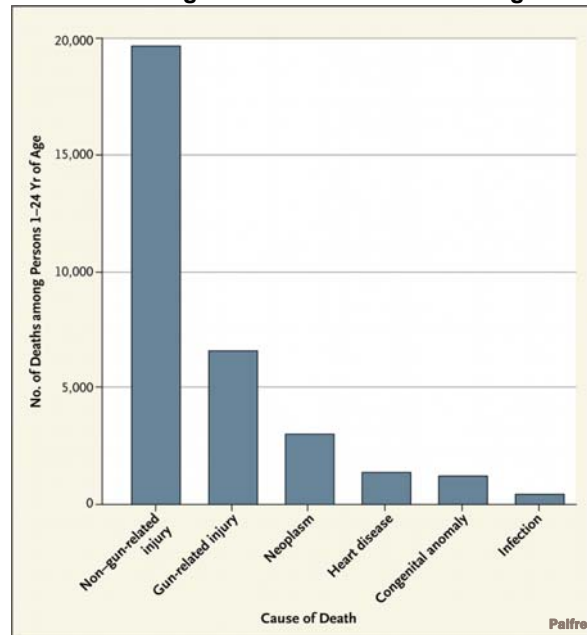
Fowler, et al Pediatrics July 2017

Firearm death rates by age and intent



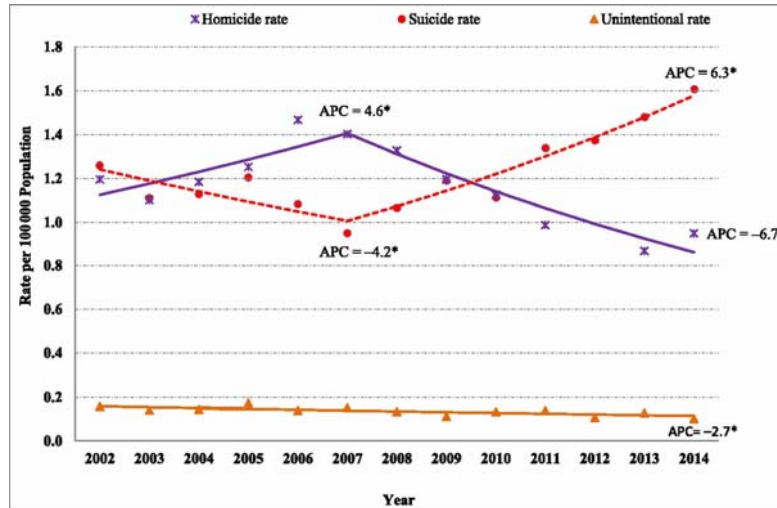
Source: NCHS, National Vital Statistics System

Causes of Death among Persons 1 to 24 Years of Age in the United States, 2010.



Palfrey JS, Palfrey S. N Engl J Med 2013;368:401-403.

Fatal firearm injury rates by intent and year, children aged 0 to 17 years, United States, 2002–2014.



Katherine A. Fowler et al. Pediatrics 2017;140:e20163486

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Boy, 3, injured himself with gun

Mission man left firearm unattended before cleaning it. Youngster is in stable condition.

By ROBERT A. CRONKLETON
The Kansas City Star

A father preparing to clean a handgun left the loaded firearm in the reach of his 3-year-old son, who then shot himself, Mission police said Friday.

The boy was injured about 2:50 p.m. Thursday in the Bridges at Foxridge apartments at 6904 W. 52nd Place in Mission.

Police said their investigation revealed that the boy's father was preparing to clean his Glock 9 mm handgun and left the loaded firearm unattended where the boy could reach it.

While the father's back was turned, police said, the boy reached for the gun and pulled it toward himself. The gun fired and the bullet hit the child, traveling through his

Police said the boy was at a hospital and was reported to be in stable condition Friday.

The father was not in custody.

Police planned to forward their report on the incident for the Johnson County district attorney's office to review and determine whether any charges should be filed.

The Police Department issued the follow gun safety reminders:

- Treat all firearms as if they are loaded.

- Point muzzles in a safe direction.

- Never leave a gun unattended when handling or cleaning it.

- Lock unloaded guns in a secure location, such as a fire-arms safe or locked box, or use a trigger lock or chamber lock.

- Lock ammunition and store it in a different location than the gun.

What don't we know: the numbers

- Basic surveillance is lacking
 - Intent based counting is problematic
 - No national system like CODES or FARS (NVDRS hopeful but needs expansion)
 - Source of the firearms used in injurious episodes

“In this age of space,” President Johnson remarked, “we are getting plenty of information about how to send men into space and how to bring them home. Yet we don’t know for certain whether more auto collisions are caused by faulty brakes, or by soft shoulders, or by drunk drivers, or even by the deer crossing a highway.”

Compared to other countries, American Children (younger than 15) are:

- **12 times** more likely to be *killed* by a gun
- **17 times** more likely to be a *gun homicide* victim
- **10 times** more likely to die of a *gun suicide*
- **9 times** more likely to die of an *unintentional gun injury*.

Richardson, Hemenway. J Trauma
2011;70(1):238-243.

What We Know

- Children *commonly* live in environments containing unsecured firearms. (Johnson RM,, et al. Arch Pediatr Adolesc Med 2006;160(8):788-)
- Children have the ability to fire guns. (Naureckas SM Arch Pediatr Adolesc Med. 1995 Dec;149(12):1318-22.)
- Little children are curious; Big children are impulsive.
- Guns are lethal.
- Safe storage work to prevent unintentional and self-inflicted GSW deaths (Grossman et al. JAMA 2005 Feb 9;293(6):707-14).

Who Is Strong Enough to Fire a Gun?

- 25% of 3 to 4 year olds
- 70% of 5 to 6 year olds
- 90% of 7 to 8 year olds

Source: Naureckas et al, 1995



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Risk Factors - Gun Storage

Of gun-owning parents:

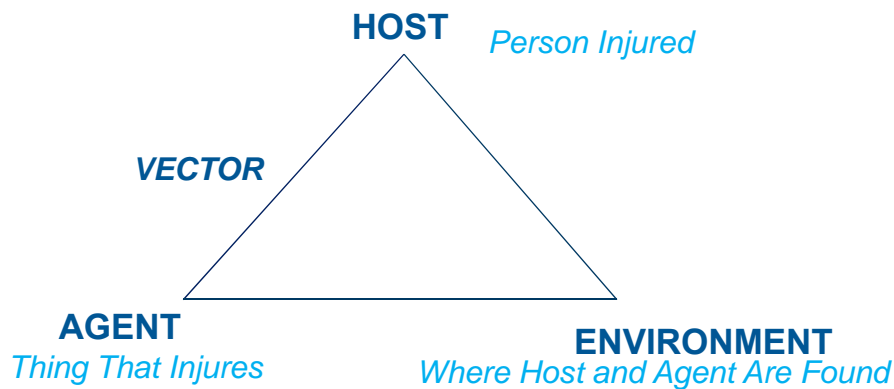
- Keep firearm unlocked and loaded 9%
- Keep firearm unlocked, unloaded,
 - stored with ammunition 4%
- At least one gun unlocked 43%
- Keep firearm locked, unloaded, and separate from ammunition 39%

Source Schuster April 2000

Epidemiologic Triangle

- Host (Human)
 - Infant asleep in car seat,
 - distracted mom driving
- Agent (Vehicle)
 - Convertible Mini-Cooper
- Environment
 - Busy roadway with no shoulder

How We Study Injury and Disease *Epidemiologic Triangle*



What Else We Know

- Parents are receptive of discussion of risk of guns during pediatric visits (Webster DW, Pediatrics 1992;89:908-14)
- Receptivity to discussion on firearm safety may differ between owners and non-owners (Garbutt, et al Jpediatr 2016;179:166-71)
- Anticipatory guidance on safe storage of firearms is likely to result in more guns being safely stored (Barkin SL, et al. Pediatrics 2008;122:e15-e25. McGee KS, Coyne-Beasley T, et al.. Inj Prev 2003;9:108-11; Grossman DC, et al. Am J Public Health. 2012;102(suppl 2): S291-S297)

Where do the guns come from?

Among suicide completers and attempters:
75% of the guns came from the residence of
the victim, friend or relative

Grossman, et al. Arch Pediatr Adolesc Med. 1999;153:875-878.



Child-focused Education Does it Work?

Gun Safety Programs

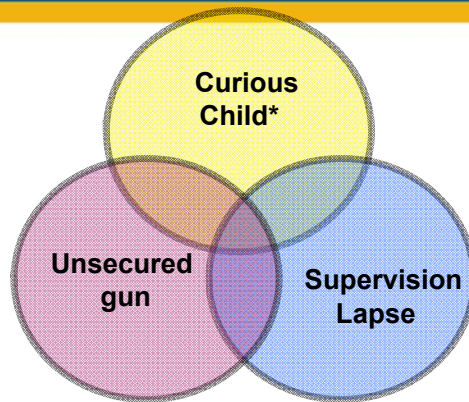
- Ineffective for injury reduction among adults
- No effect on safe storage
- No effect on youth accessing for self harm

Gun Avoidance Programs

- Examples: Eddie Eagle (NRA), STOP (AAP)
- A single, small evaluation demonstrates no effect on pre-schoolers
- No effect on youth accessing for self harm.

Hardy, J Dev Behav Pediatr. 2002;23(2):71-76
Jackman, et al. Pediatrics. 2001;107(6):1247-50
Himle, et al. Pediatrics 2004;113(1 pt1):70-77.

A Perfect Storm



* or depressed/impulsive teen

Safe Storage Works

Storage Practices and Suicide Risk, 5-19 year olds

Firearm Storage Practice	No. (%)		Adjusted Odds Ratio (95% CI)
	Cases (N=106)	Controls (N=480)	
Gun unloaded	66%	91%	0.30 (0.16-0.56)
Gun locked	32%	58%	0.27 (0.17-0.45)
Ammunition locked	24%	48%	0.39 (0.23-0.66)

Types of Gun Locks

- Cable Locks
- Trigger Locks
- Biometric Locks
- Lock Boxes
- Gun Safes

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Handgun Cable Locks

Revolver



Semi-Automatic



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Long Gun Cable Locks

Rifle Cable Lock



Shot Gun Cable Lock



Trigger Locks

*Semi-Automatic
Trigger Locks*



*Various Trigger
Locks*



Biometric Locks

Biometric Trigger Lock



Biometric Gun Box



Gun Box & Gun Safe

Gun Box/Lock Box



Gun Safe



What Can You Do?: Provider

- **ASK your families and advise to : keep guns in the home safety secured: unloaded, locked, ammo locked separately; no access to key by kids**
- **Encourage families to talk to their family, friends, neighbors about the danger of unsecured guns.**
- **For children with behavioral or mental health issues of concern: advise removal guns from home. This is SAFETY planning !**

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How To Ask About Guns

- “OK, you might think I’m a bit nervous, but I do worry about the safety of my children when I’m not around. So, I’ve got to ask you... Do you have any guns in the house?”
- “Before my child visits, I need you to know he is really curious and can be mischievous. He gets into to everything! So, I’ve got to ask you... Do you have any guns in the house?”
- “These cases of kids getting killed or badly injured when they find a gun in the home makes me really worry”

Unaddressed Child Specific Questions

- When should children be allowed to handle guns?
- What are the influences on gun ownership? Does the presence of children influence gun ownership?
- How do families balance risk of gun in the home with perceived benefit of gun availability? Does this change with the presence of children?
- Should we screen for guns in the home OR provide universal prevention messages?

Role of Pediatricians

- Focus on the CHILD, not the Gun
- Consider Universal Education within anticipatory guidance
- Prioritize: risks that are prevalent, lethal and preventable



American Academy of Pediatrics Firearm Injury Prevention Policy 2012

- Pediatricians, as part of their anticipatory guidance with families should inquire about guns in the home and offer most effective child protection strategies
- *Best:* Guns kept out of the environment of children
- *Good:* Guns in the home should be stored safely: guns separate from ammo., both locked.



American Academy of Pediatrics Firearm Injury Prevention Policy 2012

- Regulations of firearms
 - Child access prevention laws
 - Regulation of manufacture, sales. Waiting periods, closure of gun show loophole, background checks
 - Restoration of assault weapons ban
- Research in firearm injuries , including public health surveillance
- Continued physician education



Child Injury Prevention = *Layers of Protection*

<i>Pool Drowning</i>	<i>Gun Death</i>
Pool fencing	Gun Lock
Supervision	Supervision
Teach child	Teach child



Every parent knows

It just takes a minute.

FIGURE 1. Motor-vehicle-related deaths per million vehicle miles traveled (VMT) and annual VMT, by year — United States, 1925–1997

