Recognizing the Impact of Gun Violen	ce or
Youth- and How Health Care Profession	bnals
can Address It	

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O'Neil Conference September 28th, 2023



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Learning Objectives

- Describe how firearm injury affects the spectrum of pediatric, adolescent, and young adult patients
- 2. Determine which hospital-based approaches you may choose to implement to decrease firearm injury in youth we work with.
- 3. Identify interventions beyond the clinical setting that contribute to reducing firearm injury risk.

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Outline

- Epidimiology of Firearms on Youth
- Discuss health care approach to firearm injury risk reduction
- Efforts beyond the clinical setting
 Advocacy
 Legislation

Towards a Public Health Approach to Reducing Gun Violence

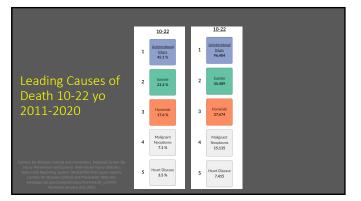
- Consider the Range of Prevention
 - Primary/Universal
 - Secondary/Selected
 - Tertiary/Indicated

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Case Discussion- Consider your Clinical Setting

- In the outpatient setting, a 14 yo female presenting for a routine sports physical.
- In the ED, a 15 yo male who was assaulted by a group of teenagers
- In the inpatient setting, a 17 yo male admitted for a GSW to his leg who underwent an orthopedic procedure

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Question: MVA's vs Firearms Mortality?

- 1. MVA deaths > firearm
- 2. MVA deaths about equal to firearms
- 3. Firearms deaths > MVAs

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Firearm c/w MVA Mortality 2001-2018				
	Firearms N	MVA N	Firearm Rates	MVA Rates
2001	6,907	11,127	13.14	21.17
2002	7,008	11,866	13.08	22.15
2003		11,390	13.01	20.96
2004		11,423	12.27	20.77
2005		11,207	12.74	
2006		11,229	13.27	20.19
2007		10,793	12.73	19.34
2008		9,037	12.28	
2009		7,788	11.54	13.9
2010		7,349	11.43	
2011		7,229	11.54	12.86
2012	6,671	7,186	11.82	12.73
2013		6,799	11.34	
2014	6,402	6,801	11.35	12.06
2015		7,060	12.7	
2016	7,753	7,318	13.88	13.11
2017	7,939	6,993	14.28	12.58
2018	7,732	6,534	13.94	11.78

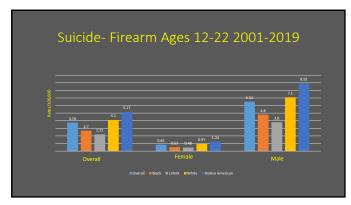
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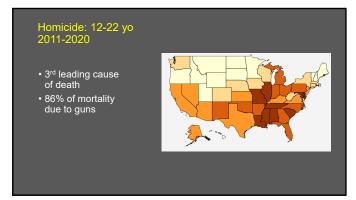
Suicide

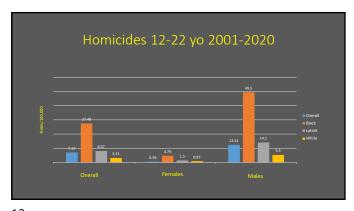
- 2nd leading cause of death 10-22 yo
- 45% of mortality due to firearms- leading mechanism of death



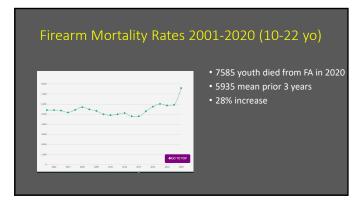
Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) fatal Injury reports. Centers for Disease Control and Prevention Web site. webappa.cd.gov/sasweb/nipc/mortrate10 us.html.







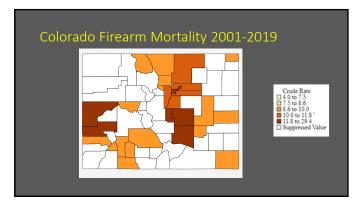




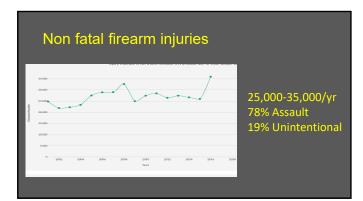


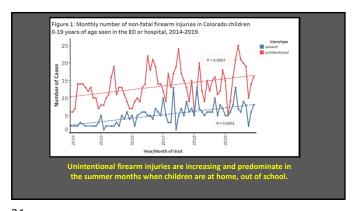
All F	irea	Suicide	Unintenti	tali	ty by	/ Age Group 2020-CO
0-10	0	0	onal	0		In CO, 61.6% of all firearm
10-14	0	0		14	3.87	deaths are due to suicide
15-19	29	34	6??	65	17.74	
20-24	33	65	2??	100	26.3	
Total	62	99	8			
Centers for Disease Centred and Prevention, National Center for Ingus Y western and Control and Prevention, National Center for Ingus Y reventions and Control. Who based open Statistics. Gary and Napoling lysing (NOSAGES) fall along y reports. well-cape Cape Garyanteer (Nosage Center Testa Ed. u. Martin, September 1).						

Firearm Mortality Rates					
	Firearm F	lomicides	Firearm	Suicides	
2018-2019	All Ages	Ages 10-19	Ages > 9	Ages 10-19	
US Total	4.5	4.3	8.1	2.9	
Metropolitan Areas	4.8	4.9	6.2	2.0	
Denver	3.4	5.0	10.2	3.8	
Denver 3.4 5.0 10.2 3.8 Kegler SK, Stone DM, Morry JA, Californy LL. Freezem Harmicides and shadols on blood Mann surface read—Joined States, 2015-2016 and 2022-272-14-16. Discharge Milky Arep http://dx.doi.org/10.1025/s/mmann-70.7016.selement Lang.					









Youth Firearm Access

- THE Critical Factor that determines morbidity and mortality due to firearms
- Focus for healthcare has been to determine ways to decrease youth access



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National Gun Ownership

- National: 29.4%
- Colorado: 34.3%
- Alaska: 61.7%
- Delaware 5.7%



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Youth firearm Access

- 40% of households with children have at least one firearm
- 44% store firearms locked and unloaded
- 6% of households with youth (15% of firearm households) have a loaded, unlocked firearm

Miller M, Azrael D. Firearm Storage in US Households with Children: Findings from the 2021 National Firearm Survey. JAMA Open Network 2022;5(2):e2148823.



With a gun in the home individuals are... • 3 times as likely to die from homicide • 5 times as likely to die from suicide

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Behavioral Factors Associated with Firearm Age Gender Violence 1.26 (1.14, 1.4) Each Year Older 1.54 (1.01, 2.4) 2.2 (1.4, 3.6) + VIPRS + VIPRS Physical Aggression Serious Delinquency Alcohol Use Cyberbully Victim Internalizing Problems Peer Problems Any + SDQ 2.4 (1.5, 4) 4.7 (1.4, 16) 2.0 (1.2,3.8) 1.7 (1.02,2.6) 1.9 (1.1,3.3) 1.9 (1.1,3.2) 1.83 (1.1,3) 8.6 (2.1, 34.8) Parents w Firearms

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Impact on Firearms and Health

- Psychologic sequalae
 Witness/victim/perpetrator
 PTSD
 Major Depressive Disorder

Post Injury Impact

- Health Care Utilization
 - Significant increase post firearm injury- n= 1519
 - Increase of 110% in prior low utilization youth (8705 c/w 18, 686)

 Increase in youth with diagnoses of youth with Complex Chronic Conditions(at least 1 organ system that will last longer than 12 months and have high service utilization)

 119 (6.5%)before injury 239 (13.1%) post injury
- Health Care Costs

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Post Injury Impact

- 38% had MH diagnosis prior to injury
- 55% had a MH diagnosis one year post injury
- 25 % of youth with had a NEW mental health diagnosis 1 year subsequent to injury

 - Stress related disorder -17%
 Substance use- 20%
 Disruptive/conduct disorder
 ADHD- 20%
 MDD- 13%
- Complex Chronic Condition predicted higher MH dx

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Post-injury period: What we know

- Risk of re-injury is high14-24 year olds within 2 years
 - 37% violent injury requiring ED care
 - 12-19 year olds within 4 weeks
 - 18% been beaten up, 13% sustained injury requiring medical attention, 3% shot or stabbed
 3% beat someone up, 27% carried knife/gun, 3% shot or stabbed someone
- Retaliatory intent is important

aufman, Am J Emerg Med. 2016; Wiebe, J Adol Health, 2011; Cunningham, JAMA Peds, 2015; Meyers, JAH. 2017.

What can health professionals do?

- Primary Prevention
 - Screen for firearm access
 - Counsel on safer storage
 - Distribute locking devices

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Hypothetical Model Increasing Safer Storage

- Compared observed fatalities (suicide, unintentional) in 2015
- 33.4% households with children and guns; 47% 'unlocked'
- • Modeled an intervention - hypothetically increased safe storage from 10% to 50%
- Decreased overall mortality between 6- 32%

Monuteaux MC, Azrael D, Miller M. Association of increased safe household firearm storage wit firearm suicide and unintentional death among US youths JAMA Pediatr. 2019;173(7):657–662

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Evidence Supporting Counseling Alone

- Counseling alone can lead to change a.
- Counseling parents with suicidal children/adolescents (in an ED setting) decreases youth access to firearms.^b
- A. Albright TL, Burge SK. Improving firearm storage habit Impact of brief office counseling by family physicians. Am Board Fam Pract. 2003;16(1):40–46
 B. Grossman DC, Cummings P, Koepsell TD, et al. Firearm safety counseling in primary care negliatries a randomized, confined it is in



Evidence: Counseling/Safe Storage

- Distributing free gun cabinets alone improves safe storage⁴⁰
- Counseling and free cable locks³⁷
- Counseling and free gun lock³⁸



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Safe Storage Device Program @ CHCO

- Started in 2014 through grant funding/injury prevention initiatives
- Intensified in the last 3 years due to significant donations
- Primary Care
 Ado Med
 CHC
 Young Mom's
- Inpatient Psychiatry
- Psychiatric ED
- Regular ED
- Approximately 1500 lock boxes, 200 cable locks distributed

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To screen, or not to screen?

- Significant Debate among Firearm Research Experts-
- Is it off-putting to firearm owners?
- About 20% of firearm owners (or 6% of your patients) state they do not agree with either screening and/or hearing a firearm safety message
 Little science to really go on...

Benefits of Screening	
Among firearm owners, using an EMR embedded screen:	
HCPs documented firearm access 73% intervention group c/w 26%	
control	
Changing the PE template- adding a firearm access question	
 84% post change documented FA access c/w 25% pre change (p<.001) 	
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Current Practice @ CHCO Ado Med	
Ado Med Adolescents/Young Adults	
 Do you have any guns in or around your house? Parents: 	
 Do you have any guns in or around your house? If you do have any firearms at home, are you interested in taking home any safe storage devices today, such as a lockbox for handguns, or cable locks for rifles/shotguns? YIN 	
nfles/shotguns? Y/N	
38	
30	
Reasons not to screen ?	
Reasons not to screen?	
Utilize universal safer storage message	

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"I would like to bring up the topic of firearm safety. We bring this up regardless of whether you have any guns at your house. We know that access to guns for kids poses lots of health risks, whether a teenager is considering suicide or is just over at a friend's house playing around. The safest situation for teenagers is not to have direct access to guns. The next safest situation is that if you do have any firearms at home, to make sure they are locked up in a safe, or with cable or trigger locks, and that ammunition is stored separately (and locked as well). We encourage parents to inquire about firearm access at their child's friend's house and how the guns are stored if there are guns at the friend's house."

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Key Principals to Consider when Counseling on Firearm Safety

- Respect the parents' position on firearm ownership
- Be non-judgmental
- The Mantra: If there are guns, the safest way to have them is to
 - 1. store all guns locked (lock box/gun cabinet, trigger locks, cable locks);

 - 4. Ensure adults do not use the common 'codes' for lock boxes, etc

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Counseling On Access to Lethal Means (CALM)

Suicide Focus

- Means Matters (gun > hanging > overdose)
 90% completion with gun; <5% with ingestion
 82% who complete suicide by firearm use gun from the home
- 2. Suicide Impulsive (50% attempt within 1 hour)
- 3. Only 10% of those who survive an initial attempt eventually die via a future attempt

Facts to Use When Counseling

- Youth living in a home with firearms are at increased risk for homicide and suicide
- Suicide is the 2nd leading cause of death for teenagers, with firearms a common method
- In 85% of firearm suicides, adolescents use a parent's gun
- Unintentional deaths and injuries happen, 40% of the time at a
- The safest home for teenagers is one without guns
- Teens often know codes or where keys are stored

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High Risk Situations (Secondary Prevention)

- Suicidal ideation/plan
- Major depressive disorder
- Violence Involvement



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- Motivational Interviewing- focused on safety, gun carrying, gang reduction
- Similar approaches to primary prevention

 - Screen???
 Counseling...BUT higher risk situations, particularly SI, suggest:
 Screen the home.

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- + Violence-related injury, + Firearms
- Youth: "Thank you for sharing with me that you often carry a gun for protection. Can you think of a situation where carrying a gun might make you less safe? What other things might be helpful to keep you safe?"

Higher Risk Situation

"That's great that the guns are safely stored; however, teenagers, if
they are determined, can potentially gain access to the safe. That
being the case, we strongly recommend that all your guns, at least for
now, be kept out of your house. Do you know any place, such as the
house of a friend without kids or your hunting club, where you could
keep your guns until your son is better?"

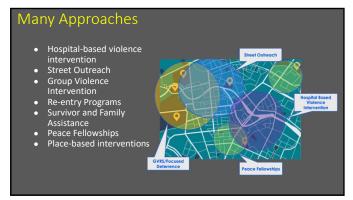
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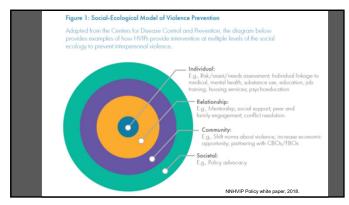
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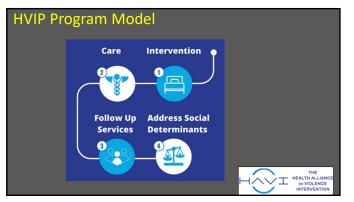


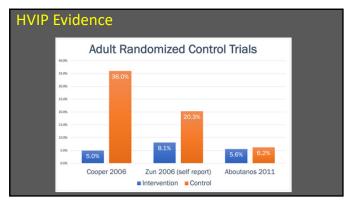


Role of Youth-Serving Professionals • Key sources of support • Circumstances of the assault • Safety assessment • Risk for retaliation • Weapon carrying/access • Mental health









- Assault injured/firearm violence involved youth
- At Risk Intervention and Mentoring (DH)
- Hospital Based Violence Intervention Program

 - Recent grant funding from OJJDP
 Focuses on assault injured youth seen in ED
 High risk youth in primary care
 Wrap around services, comprehensive needs assessment
- Blueprints for Healthy Youth Development
 - Family based counseling interventions

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Comprehensive Hospital Based Adolescent Violence Assessment and Treatment at CHCO

- 1. Screen for Risk CHCO Ado Med Clinic
- 2. Assessment- CHCO Ado Med Clinic
- 3. Linkage to Evidence Based interventions (FFT)
- 4. ED- At Risk Intervention and Mentoring (AIM)
- 5. Inpatient (6th floor primarily)- AIM
- Project Director: Dr. Eric Sigel
- AIM Director: Erica Green

AIM Process in the ED

- Eligible patients- any assault injured youth, concern for interpersonal violence
- SW or HCP (MD/APP) can refer
- · Discuss with patient/family that AIM is available

- · Provide general window of time in the ED
- · AIM team meets patient/family
- · Discusses resources, the program

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Adolescent Medicine @ CHCO

- ☐ Comprehensive assessment of any youth 12-20 at risk or violence involved
- Assesses:

 - Mental Health (PTSD/MDD/ADHD/Bipolar/Explosive Anger)
 Physical Health, including STI screening and family planning services
- Treatment Plan

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Firearm Fatality and Strength of Gun Laws

Legislative Impact on Access to Guns and Firearm Deaths

- Adolescents less likely to carry a gun in states with more restrictive gun control policies
- States with more legislation- smart firearm laws- have fewer firearm deaths

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Child Access Protection Laws

- Range of laws holding parents liable for varying degrees of child access to firearms
- 27 states have some CAP law
- most stringent type of negligence laws are the child could access laws, which apply if a child could potentially access a firearm (CO-2021)

	Reduction	95% CI	Stringent	95% CI
All FA fatalities	13%	-18%, -7%		
FA Suicides	12%	-20%, -2%		
FA Homicides	15%	-22%, -7%		
FA Unintentional	13%	-24%, -1%	59%	-68, -49

Azad HA, Monuteaux MC, Rees CA, et al. Child Access Prevention Firearm Laws and Firearm Fatalities Among Children Aged 0 to 14 Years, 1991-2016. JAMA Pediatr.

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Extreme Risk Protection Order

- ERPO is a civil order granted by a judge to prohibit an individual from purchasing or owning a firearms if they pose a risk of hurting themselves or others.
- Individuals can initiate the process, filing a petition with the courts
- If approved, then law enforcement will remove firearms from the house
- Allows law enforcement to ban purchase of new firearms and allows temporary removal of firearms already owned.
- Implementation in Indiana and Connecticut has reduced the rate of suicide by 7.5% and 13.7%, respectively.

Work by Colleagues

1. Eugene S Farley Jr Health Policy Center- Policy Brief-

Sindhu P. Sudanagunta, MD, Emma C. Gilchrist, MPH, Maya Haasz, MD and Shale L. Wong, MD, MSPH

2. Peds ED based work- Maya Haasz MD- Leverage the Peds ED to **increase safe storage of firearms** in homes with youth;

evaluating video delivery of safe storage messaging; long term outcomes of pediatric firearm injuries.

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Advocacy Efforts

- Newly formed office at CDPHE: Office for Gun Violence Prevention
- American Academy of Pediatrics

 - Policy statement on firearms
 "How Pediatricians Can Advocate for Children's Safety in Their Communities"—pragmatic advocacy strategies
- The Children's Safety Network
 Repository of publications and injury prevention informational resources
 www.childrenssafetynetwork.org
- The Brady Campaign
 Advocacy opportunities
 www.bradycampaign.org

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Opportunities for Involvement On Campus

- Firearm Injury Prevention Initiative- Campus Wide
 Emergency Medicine | Major Programs | Firearm Injury Prevention Initiative (cuanschutz.edu)
- Children's Hospital Firearm Injury Prevention Workgroup
 clare Decker, MPH, CPH, CPST
 Injury Prevention and Outreach Coordinator
 Clarice. Decker@childrenscolorado.org

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American Academy of Pediatrics

