2023 NATIONAL RESEARCH CONFERENCE
FOR THE PREVENTION OF
FIREARM-RELATED HARMS

CHICAGO, IL
NOVEMBER 1-3

ABSTRACTS FOR POSTER SESSIONS

POSTER SESSION 1

November 2 / 6:00 - 6:45 p.m. / Riverwalk

Poster #	Abstract Title	Name	Affiliation
1	Understanding the extent to which fatal and non-fatal firearm injuries impact Illinois populations of similar urbanicity	Megan Koch	Illinois Department of Public Health
2	Daily fluctuations in anxiety and fear among US adults who carry firearms	Craig Bryan	The Ohio State University
3	Distance between firearm injuries and residential address: Patient characteristics and outcomes	Kara Kallies	Medical College of Wisconsin
4	Facilitators and barriers to the adaptation of the cure violence model in schools: A case study approach	Sara Solomon	University of Pennsylvania
5	Mass shootings: Hate, political extremism and access to firearms	Wendy Cukier	Toronto Metropolitan University
6	Characterization of mass shootings by state, 2014-2022	Leslie Barnard	University of Colorado Denver
7	Reporting on guns in schools: A content analysis of newspaper discussions of firearm incidents in Michigan K-12 schools	Victor Medina Del Toro	University of Michigan
8	A crowdsourced approach to compare perceptions of trend in visualizations of mass shooting incidents across different data sources	Poorna Talkad Sukumar	New York University
9	Formative reasons of state-to-state influences of firearm acquisition in the United States	Xu Wang	Northeastern University
10	Community perspectives on firearm safety communication during pediatric primary care visits	Michelle March	Cincinnati Children's Hospital Medical Center
11	Circumstances surrounding pediatric firearm injury in New York City	Jennifer Grad	NYU / NYC Health + Hospitals/Bellevue
12	Examining demographic trends in North Carolina EMS firearm injury data / Evaluating a firearm injury definition for EMS data	Nicole Snyder	University of North Carolina at Chapel Hill
13	Gun laws matter: The impact of varying legislation on unintentional firearm hospitalizations	Gary Zhang	East Carolina University
14	The big idea: Innovation forums as a community platform for firearm injury prevention	Damaris Ortiz	Indiana University
15	Firearm violence: Can medical students "Stop the Bleed?"	Jasmanpreet Kaur	Michigan State University

POSTER SESSION 1

November 2 / 6:00 - 6:45 p.m. / Riverwalk

Poster #	Abstract Title	Name	Affiliation
16	Centering female gunshot survivorship through qualitative research and expressive art	Nathan Aguilar	Columbia University
17	Assessing social work practitioners' attention to firearm violence	Patricia Logan-Greene	University of Buffalo
18	Emergency Medical Services (EMS) clinicians' views on EMS-delivered interventions to promote secure firearm storage practices	Ian Stanley	University of Colorado Anschutz
19	Firearm safety and policy attitudes among midwestern healthcare providers	Lynn Massey	University of Michigan
20	Assessing hospital based violence intervention programs: A qualitative study of firearm injury survivors and violence prevention program faculty	Derek Lumbard	Hennepin Healthcare
21	Creation of a multi-disciplinary clinic to address the unique needs of firearm violence survivors	Colleen Trevino	Medical College of Wisconsin
22	Assessing a choice-based interactionist framework for understanding differences in situational risk factors for gun violence victimization	Brendan Lantz	Florida State University
23	Project Safe Neighborhoods (PSN): An organizing framework for partnerships for firearms violence prevention and intervention in North Carolina	Stacy Sechrist	RTI International
24	A qualitative scoping review of attitudes, behaviors, causes, and consequences of community firearm violence	Colleen Walsh	Virginia Commonwealth University
25	Community greenspace protects against firearm-involved crime in Indianapolis	Karl Selm	Keep Indianapolis Beautiful Inc
26	Residential segregation and youth firearm violence: Downstream consequences	Daniel Lee	University of Michigan
27	Urban geography of firearm injuries: An analysis of victim residences and injury locations in Philadelphia, PA	Evelyn Gorey	City of Philadelphia Department of Public Health
28	Developing community-based youth firearm violence intervention evaluation measures through a researcher-community partnership	Julia Schleimer	University of Washington
29	What are community groups doing to prevent and respond to shootings? Findings from Project CLEARS	Carlee Ruiz	RTI International
30	Homicide and shooting reviews: A data to action public safety and public health response to firearm violence	Mallory O'Brien	Johns Hopkins University

POSTER SESSION 1

November 2 / 6:00 - 6:45 p.m. / Riverwalk

Poster #	Abstract Title	Name	Affiliation
31	National Institutes of Health (NIH): Portfolio analysis of homicide and firearm violence prevention research and opportunities for future research	Dara Blachman-Demner	National Institutes of Health (NIH)
32	Findings of the Philadelphia Firearm Homicide Review Team: An experiment in integrated public health and criminal justice data	Ruth Abaya	University of Pennsylvania
33	Firearm homicides among Hispanics and White non-Hispanics: Measuring disparities	Eugenio Weigend Vargas	University of Michigan
34	Integrating language justice and culturally responsive research practices to the study of intimate partner firearm violence	Chiara Cooper	University of Michigan
35	Understanding the use of firearms and other weapons in the perpetration of nonfatal intimate partner violence in North Carolina	Allyson Corbo	RTI International
36	Firearms and post-separation abuse: Providing context behind the data on firearms and intimate partner violence	Kathryn Spearman	Johns Hopkins University
37	Domestic violence restraining order firearm laws and firearm fatalities among children and teens, 1999 to 2020	Karissa Pelletier	University of Michigan
38	Attitude to predict unsafe storage practices among Missourians who own firearms for protection	Haley Crimmins	University of Michigan
39	Law enforcement and firearms: Understanding firearm ownership and storage habits	Allie Bond	Rutgers University
40	A comparison of service member and civilian experiences with cable locks: Implications for secure storage messaging	Shelby Bandel	Rutgers University
41	Purchase motivations and policy opinions of new gun owners	Rebecca Valek	Johns Hopkins University
42	The roles of governors in state firearm policy environments, 2020-2022	Diana Silver	New York University
43	How have firearm laws changed in outlier states with unexpected decreases or increases in firearm homicide, 1990-2019?	Michelle Degli Esposti	University of Michigan
44	Extreme Risk Protective Order implementation in Anne Arundel County, MD	Isabella Young	Anne Arundel County Department of Health
45	Examining firearm buyback program participation within the context of the Health Belief Model	Liz Grimes	California State University, Long Beach

POSTER SESSION 1

November 2 / 6:00 - 6:45 p.m. / Riverwalk

Poster #	Abstract Title	Name	Affiliation
46	How can governments invest in safety? A scoping review of government spending and firearm violence in the United States	Julia Lund	University of California, Davis
47	The current state and federal firearm policy landscapes	Lois Lee	Boston Children's Hospital
48	Reasons for gun ownership among new and prior gun owners	Julie Ward	Vanderbilt University
49	Firearm-related mortality among child welfare-involved youth: Using surveillance data to inform prevention strategies	Christina Magness	University of Michigan
50	A national study of rural youth's exposure to firearm violence and attitudes towards firearm safety measures	Megan Sinik	University of Iowa
51	A geographic analysis of pediatric firearm deaths and state policies on social, emotional, and academic development	Justin Hatchimonji	University of Pennsylvania
52	Changes in firearm-related self-harm deaths and their association with state-level firearm laws: Analysis of US states from 1990 to 2019	Sid Zadey	Columbia University
53	Engaging in Lethal Means Safety (ELMS): An evaluation of a suicide prevention means safety training program for mental health first responders	Chris Collins	Salem State University
54	The values, beliefs, and meaning of firearms and firearm ownership among post-9/11-era current and former Army service members	Jayna Moceri-Brooks	Rutgers University
55	The role of financial incentives in promoting secure firearm storage among Veterans with elevated suicide risk	Gabriela Khazanov	Corporal Michael J Crescenz VA Medical Center in Philadelphia
56	Using multi-stakeholder engagement to develop an educational workshop empowering loved ones to promote firearm safety for suicide prevention	Gabriela Khazanov	Corporal Michael J Crescenz VA Medical Center in Philadelphia
57	Alaska Native adult and youth perceptions of youth firearm access	Avery Moje	University of Colorado Boulder

POSTER SESSION 2

November 3 / 11:45 a.m. - 12:30 p.m. / Riverwalk

Poster #	Abstract Title	Name	Affiliation
1	Save us: The Robb Elementary School shooting forces Southwest Texas Junior College to improve security measures	Dalia Vazquez	Southwest Texas Junior College
2	Negligent firearm businesses and their proximity to K-12 schools across the United States: Evaluating risk to school-based firearm violence	Paul Reeping	University of California, Davis
3	Mass shootings in Europe: Policy implications of differing firearm acquisition patterns	Nils Duquet	Flemish Peace Institute
4	(Artificial) eyes in the sky and ears to the ground? Public attitudes toward expanding surveillance technologies to reduce gun violence	Magic Wade	University of Illinois Springfield
5	Instrumentality and technological determinism as related to firearms	Christopher Strain	Florida Atlantic University
6	Women's role in crime: Evaluating the 5K motion video as an educational resource	Pina Violano	Quinnipiac University
7	Impact of the transition to the National Incident-Based Reporting System on 2021 gun violence trends	Terra Wiens	Violence Policy Center
8	Factors that make shootings hard (or easy) to solve: Findings from the National Case Closed Project	Nicole Johnson	RTI International
9	Preliminary uptake of universal screening for firearm injury risk among pediatric surgical trauma patients	Emma Cornell	Northwell Health Center for Gun Violence Prevention
10	Usability testing of a virtual reality curriculum to deliberately practice firearm safety counseling	Michelle March	Cincinnati Children's Hospital Medical Center
11	Provider perspectives on addressing firearm safety with older adults in primary care	Rachel Ross	University of Washington
12	"Keep your activism out of the exam room": Healthcare providers' opinions about firearm safety conversations on a Medscape message board.	Christopher Knoepke	University of Colorado Anschutz
13	Piloting a gun violence prevention training curriculum for school nurses and counselors in New Jersey and Massachusetts	Amy Kaplan	Massachusetts General Hospital Gun Violence Prevention Center
14	Long-term outcomes following discharges against medical advice after firearm injury	Ted Chung	Hennepin Healthcare
15	A preliminary examination of mental healthcare providers' firearm access screening practices in the US	Taylor Rodriguez	Rutgers University

POSTER SESSION 2

November 3 / 11:45 a.m. - 12:30 p.m. / Riverwalk

Poster #	Abstract Title	Name	Affiliation
16	Characteristics of youth seeking emergency department treatment for an assault injury	Heather Hartman	University of Michigan
17	Predictors of repeat pediatric firearm injury in St. Louis: A 10-year retrospective cohort analysis	Kristen Mueller	Washington University at St. Louis
18	Changing medical education: Firearm violence prevention in pediatric and emergency medicine residency programs	Jasmanpreet Kaur	Michigan State University
19	Care management needs among youth with recent firearm carriage enrolled in a violence prevention program	Lynn Massey	University of Michigan
20	Clinicians and firearms: A curriculum on firearm injury prevention in healthcare	Andrew Lithen	Quillen College of Medicine
21	The role of the post-discharge care team in caring for gun violence survivors	Rebecca Laszkiewicz	Medical College of Wisconsin
22	Preventing disparities in firearm-related harm: Preferred roles of clinical social work practitioners	Kelsey Conrick	University of Washington
23	Examining predictors of firearm-related victimization	Meagan Docherty	Bowling Green State University
24	Towards a better understanding of gun violence in the EU: Possibilities and limitations of using Artificial Intelligence to identify gun violence.	Astrid De Schutter	Flemish Peace Institute
25	Online communities and gun ownership: A thematic analysis of r/Firearms	Karissa Pelletier	University of Michigan
26	Local public health approach to firearm-related death surveillance	Deanna Price	Washtenaw County Health Department
27	Toward the development of firearm safety communication interventions: Insights from firearm owning parents	Mike Garcia	The University of Texas Health Science Center
28	Firearm injuries differently affect homeless and undocumented trauma patient populations	Melissa Kovacs	Chandler Regional Medical Center
29	An investigation into the design and implementation of a firearm safety mechanism for minimizing human errors	Masato Nakamura	New York City College of Technology (City Tech)

POSTER SESSION 2

November 3 / 11:45 a.m. - 12:30 p.m. / Riverwalk

Poster #	Abstract Title	Name	Affiliation
30	Firearm related trauma experiences among recent adult Latinx immigrants: Findings from a study at the US southern border	Laura Vargas	University of Colorado Anschutz
31	Local experts on what could reduce disparities in firearm violence: A qualitative examination in Erie County, New York	Patricia Logan-Greene	University of Buffalo
32	Why is the trigger pulled? Youth perceptions of the causes of firearm violence in Washington, D.C.	Laney Rupp	University of Michigan
33	Towards the development of a Cure Violence implementation research logic model: Gaps and opportunities	Sara Solomon	University of Pennsylvania
34	Phase 1 evaluation of the community component of 414LIFE - Milwaukee's community gun violence prevention and intervention program	Amber Brandolino	Medical College of Wisconsin
35	Implementing a community-based advocacy and support program for survivors of firearm injury	Lauren Magee	Indiana University, Indianapolis
36	Firearm homicides of US children and the role of intimate partner violence, 2003—2020	Rebecca Wilson	Centers for Disease Control and Prevention
37	Perceived impact of living with an abuser with firearm ownership: Barriers to addressing threats to safety and recommendations for practitioners	Bushra Sabri	Johns Hopkins University
38	The double-edged sword of police shootings — The effect of Black Lives Matter on reporting of intimate partner violence crimes	Zainab Hans	University of Michigan
39	Using implementation science to bring firearm safety education and gun lock distribution to the pediatric intensive care unit	Anireddy Reddy	Children's Hospital of Philadelphia
40	Library gun lock distribution program in Anne Arundel County, MD	Isabella Young	Anne Arundel County Department of Health
41	Exploring safe storage beliefs of handgun owners in the United States: A Theory of Planned Behavior application	Pranav Kapoor	Indiana University Bloomington
42	The impact of permit-to-purchase laws on juvenile weapons arrest rates stratified by race and sex	Liz Wagner	Johns Hopkins University
43	Differences in support for gun policy by voting behaviors	Cassandra Crifasi	Johns Hopkins University
44	From the local gun store to the state capitol: Participatory action research as the cornerstone of growing and sustaining an out-of-home firearm storage network	Ronell Day	Department of Veterans Affairs

POSTER SESSION 2

November 3 / 11:45 a.m. - 12:30 p.m. / Riverwalk

Poster #	Abstract Title	Name	Affiliation
45	A national study of firearm presence and storage practices in rural adolescent homes	Benjamin Linden	University of Iowa
46	Violence begets violence: A qualitative study on the long-term psychosocial sequelae of firearm injury in adolescence and young adulthood	Annalyn DeMello	The University of Texas
47	Using machine learning to understand firearm-related crisis texts	Anna Yaros	RTI International
48	Talking with patients about firearms: Do pharmacists, dentists, physical therapists, and other allied health professionals have a role?	Anne Massey	University of Washington
49	Cross-sectional analysis of the Colorado Gun Shop Project evaluation: Assessing readiness in firearm retailers and firearm-related businesses	Stesha Peacock	University of Colorado
50	Firearm use and safety concerns among caregivers of community-dwelling US adults with ADRD and firearm access: A qualitative study	Kayla Meza	Colorado University at Anschutz
51	Peer Engagement and Exploration of Responsibility and Safety (PEERS): Development of a peer-delivered lethal means counseling intervention for firearm owning Veterans	Claire Houtsma	South Central Mental Illness Research, Education and Clinical Center
52	Firearm ownership, usage and storage within the Michigan Army National Guard	Amanda Price	University of Michigan
53	Associations between individual and area level factors and firearm-related suicide among Veterans	Robert Bossarte	University of South Florida
54	Perception of safety, reasons for firearm ownership and unsafe storage practices: Opportunities for suicide prevention in US Army Servicemembers	Catherine Dempsey	Henry Jackson Foundation for the Advancement of Military Medicine
55	Policy and advocacy in adversarial times: Gains made in Texas	Sandra McKay	University of Texas Health Science Center at Houston
56	Evaluating New Haven's PRESS Program, a collaborative approach to reducing gun violence	Dijonee Talley	City of New Haven

Poster Session 1

{Back to table of contents}

1. **Understanding the extent to which fatal and non-fatal firearm injuries impact Illinois populations of similar urbanicity**

Megan J. Koch MPH MPA[1], Maryann Mason PhD[2]

[1]*Illinois Department of Public Health,* [2]*Northwestern University*

Background: Today, firearm injury is among the leading causes of death for children and young adults. Much of the literature examines fatal and non-fatal injuries separately without consideration of the complete toll of firearm injury and the extent to which non-fatal and fatal firearm injuries impact similar or disparate populations. In this study we compare injury rates by demographic characteristics of fatal firearm injury victims recorded in the Illinois Violent Death Reporting System (IVDRS) and those of non-fatal firearm injury victims recorded via ESSENCE Syndromic Surveillance (SyS) in Illinois by four urbanicity categories to determine the extent to which fatal and non-fatal firearm injuries are affecting the same populations in areas of similar urbanicity. **Methods:** We compare age group, race, ethnicity, and sex death rates per 100,000 residents for fatal and non-fatal firearm injuries by urbanicity category of injury location. For fatalities, the numerator is the count of deaths for which the primary weapon was a firearm and the injury occurred between January 1, 2018 and December 31, 2020 recorded in IVDRS. For non-fatal firearm injuries, the numerator is the count of all firearm-related injuries as recorded in SyS between January 1, 2018 and December 31, 2020. We used a four-point urbanicity scale to characterize the injury location into rural, small urban, suburban, and urban categories for comparisons. The denominator is the annual mid-year population estimate by urbanicity code. **Results:** A total of 3,816 firearm injury deaths were recorded between 2018-2020 in IVDRS. Preliminary data were collected from ESSENCE using the CDC's Firearm Injury v2 syndrome. A total of 20,598 non-fatal firearm injuries were identified in SyS between 2018-2020. In general, but with some exceptions, non-fatal firearm injury rates were higher than those for fatal firearm injuries. There was variation based on race, age group and sex by urbanicity. For example, among white persons, for all but rural areas, fatal firearm injury rates were higher than non-fatal firearm injury rates. Fatal firearm injury rates were generally higher than non-fatal firearm injury rates for persons aged 45-64 and 65+. **Conclusions:** There are variations in risk for fatal and non-fatal firearm injuries based on demographics and urbanicity classification. This suggests that the drivers behind firearm injuries and deaths may differ by urbanicity and among populations. These data can inform prevention and outreach efforts. More work needs to be done to parse firearm injury data by intent (suicide vs. assault).

2. **Daily fluctuations in anxiety and fear among U.S. adults who carry firearms**

Craig Bryan PsyD ABPP[1]

[1]*The Ohio State University*

Background: Firearm carrying is often motivated to provide safety and is correlated with increased anxiety related to elevated perceptions of the world as a dangerous place. No studies have investigated affective states among firearm owners as they occur in their natural environments. **Methods:** This study used ecological momentary assessment (EMA) to examine cognitive-affective states among firearm owners who carry handguns outside their home (n=35), firearm owners who do not carry (n=47), and non-firearm owners (n=62). Participants completed a self-report questionnaire at baseline followed by EMA surveys of mood state six times per day for 28 consecutive days. Data were collected from January 2021 to December 2022. **Results:** Carry handgun owners reported significantly higher threat perceptions than no-carry handgun owners (ΔM=2.0, 95% CI=0.8-2.0, d=0.45,

p=.001) and non-owners (ΔM=1.8, 95% CI=0.6-2.9, d=0.42, p=.003). Groups did not significantly differ in mean momentary mood ratings assessed via EMA but stability in high-arousal negative arousal was significantly reduced among carry handgun owners (F(2,145)=3.5, p=.031). **Conclusions:** Results suggest firearm owners who carry handguns view the world as especially dangerous, are more likely to experience shifts in anxiety and fear, and take longer to recover from periods of elevated anxiety and fear.

3. **Distance between firearm injuries and residential address: Patient characteristics and outcomes**

Kara J. Kallies MS[1], Constance Kostelac PhD[1,] Terri deRoon-Cassini PhD MS[1], Laura Cassidy PhD MS[1], Carissa Tomas PhD[1]

[1]*Medical College of Wisconsin*

Background: Identifying the location of firearm incidents is a critical component within ongoing efforts to address and prevent firearm-related injuries and deaths in the U.S. Few studies have evaluated the locations of firearm injuries in relation to the injured person's residential address. The objective of this study was to evaluate these distances and assess any associations with patient characteristics and clinical outcomes. **Methods:** Patients (≥18 years old) who experienced firearm injuries from 2015-2022 and were treated at a Level I trauma center were included. Injured patients' residential addresses and injury locations were geocoded. Injuries that occurred outside of Milwaukee County, WI were excluded. Geodesic distances in miles from patients' residence to the injury location as well as driving distances and times were analyzed using ArcGIS Pro v3.1.2. (Esri Inc.). Statistical analyses included chi-squared tests, t tests, and ANOVA to compare distances by patient characteristics, pre (January 2015- March 2020) and peri-COVID-19 (April 2020-December 2022) pandemic timing, and clinical outcomes. All analyses were conducted using STATA v18. A p value <0.05 was considered significant. **Results:** During the study period, 1,797 firearm injuries were included. The mean age was 31.9 ± 11.7 years, and 86.0% were male. The in-hospital mortality rate was 12.3%. Among all firearm injuries, 506 (28.2%) occurred at the patients' home address. For those injured outside of the home, the median geodesic distance, driving distance, and driving time was 2.5 miles (IQR: 1.3 – 4.3), 3.1 miles (IQR: 1.6 – 5.1), and 9.6 minutes (IQR: 5.6 – 14), respectively. An increased proportion of male patients were injured outside of the home versus females (73.5% vs. 61.5%, p<0.001). For injuries occurring outside of the patients' home, there was no significant difference in geodesic distance, driving distance, or driving time by gender, injury severity score, pre or peri-COVID-19, or in-hospital mortality. **Conclusions:** Geospatial factors and the environment in which firearm injuries occur overall, and in relation to residences, is an important adjunct in injury prevention. Nearly one-third of firearm injuries occurred at home, indicating a potential opportunity for home-based firearm interventions. Firearm injuries that occurred outside the home were at relatively short distances from patients' residences yet could still represent a different community or neighborhood. The distances between firearm injury and residential locations were not significantly associated with injury severity or mortality, indicating a need to continue studying the circumstances surrounding firearm violence and the areas in which they occur.

4. **Facilitators and barriers to the adaptation of the cure violence model in schools: A case study approach**

Sara R. Solomon MPH RD[1], Andre R. Martin[1], Elijah Tadlock[1], Denise Johnson MSW[1]
[1]*Penn Injury Science Center*

Background: One of the most replicated community violence interventions (CVIs) is Cure Violence (formerly Ceasefire), a CVI that utilizes credible messengers with lived experience to engage with communities to interrupt violence, connect individuals to resources, and change community norms. Since the initial effectiveness trial in 2008, additional communities have implemented the Cure Violence model and adapted it to their local context. However, the adaptation of this model in schools and the specific facilitators and barriers to its successful

implementation remain understudied. This study aims to conduct a case study analysis to explore the factors influencing the implementation process and outcomes of the Cure Violence model in two schools selected for case study. The objective is to gain in-depth insights into the contextual factors, challenges, and opportunities associated with the model's adaptation within these school environments. **Methods:** A qualitative case study approach will be employed to investigate the implementation of the adapted Cure Violence model in a purposive sample of schools. Multiple data collection methods will be used, including interviews with outreach staff and community partners, as well as document analysis and observation of program activities. Thematic analysis techniques will be applied to the collected data to identify key facilitators and barriers to successful implementation. **Results:** Data collection is currently underway, and the analysis of the case study findings aims to provide a comprehensive understanding of the facilitators and barriers encountered during the implementation of Cure Violence in schools. Preliminary results suggest that facilitators include the presence of school champions advocating for the program and the allocation of sufficient resources. However, barriers such as the school climate and student retention pose challenges. Additional results will offer detailed insights into the contextual factors influencing the implementation process and outcomes within the selected schools. **Conclusions:** Findings will contribute to the existing knowledge on the adaptation of the Cure Violence model in schools by shedding light on the specific facilitators and barriers involved. To our knowledge this has not been explored. By exploring the experiences of various stakeholders and identifying the factors that contribute to or hinder successful implementation, this study will provide valuable insights for school administrators, policymakers, and community partners engaged in violence prevention efforts within educational settings. The findings will inform decision-making processes and guide the development of strategies to optimize the implementation and enhance the effectiveness of the adapted model.

5. Mass shootings: Hate, political extremism and access to firearms

Wendy L Cukier PhD LLD (hon) DU (hon)[1]

[1]*Toronto Metropolitan University*

Background: Mass shootings, defined as incidents with more than four victims, are relatively rare events and often viewed as random acts of violence unless they occur in particular contexts and involve specific groups they are labeled terrorism. Recent scholarly research as well as Canada's Mass Casualty Commission which investigated Canada's worse mass shooting have identified common threads across many incidents including masculinity, hate, linkages to violence against women and a range of risk factors. This session will explore the linkages between notions of masculinity, firearms and hate crimes with a focus on mass shootings. **Methods:** Drawing on 30 well documented case studies of high profile attacks on women, Muslims, Jews, the LGBTQ2S community and other identifiable groups in high income countries, this exploratory study uses multiple methods including content and discourse analysis to examine complex socio-cultural, situational and individual factors at play, the sources of firearms as well as the implications for prevention. **Results:** The study identified a range of common threads - including race and gender, extreme views or ideology, social isolation, access to legal firearms and links to both domestic violence and suicide. **Conclusions:** Mass shootings are often manifestations of political violence or hate targeting specific populations with some common risk factors There is also evidence that the risks are not well understood even by police. Ensuring screening and licensing processes take into account the risks associated with political extremism is important as is controlling access to firearms, particularly semi-automatic military style firearms which are often the weapons of choice More research is needed to understand the role of "toxic" masculinity in these cases and gun violence generally.

6. Characterization of mass shootings by state, 2014-2022

Leslie M. Barnard MPH[1], Erin Wright-Kelly DrPH[2], Ashley Brooks-Russell PhD[2], Marian E. Betz MD[2]

¹University of Colorado School of Public Health, ²University of Colorado

Background: The United States (U.S.) has more than ten times the number of mass shooting events than other developed countries. Mass shootings in the U.S. have increased in frequency, with more than half of mass shooting events occurring since the year 2000. These events have a direct toll on those injured or killed, as well as a psychological impact on families, friends, and society. Little research has examined the types and distribution of mass shooting events across the U.S. **Methods:** The Gun Violence Archive defines mass shootings as an incident with four or more shot or killed, not including the shooter. This case series used data from a nine-year period (1/1/2014-12/31/2022) to calculate cumulative incidence rates of mass shooting event types based on incident characteristics and the total number of injured and killed per 1,000,000 people. We also calculated state level counts and rates in the most common event types. Rates were calculated using population estimates from the U.S. census from 2014-2022. **Results:** From 2014-2022, there were 4,011 mass shootings, ranging from zero in Hawaii and North Dakota to 414 in Illinois. Over these nine years, one-third (27.3%) were at a bar, club, or house party, 15.8% were crime-related (gang, drug etc.), 11.1% were domestic violence (DV)-related (including kidnapping, family annihilation, etc.), 1.4% occurred at a school or workplace, and 52.0% were not a part of any of these categories (Table 1). There was a median of 45 mass shootings per state for all states and the District of Columbia (mean 78.6). The total number of people killed and injured was 21,006. Geographical analysis of all mass shooting events shows clustering around the southeast region of the U.S. and in Illinois. Crime, bar/party, and DV-related mass shootings followed a similar pattern while the mass shootings that were not a part of any of these categories were more evenly distributed across the U.S. **Conclusions:** This study of mass shootings examined the burden of and geographic differences between types of mass shootings in the U.S. The most common specific event type was crime-related mass shootings, and crime, social (bar/party), and DV-related mass shootings followed similar patterns of geographic clustering. These findings should be used to inform research and state-level prevention strategies. Future research should assess political, cultural, legal, and demographic factors that may be associated with incidents and types of mass shootings across states.

7. **Reporting on guns in schools: A content analysis of newspaper discussions of firearm incidents in Michigan K-12 schools**

Victor Medina Del Toro MA¹, Rebeccah Sokol PhD²

¹Institute for Firearm Injury Prevention, ²University of Michigan, School of Social Work

Background: Paralleling a rise in the incidence of school shootings, news media has given substantial attention to these events in recent years. The narratives and discourses surrounding these shootings, their causes, and potential solutions in the news media have real implications for public discussion and action around intervention and policy solutions. We undertook the present study to assess how reporters mediatize firearm incidents at K-12 public schools for public consumption in newspaper articles in the State of Michigan. **Methods:** The study is based on a content analysis of Michigan-based newspaper articles mentioning firearms and Michigan K-12 schools between May 2018 and May 2023. The research team found articles via a natural language search of the Lexis Nexis database and uploaded the text to NVivo for coding. The team selected an open coding approach to ensure that the broadest range of possible content along three main topics: incident details, causes, and solutions. The lead author conducted the first read-through and initial coding before reviewing the coded text segments to check for conceptual consistency and consolidate where possible. **Results:** The database search returned 22 articles from 6 local newspapers which met the inclusion criteria. Virtually all articles (n=21) mentioned one or more potential solutions for firearm possession, carriage, or shootings at K-12 schools. The solutions featuring the greatest number of articles were securitization (n=11), mental health (n=8), and firearm-specific legislation (n=8). Only one article discussed improving school climate—that is, the environment

students navigate during their education—as a potential solution. Where incident details were discussed (n=9), the focus was on the number of people injured or killed or the sequence of events. Articles seldomly discussed the causes of firearm carriage and shooting incidents (n=3). **Conclusions:** These findings illustrate the need for school violence researchers to attend to public discourse surrounding schools and firearm violence. The recent public accounts of school firearm incidents may limit avenues for policy and intervention. In particular, the overwhelming focus on securitization, even when nuanced, may focus public attention on responding to threats and risks rather than actively lowering them.

8. **A crowdsourced approach to compare perceptions of trend in visualizations of mass shooting incidents across different data sources**

Poorna Talkad Sukumar PhD[1], Oded Nov PhD[1], Maurizio Porfiri PhD[1]

[1]New York University Tandon School of Engineering

Background: There is no standard definition of a mass shooting, and the estimates of mass shooting incidents and trends differ across different sources based on the mass shooting definitions and data-collection methods they use. Visualizations of mass-shooting incidents in the media can bias people's interpretation of the information because they generally present data from a single data source. We studied how visualizations of data from four different sources (Mother Jones, Mass Shooter Database, Everytown for Gun Safety, and The Washington Post) influence the change in perception of trend in mass-shooting incidents. **Methods:** We conducted a crowdsourced experiment with 529 participants comparing visualizations of mass-shooting incidents from the aforementioned sources, as well as a tool enabling comparisons across all four sources. We set up our study as an online survey on Qualtrics and recruited participants through the Prolific platform. We calculated the change in perception of mass shooting trend for each condition as the difference between the post-condition perception of trend and the pre-condition perception of trend. The choices for the perception of trend was measured on a 5-point Likert scale ranging from "Decreased greatly" to "Increased greatly". **Results:** We found that three out of the four sources significantly influenced change in perception of trend in mass shootings–Mother Jones led to the trend being perceived as more increasing whereas Mass Shooter Database and Everytown for Gun Safety led to the trend being perceived as less increasing. Our findings suggest that data from a single source can bias people's perceptions and that a comparison tool can mitigate these biases. **Conclusions:** Visualizations of mass-shooting incidents appearing in media and news articles can be powerful in influencing people's beliefs, values, and attitudes. Through our study, we show how existing media visualizations of mass shootings can bias readers. We offer a design implication for the media for presenting visualizations of mass-shooting data.

9. **Formative reasons of state-to-state influences of firearm acquisition in the United States**

Xu Wang MSc[1], Rifat Sipahi PhD[1], Maurizio Porfiri PhD[2]

[1]Northeastern University, [2]New York University Tandon School of Engineering

Background: Firearm-related harms are plaguing the U.S., posing a significant threat to public health, with no clear solutions in the horizon. Firearm ownership/acquisition has a strong bond with the social and political life of Americans. In the U.S., firearm acquisition is a spatio-temporal dynamical system, potentially dependent on state-to-state interactions as well as state-specific attributes such as socioeconomics, rate of gun violence, political ideology, income levels, and firearm-related regulations. These attributes change over time, and present variations from state to state and are hence geographically distributed. This makes it challenging to pinpoint which of them could be linked to state-to-state interactions in terms of firearm acquisition. In this presentation, we take an engineering approach to study such interactions and seek to provide clues for why such interactions may arise. **Methods:** We propose a new methodology that combines transfer entropy in revealing the causal influence network of the U.S. states and exponential-family random graph models (ERGMs) in searching for

explanatory factors of such a network. With state-level monthly background check (BC) data as a proxy of firearm acquisition, transfer entropy values between BC data of pairs of states are computed to construct an influence network, where the states are the nodes and directed edges between them signify cause-and-effect relationships. Factors for increasing (or decreasing) likelihood for the formation of such links are identified by progressively fitting ERGM with combinations of model covariates related to state-level socioeconomic indicators. **Results:** With statistical significance, we find that U.S. states with higher (or, lower) percent of gun homicides have higher (or, lower) chance to influence other states in terms of firearm acquisition; states with higher (or, lower) firearm law strictness have lower (or, higher) chance to be influenced by other states; and an influence from one state to the other is more likely to exist when those two states have distinct differences in their citizen political ideology. **Conclusions:** This study reveals new insights about how and why U.S. states interact and influence each other in their firearm acquisition. Gun homicides, law strictness, and citizen political ideology are the most important reasons why such influences arise.

10. Community perspectives on firearm safety communication during pediatric primary care visits

Michelle L. March MD MPH[1], Andrea R. Meisman MA[1], Matthew Zackoff MD MEd[1], Melissa D. Klein MD MEd[1], Francis L. Real MD MEd[1]

[1]*Cincinnati Children's Hospital Medical Center*

Background: Firearm-related injury is the leading cause of death in U.S. children. Pediatricians are uniquely positioned to share evidence-based information with families. Though research has shown parents are receptive to discussing firearm safety with their pediatrician, minimal data exists on parents' communication preferences. We sought to explore parent and community member perspectives on Resident Education And Counseling on Household Firearm Safety (REACH), a novel virtual reality curriculum for training pediatricians to discuss firearm safety during primary care visits. **Methods:** Participants were recruited from the Cincinnati Chapter of Moms Demand via email to engage in one 60-minute focus group. Participants completed a pre-survey to collect demographic information. From 11/2022 – 12/2022, focus groups were conducted using a semi-structured interview guide to elicit parent and community perspectives on firearm safety communication strategies. First, participants were introduced to the REACH communication framework, which consists of three parts including – 1) framing the conversation of firearm safety in the context of anticipatory guidance to normalize its introduction and emphasize its inclusion within the scope of practice for pediatricians, 2) introducing basic teaching regarding safe storage practices, and 3) assessing household firearm storage practices. Next, participants provided their perspectives on this stepwise approach as well as general preferences for discussing firearm safety at visits. Focus groups were transcribed and thematically analyzed using the rigorous and accelerated data reduction (RADaR) technique. Demographic information was descriptively analyzed. **Results:** Twenty-two individuals participated in one of four focus groups. Participants were predominantly female (96%), White (82%), non-Hispanic (86%), between 40-49 years of age (41%), and parents/caregivers of at least one child currently living in their household (68%). Participants lived in suburban (50%), urban (45%), and rural (5%) neighborhoods. The presence of household firearms was endorsed by 32% and a majority (86%) reported never receiving verbal information on household firearm safety from their child's pediatrician. Core themes from the focus groups were summarized. Participants recommended discussing firearm safety at all well-child visits – starting early and occurring often to normalize the topic. They felt embedding firearm safety within routine injury prevention counseling was appropriate and screening for access should focus on the primary residence. Lastly, participants reported sharing data on pediatric firearm-related injury could make messaging more impactful. **Conclusions:** The REACH communication framework for firearm safety screening and counseling was well-received by parents and community members. Future work will need to assess the transferability of these findings to other communities.

11. Circumstances surrounding pediatric firearm injury in New York City

Jennifer Grad MD[1], Nina Agrawal MD[2], Selin Sagalowsky MD MPH[3], Emelia Suljić MPH[4], Charles DiMaggio PhD MPH[3], Christina Bi Medical Student[3], Olushola Fapo MD[5], Michael Klein MD[3]

[1]NYU Grossman School of Medicine / NYC Health + Hospitals/Bellevue, [2]City University of New York School of Public Health, [3]NYU Grossman School of Medicine, [4]Columbia University, Mailman School of Public Health, [5]NYC Health + Hospitals/Harlem

Background: Firearm related injuries are the leading cause of death in U.S. children and adolescents. However, there is a paucity of local data regarding the circumstances surrounding these injuries. This study aims to describe pediatric firearm injuries treated at NYC's public hospital system with an overarching goal of improving localized prevention. **Methods:** We conducted a retrospective, multi-institutional, descriptive study of patients (ages 0-17 years) treated for a firearm injury at six municipal trauma centers in NYC over a 5-year period (July 1, 2016-June 30, 2021). Eligible patients were identified from hospital trauma registries. Registries and electronic health records (EHR) were reviewed for demographic, injury, and incident information. Identified incidents were matched to and supplemented with data from the Gun Violence Archive database as available. Incident coordinates informed a geospatial analysis. **Results:** 176 encounters were identified. The majority of patients were male (91.5%) and Black (75.5%). Median age was 16 years (IQR 15, 17), with the youngest 4 years. Most injuries were nonfatal (94.3%) and 98.7% of incidents were intentional. 14.9% (n=15) involved known assailants. Two-thirds of incidents occurred between 3PM-12AM, with nearly half (44.4%) between 9PM-12AM. Most occurred on weekdays (75.6%). 93.1% (n=149) of incidents occurred outside a home, including sidewalk/street (n=85, 53.1%), playground/park/basketball court (n=25, 15.6%), and store (n=12, 7.5%), according to available trauma registry, EHR narrative, and GVA data. Circumstances included: running/jogging/walking (n=54, 39.1%), altercation (n=32, 23.2%), driveby (n=27, 19.9%), inside/walking to/from a store (n=16, 11.6%), party (n=14, 10.1%), playing basketball (n=9, 6.5%), in front of/walking to/from school (n=7, 5.1%), retaliation (n=6, 4.3%), and domestic violence (n=2, 1.4%). Geolocation coordinates were determined for 75.6% (n=133) of encounters that had known incident locations. Geospatial analysis indicated significant clustering with 69.9% of incidents (p<0.05) occurring within 10-min walking distance (0.4 mi) of NYC Housing Authority units. **Conclusions:** Of pediatric firearm injury patients presenting to six public trauma centers in NYC, most were Black adolescents who sustained nonfatal injuries on weekdays between 3PM-12AM, outside a home, and near public housing. Localized public health, policy-based, and environmental strategies, including neighborhood based interventions, are required to reduce pediatric firearm related morbidity and mortality.

12. Examining demographic trends in North Carolina EMS firearm injury data / evaluating a firearm Injury definition for EMS data

Nicole L. Snyder PhD MPH[1], Amy Ising[1], Anna Waller ScD[1], James A. Hood[2], Tom Mitchell[2]

[1]University of North Carolina at Chapel Hill, [2]North Carolina Department of Health and Human Services

Background: In North Carolina (NC), the firearm death rate is consistently above the national average. Quantifying non-fatal firearm injuries as well as deaths is essential to understanding the full injury burden in NC. The Centers for Disease Control and Prevention funded several states, including NC, to evaluate the utility of syndromic surveillance emergency department (ED) visit data to provide timelier data on firearm injuries, but no complementary efforts exist to leverage emergency medical services (EMS) data in a standardized way to support firearm injury surveillance efforts. **Methods:** We developed an initial definition to capture firearm injuries in NC EMS data using chief complaint terms related to gunshot wounds, firearm related injury cause codes, or mention of gunshot wounds in the EMS narrative if accompanied by a dispatch complaint of stab/gunshot wound/penetrating trauma. We reviewed NC emergency medical services (EMS) encounters for firearm injury in 2021 and 2022 using data transmitted daily to NC DETECT, NC's statewide syndromic surveillance system, by the

NC Office of EMS and its vendor ESO. We evaluated the accuracy of our firearm injury case definition and documented firearm injury intent (unintentional, intentional self-harm, assault, undetermined). We conducted a descriptive analysis of the EMS firearm injury encounters, including trends by race/ethnicity, age group, sex, and rural/urban classification. **Results:** The EMS firearm injury definition identified 9,557 encounters from January 1, 2021 through December 31, 2022. Of these, 973 (10%) were identified as false positives and removed, leaving 8,584 for this analysis. Assault (n=4,399, 51%) was the most common intent. EMS encounter rates were highest among those aged 19-24 (191/100,000 residents), compared to the overall rate across all age groups of 68/100,000 residents. Assault rates were higher in urban versus rural counties (143 versus 74 per 100,000 EMS encounters, respectively), while intentional self-inflicted rates were higher in regional/suburban versus urban and rural counties (44 versus 25 and 41 per 100,000 EMS encounters, respectively). Black/African Americans represented 54% (n=4,600) of firearm injury EMS encounters, while this race category represents 21% of the NC population. Males accounted for 83% (n=7,109) of EMS firearm injury encounters. **Conclusions:** Our results can support targeted prevention strategies and policies to reduce firearm-related injuries and deaths across NC. Next steps include refining our EMS firearm definition to reduce false positives and linking EMS data to ED visit data to compare intent classifications and analyze health outcomes.

13. Gun laws matter: The impact of varying legislation on unintentional firearm hospitalizations

Gary K. Zhang MD[1], Aaron Hudnall DO[1], Eric Toschlog MD[1], Christina Regelsberger-Alvarez DO[1], Nicole Garcia MD[1], Shron Schiro PhD[2], Jan Wong MD[1], Reba Bullard BA[1], Trisha Aponte BA[1], William Irish PhD MSc[1]

[1]*East Carolina University Department of Surgery,* [2]*University of North Carolina Department of Surgery*

Background: Firearms-related injuries and deaths pose a significant public health concern. While legislation has been enacted with the aim of addressing issues associated with their use, there is substantial variation across the United States. Therefore, the purpose of our study is to compare the age-adjusted hospitalization rates of unintentional firearm hospitalizations across three states with varying gun law legislation. **Methods:** The study is a retrospective cross-sectional analysis of discharge data for years 2017-2019 within the New York (NY), North Carolina (NC), and South Carolina (SC) Inpatient Databases. Unintentional firearm injuries were identified using the National Center for Health Statistics ICD-10-CM external cause-of-injury coding scheme. Age-specific annual rates of hospitalizations per 100,000 were calculated using hospitalization encounter numerators from the Inpatient databases and age stratified population denominators from the US census. Hospitalization rates were standardized and compared using the US 2010 census as the standard population. The firearm legislation in each state was evaluated and ranked based on the scoring system developed by the Giffords Law Center. **Results:** Of 3256 hospitalizations, 770 occurred in NY, 1477 in NC, and 1009 in SC. The majority were male (>85%), Black/African American (>60%), and metropolitan residents (>75%). New York's strength of legislation is ranked 4th, NC 21st, and SC 28th. Notably, the highest rate of hospitalization is in the 20-34 age group (NY [3.6], NC [12.1] and SC [18.2]). Age-adjusted hospitalization (95% confidence interval) rates were 1.3 in NY (1.2-1.4), 5.0 in NC (4.7-5.2) and 7.1 in SC (6.6-7.5). Compared to NY, the age-adjusted rate of hospitalization was 3.7 times higher in NC (p<0.001) and 5.3 times higher in SC (p<0.001). **Conclusions:** States with weaker or less comprehensive firearm legislation have higher rates of unintentional firearm hospitalizations, particularly among the younger population. The findings emphasize the potential impact of robust firearm legislation in reducing unintentional firearm-related injuries and highlight the need for comprehensive policies to address this public health concern.

14. The big idea: Innovation forums as a community platform for firearm injury prevention

Damaris Ortiz MD[1], Samantha Riley[2], Ashley Overley MD[1], Lauren A. Magee PhD[3], Ashley D. Magee MD MPH[4], Matthew P. Landman MD[5], Jessica Belchos MD[6], Erik W. Streib MD[1], Malaz Boustani MD MPH[7]

[1]Indiana University/Eskenazi Health, [2]Eskenazi Health Hospital, [3]Indiana University, [4]Indiana University, IU Health, [5]Indiana University, Riley Children's Hospital, [6]St. Vincent Hospital, Ascension, [7]Indiana University, Regenstrief

Background: Community firearm violence is a complex problem that requires multidisciplinary collaboration to solve. A useful tool for collaboration is Innovation Forums (IF). IF are moderated sessions where all participants provide solutions to a problem in a psychologically safe environment. The Big Idea expands on this by completing several forums on the same topic with diverse individuals to generate innovative solutions. The Centers for Disease Prevention and Control (CDC) and the National Institute for Criminal Justice Reform (NICJR) have outlined several categories of evidence-based violence prevention initiatives. We completed the Big Idea forums for community firearm violence prevention in Indianapolis, Indiana, a city plagued by rising firearm violence, with little research infrastructure to address it. We aimed to analyze the forum solutions within the framework of eight categories described by the CDC and NICJR. The secondary aim was to identify the top priorities of the stakeholders represented. We hypothesized that IF would function as a useful platform to enhance community engagement with local violence prevention efforts. **Methods:** Our team completed ten IFs with key stakeholders in Indianapolis, Indiana in August, 2022. The solutions generated were analyzed by deductive thematic analysis using a combination of manual analysis and NVivo software. Solutions were coded according to their categorization into eight known violence prevention strategies recommended by the CDC and NICJR. Stakeholder priorities were determined by the frequency of solution categories. Demographics of the participants were collected. This study was exempt from approval by our institutional IRB. **Results:** There were a total of 80 IF participants. 28% were Black or African American, 39% White, 9% Hispanic or Latinx, and 2% were Asian and 22% were of unknown race and ethnicity. 58% were female. Participants represented various roles in healthcare, government, and community industries. 162 solutions were generated and 159 (98.1%) were categorized. The top five solution priorities included: 1. Increase access and dissemination of existing community resources, 2. Affect firearm policy, 3. Promote healthy relationships and positive behaviors, 4. Public awareness campaign on the negative impact of violence, and 5. Create a local multidisciplinary firearm violence prevention coalition. **Conclusions:** In this study, IFs were a useful tool for community engagement and to identify the top stakeholder priorities for violence prevention work. IFs are a potential vehicle for dissemination of local evidence-based violence prevention work, and to promote collaboration between organizations. This format can be replicated in other cities to advance local efforts.

15. **Firearm violence: Can medical students "stop the bleed?"**

Jasmanpreet Cheema Kaur Medical Student[1], Ty Sadilek Medical Student[1], Amanda Schoonover Medical Student[1], Jon Giolitti Medical Student[1], Andrew Hulsman Medical Student[1], Meridith Anness Medical Student[1], Sydney Hudock Medical Student[1], Sydney Brief Medical Student[1], Benjamin Kowalske Medical Student[1], Ling Wang PhD[1], Matthew Emery MD[1]

[1]Michigan State University College of Human Medicine

Background: Trauma is a leading cause of death in the United States, with approximately 49,000 firearm-related deaths in 2021. The Stop the Bleed (STB) campaign was created to increase survivability and train bystanders in external hemorrhage control. Medical schools are uniquely positioned to reframe firearm violence as a disease, incorporate firearm violence prevention and education (FVPE), and prepare students to engage in firearm safety counseling (FSC). Our primary outcome was to assess the effect of a STB-FVPE course on student confidence and willingness to engage in FSC. Secondary outcomes were participants' knowledge of firearm epidemiology and competency in external hemorrhage control. **Methods:** We conducted a before-and-after mixed-methods study to assess the impact of a STB-FVPE course that included hands-on STB training and a pre-recorded module on

FVPE. Our study population included medical students (first, second, third, and fourth years), nursing and nurse practitioner students, and one pre-medical student. Data collection included two video-recorded simulated patient encounters (SPEs) and pre- and post-course surveys. Demographics and baseline data on prior firearm and healthcare experiences were collected. Additionally, pre- and post-knowledge tests assessed participant knowledge of FVPE. We analyzed survey data using Kappa statistics, Rasch analysis, and Generalized Estimating Equation models. **Results:** There were 35 participants. Overall, confidence in FSC increased significantly after the STB-FVPE course (Δ12.9; 95% CI 9.91,15.9). Participants without prior firearm safety course completion (PFSCC) had lower baseline confidence and demonstrated a greater improvement post-course (Δ8.49; 95% CI 3.32,13.66). Willingness to engage in FSC did not significantly change after course completion. Additionally, there was no significant change in FVPE knowledge (Δ0.16 [-0.14, 0.45]). Non-medical students had lower pre-course FVPE knowledge than first-year medical students (P=0.004) and demonstrated a greater improvement in FVPE knowledge (P<0.001). The course also improved participants' SPE "Treatment Plans" (OR 2.04; 95% CI 1.14, 3.64). **Conclusions:** Firearm-related injuries and death continue to challenge the medical community. Our study demonstrated that a combined STB-FVPE course significantly improved FSC confidence and FVPE knowledge amongst participants without PFSCC. Additionally, the course improved all participants' treatment plans for external hemorrhage control. The STB campaign provides public education and external hemorrhage control training that, if implemented into UME, can provide students with the tools to perform life-saving measures and engage in FSC.

16. **Centering female gunshot survivorship through qualitative research and expressive art**
Nathan Aguilar MSW[1], Beth-Anne Jacob PhD[2]

[1]Columbia University, [2]Healing Hurt People Chicago

Background: Among industrialized nations, the United States has a firearm homicide rate that is more than 25 times that of comparable countries. Regarding gun violence experienced by females, researchers have focused on intimate partner violence. In Chicago 96 women were killed due to gun violence and another 547 survived during the 2022 calendar year. These numbers for just females exceeded the total number of gunshot survivors in large cities such as Boston and Seattle; yet, there are no studies that have examined the experiences of female identifying survivors of community-based gun violence. Researchers from Columbia School of Social Work (CSSW) partnered with Healing Hurt People Chicago (HHPC), a hospital-based violence intervention program in Chicago to understand: (1) How does gunshot survivorship impact how this population views the world and themselves? (2) how do female identifying gunshot survivors think their experience differs from male survivorship? (3) what are the coping efforts that this population utilizes (4) How does gunshot survivorship impact the story participants tell themselves about safety, strength and identity? **Methods:** Researchers from CSSW collaborated with HHPC to recruit 11 female gunshot survivors to participate in this qualitative research study. Researchers recruited English speaking participants who were at least 18 years old, female identifying and have sustained a gunshot wound in their lifetime. Data collection was facilitated through strong CSSW-HHPC collaboration, both in regard to establishing initial trustworthiness of researchers for participants and using ongoing communication to confirm and connect availability of participants. This project utilized a maximum-variation sampling technique in order to understand multiple perspectives of gun-shot experiences of survivors' services and care. Researchers are currently setting up interviews with participants to validate findings and inviting them to review their transcripts and respond to the researchers' interpretations of the qualitative data. **Results:** Preliminary results note the physical impact of gunshot survivorship on self perception vis-a-vis standards of beauty that participants cope with post injury. Findings also detail aspects of post traumatic growth that participants described when reflecting on their healing journey. **Conclusions:** Researchers will use presentation time to seek consultation from attendees about translating research methodologies and findings

with art. This is important given that the majority of study participants engage in healing practices that center storytelling and expressive art. Moreover, researchers will detail how a sustained relationship with HHPC, knowledge of programming and trust from staff and participants dissipated challenges in recruitment of this vulnerable population.

17. Assessing social work practitioners' attention to firearm violence

Patricia Logan-Greene PhD MSSW[1], Mickey B. Sperlich PhD MSW MA CPM[1], Alexis Speck Glennon DSW MSW LCSW-R[2]

[1]University at Buffalo, School of Social Work, [2]Colby Sawyer College

Background: In recent years, there has been a push for healthcare workers to engage in discussions with patients about firearms as part of a multi-pronged public health approach to reduce injuries and deaths (Cunningham et al., 2022). However, it is unclear whether these messages have reached practicing social workers, especially outside of hospital settings. Little research exists about how often social workers discuss firearm access/safety with their clients outside of a few narrow practice contexts, such as domestic violence cases. The last published survey (Slovak et al., 2008) found that only 15.4% of practitioners regularly counseled clients on firearm safety. This study examines current practitioners' behaviors with clients along with factors that may contribute to assessing and counseling for risks of firearm violence. **Methods:** Following IRB approval, we recruited 100 practicing social workers in New York State via social media sites and professional listservs. Interested participants were directed to a prescreen and informed consent on REDCap. Data was collected May-June of 2023. **Results:** Similar to official rosters of practicing social workers, the sample was primarily female (86.9%) and White (72.2%); time in practice varied from 1-40 years (M=11.9). 44.2% of the sample reported that they never asked clients about access to firearms in the last month; 39.5% asked some of the time. 69.8% reported never providing information about firearm risks and safety. 62.8% never discussed safe storage. In contrast, 86% assessed for risks of harm to self or others some or all of the time. At the bivariate level, a scale of behaviors with clients was significantly related to prior training, knowledge about firearm safety, and their confidence in talking with clients. No significant associations were found by demographics, personal exposure to firearms, or experiences with close friend/family firearm injury or death. In multivariate regression models, confidence in talking with clients had the strongest associations to behaviors with clients. **Conclusions:** In this study, increased numbers of social workers who discussed firearms with their clients were found compared to prior research, possibly reflecting greater awareness and occurrence of firearm violence in the present era. Despite this, most social workers did not regularly discuss firearms access or safety with their clients. Results point to the aspects of training that are most needed, regardless of the years in practice. In particular, social workers' knowledge and confidence about talking to clients regarding firearm safety should be targets of training programs. Further implications are discussed.

18. Emergency medical services (EMS) clinicians' views on EMS-Delivered interventions to promote secure firearm storage practices

Ian H. Stanley PhD[1], Melanie A. Hom PhD[2], Angela Wright MD[1]

[1]University of Colorado School of Medicine, [2]Stanford University School of Medicine

Background: Lethal means safety counseling (LMSC) to promote secure firearm storage may reduce the risk of firearm-involved deaths, including suicide. We examined if emergency medical services (EMS) clinicians, including emergency medical technicians and paramedics, may be suitable LMSC messengers. **Methods:** We conducted a web-based survey of 229 US EMS clinicians. **Results:** While few EMS clinicians supported

EMS-delivered LMSC to all patients (17.0%), most supported EMS-delivered LMSC to patients in an acute suicidal crisis (64.2%) or with a known suicide attempt history (55.9%). Barriers to EMS-delivered LMSC included lack of training (73.4%), perceptions that LMSC is outside EMS clinicians' scope of practice (58.1%), and lack of standard operating procedures (56.3%). Most reported at least some interest in receiving training on EMS-delivered LMSC (67.7%). Participants holding more accurate beliefs about the link between firearm storage practices and suicide risk, as well as the efficacy of LMSC, were more likely to support EMS-delivered LMSC across patient scenarios (ORs=2.18-5.21, ps<.01) and express interest in receiving LMSC training (ORs=3.78-5.43, ps<.001). **Conclusions:** Given that many EMS clinicians interface with patients at elevated suicide risk, targeted LMSC training may be strategic; however, research is needed to determine if and how EMS clinicians might be viable LMSC messengers.

19. Firearm safety and policy attitudes among midwestern healthcare providers

Lynn S. Massey MSW[1], Heather A. Hartman MD[1], Akhil Paleru[1], Philip Stallworth JD[1], Jorge Portugal MS[1], Laura Seewald MD[1], Katy Clark MS[1], Laney A. Rupp MPH[1], Rebecca M. Cunningham MD[1], Brian Stork MD[1], Maureen Walton PhD[1], Marc A. Zimmerman PhD[1], Patrick M. Carter MD[1]

[1]University of Michigan

Background: Nationally, 32% of Americans report owning at least one firearm. Within the United States, attitudes regarding various firearm safety and policy-level interventions remain highly divergent. Given the important role that healthcare providers (HCPs) have in addressing firearm risk factors for a range of health outcomes including depression/suicide, intimate partner violence, and youth violence, understanding their attitudes towards such interventions can help inform firearm safety implementation efforts. In this paper, we characterize attitudes towards firearm safety measures and policy-level interventions among a sample of Midwest HCPs. **Methods:** As part of an on-going multi-site hybrid effectiveness-implementation trial of the SafERteens program, survey data was collected from healthcare providers (n=73) in a Midwestern city using validated measures for socio-demographics, firearm ownership, and attitudes towards firearm safety and policy interventions. **Results:** Among healthcare providers (HCPs) enrolled in this implementation study (Mage=36.5; 93.2% female; 94.4% non-Hispanic White; 87.7% nurses, 5.5% current/former military), 56.2% reported firearm ownership, with 85.4% owning a handgun, 73.2% owning a long gun, and HCPs reporting a mean number of firearms owned of 3.3 (SD=1.6). Primary ownership motivations included protection (43.9%), hunting (36.6%), and sport/target shooting (9.8%). Among HCPs owning firearms, 27.3% reported storing at least one firearm unlocked/loaded. Regarding firearm safety attitudes, HCPs that own firearms were more likely than non-owners to believe that having a firearm in the home made it safer (4.93-vs-3.84; OR=4.45) and that keeping firearms locked/unloaded is not helpful for self-protection (4.39-vs-3.41; OR=3.96). Both firearm owners and non-owners endorsed favorable attitudes regarding the notion that firearms should be stored safely when not in use (67.1%) and that firearm owners should receive formal training before purchasing a firearm (93.2%). Few HCPs (13.7%) identified that having a firearm in the home increases the risk for household member suicide. Regarding policy-level interventions, HCPs largely favored policies for universal background checks (97.2%), safety training prior to firearm purchase (95.8%), Extreme Risk Protection Orders (ERPOs; 87.7%), domestic violence restraining order (DVRO) firearm relinquishment provisions (95.8%), and removing firearms from those with signs of dementia (94.4%), regardless of ownership status. **Conclusions:** Implementation of firearm safety prevention programs in a healthcare setting requires support/buy-in from HCP team members. In this sample, while there was largely support for policy-level interventions, there was varied support for individual-level safety measures, highlighting opportunities for education and improved messaging with healthcare workers as a component of firearm risk reduction and safety intervention implementation.

20. Assessing hospital based violence intervention programs: a qualitative study of firearm injury survivors and violence prevention program faculty

Christopher E. Robertson PhD Student [1], Lily S. Bensen Pre-med student[1], Rachel M. Nygaard PhD[1], Kentral Galloway[1], Emily M. Colonna MS[1], Derek C. Lumbard MD[1]

[1]Hennepin Healthcare

Background: Hospital-based violence intervention programs (HVIPs) have emerged as an innovative approach to mitigate the consequences of community-based firearm violence. However, there is a critical need to evaluate the effectiveness of HVIPs using comprehensive frameworks. The RE-AIM framework (Reach, Effectiveness, Adoption, Implementation, and Maintenance) provides a systematic approach for assessing the impact and potential of health interventions. This qualitative study aimed to elucidate community-based questions and ways to evaluate the program's success rooted in the experience and values of those served. **Methods:** To do this, we conducted a thematic analysis of a focus group and a secondary analysis to map these questions within the RE-AIM framework. A focus group was conducted with two distinct groups: (1) individuals who have experienced firearm violence and received services from the HVIP (N=4), and (2) violence prevention specialists and affiliated program staff (N=12) who work directly or indirectly with participants in the HVIP. Participants were recruited from diverse communities and represented a range of demographic backgrounds. The focus groups followed a semi-structured moderator-led interview guide that explored participants' experiences, perceptions, and insights regarding our HVIP and any associated evaluation and research questions they may have had or developed through discussion in the focus group. Patterns, concepts, and ideas were collated with the focus group for clarity and specificity. **Results:** Thematic analysis of the focus group data revealed five core themes for inquiry. These included: program growth (N=16), client success (N=14), client resource needs (N=10), patient enrollment (N=6), and community awareness (N=4). Focus group participants shared their experiences with our HVIP, discussed the various services and interventions provided, as well as the perceived effectiveness and challenges of these programs. Secondary analysis mapped the evaluation and research questions to the corresponding dimensions of the RE-AIM framework. The majority were mapped to the Effectiveness (N=15) and Implementation (N=16) dimensions of the framework; followed by Maintenance (N=7), Adoption (N=6), and Reach (N=5). **Conclusions:** This study provides valuable insights into the assessment of our HVIP through the perspectives of invested parties and is our first step in evaluating our program's impact supporting survivors of firearm injury. Interestingly, though this program is entering its 7th year, invested parties have the most questions surrounding the effectiveness and implementation of the program. The findings underscore the need for ongoing evaluation and research to strengthen HVIPs as a comprehensive approach to address the consequences of firearm violence.

21. Creation of a multi-disciplinary clinic to address the unique needs of firearm violence survivors

Colleen Trevino NP PhD[1]

[1]Medical College of Wisconsin

Background: Survivors of violent trauma, such as gun violence, have unique needs and are a patient population at high risk for poor QOL outcomes, including chronic pain, depression, PTSD, and chronic disability. Moreover, levels of engagement with follow-up care are low for these patients relative to survivors of other trauma (Prescher et al., 2022; Stone et al., 2014). Challenges to follow-up care have been evident in our own clinic. Between 2018 and 2020, no-show rates following hospital discharge were as high as 45% in gun-violence survivors. This combination of high risk for long-term disability and poor engagement post-discharge led to the hypothesis that a change in care model could improve outcomes. **Methods:** In November 2020, to better meet the complex medical, psychological, and social needs of high-risk trauma patients at FH, including GSW survivors,

we developed a unique, hospital-based multidisciplinary post-discharge follow-up care model, known as the Trauma Quality of Life (TQOL) Clinic. Within this model, initial follow-up is scheduled within one week of discharge, and the patient is evaluated by a comprehensive team, which includes a trauma nurse practitioner, trauma psychologist, physical therapist, social worker, and hospital-based violence interventionist from 414LIFE—a community violence interruption program. The TQOL Clinic aims to facilitate recovery, improve psychological and social well-being, and reduce violence recidivism and re-injury. **Results:** Since developing the TQOL clinic, we have improved engagement in care at our institution. The majority of attendees were young (mean [M]=32.0, standard deviation [SD]=1.8, range=15–88y), male (82.0%), and of Black race (80.1%). Of the 306 total patients served by the TQOL clinic in the first 2 years, 82.3% attended their initial scheduled appointment. Most first-time non-attendee patients rescheduled their appointments (92.1%), and 89.5% attended the rescheduled appointment. No-show rate for the TQOL Clinic was significantly lower than with the traditional model of post-discharge care. **Conclusions:** Dr. Trevino will highlight how she partnered with key stakeholders to create this novel and innovative model of care.

22. **Assessing a choice-based interactionist framework for understanding differences in situational risk factors for gun violence victimization**

Brendan Lantz PhD[1]

[1]*Florida State University*

Background: Even though it is often characterized as a singular issue, gun violence is a complex problem, resulting from the interplay of multiple factors operating jointly and across contexts. In our research, we adopt and test a novel interactionist framework for understanding situational decision-making during instances of gun violence. The foundational premise underlying our work is the presumption than any given incident of firearm violence may be (a) physically non-injurious (i.e., a gun is brandished but not used); (b) injurious but non-lethal (resulting in either minor or serious injury); or (c) lethal, but that this outcome is not necessarily predetermined when a violent incident begins. We further argue that observed variation in these outcomes is reflective, albeit imperfectly, of decision-making processes made by the perpetrators of an offense, such that, on average: (1) more injurious outcomes represent the decision to escalate or exacerbate a violent altercation; and (2) less injurious outcomes represent the decision to de-escalate a violent altercation. Using this decision-making framework, we posit that we can identify those risk factors associated with more violent outcomes, and those protective factors associated with less violent outcomes, while simultaneously disaggregating those factors specific to gun violence from those which are associated with violence more generally. **Methods:** We compile a large-scale national-level database including more than one million incidents of officially recorded non-lethal (both injurious and non-injurious) and lethal gun violence. We then use multivariate multinomial logit and logistic regression models to examine variation in the likelihood of gun violence victimization outcomes (e.g., non-injury vs. injury, injury vs. death) according to a host of individual, situational, and community-based risk factors. **Results:** Our results reveal important variation in the risk factors associated with different forms of gun violence, such that there are important risk factors specifically associated with non-lethal gun violence, specifically associated with lethal gun violence, and associated more generally with both. We find, for example, that situational decision-making is constrained toward more injurious outcomes in disadvantaged communities, or when taking place in front of others (e.g., co-offenders). We also identify several factors which constrain decision-making toward less injurious outcomes. **Conclusions:** Our findings suggest support for the utility of an interactionist framework for better understanding the situational context of gun violence—and developing policy responses to this violence—which disaggregates gun violence into its various forms and proposes a conceptualization of risk factors into discrete categories, each with important implications for intervention.

23. Project Safe Neighborhoods (PSN): An organizing framework for partnerships for firearms violence prevention and intervention in North Carolina

Stacy M. Sechrist PhD[1], John Weil[2]

[1]RTI International, [2]North Carolina Network for Safe Communities, University of North Carolina at Greensboro

Background: PSN has proven to be an effective organizing framework for partnerships and use of data to develop and implement gun violence prevention and intervention efforts. We will provide two examples of what effective PSN-driven prevention and intervention efforts have looked like in North Carolina and highlight the importance of law enforcement and community partnerships in those successes. **Methods:** First, we will present qualitative data from interviews with offenders who have been notified (or "called in") through one city's PSN strategy. Next, we will present participant pre- and post- program data from another community's PSN-driven youth gun violence prevention program. **Results:** The stories shared by notified offenders describe how a PSN partnership with a community-based resource provider was instrumental in identifying and meeting their needs, leading to their desistance from violent crime. The PSN-led notification and messaging served as the mechanism to this end. Next, we will describe how law enforcement and community partnerships, which were foundational to another community's PSN strategy's early development and implementation, evolved to include expanded partnerships with local schools and school resource offers to implement a youth-focused gun violence prevention program. Program outcome data show changes in the desired direction in youth participant knowledge, attitudes, and intended behaviors related to gun carrying and gun and gang violence. **Conclusions:** Carefully planned notifications with appropriate messaging and strategic inclusion of resource providers can be an effective intervention for firearms violence. Recommendations for effective and respectful notification messaging and suggestions for resources to meet needs of notified offenders will be provided. The groundwork laid via PSN efforts in a given community to establish law enforcement and community partnerships can grow and evolve over time to include not just intervention activities (i.e., notification of offenders who are already justice-involved and/or have already perpetrated violence), but also prevention efforts (such as the example of the youth-focused program in partnership with local schools). Existing partnerships developed and nourished through PSN efforts can lead to opportunities to expand partnerships to develop and implement prevention activities. Recommendations to build and nourish law enforcement and community relationships will be provided, but committed leadership and buy-in from all partners is necessary for effective PSN-led intervention and prevention activities.

24. A qualitative scoping review of attitudes, behaviors, causes, and consequences of community firearm violence

Colleen Stafford Walsh MS MS Ed[1], Terri N. Sullivan PhD[1], Wendy L. Kliewer PhD[1], Katherine M. Ross PhD[2]

[1]Virginia Commonwealth University, [2]Search Institute

Background: Firearm violence is a public health crisis in the United States that disproportionately impacts adolescents and families living in low-income communities (Mitchell et al., 2019), who witness and experience violence and violent victimization at elevated rates, often as result of community disinvestment and systemic racism (Belgrave, 2022; Smith et al., 2022).Several quantitative reviews of firearm violence and related factors have been published, but a synthesis of current qualitative methods and findings on the correlates, causes and consequences of firearm violence has not yet been conducted. Qualitative methods provide complimentary insight to quantitative findings, and can elucidate perceptions, values, opinions, and community norms experienced by adolescents and families in low-income urban settings who are the most impacted by community firearm violence, and can share humanity and insight to this complex public health problem. **Methods:** This study focuses on qualitative reports of youth (10-24) and adults in studies addressing community firearm violence in low-income settings, and seeks to: (1) develop a comprehensive list of qualitative studies where

youth and adult community members discussed correlates, causes and consequences related to firearm use and firearm behavior and (2) uses a social ecological framework to consider developmentally relevant themes that may arise from the qualitative and mixed methods studies (e.g., peer and family dynamics, differences in reports by developmental period or sex, and/or neighborhood environments). **Results:** We reviewed qualitative and mixed method research on experiences with community firearm violence in low-income settings, unconstrained by time of publishing. The search strategy yielded an initial sample of 2,443 papers. Removing duplicates (n = 1,699) and papers that did not meet inclusion criteria (n = 704) resulted in a final sample of 40 empirical articles. Firearm related themes were organized by the level of the Social-Ecological Model: Individual (e.g., attitudes, behavior, feelings of safety), Relationship (e.g., caregivers, peers), Community (e.g., norms, access to opportunity), and Societal (e.g., laws, policing) (CDC, 2023). **Conclusions:** A critique of the literature as well as implications and future directions of findings will be discussed. This study may inform future research questions and programs that center the voices of those most impacted by firearm violence, in order to consider relevant themes that may benefit from the further probing through the development of contextually relevant quantitative measurement tools, and inform prevention and intervention efforts designed to minimize and prevent firearm violence.

25. Community greenspace protects against firearm-involved crime in Indianapolis

Karl F. Selm BA[1], Jiyeon Song PhD[2], Kathleen Howe MPH[2], Justin Heinze PhD[2], Elizabeth Gonzalez[2], Yi Li PhD[2]

[1]*Keep Indianapolis Beautiful Inc,* [2]*University of Michigan*

Background: Violent crime is concentrated in urban centers, such as Indianapolis, IN, that experience high vacancies, disinvestment and physical deterioration. In many urban centers, high vacancies contribute to increased rates of violence and injury, including assaults, robbery, and homicide. A growing body of evidence supports greening as a viable and scalable strategy for violence and crime prevention. In this study, we examine firearm-related assaults occurring near vacant lot reuse project sites in Indianapolis, Indiana, where community-based organizations have repurposed vacant lots for productive use. **Methods:** We use a Bayesian modeling approach, particularly the integrated nested Laplace approximation (INLA) in conjunction with the stochastic partial differential equation approach (SPDE), to investigate the potential of greening space projects in reducing crime rates. By employing Poisson regression and incorporating additional social vulnerability variables as covariates, we seek to unravel the connection between green spaces and the prevention of firearm-related crimes. **Results:** Our results demonstrate a noteworthy decrease in firearm-related assaults linked to the presence of green space areas, underscoring the transformative impact of greening projects in augmenting community safety. **Conclusions:** Our collaboration with Keep Indianapolis Beautiful, Inc., a nonprofit organization dedicated to community greenspace development, deepens our understanding of the societal benefits of their GreenSpace program and strengthens the case for implementing greening projects not only in Indianapolis but also in neighboring municipalities.

26. Residential segregation and youth firearm violence: Downstream consequences

Daniel B. Lee PhD[1], Marc Zimmerman PhD[1], Philip Stallworth JD[1], Rebecca Cunningham MD[2], Maureen Walton PhD[3], Patrick Carter MD[1]

[1]*University of Michigan Institute for Firearm Injury Prevention,* [2]*University of Michigan, Michigan Medicine, Department of Emergency Medicine,* [3]*University of Michigan, Michigan Medicine, Department of Psychiatry*

Background: Firearm violence is the leading cause of death for Black youth (ages 14 to 24) in the United States. Historical and contemporary forms of institutional racism are risk factors for firearm violence. There is, however, a dire need to elucidate how institutional racism influences youth firearm violence. Identifying these

mechanisms can guide the development of youth firearm violence prevention programs that address the consequences of institutional racism across multiple levels. We tested whether residential racial segregation (RRS) was indirectly associated with youth firearm violence via neighborhood disadvantage and then exposure to violence among Black youth (serial mediation). **Methods:** Our analytic sample consisted of 349 Black youth (i.e., ages 14–24) from a prospective cohort study of youth recruited from an emergency department in Flint, MI. Youth completed five waves of surveys (6-month intervals for 24 months). Youth firearm violence was assessed at waves 3 to 5 (i.e., used a firearm on someone; 2012). RRS was assessed using the Index of Concentration at the Extremes (2000). A composite measure of neighborhood disadvantage (2010) was developed using five census-tract-level, socioeconomic indices (e.g., unemployment rate). A composite measure of exposure to violence (2011) included violent victimization using a weapon, partner aggression, non-partner aggression, community violence experience. We estimated a structural equation model with serial mediation analysis to test our research question. **Results:** The measurement models for neighborhood disadvantage ($\chi2$ (4) = 5.52, p = 0.24; RMSEA = .03, CFI = .99) and exposure to violence fit the data well ($\chi2$ (2) = 2.59, p = 0.27; RMSEA = .03, CFI = .99). In the structural model, RRS was associated with neighborhood disadvantage (b = -0.26 [-0.53, -0.04]), neighborhood disadvantage was positively associated with exposure to violence (b = 0.21 [0.01, 0.34]), and exposure to violence was positively associated with youth firearm violence (b = 0.46 [0.16, 0.80]). RRS was also indirectly associated with youth firearm violence through neighborhood disadvantage and then exposure to violence (b = -0.03 [-0.09, -0.01]). **Conclusions:** RRS invokes downstream consequences (i.e., neighborhood disadvantage, exposure to violence) which increase the likelihood of youth firearm violence involvement. Our results underscore the importance of implementing place-based policies aimed at mitigating residential segregation practices and its downstream consequences. Further, programs that reduce youth exposure to violence, such as those that facilitate positive adult and peer interactions present opportunities for preventing youth firearm violence within the context of RRS.

27. Urban geography of firearm injuries: An analysis of victim residences and injury locations in Philadelphia, PA

Evelyn M. Gorey[1], Bernadette Hohl PhD[1]

[1]*City of Philadelphia Department of Public Health*

Background: Firearm injuries are a leading cause of death and disability in the United States. In Philadelphia, firearm injury data show high levels of community violence concentrated in Black and brown communities, which requires an informed response from stakeholders. We sought to better understand patterns of firearm violence to inform appropriate deployment of intervention strategies by place, and appropriate allotment of limited resources. Our primary question was whether individuals injured or killed by firearms sustained those injuries near their place of residence. We also explored how location of injury varied between different populations and over time. **Methods:** We examined residence and injury locations for fatal and nonfatal shooting incidents (N=11,600) that occurred in Philadelphia, PA from 2015 to 2023. Philadelphia Office of Integrated Data for Evidence and Action (IDEA) provided data from several sources, including victim residence and injury location, injury date and time, injury fatality, and victim race, ethnicity, gender, and age. For each incident, we calculated Euclidean and road network distance between the victim's residence and injury location. We tested for differences in mean distance by the demographic variables, with two-sided p values of < 0.05 being considered statistically significant. We calculated the proportion of victims injured within their residential Census tract, within a neighboring tract, and outside their residential or neighboring tract for mapping. **Results:** There was a significant difference in distance between victims' residence and shooting location by race/ethnicity, age, fatality, and year. Distances for shootings involving Hispanic victims were shorter on average than those involving Black, non-Hispanic and White, non-Hispanic victims. Median distance increased between 2015 and 2023 from 0.65 miles to 1 mile. Distances were shorter on average for fatal shootings than for non-fatal. Distance peaks for

victims aged 25-34; distances for victims in younger and older age groups are shorter on average. Half of all shootings occurred within the victim's residential tract (34%) or a neighboring tract (16%), and the other half (50%) occurred outside the victim's neighborhood. **Conclusions:** Appropriate responses to community violence should take into account changes in the location and nature of violence over time. Violence intervention resources may need to be distributed differently if targeting individual upstream risk factors versus interrupting violence where it occurs ("hot people" vs "hot spots"). Stakeholders should identify and track changing patterns in how gun violence occurs for effective prevention.

28. **Developing community-based youth firearm violence intervention evaluation measures through a researcher-community partnership**

Julia P. Schleimer MPH[1], Vivian H.Lyons PhD MPH[2] ,Dominique Smith[2], Aaron Johnson[3], Zoe Shrader[3], Marvin Marshall[4], Tascha R. Johnson[5], Katoya Palmer[6], Ben Kaplan[6], Marce Baughl[6], Deepika Nehra MD[7], Laura Waszkewitz MSW LICSW MHP[7], Jaclyn Cook[7], Carolyn Thurston[8], Alfredo Orozco[8], Elaine Gonzalez[8], Erin Watlington[9], Vicky McLaurin[9], Latasha Averett[10], Ali Rowhani-Rahbar Phd MD MPH[2]

[1]University of Washington, Department of Epidemiology, [2]University of Washington, [3]BIPOC Apostrophe, [4]Y Social Impact Center, [5]Choose 180, [6]Community Passageways, [7]Harborview Medical Center, [8]Dispute Resolution Center of Yakima & Kittitas Counties, [9]City of Tacoma, [10]King County Prosecuting Attorney's Office

Background: Community violence intervention (CVI) programs are considered important components of community safety ecosystems. Most prior CVI evaluations have focused on crime. Evaluation measures are needed that are community led, reflect a fuller spectrum of program goals, and help programs identify strengths and opportunities for improvement. **Methods:** As part of an evaluation of CVI programs for youth firearm violence prevention in Washington state, a University of Washington research team partnered with CVI program leaders to identify measures for community-identified 1) contextual determinants of program success, 2) program activities, and 3) program outcomes. We developed measures via individual meetings and a day-long workshop. **Results:** CVI program leaders identified four contextual determinants of program success: 1) access to culturally responsive services and resources, 2) organizational operations and infrastructure for staff support and retention, 3) government funding and grants administration, and 4) restorative community practices. Example measures of contextual determinants included availability of behavioral health care in the community, staff professional training, contract length, and partnerships to address social determinants of gun violence. CVI program activities included 1) community engagement; 2) case management and wraparound services; 3) cognitive behavioral intervention; 4) stipend and financial support; 5) employment, education, and life skill development; 6) conflict mediation and crisis intervention; 7) mentorship; and 8) staff services and professional development. Example measures of program activities included, amount of financial support distributed, educational services provided, conflicts mediated, and staff trainings conducted. CVI program outcomes were categorized as inter-mediate and longer-term. Inter-mediate outcomes included 1) community perceptions of safety; 2) increased access to resources and progress towards personal goals; 3) improved behavioral health and positive behavior change, 4) employment and educational advancement, 5) peaceful conflict resolution, 6) supportive relationships, and 7) staff resources and work quality. Example measures of inter-mediate outcomes included client/family goal attainment, whether clients have a prosocial role model, and staff perceptions of their work environment. Longer-term outcomes included 1) safety, including from gun violence, 2) freedom from incarceration, 3) self-determination, 4) positive trajectory of health and well-being, 5) economic stability, 6) belonging, 7) and culture of non-violence. Example measures of longer-term outcomes included involvement in gun violence and stable employment. **Conclusions:** Via a researcher-community partnership, we developed measures that differ from those traditionally considered in evaluation research. Future work should examine the

most appropriate modes of data collection (e.g., qualitative interviews, surveys) for specific measures and collaboratively identify which measures apply to individual organizations.

29. What are community groups doing to prevent and respond to shootings? Findings from Project CLEARS

Carlee Ruiz MA[1], Stacy Sechrist PhD[1]

[1]RTI International

Background: Community groups can play a pivotal role in the prevention and reduction of gun violence in their communities. This presentation discusses findings from a national study of five law enforcement agencies and their community partners to understand what community groups do to address fatal and nonfatal shootings in their community; how they collaborate with law enforcement in shooting investigations and in gun violence prevention efforts, and what factors might strengthen these partnerships for the future. **Methods:** Qualitative interviews, surveys, and focus groups were conducted with community-based organizations (CBOs) and community members to understand the types of activities CBOs engage in and what services they provide to address gun violence in their communities; reasons for a lack of community participation in police investigations of shootings; and how CBOs collaborate with law enforcement in nonfatal and fatal shooting investigations. These interviews, surveys, and focus groups were analyzed for common themes. **Results:** Community-based organizations involved in gun violence prevention and response vary tremendously within and between sites. Organizations addressing gun violence include units of local government, neighborhood associations, and grassroots organizations often led by individuals who have been personally impacted by gun violence. Collectively, these organizations provide a wide range of services related to gun violence prevention and response, including formally responding to shooting events; providing peer supports for victims and families; awareness activities around gun violence; anti- "no snitching" campaigns, and receiving information from the community that assists in investigations. Some factors related to a lack of engagement by the community in law enforcement investigations include "no snitching" codes; fear of witness retaliation; and distrust of tip lines or anonymous reporting within the community. **Conclusions:** Findings from this study suggest that different CBOs bring their own set of unique strengths and resources to bear on the issue of gun violence. Collaboration among CBOs and law enforcement may serve to enhance community trust, coordinate efforts related to gun violence prevention and response, and increase community participation in shooting investigations. The findings suggest strategies to improve collaboration between CBOs and law enforcement to solve shootings by, for example, increasing the presence of trusted CBO leaders in communities in response to shootings; utilizing trusted CBO leaders to act as "civilian buffers" between witnesses and law enforcement for reporting; increasing awareness of community groups and the work they do among law enforcement; and revising messaging to the community about methods to report.

30. Homicide and shooting reviews: A data to action public safety and public health response to firearm violence

Mallory O'Brien PhD MS[1]

[1]Johns Hopkins Center for Gun Violence Solutions

Background: There is a growing body of evidence that multi-stakeholder event reviews help reduce crime and violence. Strong collaborative partnerships between public safety, public health and community are critical to address the firearm violence crisis. A homicide and/or shooting review process (HSR) convenes a multi-sector team to review aggregate and case level data to identify immediate and system level responses while developing a shared understanding, optimizing capacity, and shared accountability. When implemented well, HSRs are an effective violence prevention strategy. With increased attention placed on a public health approach to violence, there is great opportunity to expand effective implementation of homicide/shooting reviews. **Methods:** The

homicide review model is cited as "effective," the highest rating, by CrimeSolutions. Jurisdictions across the country have implemented homicide/shooting reviews (e.g., Milwaukee WI, Cleveland OH, Hampton VA, Baton Rouge LA, New York City NY, Toledo OH, Philadelphia, PA, Detroit MI, Indianapolis IN). To identify barriers and facilitators to successful review processes, a series of semi-structured interviews and focus groups were conducted with jurisdictions experienced with HSR including a range of stakeholders (public health, police, prosecution, corrections, community providers, research, and city leadership (with representation from leadership (mayors, district attorneys, police chiefs, mayor's offices, offices of violence prevention, council members, executive directors, corrections chief) to front line responders (officers, prosecutors, CVI, analysts, social workers). **Results:** Interviews and focus groups engaged 55 participants. Participants identified the presence or absence of the following as facilitators or barriers: champions, engaged partners, reliable and timely data, information sharing, action: recommendation development and implementation, governance structure, trust, right people in the room, good facilitation. **Conclusions:** The collaboration between partners in the criminal legal system, community, city/county leadership, and public health researchers and practitioners brings data and community-informed solutions to the forefront of violence prevention efforts. To effectively implement HSRs, a public health and public safety-oriented best practice that incorporates the lessons learned from existing HSRs is warranted. This qualitative research has informed the development of training and toolkit to support the expansion of HSRs that includes governance and structure, engagement, equity and inclusion, staffing, preparing for and conducting reviews, recommendation development and implementation, template documents, the establishment of high-quality data infrastructure, guidance on the anticipated barriers and challenges and learn from the successes to support a network of jurisdictions with implementation.

31. **National Institutes of Health (NIH): Portfolio analysis of homicide and firearm violence prevention research and opportunities for future research**

Anna Kharmats PhD[1], Jennifer Alvidrez PhD[1], Liberty Walton MPH[1], Dara Blachmann-Demner PhD[1], Kathryn Morris MPH[1], Charlene Liggins DrPH MPA[1]

[1]NIH

Background: Homicide is one of the leading causes of death for youth ages 10 to 19 years old, pregnant, and postpartum persons, and Black, Latino, American Indian or Alaska Native (AI/AN), and Native Hawaiian or Pacific Islander (NH/PI) men under the age of 44 years. Firearms are involved in most homicides. Because homicides are preventable, it is important to assess the level of funding by the NIH and identify potential areas of further support. **Methods:** In October of 2022, we used the National Institutes of Health's (NIH) Query View Report (QVR) platform to identify awarded NIH grants, from fiscal years 2013 – 2022 with the Research, Condition, and Disease Categorization (RCDC) code "Homicide and Legal Interventions", or terms "Murder" or "Gun Violence." We excluded grants that proposed to conduct research outside of the United States, were soley pharmacologic interventions, or did not examine a relevant outcome. We categorized the study designs, populations, and socio-ecological levels of influence examined. **Results:** Over the last ten years, 38 relevant grants were awarded by NIH. Most grants (57.9%) included an observational study design component, nine grants (23.7%) included randomized interventions, four (10.5%) proposed non-randomized interventions, and four (10.5%) other applications proposed to use simulation modeling for at least one of their specific aims (these categories were not mutually exclusive). Few grants focused on pregnant or postpartum people (7.9%), sexual and gender minorities (2.6%), AI/AN (5.3%), or NH/PI (2.6%) populations, and none focused on individuals with disabilities (0%). Overall, most outcomes were measured at the individual or incident level (66%). Nearly a third of the studies proposed to measure outcomes within small geographic boundaries such as neighborhoods (32%), or at the county, city, or state levels (26%). Nine grants (23.7%) sought to examine the potential impact of school, police department, social, city, and or state-level firearm-related policies on firearm violence. Of the 13

intervention studies, six (46.2%) were hospital-based interventions and sought to prevent victims of violence from perpetrating violence themselves, or from experiencing subsequent victimization. Seven interventions (53.8%) had components based in community settings. Most of the interventions emphasized individual-level behavior change or offered referrals to outside services; the majority did not address social or structural determinants of homicide. **Conclusions:** Our portfolio analysis indicates numerous opportunities for additional research on homicide and firearm violence prevention, especially for multi-level interventions addressing social determinants of health, and with understudied populations who are disproportionally affected by violence.

32. Findings of the Philadelphia Firearm Homicide Review Team: An experiment in integrated public health and criminal justice data

Ruth Abaya MD MPH[1], Loren Adams[2], Danny Galpern[3], Christina Mancheno[4]

[1]University of Pennsylvania, [2]New York Department of Public Health, [3]Philadelphia Office of the Managing Director, [4]Philadelphia Department of Public Health

Background: The Philadelphia Firearm Homicide Review was initiated in 2020 to provide a comprehensive review of a selection of firearm homicides using data from multiple sectors. The goal was to identify opportunities for prevention and intervention by reviewing the life course of individuals who lost their lives to firearm violence in Philadelphia. **Methods:** A convenience sample of individuals who died by firearm homicide were identified using data from the Philadelphia medical examiner's office. Individuals who had a minimum of four touchpoints with City agencies—identified via the City's integrated data system, IDEA (Integrated Data for Evidence and Action)—were selected for review sessions that occurred 2-3 times annually. Data from twelve sources including law enforcement, violence intervention programs, health care systems, next-of-kin interviews, and human services were integrated to develop a timeline of touchpoints for each individual. The timelines were de-identified and presented to over 18 stakeholders, including agencies and organizations inside and outside of city government.at homicide review meetings. Attendees then voted on action items that emerged from each meeting. In 2022, the reviews became place-based to generate violence prevention action items that were relevant to specific Philadelphia neighborhoods. **Results:** A total of 62 decedents have been included in the firearm homicide review database. The age, sex, race, ethnicity, and residential addresses of those reviewed were similar to those of citywide firearm homicide victims. 98% of our cohort had at least one health care contact in their lifetime, the most common of which was an emergency department visit (89%). The majority of our cohort had contacts with law enforcement including police arrests (81%) and local incarcerations (58%). Over half had contact with a department of human services program. Of note, 47% of our cohort had sustained a prior violent injury, with 23% having sustained a prior firearm injury. **Conclusions:** Firearm homicide reviews are opportunities to integrate data from multiple sources and to present a more complete picture of the points of interaction between victims of firearm violence and city systems. This compilation of data allows for the design and implementation of effective violence prevention and intervention efforts.

33. Firearm homicides among Hispanics and White non-Hispanics: Measuring disparities

Eugenio Weigend Vargas PhD[1], Hsing-Fang Hsieh PhD[1], Daniel B. Lee PhD[1], Jason Goldstick PhD[1]

[1]University of Michigan

Background: Firearm homicides are increasing in the United States and are a critical driver of racial health disparities. One such disparity that has received limited attention is excess firearm homicides among Hispanics, relative to White Non-Hispanics; comprehensively characterizing this disparity is the purpose of this brief report. **Methods:** Using data from CDC WONDER, we examined temporal trends (2012-2021) in firearm homicide rate disparities between Hispanics and White Non-Hispanics in the U.S. Focusing on recently elevated rates

(2018-2021), we estimated this disparity across demographics (gender, age, urbanicity, and race), and across U.S. states. **Results:** These data clearly show nearly universal excess firearm homicide among Hispanics, relative to White Non-Hispanics, with larger differences among men, younger age groups, and in metropolitan areas. Similarly, nearly all states show higher rates of firearm homicide among Hispanics, relative to White Non-Hispanics, though the magnitude of the difference varies substantially. **Conclusions:** Our descriptive epidemiological approach is a fundamental first step in identifying high priority areas for future research.

34. Integrating language justice and culturally responsive research practices to the study of intimate partner firearm violence

Gabriela López-Zerón PhD LMFT[1], Chiara Elena Cooper PhD[2], Marisela Chaplin[1], Karissa R. Pelletier PhD[2], Praveena Lakshmanan PhD Candidate[1], April M. Zeoli PhD MPH[2]

[1]*Michigan State University,* [2]*University of Michigan, Institute for Firearm Injury Prevention*

Background: Intimate partner firearm violence is a significant public health concern, with firearms playing a crucial role in escalating violence and increasing the risk of intimate partner homicide. However, the experiences and perspectives of active bilingual learners/users of English (ABLE) communities, particularly Spanish speakers, have been largely overlooked in firearm violence research conducted in the United States, despite it being a rapidly rising group. This hinders the development of tailored interventions and limits our understanding of the impact of firearm violence on ABLE survivors. Grounded in the principles of Language Justice, we aim to address this gap by providing linguistically affirming research participation to Spanish-speaking survivors of intimate partner firearm violence. **Methods:** Our research team, composed of bilingual native Spanish speakers and native English speakers, developed all study materials in both English and Spanish. The translation process followed a trauma-informed, culturally-responsive approach, led by a native Spanish-speaking researcher with extensive experience in the gender-based violence field. Our team piloted the survey instrument in both languages, with iterative feedback guiding edits to ensure cultural relevance and accuracy. We are conducting this study in six counties across three states, in partnership with culturally specific organizations serving ABLE Spanish-speaking communities along with mainstream organizations. By actively involving community partners throughout the design and data collection process, we aim to ensure the cultural and contextual relevance of our instruments and procedures. **Results:** Through our work, we aim to promote firearm-related research that considers the importance of language and validates the experiences of ABLE Spanish-speaking survivors. By centering language justice principles throughout the research process, we enhance the cultural relevance of the study, its findings, and the subsequent interventions aimed at addressing health disparities experienced by ABLE communities. Therefore, our research will contribute to a better understanding of the nuances and specific needs of ABLE Spanish-speaking survivors in the context of intimate partner firearm violence. **Conclusions:** Efforts to promote language justice in research are crucial for creating inclusive studies and building trustworthiness among ABLE participants. By actively engaging and learning from ABLE communities affected by gun violence, we can develop effective, relevant, and engaging interventions and prevention strategies.

35. Understanding the use of firearms and other weapons in the perpetration of nonfatal intimate partner violence in North Carolina

Allyson Corbo MPH[1], Kathryn E. Moracco PhD MPH[2]

[1]*RTI International,* [2]*Gillings School of Global Public Health, UNC-Chapel Hill*

Background: Intimate partners make up the largest group of perpetrators of homicide of women, and most of these homicides are committed with firearms. Existing studies describe the prevalence of the use of firearms in the perpetration of fatal intimate partner violence, but few detail how firearms and other weapons are used in

nonfatal cases of IPV. Of those studies that do, very few use qualitative data sources gathered from survivors of IPV or describe the effect that the use of these weapons has on survivors in nonfatal cases. This study uses the narratives that survivors write when filing for a domestic violence protective order (DVPO) to explain the violence they have experienced and its effects. **Methods:** We conducted a qualitative analysis of a subset of DVPO case narratives, representing case files from the state of North Carolina, as written by survivors when they filed a DVPO complaint. We abstracted the narratives and determined which contained descriptions of violence that involved a firearm and/or another weapon. We conducted inductive and deductive coding, and conducted a thematic analysis of the narratives that aimed at examining how IPV survivors describe their partners' use of firearms and other weapons, in terms of: 1) the types of weapon(s) used; 2) the intended purpose of the weapon use; and 3) the impact of the weapon use on the plaintiff. **Results:** Results indicated that many weapons, including firearms, knives, and other objects not commonly considered weapons (such as common household objects and vehicles) are often used or threatened in the perpetration of IPV. We found that weapons are used to exert power and control over survivors by way of intimidation, manipulation, or the infliction of physical injury. The use or threat of firearms and other weapons on IPV survivors created a sense of escalation of the level of violence, feelings of fear, and often led to the decision to seek legal protection. **Conclusions:** These findings highlight a need for increased training for judges and other court officials on the nature of IPV and the use of firearms and other weapons in the perpetration of IPV to better protect survivors from their abusers. More research on the use of firearms and other weapons in the use of nonfatal IPV is needed to inform prevention strategies; publicly available DVPO filings are a rich source of data that can be used in future studies to fill this gap in knowledge.

36. Firearms and post-separation abuse: Providing context behind the data on firearms and intimate partner violence

Kathryn J. Spearman MSN RN PhD[1]

[1]*Johns Hopkins School of Nursing*

Background: Post-separation abuse is an ongoing pattern of intimate terrorism that occurs after relationship separation. This form of intimate partner violence (IPV) and firearm violence are closely intertwined. Firearm-perpetrated homicides in the context of IPV are leading causes of mortality for women and children. Nearly half of femicides perpetrated by intimate partners in the USA are in the context of separation. The purpose of this presentation is to provide insight from qualitative data with maternal survivors of IPV describing their experiences with their ex-partners' firearm ownership and access, firearm threats, and other frightening firearm experiences. **Methods:** The analytic sample consists of self-identified maternal survivors (n = 13) who were recruited for semi-structured qualitative interviews to describe their experiences of post-separation abuse. Participants were asked one item about firearm exposure in the interview guide: "Have you or your children had any experiences with guns and your ex-partner that made you or your children feel scared?" Interviews were audio-recorded and transcribed. Interview transcripts were managed and coded in AtlasTi by two study team members using a codebook developed by the first and second authors. Codes were applied using descriptive content analysis and discrepancies were reconciled. We identified themes related to firearm exposure in the context of post-separation abuse. **Results:** Five themes were identified: (1) Gun ownership and access: "I know he has a gun, and that makes me nervous"; (2) Unsafe storage: "I had no clue this shotgun that was laying under the kids' library books in the living room was loaded" (3) Direct and symbolic threats: "He's also come to my car [during a custody transition] with a fake gun. Which I know what that meant. That's a real subtle sign of I can kill you"; (4) Involving the children: "Mommy, did Daddy kill you yet?"; and (5) Using survivors' protective actions against them: "that was a running thing throughout our family court hearings about how I've had this [gun] safe opened and how I stole his guns." **Conclusions:** The presentation will provide an overview of how firearms are

used by abusive ex-partners post-separation to terrify the mothers of their children and thus further control them. Analysis of qualitative data demonstrates important insights into the many opportunities that exist for health and legal systems to address firearm injury prevention to prevent lethality.

37. Domestic violence restraining order firearm laws and firearm fatalities among children and teens, 1999 to 2020

Karissa R. Pelletier PhD[1], Philip Stallworth JD[1]

[1]University of Michigan, Institute for Firearm Injury Prevention

Background: Firearms remained the leading mechanism of death for children and adolescents between 0 and 19 years old in 2020, with 28.3% of all violent deaths result from firearm injury according to the CDC WISQARS platform. Scholars estimate that one third of U.S. homes have at least one firearm. Relatedly, researchers have shown that the presence of a firearm in a home increases the risk of intimate partner homicide and familicide. More so, scholars have found that states with domestic violence restraining order (DVRO) laws requiring firearm relinquishment by the DVRO respondent see a decrease in intimate partner homicide. Given this, we hypothesize that states with DVRO firearm relinquishment laws will have lower levels of firearm homicide and other firearm death for children and teens. **Methods:** To examine the relationship between DVRO firearm relinquishment laws and firearm death among children and adolescents, we will analyze data from the State Firearm Laws Database and the CDC's WISQARS. We construct a hierarchy of state level DVRO laws to identify the efficacy of different DVRO laws: no state-level DVRO laws, state-level laws mirroring the federal law, laws with relinquishment requirements, and laws with removal mechanisms. We will then conduct an analysis to identify the association between these laws and firearm deaths among youth. **Results:** Youth firearm-mortality data for the study period is available for 70% of states (92% of the 2020 US population). Preliminary results suggest that DVRO laws may mitigate or even reduce child and adolescent firearm mortality. While states without state-level laws saw a 55.6% increase in youth firearm mortality, those with any law saw only an 18.5% increase. States with relinquishment requirements saw a 7% increase. And states with removal mechanisms saw an 18.7% decrease. Based on these preliminary results and prior research using similar datasets and methods, we expect to find a link between relinquishment laws and youth firearm mortality. **Conclusions:** In this study, we will examine DVRO firearm relinquishment laws and their relationship to firearm fatalities among children and adolescents. Given the epidemic of youth firearm violence, the need to understand what laws and policies can decrease the likelihood of firearm death is vital. The passage of DVRO firearm relinquishment laws may reduce firearm fatalities in children and adolescents.

38. Attitude to predict unsafe storage practices among Missourians who own firearms for protection

Haley Crimmins MPH[1], Daniel Lee PhD[1], Samantha Aprill BS[1], Megan Simmons MPH PhD[2], Jessi LaRose MPH[2], Patrick Carter MD[1]

[1]University of Michigan Institute for Firearm Injury Prevention, [2]Missouri Foundation for Health

Background: We studied Missouri firearm owners who store any firearms as unlocked and/or loaded (i.e., in an unsafe manner). A known predictor of unsafe firearm storage is owning a firearm for protection. Per the theory of planned behavior, we tested whether endorsing an attitude about accessible firearm storage (i.e., firearms are only useful if stored unlocked and loaded) can moderate the link between firearm ownership for protection and unsafe firearm storage. **Methods:** The Missouri Firearm Survey (MFS) is a cross-sectional survey (7/2020-8/2020) completed by 388 firearm owners. Our accessible firearm storage attitude included, "If a gun owner has to take the time to unlock or load their gun, it's no good for self-protection." Firearm ownership for protection and unsafe firearm storage was both assessed binarily ("no"; "yes"). Logistic regression analysis was implemented to

assess this potential moderation. **Results:** A significant interaction between firearm ownership for protection and accessible firearm storage influenced the likelihood of unsafe firearm storage (Odds ratio = 1.858; 95% CI[1.109 - 3.113]). Notably, the association between firearm ownership for protection and unsafe firearm storage was significant only among firearm owners who believed that a firearm is "no good or self-protection" if stored locked and unloaded. **Conclusions:** Our findings elucidate the importance of gathering attitudinal data in addition to storage practices for firearm owners. Many respondents reported owning firearms for self-protection (69.5%). For these firearm owners, our findings signal the dire need for safe storage practices that prioritizes both safety and access. Additionally, based on this analysis, a proportion of firearm owners who own their firearm for protection store their firearms in an unsafe manner. Thus, understanding and predicting unsafe storage among these firearm owners must require understanding other attitudes related to the utility of their firearms. Community and stakeholder-engaged practices are needed to develop culturally relevant messages that emphasize firearm owners' values while also encouraging life-saving behaviors.

39. Law enforcement and firearms: Understanding firearm ownership and storage habits

Allie Bond PhD Student[1], Ian Stanley PhD[2], Shelby Bandel MA[1], Michael Anestis PhD[1]

[1]The New Jersey Gun Violence Research Center, [2]Department of Emergency Medicine, University of Colorado School of Medicine

Background: Law Enforcement Officers (LEO) are at an increased risk for experiencing suicidal ideation. Additionally, LEO also have higher capability for suicide, which is a factor theorized to move one from having thoughts of suicide to attempting suicide. Concerningly, firearm ownership and non-secure storage practices have are associated with increased suicide risk. However, factors associated with firearm ownership and storage among LEO are unknown. The present study seeks to fill this gap by describing the prevalence and sociodemographic correlates of firearm ownership and storage practices among United States LEO and examining the intersection between lifetime suicidal ideation and current firearm storage practices. **Methods:** We analyzed data from 360 current and former LEO (M[SD] age = 39.2y[15.8y], 75.2% male, 66.7% White). We administered self-report measures to assess firearm ownership, storage habits, and suicidal ideation. **Results:** Overall, 70.5% (n = 261) of the sample reported firearm ownership. Among firearm-owning LEOs, handguns were the most commonly owned type of firearm (79.7%), followed by shotguns (61.1%), and rifles (57.5%). The most common type of secure storage methods used were gun safes (39.8%), followed by locking devices (e.g., trigger or cable locks; 31.2%). In terms of suicidal ideation, over half (57.6%) of the sample reported lifetime thoughts of suicide. LEO who were older had significantly lower odds of owning a firearm. Those who were married and reported lifetime suicidal ideation had significantly greater odds of owning a firearm. Firearm-owning LEO who reporting storing a firearm locked had significantly lower odds of reporting lifetime suicidal ideation, those who reported storing a firearm unloaded had significantly greater odds of reporting lifetime suicidal ideation. **Conclusions:** This study furthers the literature on suicide risk among LEO by examining who is likely to own firearms and therefore be at increased risk for suicide. Previous research has found that LEO are often viewed as highly credible sources to discuss secure firearm storage for suicide prevention. Although they may be seen as credible by others, their lack of secure storage is concerning and provides an opportunity to work together with LEO to provide education and information on secure firearm storage. Given their credibility, finding ways to increase knowledge on means safety and secure firearm storage among LEO will not only help increase firearm safety and reduce suicide risk among this population, but may help to increase secure storage among the general population.

40. A comparison of service member and civilian experiences with cable locks: Implications for secure storage messaging

Shelby Bandel MS[1], Mike Anestis PhD[2]

[1]The New Jersey Gun Violence Research Center; Rutgers, [2]New Jersey Gun Violence Research Center

Background: Cable locks are the most widely available secure storage mechanism, yet they are the least preferred by firearm owners (Anestis et al., 2023; Betz et al., 2023). Research has repeatedly demonstrated that service members are perceived as one of the most credible voices to discuss firearm safety (Crifasi et al., 2018; Anestis et al., 2021); however, leveraging these voices requires they possess the necessary knowledge and willingness to discuss secure storage options, including cable locks. The present study sought to examine differences between civilians and current/former military regarding their experiences with cable lock acquisition and usage. **Methods:** This study utilized two samples of firearm owners. The first was a sample of 942 U.S. residents from 5 states who did not identify as current or former military. The second was a sample of 633 U.S. residents who identified as current or former military. Participants were asked a series of questions assessing for possible experiences with cable lock acquisition and use. **Results:** 31.6% of civilian's vs 36.4% of current or former military reported being provided a cable lock but not using it to secure their firearm (2=3.6, p=.06). 5.5% of civilian's vs 18.2% of current or former military reported having gotten rid of a provided cable lock (2=55.1, p<.01). 2.8% of civilian's vs 14.8% of current or former military reported being provided a cable lock that was not compatible for their firearm (2=65.8, p<.01). 5.8% of civilian's vs 10.9% of current or former military reported having not been provided a cable lock when they should have been (2=11.7, p<.01). **Conclusions:** These findings suggest that service members may be less likely to be provided cable locks and when they are, these experiences may be more negative since the locks are not compatible with their firearms. Further, when they are provided cable locks, service members appear to be more likely to get rid of these, even when their firearms are not secured by another mechanism. These findings highlight the importance of assessing and providing a base level knowledge of cable locks before elevating voices for secure storage. It seems that one of the most credible sources is having negative experiences with the most widely available storage mechanism. This may result in service members being less open to discussing these mechanisms with others or if they do discuss them, it may be done negatively which could discourage use among others.

41. **Purchase motivations and policy opinions of new gun owners**

Becca Valek[1], Julie Ward PhD MN RN PHNA-BC[2], Cassandra Crifasi PhD MPH[3]

[1]Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, [2]Department of Medicine, Health, and Society and Public Policy, Vanderbilt University, [3]Center for Gun Violence Solutions, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health

Background: U.S. Firearm sales surged during the COVID-19 pandemic, with many purchases by first-time firearm owners. The 2023 National Survey of Gun Policy sought to understand the motivations for these recent gun purchases and examine variations in support for different gun policies. **Methods:** The 2023 National Survey of Gun Policy was fielded from 1/4/23-2/6/23 using NORC's AmeriSpeak panel, a nationally representative, probability-based sample of US adults. We oversampled for gun owners and Black, Hispanic, and Asian Americans. Survey weights were applied to generate representative estimates (n=3,096). New gun owners were identified through affirmative responses to: "Have you bought any guns since January 1, 2020?" and "Did you buy your first gun after January 1, 2020?" Recent purchasers were additionally asked whether concerns of political or racial violence motivated their purchase. Next, we compared first-time gun owners' and prior gun owners' support for gun-related policies using logistic regression and predictive probabilities. **Results:** Overall, 11% of survey respondents reported having bought any guns since January 1, 2020, 35% of whom were new gun owners. Respondents identifying as Democrat, Black, or Hispanic reported higher rates of new gun ownership than Republican or white respondents. Odds of reporting purchases motivated by concerns for racial and/or

political violence were 3 times higher among new owners compared to prior owners (p=0.001). Black and Hispanic respondents were significantly more likely to report motivations of concerns about racial violence than white respondents (p<0.001 and p=0.008, respectively). Few differences in support for gun-related policies were observed between a) new and prior gun owners and b) those who reported motivations of racial and/or political violence versus other recent purchasers. New gun owners were significantly more likely to support permit-to-purchase policies compared to prior gun owners (76.0% vs. 63.2%; p=0.03). Support for a "stand-your-ground" policy was significantly higher among people who reported racial and/or political violence purchase motivations compared to those who did not (56.1% vs. 33.3%; p=0.003). **Conclusions:** While new and prior gun owners were largely similar in their support for gun-related policies, it is important to understand the motivations of recent gun purchases. Concerns of racial and/or political violence appear to be larger concerns among new gun owners, and gun ownership rates may continue to rise unless these concerns are addressed.

42. The roles of governors in state firearm policy environments, 2020-2022

Diana R. Silver PhD MPH[1], Jennifer L. Pomeranz JD MPH[1], Julie Holm MBA[2], Miyuki Doki MPH[2]

[1]New York University, [2]NYU School of Global Public Health

Background: A growing body of research has examined the passage and impacts of state gun rights and gun control laws. Less attention has been paid to the roles that Governors have in shaping the firearm policy environments in their states beyond signing legislation, although many governors highlight firearm issues in their campaigns. Here, we draw on insights from political science and law to describe actions undertaken by governors 2020-2022 that they have communicated to the public. **Methods:** We retrieved articles, statements and press releases from Google searches using the following terms: [Governor name] + firearms OR guns OR second amendment or 2nd amendment, then repeated these searches using LexisNexis News, resulting in a total of 376 articles between 2020 and 2022. We then reviewed each state's website for actions and statements related to firearms, and searched each governor's official and personal Twitter accounts using these terms for this period. Content analysis was used to classify these statements by state and type of action. We confirmed gubernatorial powers for each state using the Council of State Governments Book of the States volume 53, 2021. **Results:** Governors used their bully pulpit powers to trumpet legislation, signal positions on gun legislation following public shootings, and respond to national events. Several Republican governors linked their support for gun rights to jobs provided by ammunition and firearm manufacturers, gun stores and gun shows. Some linked their support of gun rights to immigration and drug policies, while some Democratic governors linked their support for gun rights to abortion issues. Governors used executive orders to classify gun stores as essential or non-essential businesses during the pandemic, and used them to create task forces on gun related issues, or issue proclamations. More than 20 governors directed monies to violence prevention programs, law enforcement agencies, school safety initiatives, job training programs, mental health services, and/or support for survivors of gun violence. Others used line-item veto powers to eliminate funding for some violence prevention programs. Several governors directed agencies to act: create a mass shooting threat assessment plan, reverse efforts to forbid guns in child agencies, relax licensing restrictions. Governors used their convening powers to meet with legislators, advocates, students, faith leaders and other government officials. **Conclusions:** Governors utilize their powers to reinforce gun rights or gun control frameworks, although this varies across states. Researchers characterizing state firearm policy environments should consider the executive office as well as the legislature.

43. How have firearm laws changed in outlier states with unexpected decreases or increases in firearm homicide, 1990-2019?

Michelle Degli Esposti PhD[1], Jason Goldstick PhD[1], Jason Gravel PhD[2], Elinore Kaufman MD MSHP[3], Kit M. Delgado MD MS[3], Therese Richmond PhD RN FAAN[3], Douglas Wiebe PhD[1]

[1]University of Michigan, [2]Temple University, [3]University of Pennsylvania

Background: Firearm violence is one of the leading preventable causes of death and injury in the United States and is on the rise. While policies regulating access to firearms offer opportunities to prevent these firearm-related deaths, an understanding of the holistic impact of changing state firearm policies on firearm homicide rates over the last 30 years is limited. We aimed to identify US states that showed unexpected decreases and increases in firearm homicide rates and summarise their firearm policy changes in the last three decades. **Methods:** We analysed changes in firearm homicide rates by US state and county from 1990 to 2019. We triangulated across three estimation approaches to derive state rankings and identify the top and bottom three states which consistently showed unexpected decreases (low outliers) and increases (high outliers) in firearm homicide rates. We summarised firearm policy changes in state outliers using the RAND State Firearm Law Database. **Results:** We identified New York, District of Columbia, and Hawaii as low state outliers and Delaware, New Jersey, and Missouri as high state outliers. Low state outliers made more restrictive firearm policy changes than high state outliers, which covered a wider range of policy types. Restrictive changes in high state outliers primarily targeted high-risk populations (e.g., prohibited possessors, safe storage). Specific legislative details, such as the age threshold (18 vs 21 years old) for firearm minimum age requirements, also emerged as important for differentiating low from high state outliers. **Conclusions:** While no firearm law change emerged as necessary or sufficient, an accumulation of diverse restrictive firearm policies may be key to alleviating the death toll from firearm homicide.

44. Extreme Risk Protective Order implementation in Anne Arundel county, MD

Isabella Young MS[1]

[1]Anne Arundel County Department of Health

Background: Extreme Risk Protective Orders (ERPOs) have been used across the US to intervene in many forms of potential gun violence, including mass shootings, suicidal crises, and interpersonal violence. Maryland enacted its ERPO law in late 2018, allowing local courts to issue orders to temporarily prohibit a person from purchasing and possessing guns and ammunition during a period of crisis. Since its passage, Anne Arundel County (AACO) has been one of the state's leading jurisdictions for ERPO execution. **Methods:** The Department of Health's Gun Violence Intervention Team (GVIT) analyzed local data to quantify the uptake of ERPOs. The GVIT reviewed AACO and Annapolis City report incident data and Maryland Courts records from 2019 through 2022 for the total number of orders filed and issued in the county. The GVIT also held a focus group to identify the factors that improved local implementation. The focus group included county law enforcement officers, detectives, mental health professionals and crisis response team members. **Results:** In 2022, AACO held the second highest number of ERPOs filed (119), making up 16.1% of all orders filed in Maryland. The county also granted the second highest number of ERPOs (81), making up 20.9% of orders granted in the state. AACO issued 68% of ERPOs filed compared to the state's average issuance rate of 52.4%. The key factors that contributed to the county's early adoption of the law included a quick uptake by law enforcement and crisis response teams, development of filing protocols, training for all law enforcement officers and detective assignments to attend court hearings. **Conclusions:** AACO took steps to streamline ERPO execution shortly following the release of the law which contributed to the county having one of the highest number of ERPOs filed and issued in the state. The county's early steps to map a support process, develop filing protocols, and educate law enforcement can inform other jurisdictions seeking to establish or improve red flag law implementation.

45. Examining firearm buyback program participation within the context of the Health Belief Model

Liz Grimes MPH[1], Niloofar Bavarian PhD[1], Judy Jou PhD[1]

[1]California State University, Long Beach

Background: Firearm violence is a serious threat to public health and safety. Firearm buyback events provide community members an opportunity to voluntarily surrender firearms for safe disposal. To date, the limited research that has examined the health modifying behavior of buyback participation has been primarily atheoretical. As such, this study aims to use the Health Belief Model [HBM] to better understand the decision to voluntarily surrender a firearm at a buyback event. Specifically, measures representing the six HBM constructs were identified as motivation for participating in the buyback. The second aim was to identify factors associated with endorsement of different HBM constructs. Specifically, measures of demographics and socioeconomic status were examined to determine whether endorsement of different HBM constructs was associated with these characteristics. **Methods:** Participants completed an anonymous, paper-based, theory-guided, survey designed by the study team. Surveys were completed post-surrender at two Long Beach, CA firearm buyback events on 10/02/21(n=56) and 9/10/22(n=42). Surveys asked participants about their reasons for surrender, demographic information, and socioeconomic status (n=98). Descriptive statistics were calculated to determine commonly endorsed motives, and logistic regression analyses were used to determine associations between demographics and motives. **Results:** Five different HBM-guided motivating factors for surrender with 50% or more degree of endorsement were identified. Measures of perceived benefits were endorsed by 57.1% (i.e., "I wanted the gift certificate"), 55.1% (i.e., "I wanted to make my community safer"), and 51.0% (i.e., "I wanted to reduce the number of guns in my community" of participants. In addition, self-efficacy was endorsed by 67.3% of participants (i.e., "I felt confident in my ability to turn in the gun".) With respect to past barriers to participation, 55.1% endorsed, "I was unaware of buyback programs." We also found three significant associations between endorsement of HBM constructs and demographic and socioeconomic status factors. As compared to females, males were 3.387 times more likely to endorse the perceived susceptibility construct as their motivation for participating in FABB (p<0.05). **Conclusions:** Findings of this study provide a better understanding of motivation to voluntarily surrender a firearm. Results can be used to guide buyback efforts at additional communities, whereby having a larger scale impact.

46. **How can governments invest in safety? A scoping review of government spending and firearm violence in the United States**

Paul M. Reeping MPH PhD[1], Julia J. Lund MPH[1], Julia P. Schleimer MPH[1], Veronica Pear PhD MPH MA[1]

[1]UC Davis Violence Prevention Research Program

Background: Firearm violence in the United States (US) is tightly linked to adverse social determinants of health that are disproportionately concentrated in certain communities due to systematic, racialized underinvestment. Government spending may act as a structural driver of these social determinants, and supportive investments aimed at addressing the root causes of violence are likely critical to creating safety and promoting health. The purpose of this scoping review is to determine the extent to which government spending on public safety and social determinants of health has been studied in relation to firearm violence. Results will guide future areas of study and inform government budget allocation. **Methods:** In this scoping review, we searched 10 databases to identify publications that quantitatively assessed the association of national, state, or local-level spending on public goods (e.g., education, public health, social services, public safety, or public welfare) and firearm injury or death in the US. We followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews guidelines. **Results:** Of the 1,006 screened results captured by preliminary search terms, 6 met inclusion criteria. These studies examined spending on social services or public welfare, education, or mental health, at the state, county, city, or school district level. Four studies found an inverse relationship between governmental investment (at the state-level on education, mental health, and public welfare; and at the

county-level on public welfare) and firearm deaths. One study found a null association between city spending for social services and firearm violence, and one found a positive association between school district educational expenditures and risk of a school shooting. These results are preliminary. **Conclusions:** Government spending as a structural determinant of firearm violence is largely under-researched. While a number of papers promoted governmental investment in social determinants of health and/or public safety as a priority for reducing firearm violence, only a few quantitatively evaluated the impact of such investments (or lack thereof). Although the findings of those studies are mixed, the majority suggest that government spending on public goods is associated with fewer firearm deaths. Opportunities exist to expand research to understand how government budgets can be best allocated to promote community safety.

47. The current state and federal firearm policy landscapes

Lois K. Lee MD MPH[1]

[1]Boston Children's Hospital

Background: Since the shootings in Buffalo, NY and Uvalde, TX, in 2022 there was a renewed effort to pass federal legislation for firearm injury prevention. This led to the passage of the Bipartisan Safer Communities Act, the first major federal legislation related to firearms in over 20 years. This law focused on expanding background checks to all individuals 18-21 years old prior to a firearm purchase, extending prohibitions for the possession or purchase of firearm to non-married partners in intimate relationships, strengthening firearm trafficking restrictions, better defining background check requirements for firearm sales (e.g. including gun auctions), providing resources for state Extreme Risk Protection Order laws, and mental health related resources. Since last year there has been continued activity on the federal level and increasing activity on the state level to pass other firearm related legislation. On the state level, Illinois successfully passed a firearm secure storage law in 2022, which provides resources to medical institutions to provide gun safes and gun locks for more secure firearm storage. **Methods:** The focus of this final part of this session will be to examine the current landscape of state and federal legislative firearm policy and research priorities in the U.S. **Results:** On the federal level there has been continued activity supporting Ethan's law, which would hold firearm owners liable for the unsecure storage of a firearm from children and teenagers. Universal background checks and bans on assault weapons are also areas of continued advocacy at the federal level. At the state level, legislation is focused both on harm reduction related to firearms as well as increasing the permissiveness related to firearm purchase and carry. Several states, including Georgia and South Carolina, have introduced firearm legislation focused on secure firearm storage bills. More states have introduced legislation related to Extreme Risk Protection Order (ERPO) laws as well as universal background checks. Legislation related to ghost guns is also being introduced in states. **Conclusions:** Due to substantial challenges for federal policy, reducing firearm injuries and deaths though legislation will need to continue to be promoted through state level policy, depending on the state. Understanding the landscape of federal and state firearm related legislation is essential for advancing advocacy efforts to decrease firearm injuries and deaths in the U.S.

48. Reasons for gun ownership among new and prior gun owners

Julie Ward PhD MN RN PHNA-BC[1], Becca Valek[2], Cassandra Crifasi PhD MPH[3]

[1]Department of Medicine, Health, and Society and Public Policy, Vanderbilt University, [2]Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, [3]Center for Gun Violence Solutions, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health

Background: Given the increase in first-time firearm owners observed in recent years, there is a need to understand the reasons for gun ownership among new gun purchases. The 2023 National Survey of Gun Policy

sought to understand the primary reasons for gun ownership reported across demographic groups. **Methods:** The 2023 National Survey of Gun Policy was fielded from 1/4/23-2/6/23 using NORC's AmeriSpeak panel, a nationally representative, probability-based sample of US adults. We oversampled for gun owners and Black, Hispanic, and Asian Respondents. Survey weights were applied to generate representative estimates (n=3,096). Gun owners rated the importance of various reasons for gun ownership. Overall reasons for gun ownership, as well as the primary reason, were grouped into four categories: home defense, defensive use in public, ideological conflict, and hunting or recreation. Logistic regression and predictive probabilities were used to compare demographic differences in reasons for gun ownership. **Results:** Home defense was the most reported primary reason for gun ownership (47%), followed by hunting or recreational purposes (34%), defensive use in public (17%), and ideological conflict (2%). Those who become gun owners since January 1, 2020 did not differ significantly in their primary reasons for gun ownership compared to prior gun owners, but some differences were observed in their ranking of overall reasons. Approximately twice as many new gun owners as prior owners ranked "protection at demonstrations, rallies, or protests" (61%) and "situations where force is justified to advance an important political objective" (59%) as important reasons for gun ownership. While those ages 65+ were more likely to report hunting or recreation as their primary reason for gun ownership, the younger age groups were more likely to report defensive use in public and ideological conflict as primary reasons. Compared to those ages 65+, 18-to-34-year-old respondents were 2.2 times more likely to report defensive use in public as their primary reason for gun ownership (p=0.008) and 12 times more likely to report ideological conflict (p=0.039). **Conclusions:** Individuals from different demographic backgrounds and geographic regions report varying motivations for gun ownership, including a proportion who are motivated by concerns for ideological violence or a desire to advance a political objective. Understanding motivations for gun ownership of different groups can improve more targeted safety messaging based on the unique concerns such groups identify.

49. Firearm-related mortality among child welfare-involved youth: Using surveillance data to inform prevention strategies

Christina S. Magness LMSW[1], Jamielah Jenkins BS[2], Seth Persky MSW[2], Tayla Smith MPH[3], Lindsay DeCamp MHA[2], Cynthia Ewell Foster PhD[3]

[1]*University of Michigan, Department of Psychiatry,* [2]*Michigan Department of Health and Human Services,* [3]*University of Michigan*

Background: Firearm-related injuries are the leading cause of death among youth in the US (Goldstick, Cunningham, & Carter, 2022), with evidence suggesting that firearm-related mortality increased across the lifespan during the COVID-19 pandemic (CDC, 2021). Child welfare (CW) involved youth are at elevated risk for adverse outcomes including suicide, homicide, and other forms of interpersonal violence, yet may also represent a key group for the prevention of firearm-related harms. The current study has 3 primary aims:

Aim 1: Quantify firearm-related deaths of children involved in one state's CW system in the years prior to and during the COVID-19 pandemic. Aim 2: Describe the nature of firearm-related deaths in terms of firearm injury type, youth demographics, and nature of child welfare involvement. Aim 3: Connect surveillance data to the development of new firearm safety prevention strategies within the CW system. **Methods:** Retrospective surveillance data (2017–2022) on firearm-related deaths, types of CW-involvement, and youth demographics were obtained via the Statewide Automated Child Welfare Information System (SACWIS), the state's centralized database for child welfare reporting. Data were hand validated by the state's Department of Health and Human Services Office of Family Advocate. **Results:** Aim 1: Of the 1,918 youth involved in the state's child welfare system who died between 2017–2022, 104 (5.4%) died of a firearm-related incident. In 2017, 11 youth died from a firearm-related incident; 8 in 2018; 4 in 2019; 24 in 2020; 25 in 2021; and 32 in 2022. Deaths were decreasing prior to COVID-19 and rose by 83.3% during the first year of the pandemic (from 2019 to 2020). Aim 2: Of the

104 youth who died of a firearm-related incident, 27 (26.0%) died from suicide, 11 (10.6%) died from murder suicides, 30 (28.8%) died from other interpersonal violence within the home, 28 (26.9%) died from unintentional injury at home, and 27 (26.0%) died from community violence. Youth demographics and abuse substantiation by type of firearm injury death will be presented. Aim 3: Structured and trauma-informed reviews of the circumstances surrounding these deaths (Cull & Lindsey, 2019) in collaboration with National Partnership For Child Safety suggest opportunities for prevention. The development of new firearm injury prevention strategies in the CW system will be discussed. **Conclusions:** CW-involved youth are vulnerable to a variety of firearm-related harms, yet study of the development, implementation, and evaluation of data-driven firearm injury prevention strategies in this population are rare.

50. **A national study of rural youth's exposure to firearm violence and attitudes towards firearm safety measures**

Megan Sinik Medical Student[1], Benjamin Linden Medical Student[1], Kristel Wetjen RN MSN[1], Pam Hoogerwerf BS[1], Junlin Liao PhD[1], Charles Jennissen MD[1]

[1]University of Iowa Hospitals and Clinics

Background: Youth have become leading voices of concern as the epidemic of firearm deaths and injuries in the United States persists and worsens. The objective of our study was to investigate rural adolescent's personal experiences with firearm-related violence, and their attitudes towards firearms and gun violence prevention strategies. **Methods:** At the 2021 National FFA (formerly Future Farmers of America) Convention & Expo, a convenience sample of attendees were administered an anonymous survey at the University of Iowa Stead Family Children's Hospital injury prevention booth. The survey explored their personal experiences with firearm-associated deaths and injuries, and their attitudes regarding firearm-related issues and safety measures. 3,206 adolescents (13-18 years old) participated with nearly half (45%) reporting they lived on a farm or ranch. After data were compiled, descriptive (frequencies), bivariate and multivariable logistic regression analyses were performed. **Results:** About 10% of participants had personally seen someone threatened with a firearm. Nearly half (46%) stated they knew someone who had been killed or injured by gunfire. Most agreed that a firearm safety course (75%) and background checks (74%) should be mandatory before purchasing a firearm (including sales and gifts between private citizens). One-half agreed that there should be laws requiring safe storage (both locked and unloaded) of firearms in homes, 18% disagreed. Nearly two-fifths (38%) agreed that parents should ask families where their children visit whether they have firearms stored unlocked. Almost one-third (31%) agreed there should be a national database of all privately owned firearms, 35% disagreed. Only 21% agreed healthcare providers should ask parents about firearm storage in the home, 58% disagreed. Overall, those from farms were less likely to agree with firearm safety measures. **Conclusions:** A majority of adolescent participants supported some firearm safety measures including required training and background checks. However, they do not agree with a number of other measures, some that are major components of firearm injury prevention efforts of organizations like the American Academy of Pediatrics. We did find that many rural youth's lives had been affected by the threat of firearm violence and by firearm-related deaths and injuries. Our study did not investigate the effects of firearm violence on participants' mental health and wellbeing, but future studies addressing this question seem highly justified. Rural firearm injury prevention programs should explore the basis for present attitudes and how they might be best modified to improve safety practices.

51. **A geographic analysis of pediatric firearm deaths and state policies on social, emotional, and academic development**

Justin S. Hatchimonji MD MBE MSCE[1], Diane N. Haddad MD MPH[1], Dane R. Scantling DO MPH[2], Elinore J. Kaufman MD MSHP[1], Danielle R. Hatchimonji EdM PhD[3]

[1]University of Pennsylvania, [2]Boston University, [3]Nemours Center for Healthcare Delivery Science

Background: Firearm deaths continue to rise among children and adolescents in the US. School-based efforts to promote social, emotional, and academic development (SEAD) may be a potential means to reduce youth firearm deaths, but state-level policies vary and the effect on firearm deaths is unknown. **Methods:** We used publicly available data from the Education Trust regarding state-level policies surrounding SEAD as of 2021. The organization categorizes policies into the following groups: Discipline; Educator Diversity; Professional Development; Rigorous & Culturally Sustaining Curriculum; Student, Family, and Community Engagement; and Wraparound services. We averaged scores from each of these domains to obtain a cumulative SEAD policies score; we also investigated the latter two domains individually. Firearm death data for years 2018-2020 was obtained from the CDC WISQARS system; demographic and other covariate data was obtained from the census American Community Survey 5-year estimates as of 2021. Firearm availability was estimated using FS/S (firearm suicides/total suicides). State firearm laws data were obtained from the State Firearm Laws database. We mapped SEAD policy scores and rates of pediatric (age 18 or younger) homicides and suicides. We used Moran's I to identify spatial autocorrelation for each. Linear and Poisson regression models, as appropriate, were used to investigate associations between SEAD policies, covariates, and pediatric firearm deaths. **Results:** Statewide pediatric firearm deaths per 100,000 per year ranged from 0.85 to 7.81; homicides from 0.64 to 5.69, and suicides from 0.21 to 4.75. Mapping did not demonstrate significant autocorrelation (Moran's I) for school policies (p=0.57), likely due to the highest scores being on the West coast and Northeast. There was, however, significant clustering of homicides (p<0.001) and suicides (p<0.001). Univariate regression analyses demonstrated associations between SEAD policy scores and both homicides (p=0.003) and suicides (p=0.03), but these associations were not significant after adjusting for covariates including firearm availability, poverty, urbanicity, and firearm restrictive legislation. Wraparound services were associated with lower pediatric firearm homicide (p=0.027) and suicide (p<0.001) rates on univariate analyses, but not after adjustment. Finally, we found that Engagement policies were associated with lower rates of pediatric firearm homicides after adjustment (IRR=0.46, p=0.014), but there was no association with suicide rates. **Conclusions:** While there is no significant association between pediatric firearm deaths and summary measures of SEAD after adjustment for other factors, there is an association between Student, Family, and Community Engagement policies and pediatric firearm homicides. SEAD policies may be helpful in decreasing pediatric firearm deaths.

52. **Changes in firearm-related self-harm deaths and their association with state-level firearm laws: Analysis of US states from 1990 to 2019**
Sid Zadey MSc-GH[1]

[1]Columbia University

Background: While firearms have been implicated in self-harm – a major public health concern in the US – systematic assessments are limited. We aimed to assess a) the contribution of firearms to the overall self-harm deaths in the US, b) the changes in firearm-related self-harm deaths during 1990-2019, and c) if the burden across states is associated with the presence of firearm laws. **Methods:** This was a retrospective secondary data analysis. Modelled estimates from the Global Burden of Disease 2019 study were used. Annual self-harm and firearm-related self-harm death count estimates were extracted for both sexes and all ages for the US and its states. The percentage of firearm-related self-harm (FRSH) deaths relative to all self-harm deaths denoted the contribution of firearms to self-harm. FRSH average annual percent changes (AAPCs) were calculated for 1990-2019. State- and year-wise (1991-2019) data on firearm laws were obtained from Statefirearmlaws.org. We extracted data on the presence (given by 1) or absence (0) of prohibitive laws on high-risk gun possession across 7 categories related to mental health (3 categories), alcohol use (2), and drug use (1) as well as extending such prohibitions to ammunition (1). Adding the category-wise values, for each state, we created an annual

self-harm-related firearm state law (SH-FSL) index ranging from 0 to 7 with 7 depicting presence of all prohibitions. Similarly, the cumulative SH-FSL index over 1991-2019 ranged from 0 to 203 (29 years * max value of 7). Spearman correlations were used to assess associations while non-parametric ANOVA was used to assess group differences. **Results:** Nationally, the US had an AAPC in FRSH of -0.19 (FRSH-1990=56.88%, FRSH-2019=51.52%). In 2019, Alabama (69.68%) and Hawaii (23.39%) had the greatest and least FRSH burdens. California (-0.43) had the highest AAPC while Massachusetts showed a small rise in FRSH (0.07). The cumulative SH-FSL index was highest for Hawaii (180) while 19 states had a zero value. In 2019, FRSH varied significantly across the 7 SH-FSL indices ($p=0.0056$). The 2019 FRSH values were negatively correlated with the cumulative SH-FSL indices across states ($n=50$, $R=-0.57$, $p<0.0001$). The FRSH AAPCs showed a negative non-significant correlation with SH-FSL change from 1990 to 2019 ($n=50$, $R=-0.12$, $p=0.39$). **Conclusions:** Firearms have a large contribution to the overall fatal self-harm burden with a modest decrease in the last 30 years. States with more laws prohibiting firearms to high-risk populations have lower firearm-related self-harm deaths than those with fewer or no laws.

53. Engaging in Lethal Means Safety (ELMS): An evaluation of a suicide prevention means safety training program for mental health first responders

Chris Collins PhD LICSW[1]

[1]*Salem State University*

Background: The temporary removal of firearms has been linked to between a 30% and 50% decrease in suicide rates (Barber & Miller, 2014). The Engaging in Lethal Means Safety (ELMS) intervention was designed to educate and refine skills related to lethal means safety counseling. ELMS is theoretically driven and builds upon a foundation previously set forth by the Counseling on Access to Lethal Means (CALM) training (Frank & Ciocca, 2009). The purpose of the present study is to evaluate the effectiveness of the ELMS program with a group of behavioral health providers in three acute behavioral healthcare centers in Florida. **Methods:** A pre-test-post-test design was used to determine (1) demographic characteristics of participants and whether ELMS was an effective for (2) improving knowledge, (3) improving provider comfort and confidence, and (4) improving provider's intent to facilitate means safety discussions. Data were collected electronically and in-person via paper survey. Participants were assigned identification numbers and divided into three groups based on their employment facility. The study used a version of a measure created by the Missouri Institute of Mental Health (Sale et al., 2017). Data were analyzed using bivariate statistics, multiple analyses of variance and repeated measures analyses of variance, and non-parametric tests for small samples. **Results:** Participants ($N = 100$) responded to six General Knowledge questions (GKQ) related to firearm-related suicide at pre- and post-test. Correct responses increased between 23% and 76% from pre- to post-test. One-way ANOVAs were conducted to determine if comfort, confidence, and intent varied by demographic characteristics. Comfort scores were highest among participants who had previously completed suicide prevention training. Confidence scores were highest among those with clinical licensure. Repeated measures ANOVAs were conducted to determine whether there were statistically significant differences in comfort, confidence, and intent scores at post-test. Results indicate statistically significant increases in scores at post-test. **Conclusions:** Excluding ELMS there is only one other documented means safety curriculum intended to educate providers on lethal means safety counseling. This is insufficient considering that most providers (e.g., social workers, physicians, psychiatrists) lack any formal training on means safety. The current study identifies serious infrastructure issues related to suicide prevention and means safety in behavioral health settings. While unsubstantiated it is likely that these barriers exist across many of the settings where means safety discussions could be most beneficial Firearm-related suicide is a public health issue and not one that can be ameliorated in silos.

54. The values, beliefs, and meaning of firearms and firearm ownership among post-9/11-era current and former Army service members

Jayna Moceri-Brooks PhD RN [1]

[1]*The New Jersey Gun Violence Research Center at Rutgers, the State University of New Jersey*

Background: Firearm ownership rates are high within the military population (Cleveland et al., 2017), especially among service members and Veterans with combat exposure (Heinz et al., 2016). Firearms are also the primary means of suicide within this population. Anecdotally, Army Combat Veterans described feeling attached to their firearms during combat deployments, but it is unknown if their experiences while deployed influenced firearm ownership, storage, and/or carriage when they returned home. Studies report that some people consider gun ownership as a part of their personal identity (Thomas et al., 2022), but to our knowledge, no studies have examined the values, beliefs, and meaning of firearms exclusively among current or former Army service members. Thus, purpose of the study is to fill the gaps by identifying the values, beliefs, and meaning of firearms and firearm ownership among this group and identify whether Army culture and/or experiences in the Army influence decision making around firearm ownership, storage, and carriage. **Methods:** The method for this study is a focused ethnography and is currently in progress using Zoom software to conduct semi-structured interviews based upon Leininger's cultural care theory. The participants in the study are current and former Army service members who served after 9/11/2001. Participants will be interviewed until data saturation occurs (approximately 30 participants are intended). NVIVO software is being used to assist with analysis using Leininger's four phases of qualitative data analysis. Thus, data analysis is occurring concurrently with data collection. **Results:** To date, thirteen participants have been interviewed for the study. Twelve of the thirteen participants have combat experience. All participants are firearm owners. Currently, 20 categories have been identified through Leininger's dynamic coding process. Preliminary findings indicate that three patterns are emerging: 1) Army indoctrination of "being prepared" informs decision making around firearm purchasing and storage 2) Experiences in combat influence decisions around firearm purchasing, storage, and carriage 3) Combat Veterans have conflicting feelings about carrying concealed firearms. **Conclusions:** Preliminary findings from this study reveal that aspects of Army culture and experiences in the Army are relevant to understanding the rationale for firearm purchasing, storage, and carriage within the Army population. Findings from this study may inform culturally sensitive firearm suicide prevention interventions within this high-risk population. It is anticipated that the completed study findings will be presented at the conference.

55. The role of financial incentives in promoting secure firearm storage among Veterans with elevated suicide risk

Gabriela Kattan Khazanov PhD[1], Elizabeth Spitzer PhD[2], Suzanne Thomas BA[2], Joseph Simonetti MD MPH[3]

[1]Corporal Michael J Crescenz VA Medical Center in Philadelphia, [2]Rocky Mountain Mental Illness Research Education and Clinical Center for Veteran Suicide Prevention, [3]Rocky Mountain Mental Illness Research Education and Clinical Center for Veteran Suicide Prevention, University of Colorado School of Medicine

Background: Seventy percent of suicides among U.S. Veterans are due to firearm injury. Lethal means counseling (LMC) is an evidence-based intervention in which clinicians encourage patients to limit their access to firearms, although there are several barriers for patients to adopt such behaviors. While financial incentives have been shown to motivate health-related behavior changes (e.g., exercise, drug abstinence), their role in motivating firearm behaviors is unclear. The aim of this study was to explore Veterans' perspectives on the use of financial incentives to promote secure firearm storage. **Methods:** Qualitative interviews were conducted with 17 Veterans with firearm access who sought care in a Veterans Affairs (VA) emergency department or urgent care setting in Colorado or Wyoming from 2022-2023 and were identified as having elevated suicide risk. Semi-structured interviews explored participants' perspectives on LMC interventions, including potential approaches to

motivating secure storage behaviors, and were guided by constructs within the Health Belief Model. Thematic analysis with inductive and iterative coding was used to analyze findings. Interviews were double-coded for reliability and bracketing was used to increase trustworthiness of results. **Results:** When asked what would help motivate secure storage of firearms, a common theme communicated by participants was the importance of financial incentives. Veterans noted that the high cost of locking devices, especially safes, prevented them from using these devices, and that receiving incentives would help them afford locking devices. Some also indicated that such incentives would demonstrate that the VA was invested in their care. In addition to suicide prevention, another motivator for use of locking devices was to prevent theft of firearms. Types of incentives suggested by participants included high-quality locking devices (e.g., biometric lock boxes) or safes, as well as coupons for locking devices. Notably, participants frequently cited privacy concerns with respect to the VA's knowledge of their firearm access. However, even in circumstances in which participants appeared particularly guarded about sharing firearm-related information, many were still open to VA-sponsored distribution of locking devices or coupons. **Conclusions:** In line with behavioral economic frameworks and research on health-related behavior change, our findings suggest that VA should consider mitigating financial barriers for patients in acquiring firearm locking devices in its efforts to reduce firearm suicide risk. Future work is needed to evaluate the relationship between locking device cost and willingness to store firearms using these devices, as well whether provision of financial devices leads to measurable improvements in firearm storage behaviors.

56. Using multi-stakeholder engagement to develop an educational workshop empowering loved ones to promote firearm safety for suicide prevention

Gabriela K Khazanov PhD[1]

[1]*Corporal Michael J Crescenz VA Medical Center in Philadelphia*

Background: Secure firearm storage can protect both individuals at risk for suicide and their household members from suicide. Family members and other loved ones are in a unique position to encourage secure firearm storage, but efforts to promote this goal have typically relied on clinicians or firearm safety instructors. Additionally, given cultural and political tensions related to firearms, it is important to engage multiple stakeholder groups in the development of firearm-related interventions. **Methods:** We used a multi-stakeholder engagement framework, including the patient-centered outcomes research stakeholder engagement rubric, to develop a workshop empowering family members and loved ones of individuals at risk for suicide to promote firearm safety in their households. Stakeholders included: (1) five New York State county-level suicide prevention coalitions representing diverse populations and regions, (2) subject matter experts in suicide prevention, firearm safety, and family processes, (3) firearm stakeholders (e.g., gun shop owners, firearm safety trainers), and (4) family members of individuals at risk for suicide. Transcripts from 17 stakeholder meetings (N = 21) were analyzed using rapid qualitative methods and the Sort and Sift, Think and Shift approach to identify themes relevant to workshop content and scope, and implications for similar educational interventions. Surveys from attendees of five pilot workshops and interviews with facilitators will be collected in July-August 2022. **Results:** Themes from stakeholder meetings included recommendations to: (1) include a local "trusted messenger" (e.g., firearm safety trainer) in developing and co-facilitating the workshop, (2) emphasize common goals of firearm and suicide prevention stakeholders, including a focus on firearm safety for suicide prevention specifically (not broader firearm safety goals), and avoid contentious topics like the role of legislation related to firearms, (3) encourage loved ones to promote voluntary and temporary decreases in access to firearms during periods of higher suicide risk as opposed to enforced or longer-term restrictions, and (4) develop a manualized, but modular workshop including content on firearm safety and storage, as well as evidence-based interpersonal skills training to help loved ones negotiate a plan for secure firearm storage. **Conclusions:** Multi-stakeholder engagement enabled the development of a workshop including evidence-based content that was acceptable to

the firearm, suicide prevention, and family stakeholders involved. Research on strategies to increase the acceptability of interventions seeking to increase secure firearm storage while retaining their effectiveness would help guide future efforts to develop relevant educational interventions.

57. Alaska Native adult and youth perceptions of youth firearm access

Avery Moje MPH[1], Lisa Wexler PhD MSW[2] ,Aneliese Apala Flaherty MPH[2], Jason Goldstick PhD[2], Kelsey Porter MSW[2], Megan Leys MSW[3], Jorge Portugal MS[2]

[1]University of Colorado Boulder, [2]University of Michigan, [3]Maniilaq Association

Background: Rural Alaska Native (AN) communities experience youth suicide at disproportionately high rates. Youth suicide in these communities only recently emerged (first documented in the 1960s) and is linked to rapid, imposed social change and on-going colonization over the last 100 years. In a remote roadless region of Alaska (90% AN), this study partnered with the regional Alaska Native health organization to better understand how to respectfully reduce suicide risk through household firearm safety and lethal means reduction. Our survey research engaged adults (n=200) and youth (n=107, ages 9-17) to understand their household firearm storage practices and perceptions of youth firearm access. Results are being used to inform the ongoing development of an intervention designed to foster safe firearm storage at home in rural Alaskan communities. **Methods:** Adults and youth were recruited and surveyed separately using culturally adapted versions of the National Firearms for Children and Teens (FACTS) survey. Descriptive survey analysis evaluated household firearm storage practices and youth firearm access and compared adult and youth perceptions of youth firearm access. **Results:** The majority of households store firearms safely, with households with children more likely to participate in safe storage behaviors. Most youth report learning about firearm safety from a family member, but few report being responsible for firearm safety in their household. Comparing adult and youth perceptions, 43% adults and 56% youth indicated that young people ages 9-11 know where 'all of the firearms in and around the house' are stored. This perception increases for adults to 61% and remains high for youth (55%) when asked about older youth (ages 12-17). Respondents overall indicated that youth ages 9-11 (87% adults; 80% youth) and ages 12-17 (72% adults; 84% youth) can only use firearms with adult supervision or not at all. Of note, 47% and 35% of adults indicate that youth ages 9-11 and youth ages 12-17, respectively, are unable to access a firearm at all, whereas about half of youth (47% of youth ages 9-11 and 54% of youth ages 12-17) say they can access and load an unloaded firearm without an adult's help in 15 minutes. **Conclusions:** AN households store firearms safely most of the time, yet there is a notable discrepancy between adult expectations and youth-reported access to firearms within 15 minutes, a critical window for suicide prevention. To further youth safety, future interventions must include limiting youth access to firearms in addition to safe firearm storage.

Poster Session 2

1. **Save us: The Robb Elementary School shooting forces Southwest Texas Junior College to improve security measures**

Veronica Castro Williams MEd[1], Onesimo Martinez II[1], Cristina Barrientos[1], Daniel Borrego[1], Maria Chaires[1], Maria Chavez[1], Keren Maldonado[1], Melina Padilla[1], Ana Salazar[1], Dalia Vazquez[1], Lluvia Villarreal[1], Marqueez Cervantez[1]

[1]*Southwest Texas Junior College*

Background: School shootings are more pertinent now than ever, more so for the southwest Texas community of Uvalde and its surrounding areas. May 24, 2022 is the day that altered our college community's way of thinking. The mantra is, if it can happen here, it can happen anywhere. Southwest Texas Junior College (SWTJC) is located in Uvalde, TX and has multiple campuses in the surrounding area. Though safety measures had been in place prior to the Robb Elementary School shooting, the institution felt a great need to revise its security protocols due to the apparent failures by many entities on that fateful day. Until now, the research stemming from this event fails to report on how the Robb Elementary School shooting altered security measures for institutions of higher education. Recognizing this gap in data, students at SWTJC decided to document security measure updates and concerns from its student base. **Methods:** Utilizing both primary and secondary research, students conducted over 200 surveys targeting the institutions population. The objective was to determine the percentage of the student population that was satisfied with their safety both prior to and after the Robb Elementary School shooting. Interviews were also conducted to gather data over updated security measures, the proposed effectiveness of these new measures, and the future of campus security. **Results:** The research showed that prior to the Robb Elementary School shooting, 76% of students felt safe on campus, were as post school shooting, only 64% feel safe; this percentage reflects student concerns after on-campus security updates. Approved on-campus security updates include the purchase of campus key-cards for students, faculty, and staff, the purchase of assault rifles for on-campus police officers, an increased budget for the hiring of more police officers and licensed security guards, the installation of more security cameras, among other upgrades. The creation of programs geared towards mental health to help combat issues that may lead to dangerous interactions with students are currently in to works and hope to be in place for the fall 2023 semester. Conclusions: Until policies regarding gun control in the United States change, school shootings will unfortunately continue to be a fear among parents and students alike, regardless of age. Therefore, institutions of higher learning, like Southwest Texas Junior College, will continue to evaluate their school security measures in order to make their campus a safe space for students to learn and grow.

2. **Negligent firearm businesses and their proximity to K-12 schools across the United States: Evaluating risk to school-based firearm violence**

Paul M. Reeping PhD[1], Grace Killian BS[2], Ariana Gobaud MPH[3], Christina Mehranbod MPH[3], Sonali Rajan EdD[4]

[1]*Violence Prevention Research Program, University of California, Davis,* [2]*Brady,* [3]*Mailman School of Public Health, Columbia University,* [4]*Teachers College, Columbia University*

Background: Firearm violence is the leading cause of death among children and teens in the United States (US) and its prevalence has increased specifically in K-12 schools over the past several years. Exposure to firearm violence impacts children's mental health, disrupts school attendance, and contributes to reductions in students' academic performance. Our previous research has shown that school firearm violence risk increases in states

with more permissive firearm laws and higher rates of firearm ownership. However, more granular analyses at the neighborhood level are needed to better understand risk to individual school communities. Moreover, the connection specifically to firearm stores in violation of public safety regulations has never been explored. This work is seeking to understand the relationship between the proximity of K-12 public schools to federal firearms licensees (FFLs) that have been the subject of remedial action issued by the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), resulting from cited violations of public safety laws, and instances of intentional firearm violence (including fatal and nonfatal shootings) in or around school grounds. **Methods:** We conducted a cross-sectional ecological spatial analysis conducted within census tracts across the US. We are utilizing 2015 - 2018 data from the Gun Store Transparency Project, the largest public database of federal inspection reports detailing the remedial actions taken by ATF against FFLs cited for violations to the law. Our work also draws on geolocated shooting event data from the Gun Violence archive and geolocated data on K-12 school locations from the National Center for Education Statistics. Data from the Gun Store Transparency were obtained through Freedom of Information Act requests and over 3,400 inspection reports were reviewed and coded. **Results:** Descriptive findings summarize the regulations/statutes violated, specific items of concerns (such as missing firearms, straw sales, and repeat violations), types of remedial action (including license revocations), and number of violations. The analysis outcome is counts of school shootings aggregated from 2015-2018 and the exposure is counts of failed federal inspection reports. Using negative binomial models, we will estimate incidence rates of shooting associated with every one-unit increase in failed federal inspection reports. **Conclusions:** Although the results are currently in its preliminary stages, this novel study is evaluating the impact of negligent firearms dealers on school-based firearm violence risk, offering a critical point of intervention to reduce risk to children and school communities across the nation.

3. **Mass shootings in Europe: Policy implications of differing firearm acquisition patterns**
   Nils Duquet[1]

[1]*Flemish Peace Institute*

Background: In Europe legal access to firearms is not-self evident due to strict domestic firearms legislation and the levels of lethal and non-lethal gun violence are relatively low compared to other parts of the world. As a result, for a long time firearms have not been considered a significant public health issue or a serious security problem. In recent years, however, the characteristics of firearms trafficking in Europe have undergone a change that has increased the availability of firearms, including automatic rifles, for criminals and terrorists. Recent mass shootings have sparked various new policy initiatives. This study will identify policy initiatives that can be taken to close legal loopholes and curb the access to trafficked firearms by analysing the firearms acquisition patterns of perpetrators of mass shootings in Europe. **Methods:** We will use official records and media reports to analyse the firearms that were used in all (terrorist and non-terrorist) mass shootings in Europe between 2008-2023 (N=35-40) and the specific ways in which the perpetrator(s) acquired these firearms. The focus on mass shootings is motivated by the observation that firearms used in incidents of gun violence are in most European countries rarely traced by law enforcement agencies. Detailed information on the specific type of firearm and the related acquisition process is generally lacking. Yet, because of the strong societal impact of mass shootings, the firearms used in these shootings are generally the object of an investigation. As a result, information on the acquisition process of such firearms is very often available and reliable. **Results:** Our analysis indicates that strong differences can be observed between terrorist and non-terrorist shootings in the types of firearms used and the ways in which they were acquired. The perpetrators of terrorist mass-shootings generally use their (pre-existing) criminal connections to acquire their, often automatic, firearms on illicit gun markets. In non-terrorist shootings a significant proportion of the perpetrators used a firearm they had legal access to. In these shootings illegally-held firearms have also been used, but mainly in countries that are still struggling with a

large amount of conflict legacy weapons or by perpetrators with a criminal history. **Conclusions:** The observation of different firearms acquisition patterns of terrorist and non-terrorist mass shootings has important policy implications. To prevent easy access to firearms for potential perpetrators, various types of policy action are needed to close existing loopholes in legislation and to strengthen the fight against firearms trafficking.

4. (Artificial) eyes in the sky and ears to the ground? Public attitudes toward expanding surveillance technologies to reduce gun violence

Magic M. Wade PhD[1]

[1]*University of Illinois, Springfield*

Background: This paper explores public attitudes toward various technological approaches to reduce gun violence that increase public surveillance, including acoustic gunshot detection (also known as Shot Spotter), automated license plate reader cameras, facial recognition software, aerial surveillance drones, residential doorbell video cameras, and closed-circuit television (CCTV). **Methods:** I assess these attitudes using a survey instrument to identify: 1) Individual and city-level characteristics that correlate with heightened support for each technology, and 2) whether question wording (i.e. how gun violence and the technologies are described) additionally shapes respondents' attitudes. Specifically, I explore whether recent increases in gun homicide rates in an individual's city of residence are related to their willingness to support technological solutions that increase public surveillance. I will also examine how partisanship and risk of victimization (based on group characteristics like age, race/ethnicity, and gender) shape such attitudes. **Results:** This extends upon the work of Hendrix et al. (2018), which found that racially imbalanced communities and law enforcement agencies were more likely to express a desire to adopt various forms of surveillance technology, as well as research by Blundell (2020), who found that citizens in the United Kingdom were increasingly supportive of expanding CCTV public surveillance to reduce crime. On the other hand, such technologies are controversial: the ACLU are vocal critics of Shot Spotter (Stanley 2021), aerial surveillance drone operations or plans were halted in Baltimore and St. Louis amidst public backlash (Snyder 2020; The Economist 2021), and state and city governments have previously banned the use of facial recognition technology, although in 2022 some are revisiting these decisions in favor of a more permissive approach (Dave 2022). Then, although most respondents were unfamiliar with "Shot Spotter," once they were told what this technology does a majority supported law enforcement using it (Teale 2021). **Conclusions:** These findings suggest that public attitudes toward surveillance technologies might be softening, but why? As a political scientist with expertise in public policy, urban politics, and gun violence, I am interested in shedding light on the conditions under which citizens will support the adoption of violence intervention technologies that deliberately increase public surveillance. This research also aims to assess the trade-offs that citizens are willing to accept in the realm of privacy if they perceive that public safety and/or police accountability may be increased by the adoption of a given surveillance technology.

5. Instrumentality and technological determinism as related to firearms

Christopher B. Strain BA MA PhD[1]

[1]*Florida Atlantic University*

Background: Americans are familiar with the NRA slogan "Guns don't kill people, people do"—but what if guns killed too? **Methods:** There is a body of philosophical research (i.e., analyses by philosophers using theories and methods particular to that discipline) in the fields of instrumentality and technological determinism that supports the notion that guns may be less than neutral: neither tools nor consumer items but rather objects with particular individualities and contexts of usage that tend to give rise to negative outcomes. This academic literature diverges from the familiar assumption that guns are neutral and explores the less familiar notion that

they are not, moving toward the (rather foreign) idea that they may harbor a certain malevolency. This presentation synthesizes and summarizes those findings, including the author's own contributions. **Results:** With evidence of guns as aggression-eliciting stimuli, as power brokers in human interactions, and as inherently lethal devices, it may make little sense to view them as neutral entities. **Conclusions:** In light of compelling theories on instrumentality, technological determinism, facilitation, and translation; in light of the possible non-neutrality and hidden agencies of firearms; and in light of new research on the divide between the intent and reality of concealed carry, the axiom "Guns don't kill people, people do" may require revision.

6. Women's role in crime: Evaluating the 5K motion video as an educational resource

Pina Mendillo Violano PhD MSPH RN PMGT-BC CCRN[1]

[1]*Quinnipiac University*

Background: The number of women in U.S. prisons has increased at nearly double the rate of men resulting in more than one million women currently being under the supervision of the criminal justice system. Women are more likely to be incarcerated for drug offenses (29%) subjecting them to increasingly punitive law enforcement and sentencing practices, despite women being less likely than men to play a central role in the drug trade. The purpose of this study was to identify the effectiveness of the 5K Motion short film as an educational intervention on the topic of women's ancillary role in crimes, specifically drug and gun crimes. **Methods:** A self-reported survey was administered immediately before viewing the film and immediately post to determine attitudes, beliefs, knowledge, and behaviors on Federal versus State charges related to their role in crimes involving guns and drugs. The study was conducted at 5 local High Schools and 1 middle school in an urban community. 192 surveys were completed. Data were analyzed using a repeated measures nonparametric test where pretest responses were matched to the posttest response for the same individual. Z-scores and corresponding p-values were derived using the Wilcoxon signed rank test to establish differences from pre to post for items that were either yes/no or checked/unchecked. **Results:** The results showed an increased awareness of actual higher penalties regarding illegal firearm or drug possession. Respondents were more likely to seek help for problems with drugs, guns or gangs and indicated that they were more likely to seek help from police if they were being forced or pressured into becoming involved with guns and/or drugs. They were more likely to listen to advice about drugs, guns and/or gangs, from a mother-figure, teacher or police. **Conclusions:** The role of men in initiating women into crime has been a consistent finding across research. This often takes the form of support or ancillary roles to men. Females frequently become involved in crimes as accomplices to males, particularly in roles that exploit women's sexuality and reinforce their traditional subordination to men. The core elements of gender roles and relationships have changed little, if at all, thus perpetuating the ancillary role that women play to men in crime. It is our hope that by bringing this often-overlooked issue to the forefront that we are able to educate and dissuade women from playing ancillary roles to men in crime.

7. Impact of the transition to the National Incident-Based Reporting System on 2021 gun violence trends

Terra Wiens MPH[1]

[1]*Violence Policy Center*

Background: After nearly a century of collecting crime data from Law Enforcement Agencies (LEAs) through the Uniform Crime Reports Summary Reporting System (SRS), the Federal Bureau of Investigation (FBI) transitioned to collecting and reporting data via the National Incident-Based Reporting System (NIBRS) in January 2021. While data captured by NIBRS are more robust than those of the SRS, a significant number of LEAs did not transition to reporting to the new system by January 2021. This has raised concerns about the validity of 2021 NIBRS data for analyzing crime metrics, specifically national and state estimates of gun violence. **Methods:** To assess whether

2021 NIBRS data were appropriate to analyze for gun violence metrics, existing NIBRS data products and reports were reviewed, as well as literature assessing the impact of the transition. **Results:** Thirteen states had less than 60% NIBRS participation by LEA or jurisdiction population coverage in 2021. Several large cities also did not submit data, including New York City, Baltimore, and Los Angeles. The FBI and Bureau of Justice Statistics produced national crime estimates using the reported data. However, given the incompleteness of reporting, the estimates have a high level of uncertainty, making it challenging to assess the true magnitude of homicide in 2021. Depending on the number of LEAs participating in 2021 NIBRS reporting, state-specific homicide estimates are not available for every state, and more granular estimates for specific victim or offender characteristics previously available in the SRS are not available in NIBRS estimates (e.g., firearm type and relationship between victim and offender). **Conclusions:** Because a substantial number of LEAs did not report data to NIBRS in 2021, current data are not suitable for analyses of homicides involving firearms. Incomplete data reporting has resulted in uncertain, and in some cases absent, homicide estimates. The lack of reliable estimates for broad crime trends like homicide, and more granular data about victim-offender relationship, hinders the ability to understand how crime trends, specifically gun violence, changed in 2021. This gap in reliable data has a profound impact on gun violence prevention efforts and makes it impossible to analyze specific crime rates with historically concerning trends, for instance the rising rate of homicide among Black women. In order to restore a robust crime reporting system in the US, policymakers should work to improve NIBRS reporting by providing additional funding and technical assistance to LEAs who have not yet transitioned to NIBRS.

8. **Factors that make shootings hard (or easy) to solve: Findings from the National Case Closed Project**

John Skaggs[1], Heather Prince PhD[2]

[1]*Los Angeles Police Department,* [2]*RTI International*

Background: Jurisdictions across the country are experiencing low clearance rates for fatal and nonfatal shootings. Failure to arrest and successfully prosecute perpetrators can have implications for future shootings, as research demonstrates that a minority of individuals are responsible for the majority of gun violence occurring in any given jurisdiction. Improving law enforcement investigations of fatal and nonfatal shootings would lead to a higher likelihood of arrest and subsequent prosecution of offenders which may help prevent future gun violence and associated harm in communities. This presentation discusses findings from a national study aimed at assessing factors related to successful case clearance for fatal and nonfatal shooting incidents, and what law enforcement can do to improve their investigations of these incidents with the eventual goal of reducing and preventing shootings. Implications for agencies wishing to improve their own fatal and nonfatal shooting investigations will be discussed. **Methods:** This project leveraged multiple data collection efforts across five participating law enforcement agencies, including qualitative interviews with agency and partner personnel, administrative data and policy reviews, and investigative case file coding of a random sample of cleared and uncleared nonfatal and fatal shootings. These data were examined to assess the gaps and factors leading to less successful case clearance outcomes. Recommendations to law enforcement were provided based on these findings. **Results:** Based on the assessments of these agencies, key patterns have emerged about the investigation of shooting cases that make them difficult to solve. For example, shooting cases that were cleared tended to have a more rigorous response compared to uncleared cases, including a larger number of assigned investigators and more frequent use of technologies in the investigation, though the size of these discrepancies varied by site. Cleared cases also were characterized by higher levels of community engagement, as evidenced by more witness cooperation and more requests of community groups or leaders for assistance in the investigation. **Conclusions:** Understanding the characteristics of successful shooting investigations is a fundamental step towards improving investigative practices, increasing case closure and subsequent arrest, and preventing future violence. Findings from these assessments resulted in several common recommendations to law enforcement

aimed at improving fatal and nonfatal shooting investigations. These include such recommendations as maintaining reasonable caseloads for investigators, employing technology and data to improve shooting investigations, and fostering collaborative relationships with community organizations.

9. **Preliminary uptake of universal screening for firearm injury risk among pediatric surgical trauma patients**

Emma Cornell MPH[1], Chethan Sathya MD MSc FRCSC FACS[1]

[1]*Northwell Health Center for Gun Violence Prevention*

Background: Hospitals and health systems provide unique opportunities for delivery of firearm injury and mortality prevention (FIMP) strategies. Our health system implemented a universal FIMP screening program in the emergency department (ED) to normalize conversations around firearm access and violence risk for patients, families, and providers. This universal screening strategy was based on successful implementation of a "We Ask Everyone" approach using Screening, Brief Intervention, and Referral to Treatment (SBIRT) for substance use. We applied this SBIRT framework for substance use to FIMP to maximize reach to all patients and destigmatize firearm injury risk. Preliminary data indicated high acuity trauma patients including those with violent injuries were not screened due to injury severity. With the majority of high acuity patients being admitted to the hospital, we expanded FIMP to the inpatient surgical service to increase provision of screening and intervention for higher risk trauma patients. **Methods:** In March 2023, FIMP was expanded to the inpatient surgical service and administered to all trauma patients ≥ 12 years admitted to the pediatric surgical service. Screening was administered via an electronic tool in REDCap and integrated into the tertiary trauma survey completed by surgical residents. The tool consisted of a question about firearm access within or outside the household, and the 4-question SaFETy score, a validated tool to predict future firearm violence risk. All new surgical residents received instructions from the pediatric surgical fellows to complete asynchronous education on FIMP as a public health issue, and given guidance on tool utilization, documentation, and available resources. **Results:** Among 25 pediatric trauma patients admitted to the surgical service from March-June 2023, 24% (n=6) received FIMP screening in the ED prior to inpatient admission. Among the remaining 19 patients 68.4% (n=13) received FIMP screening as part of the tertiary trauma screening administered by surgical residents. Reasons for noncompletion of the survey included two patients who did not speak English, and user error operating the REDCap form. **Conclusions:** FIMP screening is a promising tool to identify and subsequently provide patients and families with resources and support to increase safety and reduce risk associated with firearm access and violence risk. Preliminary data suggests integration of FIMP screening into the tertiary trauma survey by surgical residents is a sustainable way to increase inpatient FIMP screening. Factors associated with increased screening were championship by surgical attendings and fellows, who provided daily reminders for residents during morning rounds to increase utilization.

10. **Usability testing of a virtual reality curriculum to deliberately practice firearm safety counseling**

Michelle L. March MD MPH[1], Matthew Zackoff MD MEd[1], Andrea Meisman MA[1], Cornelia Griggs MD[2], Peter Masiakos MD[3], Chana Sacks MD MPH[3], Gretchen Felopulos PhD[3], Kyesha James BA[1], Francis Real MD MEd[1]

[1]*Cincinnati Children's Hospital Medical Center,* [2]*Massachusetts General Hospital,* [3]*Massachusetts General Hospital and Harvard Medical School*

Background: Firearm-related injury is the leading cause of death among U.S. children and adolescents, with ~1/3 of households containing at least one firearm. Many health professional organizations recommend that pediatricians screen for firearms in the home, counsel about their potential risks, and recommend safe storage practices. However, pediatricians often lack the knowledge, skills, and comfort to discuss firearm safety with families. Virtual reality (VR) may provide a safe, realistic environment for pediatricians to deliberately practice

firearm safety counseling. We conducted usability testing of Resident Education And Counseling on Household Firearm Safety (REACH), a screen-based VR curriculum, with pediatric residents from two academic medical centers. REACH is a 4-scenario, scaffolded VR curriculum that allows residents to practice firearm safety counseling strategies during simulated primary care visits. **Methods:** Through REACH, participants learn and apply core skills on safety counseling and motivational interviewing with real-time feedback. Following the 45-minute curriculum, participants completed a 10-minute semi-structured interview and survey exploring current firearm counseling behaviors in clinical practice, perspectives on the curriculum and VR platform, and self-efficacy related to recommending safe storage practices. Interviews were transcribed and analyzed using thematic analysis with descriptive statistics and paired t-tests used for survey data. Third-year pediatric residents at Cincinnati Children's Hospital Medical Center (CCHMC) and Massachusetts General Hospital (MGH) were invited to participate via email and REACH was administered over a video teleconferencing platform. **Results:** Fifteen pediatric residents participated in REACH and interviews, and 14/15 completed the survey. Participants were mostly female (11/14), between 25-29 years of age (13/14), and Caucasian (10/14). Pediatric residents reported poor baseline knowledge of and comfort with engaging in firearm safety counseling. Core themes from the interviews were: 1) barriers to gun violence prevention counseling include a lack of knowledge/comfort with firearm safety counseling and other competing priorities in clinic/sufficient time; 2) VR provided a realistic experience; 3) REACH was digestible and appropriately scaffolded for learning; and 4) deliberate practice using VR is helpful. Following participation in REACH, participant knowledge and self-efficacy regarding gun safety counseling significantly increased. **Conclusions:** Residents reported that REACH was a realistic, informative experience that would positively impact their future counseling behaviors. These data support further exploration of VR to train pediatricians on firearm safety counseling and motivational interviewing as an injury prevention strategy to address the epidemic of gun violence.

11. Provider perspectives on addressing firearm safety with older adults in primary care

Rachel Ross MPH[1], Elizabeth A. Phelan MD MS[2], Ali Rowhani-Rahbar MD MPH PhD[1], Allison M. Cole MD MPH[3], Ayah Mustafa BS[1], Amy Gallagher MPH[1], Kiet Pham BS[4], Laura C. Prater PhD MPH MHA[1]

[1]University of Washington - Firearm Injury and Policy Research Program, [2]Professor of Gerontology and Geriatric Medicine and Adjunct Professor of Health Services at the University of Washington School of Medicine and Public Health, [3]Department of Family Medicine - University of Washington, [4]School of Psychology at the University of Washington

Background: Chronic conditions, including mild cognitive impairment and depression, place older adults at high risk of firearm suicide. Approximately 40% of older adults own a firearm or live with one in the home, and many do not store their firearms safely, even though safe firearm storage is linked to a reduced likelihood of firearm suicide. However, firearm counseling occurs infrequently in clinical settings. Guided by the Ottawa Decision Support Framework (ODSF), we sought to explore provider perspectives on desired resources for addressing firearm safety with older adult patients during clinical encounters in the primary care setting. **Methods:** From March – August 2022, we conducted 21 semi-structured interviews with primary care providers caring for older adults. We report deductive concepts as well as emergent themes and subthemes. **Results:** Major themes were identified from the three components of the ODSF; decisional needs, decision support and decisional outcomes. Themes included: provider self-efficacy to conduct firearm counseling, clinical workflow considerations, stories for change, patient diagnosis implications, and caregiver involvement. **Conclusions:** The need for a shared decision-making tool is well supported among providers in primary care settings to assist with firearm counseling. The tool must improve provider self-efficacy to conduct firearm counseling, be embedded within existing clinical workflows, and consider the patient's level of cognitive impairment. Implementing a decision-making tool in the clinical setting can improve provider self-efficacy to conduct firearm counseling with

older adults and help reduce risk factors associated with firearm-related harm among patients with chronic conditions.

12. "Keep your activism out of the exam room": Healthcare providers' opinions about firearm safety conversations on a Medscape message board

Ciciely Davy[1]

[1]*Brown University*

Background: Firearm safety counseling by healthcare providers is widely supported as a suicide and injury prevention method in both pediatric and adult settings, and is endorsed by leading professional medical societies. While members of the general population are often split in their opinions about whether healthcare providers (HCPs) are competent and appropriate messengers for firearm safety counseling (FSC), less is known about whether HCPs themselves support having these conversations. We analyzed internet comments appearing in the comments section of a 2022 Medscape article (which serves as an informational resource marketed to HCPs) advocating FSC in healthcare settings. These comments offer a uniquely honest dataset from which to describe HCP perspectives on FSC. **Methods:** Qualitative content analysis categorized responses to the informational article published July 2022. After developing an a-priori codebook, comments were coded by both authors, with differences adjudicated at regular meetings and inductive codes added to further characterize commenters' views. **Results:** Among the 219 comments analyzed, 9.5% (n=21) of responses supported firearm safety conversations, 23.3% supported them with caveats, 37% did not support, and 32.8% were either unclear or were unrelated to firearm safety conversations in a healthcare setting. Commenters commonly cited invasion of patient privacy, the view that HCPs do not understand firearms, and relative risks attributable to other dangerous items or activities (e.g. prescription medications, driving) as a reason that HCPs should not ask about firearm ownership. Several commenters who supported FSC specified the caveat that it would be most appropriate in adult psychiatric and pediatric settings. Views of firearm injury as a public health issue, and the responsibility of physicians to identify risk factors in patients were discussed amongst comments which supported counseling. "Educate, don't ask" - whereby HCPs counsel about firearm safety without assessing firearm ownership - was frequently referred to as a potential method of allowing HCPs to conduct FSC in a broadly-acceptable fashion. **Conclusions:** Amongst HCP internet message board commenters, a plurality did not support firearm safety counseling, countervailing professional statements supporting FSC's utility in preventing firearm violence. Support for firearm safety conversations was highest when considering specific clinical contexts. Qualitative analysis suggests that there is heterogeneity amongst the perspective of HCPs regarding firearm safety counseling. Training of HCPs on firearm safety was encouraged by commenters who held positive and negative views of firearm safety counseling by HCPs. Training HCPs on firearm culture, terminology, and safety may increase self-perceived acceptability of counseling patients.

13. Piloting a gun violence prevention training curriculum for school nurses and counselors in New Jersey and Massachusetts

Cornelia Griggs MD[1], Amy Kaplan BA[1], Gretchen Felopulos PhD[1], Robin Cogan MEd RN NCSN FNASN FAAN[2]
[1]*Massachusetts General Hospital,* [2]*Rutgers University School of Nursing, Camden*

Background: Firearm injury is the leading cause of death among children and adolescents. Amid the national crisis around school shootings, there is increasing demand for partnerships with gun violence prevention programs and schools. Our group has previously trained over 700 clinicians using our novel simulation-based gun violence prevention curriculum with highly promising results. School nurses and counselors have the potential to

bring gun violence prevention to schools, but there is no existing curriculum to empower them with skills to do so. The purpose of this study was to develop and pilot a gun violence prevention training for school nurses and counselors. We performed a post-training assessment to evaluate the feasibility and efficacy of the training. **Methods:** Two focus groups were conducted with school nurses to gather context about the problem of gun violence as it relates to school nursing practice. A training curriculum was developed based on our group's previous curriculum for residents and focus group results. School nurses underwent a virtual training which involved a didactic presentation and case-based scenarios with standardized patients. The didactic presentation included background information about gun violence affecting children and skills for incorporating gun violence prevention into nursing practice. Each participant completed an online post-training survey assessing comfort with gun violence prevention skills and the importance of firearm screening and counseling. Demographic information and prior experiences relating to gun violence were also collected. **Results:** School nurses feel undervalued and underutilized in their roles and do not have the skillset to approach gun violence prevention in the workplace. School nurses and school nurse trainees from New Jersey and Massachusetts (n=30) completed the training. Many participants indicated that they owned a firearm or have spent time in a home with firearms (n=13/30). Comfort among participants discussing relevant measures regarding gun safety increased significantly from pre-training to post-training. Post-training, participants agreed that counseling regarding firearm safety is important (mean rating= 3.7/4). **Conclusions:** Our training program for school nurses increased confidence in screening and counseling regarding firearm safety among school nurse trainees. This novel program has the potential to help school health officials feel empowered to prevent gun violence in the workplace. Future directions for this project include development of additional case scenarios and scaling the training beyond New Jersey and Massachusetts.

14. Long-term outcomes following discharges against medical advice after firearm injury

Ted J. Chung DO[1], Logan Peter[1], Ellie Moon[1], Tyler Winkelman MD[1], Peter Bodurtha MPP[1], Rachel M. Nygaard Phd[1], Derek C. Lumbard MD[1]

[1]Hennepin Healthcare

Background: Patients discharged (DC) against medical advice (AMA) do not receive adequate treatment for their injuries and have a greater risk of readmission in the general trauma population. The aim of the study was to assess the rate of AMA DC following assault-related firearm trauma. The secondary aims include assessment of the rate and cause of pre and post-injury hospitalizations and post-injury overall mortality. **Methods:** Adult assault-related firearm injuries admitted to a Level I Trauma Center were identified in the prospectively maintained database. Chart review was conducted for hospitalizations ± 5 years from index injury and statewide mortality data was used to identify deaths outside of hospital care. **Results:** A total of 1,030 assault-related firearm injuries; of which, 9% (N=93) died during their hospitalization over the study period. Overall, 3.2% (30/937) of surviving assault-related firearm injury patients discharged AMA. Reasons for AMA DC included: unknown/eloped (50%), home/work/family/pets (30%), and unhappy with care/restrictions (20%). Post-DC mortality did not differ between routine (N=47, 5.2%) and AMA DC (N=2, 6.7%) (P=.667). AMA and routine DC had similar rates of any hospitalization (20.5 v 13.3% P=.488), trauma/injury-related hospitalization (44.1 v 25% P=.633), hospitalizations involving drug or alcohol abuse (38 vs 75% P=.016), and mental health diagnosis (43.6 vs 38.5%, P=.0.780) in prior 5-years. Significantly more AMA DC have post-injury hospitalizations compared to routine DC (43.3 vs 20.5%, P=.005); however, include similar rates of repeat traumatic injury (38.5 v 43.6%, P=.78). Overall, post-injury hospitalization was due to new traumatic injury 40.2% of cases (blunt injury 42.5%, stab 10%, and firearm injury 47.5%). **Conclusions:** We noted a 3.2% rate of AMA DC after firearm trauma. Those with AMA DC were significantly more likely to have higher rates of post-injury hospitalizations. However, we did

not see an increase in repeat traumatic injury or post-DC mortality in those with AMA DC when compared to those with routine DC.

15. A preliminary examination of mental healthcare providers' firearm access screening practices in the U.S.

Taylor R. Rodriguez MS[1], Michael D. Anestis PhD[1], Joye C. Anestis PhD[2]

[1]New Jersey Gun Violence Research Center, Rutgers University, [2]Rutgers University

Background: Discussing firearm safety is recommended in healthcare settings, yet most providers do not ask patients whether they have access to firearms, even when the risk for suicide/violence is high. This literature, however, is largely restricted to medical/physical healthcare settings despite the increased likelihood of encountering those at risk for suicide and violence in mental healthcare. This study aims to extend this literature by examining mental healthcare providers screening practices for firearm access. **Methods:** Data collection is ongoing, online, and remote. The current sample includes 143 participants providing mental health services. Most providers (Mage=32.9, SD=6.8) are White (n=116, 81.1%), female (n=98, 68.5%), and heterosexual (n=112, 78.2%). About half report being a student (n=67, 46.9%). Most participants are within the field of clinical psychology (n=95, 66.4%). Participants reported whether they screen for firearm access, their method and frequency of screening, and if certain beliefs/thoughts may prevent them from screening. Descriptive statistics were utilized to identify the frequency and characteristics of screening as well as screening barriers. **Results:** Almost all providers report that conversations about secure firearm storage are important in mental healthcare (n=136, 95%) and 70% (n=100) have screened clients for firearm access. Most report screening verbally (n=90, 90%) more so than via paperwork (n=40, 40%) or record review (n=30, 30%). About half report screening at intake (n=59, 59%), and most report screening when suicide (n=82, 82%) or violence (n=71, 71%) risk emerges. Most (n=60, 60%) report screening more than half of their clients for firearm access, and only a small minority (n=10, 10%) report screening all clients for firearm access. **Conclusions:** These preliminary data offer promising findings that many mental healthcare providers screen for firearm access at least some of the time. Most providers do not screen all clients, and many believe that certain clients do not need to be screened. Given the difficulties in accurately assessing risk, there are likely many individuals presenting to mental healthcare who have firearms in/around their home that are not detected. Efforts to increase training regarding the importance of screening for firearm access with all clients are an important step toward proactive firearm injury prevention.

16. Characteristics of youth seeking emergency department treatment for an assault injury

Heather Hartman MD[1], Laura Seewald MD[1], Philip Stallworth JD[1], Lynn Massey MSW[1], Rebecca Cunningham MD[1], Jason Goldstick PhD[1], Kenneth Resnicow PhD[1], Maureen Walton PhD[1], John Piette PhD[2], Shihchen Kuo RPh PhD[2], M. Kit Delgado MD[3], Claire Pearson MD[4], Lauren Hudak MD MPH[5], Patrick Carter MD[1]

[1]University of Michigan, Institute for Firearm Injury Prevention, [2]University of Michigan, [3]University of Pennsylvania, [4]Wayne State University, [5]Emory University,

Background: Youth presenting to the emergency department (ED) for a violent injury are at increased risk for violent reinjury, including firearm violence. To further refine effective hospital-based violence intervention programs (HVIPs), it is important to understand characteristics of assaults and individual risk/protective factors to tailor intervention content. **Methods:** Data from an ongoing, multi-center randomized trial to evaluate two versions of a HVIP were examined. Enrolled youth (age 14-24; n=138) seeking ED treatment for an assault injury completed a baseline survey of validated measures including socio-demographics, substance use, mental health, assault characteristics, and past 6-month violence involvement. Descriptive statistics are presented to characterize the presenting assaults and associated risk/protective factors for violence involvement. **Results:** Among youth enrolled in the sample, the mean age was 19.9 years, 45.7% were male, 81.9% were Black/African

American, and 63.8% received public assistance. The altercation precipitating the violent injury included a firearm in 24.6% of incidents, with 2.9% of youth indicating they used a firearm to threaten/shoot someone and 100% indicating the other person threatened/used a firearm against them. Other characteristics of the assault incident included: the relationship of individuals involved (79.4% involved a non-partner), location of the incident (57.3% occurred at a home/private property, 12.3% on school property, 10.9% in the street/public), motivation for the incident (18.1% retaliation; 30.4% power/respect), and substance use preceding the incident (38.4% reported using alcohol/drugs). These characteristics were similar whether or not the event involved a firearm. There were high rates of other violent injury risk factors, including past 3-month cannabis use (63.8%) and alcohol misuse (23.2%), mental health symptoms (positive screen for depression 32.6%, anxiety 27.5%, PTSD 16.7%), prior 6-month violence involvement (43.5% firearm victimization, 8.0% firearm aggression, 15.9% previous year ED visit for violent injury), and past year arrest (33.3%). Using summary scores, respondents scored moderate-to-high on protective factors, including resiliency (3.4, range 1-5), coping (19.4, range 8-32), and social support (3.4, range 1-5). However, many also scored moderate-to-high on relevant risk factors, including retaliatory attitudes (18.0, range 7-28), impulsivity (7.2, range 2-10), and anger (11.4, range 5-20). **Conclusions:** Among assault-injured youth seeking ED care, almost a quarter of incidents precipitating the ED visit involved firearms. HVIP interventions should address violent injury risk factors (substance use, mental health, firearm carriage) and focus on enhancing protective factors, including connecting patients to community resources to address social determinants of health, to prevent repeat violent injury outcomes.

17. **Predictors of repeat pediatric firearm injury in St. Louis: A 10-year retrospective cohort analysis**

Zoe Maya Miller MSW MPH[1], Daphne Lew PhD MPH[2], Kateri Chapman-Kramer MSW LCSW[2], Benjamin P. Cooper MPH[2], Kristen L. Mueller MD[3]

[1]Washington University in St. Louis, [2]Institute for Public Health, Washington University in St. Louis, [3]Department of Emergency Medicine at Washington University in St. Louis

Background: Firearm injury is the leading cause of death among youth in the United States. Individuals who experience one firearm injury are at an increased risk of subsequent injury by firearm. As many patients receive care from multiple hospitals in a geographic region, there is need to develop comprehensive linked data sets to assess constructs such as violence-related injury. The present study aims to identify demographic and clinical risk factors associated with repeat firearm injury within the pediatric population. **Methods:** This study is a 10-year retrospective observational cohort analysis of all consecutive firearm injured children who presented to one of four St. Louis adult or pediatric Level I trauma hospitals for acute care. Data were collected on demographics (age, sex, race) from the St. Louis Hospital-Based Violence Intervention Program Data Repository (STL-HVIP-DR). This multi-hospital system repository contains encounter-level data on all patients who presented for a violent injury (blunt assault, stabbing, firearm injury) from 2010 onward. A Kaplan-Meier survival analysis was performed to estimate the cumulative incidence of repeat firearm injury within the study population stratified by age group. A Cox proportional hazards regression model was performed to estimate the association between repeat firearm injury, demographic variables, injury severity, hospital of presentation indicators. **Results:** Of the 1,340 patients treated for an initial firearm injury, 160 (12%) of patients experienced one or more repeat firearm injuries during the study period. Of the patients who were reinjured during the study period, 78% were Black, non-Hispanic males who were between the ages of 15 and 17 at initial injury. Youth were significantly less likely to be reinjured if they were treated at a children's hospital in both the 10-14, $X2(1, N=263) = 13.89$, $p < .05$, and the 15-17 age group, $X2(1, N=898) = 5.84$, $p < .05$. However, Black youth between the ages of 15 and 17 were less likely to be treated at a children's hospital than white youth, $X2(1, N=1,340) = 18.58$, $p < .05$. **Conclusions:** Among the distressingly large cohort of firearm injured youth receiving care at a partner Level I trauma hospital in the St. Louis region, there were substantial racial, gender, and age disparities. Of note, Black teens were

significantly less likely to be treated at a children's hospital, which may have implications for receipt of age-appropriate trauma informed care during and after hospitalization. Additional research is needed to examine factors perpetuating this inequitable care.

18. Changing medical education: Firearm violence prevention in pediatric & emergency medicine

Jasmanpreet Cheema Kaur Medical Student[1], Amanda Schoonover Medical Student[1], Subah Nanda Medical Student[1], Annie Vu Medical Student[1], Jeff Haus DO[1], Christopher Benner MD[1]

[1]Michigan State University College of Human Medicine

Background: Physicians are uniquely positioned to provide firearm safety counseling (FSC), an effective injury prevention strategy. However, firearm violence prevention education (FVPE) is seldom taught in graduate medical education (GME). Our objectives were to provide FVPE to Pediatric and Emergency Medicine (EM) residents, characterize barriers to FSC, and assess its effect on physician confidence, comfort, and perceived barriers. **Methods:** We recruited a cohort of EM and Pediatric residents from an urban academic medical center. Participants watched a pre-recorded lecture with a question-and-answer session. Pre- and post-surveys collected data on demographics, prior firearm experience, and FSC. Key outcomes included changes in comfort, confidence, and barriers; an 11-point Likert scale (0=not at all, 10=extremely) was used. We calculated descriptive statistics, assessed the effect of FVPE on key outcomes, and used median composite scores analyzed by the Wilcoxon Signed-Rank test (α= 0.05). Ad hoc free-text asked participants to identify significant barriers to FSC, describe the impact of GME on comfort and confidence in FSC, and provide suggestions on how GME can promote FSC. Responses were analyzed, and themes were summarized. **Results:** Fifty-two residents completed the pre-survey, of which 20 completed the post-survey. 90% of residents reported interest in FSC education. EM residents had greater firearm use (70% vs 46%), exposure in GME (40% vs. 20%), and treating firearm injuries (73% vs 40%) versus Pediatric residents. Comfort (Δ3 [10,0.5], p=0.003) and confidence (Δ5.5 [-11.5, 0], p=0.001) improved for all residents post-intervention, with EM residents showing greater improvement. "Too little time" was the most likely barrier preventing FSC. Pediatric residents were less likely to engage in FSC due to "worry of damaging relationships" and the ability to "identify those at risk." Barriers' impact on FSC increased post-intervention, but this was not significant (Δ4, p=0.35). These barriers were more likely to prevent Pediatric (med: 29, SD: 13) than EM residents (med: 16, SD: 14) from FSC. Sixteen residents responded to the free-text questions. Common themes included lack of FSC education during GME, time, and training as the greatest barriers, and the desire for more education, including hands-on simulation experience with FSC. **Conclusions:** FVPE improved comfort and confidence in this cohort of EM and Pediatric residents. We found differences in perceived barriers to FSC between the specialties, emphasizing the need for FVPE in GME and individualized curricula tailored to the specific needs of different medical specialties.

19. Care management needs among youth with recent firearm carriage enrolled in a violence prevention program

Lynn S. Massey MSW[1], Heather A. Hartman MD [1], Laura Seawald MD [1], Akhil Paleru [1], Philip Stallworth JD[1], Rebecca Cunningham MD[1], Jason Goldstick PhD[1], Maureen Walton PhD[1], Ken Resnicow PhD[1], Katherine A. Battisti MD[2], Patrick M. Carter MD[1]

[1]University of Michigan, [2]Central Michigan University

Background: Young adults carrying firearms may be at increased risk for violent injury. The emergency department (ED) provides a setting to implement prevention focused interventions. Understanding key resource needs among this population can inform future efforts to prevent firearm violence. **Methods:** We present baseline data from 81 young adults in the ED who reported gun carriage in the past three months (age:16-30) and are enrolled in an on-going multi-site randomized control trial (RCT) evaluating the efficacy of an

intervention that combines a mobile health app with behavioral therapy and care management (i.e., connecting with pro-social activities, mentors, mental health service). Enrolled youth were asked at baseline about key service needs and barriers to accessing services prior to their condition assignment. **Results:** Among these young adults (median age=23 years; 38.3% male; 65.4% Black or African American; 60.5% receiving public assistance), in the past three months, 56.8% reported non-partner violence, 42% reported partner violence, and 33.3% reported firearm victimization (e.g., threatened/shot at)). Almost all (95.1%) self-identified one or more care management service need (mean=4.81; SD=4.74). Principal areas of need requested by these individuals included: (1) basic social service needs (40.7% financial assistance; 34.6% food assistance; 19.8% housing/shelter; 14.8% clothing/hygiene); (2) pro-social resources (49.4% requested positive free time activities; 29.6% positive peer/adult mentors); (3) employment opportunities/training (32.1% requested job training/skills, 28.4% requested access to job programs); (4) school/GED resources (25.9%); and (5) mental health counseling/treatment (33.3%). Only 9.9% of these young adults identified a need for substance use services, despite 60.5% reporting binge drinking and 74.1% reporting cannabis use. Barriers reported by the youth in accessing services included: (1) lack of knowledge on what services were available or how to access them (34.6%); (2) potential cost of services (23.5%); (3) belief that problems they face are not serious (22.2%); (4) belief that they should be able to handle problems without help (19.8%); and, (5) nervousness/embarrassment about requesting services (19.8%). **Conclusions:** Understanding care management needs and barriers among young adults, and connecting them to services to address these needs, is a key component of interventions to prevent violence and firearm related injury.

20. Clinicians & firearms: A curriculum on firearm injury prevention in healthcare

Andrew Lithen BEng[1], Deila Baumgardner MA[2], Christina Cantwell MS MD[3], Deniz Cataltepe MPhil[4], Celina Dubin MD[5], Julie Parsonnet MD[6]

[1]SAFE, Quillen College of Medicine, [2]Stanford University, [3]UC Irvine, [4]Children's Hospital of Pittsburgh, [5]SAFE, Mt Sinai, [6]SAFE, Stanford

Background: Less than 25% of medical schools currently teach their students about firearms injury prevention, despite the heavy toll of injuries inflicting US residents. To help address this critical gap in training, Scrubs Addressing the Firearm Epidemic (SAFE), a 501c3 with a public health approach to injury prevention, along with the Stanford Medicine Educational Technology team, published an asynchronous, self-paced online course titled Clinicians and Firearms in April of 2020. This curriculum provides a standardized approach to epidemiology, basic terminology, and current clinical guidelines for dealing with firearm-related health risks and injuries. We present a preliminary analysis of participant responses to the Clinicians and Firearms curriculum. **Methods:** A three-part asynchronous curriculum with video modules was chosen to increase accessibility and likelihood of completion. The first module established a fundamental foundation for learners regardless of prior firearm familiarity. Suggested methodologies for integration into current clinical practice with minimal adjustment to existing approaches were presented. We intentionally chose a clinically oriented and apolitical framework to relay facts about gun ownership trends in an objective manner. **Results:** 117 learners completed a course evaluation when filing for CME credit. Of those 117 learners, 90% indicated they found the materials engaging and interactive. On a scale of 1-5, learners gave an average rating of 4.2 when asked if they found the materials relevant to their practice. Areas highlighted for improvement included offering a more case-based approach to core content, providing an evaluation opportunity for learners not claiming CME, collecting more regional data at registration to identify areas of highest interest, and offering more interactive video in lieu of presentation slides. Learners requested more resources on state and federal legal statutes and more opportunities to practice effective communication strategies with patients. **Conclusions:** Our conclusions are that this course has been well received and has successfully helped our learners achieve the learning objective. Previous evaluation of other

courses offered by Stanford EdTech, through Stanford CME, yielded a high rate of request for case-based learning and/or positive reactions to existing case-based learning. We intend to apply those principles more broadly to the second iteration of this course, thus filling the gap of knowledge surrounding effective communication between providers and patients regarding firearm ownership, access, and health risks.

21. The role of the post-discharge care team in caring for gun violence survivors

Rebecca Laszkiewicz RN[1]

[1]*Medical College of Wisconsin*

In November 2022, utilizing grant funding through Advancing a Healthier Wisconsin, a Post-Discharge Care Team was created with the intent of improving patient engagement and understanding of their injuries and care plan. The team, consisting of a registered nurse and a social worker, engaged with firearm violence survivors early in their hospitalization, building a relationship, improving understanding of the complex health care system, and preparing patients for transition to the outpatient setting while working to identify and address social barriers to recovery. Interim analysis has shown a more than 50% decrease in emergency room utilization in the 60 days after discharge as well as positive feedback from patients, families, hospital staff and administrators. Ms Laszkiewicz, the first nurse navigator to serve in this new role, will provide an overview of the program along with its successes and challenges.

22. Preventing disparities in firearm-related harm: Preferred roles of clinical social work practitioners

Kelsey M Conrick MPH PhD(c)[1], Sarah Porter MHS[1], Olivia McCollum[2,3], Ali Rowhani-Rahbar PhD MD MPH[2,3], Megan Moore PhD MSW[1,4]

[1]*University of Washington School of Social Work,* [2]*Department of Epidemiology, University of Washington School of Public Health,* [3]*Firearm Injury & Policy Research Program University of Washington,* [4]*Harborview Injury Prevention & Research Center, University of Washington*

Background: Social workers are positioned to interrupt or mitigate acute risk of firearm-related harm among individuals at risk of harming themselves or others. However, social workers' biases, lived experiences, and social identities may influence recommended care plans, especially for those who come from marginalized communities. We sought to explain social workers' perceptions of their role in preventing disparities for clients at risk of harming themselves and/or others with a firearm. **Methods:** In 2023, we conducted ten focus groups with 29 practicing clinical social workers in Washington state. In a semi-structured interview, participants were asked to describe a client they had recently worked with who had access to a firearm and was at risk of harming themselves or others. They also responded to two case vignettes describing clients at risk of harming themselves or others and were asked to describe their perspectives on the role of social work practitioners in intervening to prevent firearm-related harm with clients. Interviews were recorded and transcribed verbatim. Inductive thematic analysis was conducted to identify perceived roles in serving these clients. **Results:** Participants described six roles they adopt when working with clients at risk of harming themselves and/or someone else with a firearm: assessor to identify clients at highest risk of firearm-related harm; confidant to maintain trust and facilitate client willingness to disclose firearm access; collaborator to identify shared plan for firearm removal; navigator to support clients in finding best-fitting resources and plans for firearm removal; and facilitator of conversations with clients' social supports to complete firearm removal. Additionally, participants who worked in healthcare systems also described their role as an educator to other providers (e.g., physicians) on harm assessments and interventions. In responses to the two case vignettes, many participants explained that the social identities and context of each described client would influence their approach. For example, some expressed they were less likely to pursue interventions that would involve the legal system (e.g., Extreme Risk

Protection Orders) for clients who were Black, Indigenous, or other Persons of Color, as this would expose them to the harms of a racist system and violate self-determination to choose their care plan. **Conclusions:** Social workers serve diverse but crucial roles when working with clients at risk of firearm-related harm. The focus of most social work training on client self-determination and social justice position them to interrupt disparities in firearm-related harm by pursuing client-centered solutions that prioritize autonomy and safety.

23. Examining predictors of firearm-related victimization

Meagan Docherty PhD[1], Paul Boxer[2], Eric Dubow[1], L. Rowell Huesmann[3]

[1]Bowling Green State University, [2]Rutgers University-Newark, [3]University of Michigan

Background: Despite the broad literature showing the impact of violence exposure on youth (Boxer & Sloan-Power, 2013) and how social cognitions relate to violent behavior (Huesmann et al., 2021), we know little regarding how firearm violence exposure during childhood and subsequent social cognitions supporting firearm violence (e.g., beliefs supporting the use of firearms) predict victimization by firearm violence later in development. In the present study, we examine this research question using integrative data analyses (IDA; Curran & Hussong, 2009) linking data from two prospective longitudinal studies with urban samples. IDA increases sample size and statistical power by combining similar studies, and thus enhances our capacity for assessing predictors of firearm victimization, which is a relatively rare occurrence in the general population. We use IDA to address how: 1) childhood exposure to firearm violence relates to subsequent firearm-related injury; and 2) beliefs supportive of firearm violence relate to concurrent and prospective firearm-related injury. **Methods:** From Flint, we have multi-source data from three cohorts of youth (total N=426; 2nd, 4th, and 9th graders, 75% nonwhite) assessed first in 2007 for three consecutive years, then assessed again in 2016 (ages 16-23) and 2020 (ages 20-27). From Jersey City, we have multi-source data from 200 10th graders (90% nonwhite) assessed in four annual waves ending one-year post-graduation. Studies include similar measures of key constructs. We used IDA, which permits robust inference through simultaneous analysis of multiple data sets (Curran & Hussong, 2009). To construct the full analysis dataset, we applied multiple imputation with principal components as auxiliary variables, resulting in 100 imputed datasets for both studies and all variables across the full age range, from 7 to 27 (Howard et al., 2015). **Results:** Results from the original non-imputed data indicate that neighborhood violence exposure and aggressive fantasies supporting gun use in late adolescence are significantly related to firearm victimization in late adolescence and early adulthood. Results will be replicated in the imputed data, and we will test whether social cognitions mediate the association from firearm violence exposure to firearm victimization. **Conclusions:** Our novel use of IDA indicated that both firearm violence exposure and social cognitions in support of using firearms are related to firearm-related injury. Observed developmental trends in experiences with firearms suggest the need for prevention programming to begin by early adolescence.

24. Towards a better understanding of gun violence in the EU: Possibilities and limitations of using artificial intelligence to identify gun violence

Astrid De Schutter[1]

[1]Flemish Peace Institute

Background: Since reliable and comprehensive official data on gun violence in the European Union (EU) are only scarcely available, it is very difficult to develop a good understanding on the scope, nature and context of this multi-faceted phenomenon in the EU. Better data can strongly support better policy-making and targeted law enforcement actions to effectively prevent or counter firearms violence. Project INSIGHT (International Network Studying Incidents with Guns: Harm & Trafficking) was set up in 2022 to explore various methods to collect

real-time data on firearms incidents in the EU. **Methods:** Project INSIGHT has developed a real-time tracking tool of firearms incidents, using artificial intelligence that scrapes publicly available media sources to detect and classify such cases in all 27 EU member states. The tracking tool consists of three different algorithms: an algorithm identifying firearm-related incidents in the domestic media sources of all 27 EU Member States; an algorithm clustering the identified firearm incidents to enable reporting on incident level; an algorithm extrapolating all relevant (contextual) data on the incident. **Results:** The real-time tracking tool is inspired by the armed violence monitor from the South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC) and adds the novel element of Artificial Intelligence to cover a larger geographical field. Using an elaborate ontology related to firearms and contextual information, the AI is able to identify relevant firearms incidents. Because of its learning ability, the accuracy of identification and extrapolation of relevant data will keep increasing over time. The AI enables to monitor a multitude of online media sources for firearms incidents in all 24 official languages in the EU. The real-time tracking tool, available official data and research on firearms in the EU will be brought together on a website that will serve as the central knowledge hub on firearms incidents in the EU. **Conclusions:** Gun violence in Europe is a complex and diverse phenomenon. Reliable and comprehensive data to adequately tackle this phenomenon and support policy measures however is lacking. By creating a centralized knowledge hub on firearms incidents, project INSIGHT aims to address this lack of knowledge and hence contribute to a more accurate and encompassing intelligence picture on this security threat.

25. **Online communities and gun ownership: A thematic analysis of r/firearms**

Karissa R. Pelletier PhD[1], Chiara Cooper PhD[1], Brenna Helm MA[2], Eileen Spiegel[1]

[1]University of Michigan, Institute for Firearm Injury Prevention, [2]Michigan State University

Background: Emerging ethnographic research suggests that firearms can shape an individual's sense of self given the power that such weapons wield. However, there is scant qualitative research that considers the online presence of individuals who own firearms, and how online spaces shape the way firearms are viewed and valued by owners. Our research attempts to begin to fill this gap through exploring the significance, meaning, and importance that individuals in firearm-owner-only online groups attach to their weapons and their right to own them. We view the online sphere as a particularly useful expressive space for people to experiment with identity formation. The anonymity of internet communities empowers its members to experiment and express themselves without censorship—something that can be difficult to capture in other qualitative settings (such as interviews). **Methods:** Drawing on data collected from the Reddit community r/Firearms, our research team use a thematic analysis to compare highly upvoted posts (n = 500) with a sample of non-highly upvoted posts (n = 500), to examine how members of this online community engage with collective identity formation as gun owners. **Results:** Our coding is currently on-going, however some initial themes have emerged. For instance, discussions tend to be shaped by contemporary political discourses (e.g., the war in Ukraine). Further, we see that firearms are heavily humanized and gendered; and that subscribers to this online community view themselves as the marginalized "other" as they feel that their firearm ownership ought to be preserved and protected from any "outsider" threats. **Conclusions:** We shed light on how the internet facilitates and contributes to discourses around firearms and firearm culture in the United States. Our findings can assist in interventions and preventions surrounding firearm violence by allowing scholars and policy makers to better understand how firearm owners view the world in relation to the weapons they own. It is our view that gleaning insight into the personal, symbolic meanings of firearms from those who use and own them is critical for efforts to address divisions in public attitudes about firearms and firearm policies.

26. **Local public health approach to firearm-related death surveillance**

Deanna N. Price MS[1], Juan Luis S. Marquez MD MPH[1]

[1]Washtenaw County Health Department

Background: Firearm-related deaths are a significant public health issue that requires ongoing surveillance that's often not available at the local level. In the United States, more than 45,222 deaths were due to firearms in 2020 (CDC, 2022). From 2012 to 2021, the rate of firearm deaths increased 39% in the United States (Everytown, 2023). In Michigan, there were 1,431 firearm deaths in 2020, of which 748 were classified as suicides and 647 as homicides (MiVDRS, 2020). Firearm deaths are not automatically reported to public health making county level data challenging to analyze and understand. This project aimed to develop a firearm death surveillance tool for Washtenaw County Health Department (WCHD) to better understand local firearm-related death trends. **Methods:** Washtenaw County Health Department used medical examiner data (ME data) from 2011-2022 to analyze firearm-related deaths. This data included anyone who lived in and/or died in a Washtenaw County zip code. Due to year-to-year variability in the number of deaths, we analyzed data from the first 5 years (2012-2016) as compared to the second 5 years (2017-2021), to examine trends more accurately. Geographical comparisons were made using all data collection years, 2011-2022, and rates were calculated per 100,000 people using 2019 census data. **Results:** Overall, we found there was a 74% increase in total firearm-related deaths in Washtenaw County from the years 2012-2016 to 2017-2021. Additionally, there was a 200% increase in firearm homicides and a 42% increase in suicides committed by firearm. Geographically, urban areas had higher rates of firearm homicides when compared to the rest of the county, while higher rates of suicides committed by firearm were found in rural areas. Overall, 64% of firearm deaths were in White individuals and 31% were in Black individuals. 77% of Washtenaw County firearm homicide victims were Black while only 19% were White. Conversely, 84% of individuals who committed suicides by firearm from 2011 to 2022 were White and only 10% were Black. **Conclusions:** This study demonstrates the value of firearm death surveillance at the local public health level. Firearm related death surveillance allows for targeted outreach efforts that could be tailored specifically to the needs of different parts of the community.

27. **Toward the development of firearm safety communication interventions: Insights from firearm owning parents**

Mike H.Garcia MPH[1], Crystal Costa MPH[1], Marlyn Allicock PhD MPH[1], Sandra McKay MD FAAP[2]

[1]The University of Texas Health Science Center School of Public Health, [2]McGovern Medical School

Background: Tragically, the prevalence of firearm injury among young individuals has exhibited a concerning upward trajectory in recent years. Parents and caregivers are important agents of change when it comes to preventing firearm injuries in pediatric populations. Given this, understanding the needs of parents in terms of promoting firearm safety is of paramount importance. This study aims to explore themes related to communication and firearm safety among firearm-owning parents in an attempt to inform the development of tailored and targeted interventions for families. **Methods:** This research combines data from two qualitative studies with firearm-owning parents and caregivers residing with children aged 0 to 17 years. The first study conducted online semi-structured interviews with 10 participants recruited through purposive and snowball sampling, covering topics such as the meaning of firearms, storage practices, and parent-child communication. The second study involved three online focus groups with 14 participants recruited using similar sampling techniques, focusing on perceptions of firearm safety information and messaging strategies. The samples included participants with diverse characteristics such as age, gender, race/ethnicity, number and age of children, and geographic location. A hybrid inductive/deductive thematic analysis approach was employed to analyze the data. **Results:** Several themes emerged in this analysis. Parents articulated a need for firearm safety information that is both "structured" and "standardized" in nature, particularly when engaging in conversations about

firearm safety with children as well as with other parents. Parents who were raised around firearms discussed intergenerational transfer of safety information to their children whereas parents without prior exposure to firearms commonly resorted to internet searches as a reactive information-seeking approach in specific situations (i.e., during play dates, when a child enters the shooting sports). Further, parents reported cultivating a "healthy fear" of firearms in discussions with their children, aiming to prevent the perception of firearms as taboo. Alongside hunter's education programs and license-to-carry courses, the National Rifle Association (NRA) emerged as a trusted information source for parents, who appreciated the Eddie's Eagle program for its approach to educating youth about firearm safety. However, parents acknowledged the importance of developing age-appropriate programs, particularly for older adolescents. Finally, gun shops and schools were identified as potential settings for intervention. **Conclusions:** The study findings highlight the significant parental desire for additional informational resources and communication interventions aimed at promoting firearm safety. Implications and future directions are discussed.

28. Firearm injuries differently affect homeless and undocumented trauma patient populations

Melissa Kovacs PhD PStat[1], Vafa Ghaemmaghami MD[1], Jessica Sloan MD[1], Daniel Cucher MD[1]

[1]Chandler Regional Medical Center

Background: Firearm-related injuries in the US have steadily increased in recent years. The incidence of homelessness in the United States has been steadily increasing since 2017, and the number of immigrants to the United States has been increasing since 1965. The intersection between increasing homeless and immigrant population groups with firearm-related injuries has not been rigorously dissected in the literature. Understanding this intersection and potential disparities in patient outcomes among these groups is essential to providing targeted injury prevention, best-practice emergency and follow-up injury medical care, and equitable health resource allocation. We evaluated the association between firearm injury presence and status in each of two vulnerable population groups: (1) homeless trauma patients and (2) migrant worker or undocumented citizen trauma patients ("undocumented"). Understanding which vulnerable populations are at risk for firearm injuries may broaden our understanding of this epidemic, informing opportunities for directed care and violence prevention. **Methods:** We analyzed the American College of Surgeons Trauma Quality Improvement Program (TQIP) year 2021 trauma patient data (n=1,209,097), a nationally representative database. We performed descriptive statistics and propensity score-weighted multivariable logistic regressions to estimate two associations: 1. Firearm injuries and homelessness (n=9,537); 2. Firearm injuries and undocumented status (n=969). Age, sex, race, ethnicity, and pre-existing conditions that may correlate with firearm injuries (alcohol and/or substance use disorders and mental health diagnoses) were added to the models as controls. We also looked for differences in injury intent (unintentional; self-inflicted; assault) between these two populations. **Results:** Homeless trauma patients are over twice as likely to incur firearm injuries as housed trauma patients after controls (OR: 2.17, p=.000). Undocumented trauma patients do not experience firearm injuries at different rates than their documented counterparts (OR: .47, p=.285) after controls. Injury intent does not differ between homeless patients and undocumented patients with firearm injuries. **Conclusions:** This study describes differences in firearm injury likelihood for homeless and undocumented trauma patients, two vulnerable populations, and highlights the value of studying medical data to understand firearm violence patterns on population level groups. Limitations of this study include a single year of data accounting for housed or undocumented status in the TQIP database as well as a likely underrepresentation of identified homeless and undocumented patients in the dataset. Homelessness and undocumented status are new variables in TQIP as of 2021. By the November conference date, 2022 TQIP data will be available and added to our analysis.

29. An investigation into the design and implementation of a firearm safety mechanism for minimizing human errors

Masato R. Nakamura Eng ScD[1]

[1]*New York City College of Technology (City Tech)*

Background: Accidental shootings of firearms are one of the serious problems, causing unintentional firearm-related deaths. Even individuals proficient in firearms occasionally struggle to ascertain whether a loaded bullet remains in the gun barrel or chamber due to the limited visibility within the firearm's internal components. This predicament is particularly prominent when the chamber is concealed by the slider of semi-automatic handguns. Additionally, gun users are unable to ascertain the presence of loaded bullets within the magazine, as they remain hidden from view. Consequently, the effective management of ammunition in both the barrel and magazine relies heavily on the experience of firearm owners. **Methods:** To address this issue, this study endeavors to develop a new handgun design with a primary focus on enhancing safety measures. The proposed design incorporates an infrared break beam sensor embedded within the walls of the gun barrel or chamber. This sensor serves to alert gun users to the presence of a loaded bullet within the barrel by detecting the interruption of the infrared beam. Furthermore, to accurately detect and determine the number of bullets remaining within the magazine, a micro infrared proximity sensor is placed at the base of the magazine. This sensor measures the distance between the magazine's floor plate and the follower pushed by the magazine spring. **Results:** To assess the effectiveness of the developed prototype, a comprehensive testing protocol is implemented, utilizing an eye-tracking system as a valuable tool. This system plays a crucial role in identifying and mitigating potential human errors that may arise during the shooting process. By harnessing the capabilities of eye-tracking technology, we are able to gain profound insights into the users' visual attention and behavior patterns as they interact with the prototype. This not only facilitates an enriched understanding of the prototype's impact on ammunition management but also provides valuable information regarding user safety considerations. **Conclusions:** Preliminary results from the study have yielded encouraging outcomes. In particular, the initial analysis reveals a significant improvement, with a 34% increase in the percentage of users accurately recognizing the number of bullets contained within the magazine when utilizing the provided prototype. These findings highlight the potential of the developed handgun design to positively impact firearm safety and mitigate accidental discharges. Continued research and development in this field are crucial to advance the effectiveness of firearm safety measures and reduce the incidence of unintended firearm fatalities.

30. Firearm related trauma experiences among recent adult Latinx immigrants: Findings from a study at the US southern border

Laura Vargas PhD[1]

[1]*University of Colorado*

Background: Traumatic experiences of immigrants are an important focus of a growing evidence base. Less is known about the specific firearm-related traumatic experiences of adult immigrants from Latin America. We answer the following research questions: What does firearm related violence look like among recent adult immigrants from Latin America? How does firearm related violence among Latinx immigrants compare to other firearm-violence affected populations in the US? What are the implications for mental health of firearm-related violence among recent Latinx immigrants to the US? **Methods:** This research presents the experiences of 250 Latinx immigrant adults with firearm-related violence before and during migration to the US. **Results:** We present the high prevalence of firearm related violence in our study population (e.g., direct and indirect experiences such as threats and harm to individuals, family/friends, extortion, kidnapping). We contextualize the high prevalence of firearm-related experiences of Latinx immigrants by looking at other firearm-violence affected populations in

the US. We discuss the relationship between firearm-related violence and mental health among Latinx adult immigrants. **Conclusions:** Our results indicate policy and public health implications for addressing mental health among immigrants.

31. Local experts on what could reduce disparities in firearm violence: A qualitative examination in Erie County, New York

Patricia Logan-Greene PhD MSSW[1], **Mickey Sperlich PhD MSW MA CPM**[1], **Christopher St. Vil PhD MSW**[1], **Rebecca Rasnake LMSW**[1], **Ogechi Kalu MSW**[1]

[1]*University at Buffalo School of Social Work*

Background: Every year in New York State, 2.79 people per 100,000 die from firearm homicide. At 7.6 per 100,000, annual firearm homicide rates are even higher for Erie County (EC), which includes Buffalo. The 2022 racially motivated mass shooting in Buffalo underscored that firearm violence is a pervasive community issue; a community response is urgently needed. EC leaders initiated a task force to direct and motivate firearm violence prevention efforts, including local social work experts. As part of this effort, we conducted a qualitative, IRB-approved study with leaders in the community who are working in firearm injury prevention and intervention. The goals of this study were to identify gaps in service provision, develop a strategic plan to address structural contributors, and, ultimately, to reduce gun violence in EC. **Methods:** Individuals were identified for purposive sampling through an environmental scan that established a sample of local organizations that prevent or respond to firearm violence, the services they provide, and the populations they serve. Interviews were conducted via Zoom, in person, or by phone, per the participants' preference, following informed consent. Questions included: what are the key drivers of firearm violence in EC, what gaps remain in prevention/response, and how should funds be allocated. **Results:** The final sample included 25 representatives of nonprofits, governmental organizations, and regional leaders active in violence prevention. Key drivers of firearm violence were identified as poverty, systemic issues, easy access to weapons, lack of education, lack of opportunity, substance abuse, anger issues, racism, and lack of resources. Gaps in community intervention indicated the need for more programming, addressing systemic issues, repairing the disconnect between police and the community, providing firearm education, and lack of funding for prevention services. Additional barriers that were identified included the lack of trust between the community and police, the lack of a trauma-informed response, and the need to address systemic issues. Respondents reported that funding should be dispersed across preventative services, systemic change efforts, firearm education, community policing, and evaluating the impact and outcomes of existing programs. **Conclusions:** Despite recent increases in firearm injuries, literature outlining effective community responses is sparse. Individuals providing services to our community are the experts on how to intervene appropriately and effectively. Collective and organized efforts are required to synergize actions that can reduce firearm violence. By strengthening linkages across community sectors, social workers can address risk factors and structural inequalities that contribute to firearm violence.

32. Why is the trigger pulled? Youth perceptions of the causes of firearm violence in Washington D.C.

Laney A. Rupp MPH[1], **Riley Bennett BA**[2], **Zeinab Alghanem**[2], **Ebunoluwa Odueso BS**[2], **Kennedy Hinnant**[2], **Tia Bell MA**[3], **Patrick M. Carter MD**[2], **Marc A. Zimmerman PhD**[2]

[1]*The University of Michigan School of Public Health,* [2]*The Michigan Youth Violence Prevention Center at the University of Michigan School of Public Health,* [3]*The T.R.I.G.G.E.R. Project*

Background: Firearm violence rose steeply during the COVID-19 pandemic, and Black youth were disproportionately affected. Yet, few researchers have explored what youth living in communities with heightened exposure to firearm violence perceive as its causes. These perspectives are essential to understand

how youth interpret the source of the problem and to inform interventions. **Methods:** We surveyed 84 youth (ages 14-24) living in Washington D.C., who were participating in the T.R.I.G.G.E.R Project, a summer youth employment program with a focus on youth firearm violence prevention. Our sample was 96% Black, 77.6% female, and 3.0% non-binary. Youth were asked to respond to the open-ended question, "There may be many reasons why firearm violence happens in your community. Why do you think the trigger is pulled?" 67 youth (79.7%) had responses to this question. We used inductive, line-by-line coding to establish codes and iteratively refined our codebook until it best fit the data. We associated codes with the appropriate social-ecological level(s) (i.e., individual, interpersonal, community). Emotions like fear were coded as individual level, while a need for protection from peers was coded as interpersonal level. Factors like neighborhood beef and poverty were coded at the community level. Three raters applied codes independently and used a consensus approach to finalize coding decisions. Responses could have more than one code. The total endorsements for each coded item were calculated. **Results:** The most commonly cited causes were interpersonal conflicts, including revenge and retaliation (n=26), followed by a lack of social and emotional skills (e.g., emotional regulation, conflict resolution) (n=23). The need for protection (n=14) and to maintain social status/reputation (n=12) were also widely endorsed. Youth were more likely to endorse individual (n=43) or interpersonal (n=38) causes of firearm violence than community-level causes (n=13). Youth were least likely to endorse community root causes, such as poverty (n=1) or collective trauma (n=2). **Conclusions:** Our results suggest the need for programs that support youth to build social and emotional skills and to resolve conflicts non-violently. Notably, youth appear to be focused on more immediate issues (e.g., emotions, peer relations) than the deeper, root causes underlying the firearm violence they experience (e.g., poverty, neighborhood disadvantage). These results suggest the need to support youth to understand the structural drivers of firearm violence to avoid self-blame. It also suggests the need to change societal narratives about the root causes of firearm violence and the reasons youth may retaliate with firearms.

33. Towards the development of a Cure Violence implementation research logic model: Gaps and opportunities

Sara R. Solomon [1]

[1]*Penn Injury Science Center*

Background: Implementation research plays a critical role in understanding the factors that influence the successful implementation of interventions. By using a program logic approach, implementation frameworks with different purposes can be combined to detail complex interactions. The Implementation Research Logic Model (IRLM) facilitates the development of causal pathways and mechanisms that enable implementation. The Cure Violence model, known for its effectiveness in violence reduction, has been widely implemented in diverse settings. However, there is a need to develop an implementation research logic model specific to Cure Violence to guide future research and practice. This study aims to conduct a scoping review of the literature on Cure Violence implementation from 2008 to 2023, with the objective of identifying existing evidence, highlighting gaps, and identifying opportunities for further research. **Methods:** A scoping review methodology will be employed to comprehensively search and analyze the literature on the implementation of Cure Violence. Relevant studies will be identified through systematic searches of electronic databases, gray literature, and key reference lists. Inclusion criteria will encompass articles published between 2008 and 2023 that report on the implementation of Cure Violence interventions. Data will be extracted and synthesized to identify key implementation factors, outcomes, and gaps in the literature. **Results:** The scoping review is currently underway, and preliminary analysis is expected to be completed by September 2023. The results will provide an overview of the existing evidence and highlight the key implementation factors that have been studied. Additionally, the review will identify gaps and opportunities for future research, including areas where further investigation is needed to develop an implementation research logic model specific to Cure Violence. **Conclusions:** The

development of an implementation research logic model for Cure Violence holds significant implications for enhancing the implementation and effectiveness of this violence reduction intervention. By using a program logic approach, the Implementation Research Logic Model (IRLM) will provide a comprehensive framework to detail the complex interactions and causal pathways involved in implementing Cure Violence interventions. This model will guide researchers, practitioners, and policymakers in understanding the critical factors and mechanisms that contribute to successful implementation. The findings from this study will pave the way for future research that fills the identified gaps and harnesses the opportunities to advance the field of implementation science in violence prevention.

34. Phase 1 evaluation of the community component of 414LIFE - Milwaukee's community gun violence prevention and intervention program

Amber Brandolino BA[1], Kaylin Campbell[1], Leilani Lopez-Blasini[1], Carissa W. Tomas PhD[1], Stephen Hopkins[1], Cornelius Hall[1], Jessica Butler[1], Lynn Lewis[1], Constance A. Kostelac PhD[1]

[1]Medical College of Wisconsin

Background: 414LIFE is the Cure Violence adaption in the City of Milwaukee to address gun violence. The program started in 2018 in response to a community safety needs assessment conducted by the City's Office of Violence Prevention following a landmark increase in violence and shootings in 2015. To assess how well the program met its overarching goal to "Stop the shooting, stop the violence", the first evaluation of the program was conducted this year on both the hospital and community components of the program. This presentation will focus on the input/outputs and outcomes of the community-based programming. **Methods:** Two main evaluation questions guided this analysis. First, what was the community-level and individual-level reach of the program, and second, to what extent did participants demonstrate a reduction in violent behavior following program engagement. Data to address these questions comes from administrative program records (2018 – present) and the site's Cure Violence Global database (August 2021 – present). A mixed methods approach was utilized. Quantitatively, conflict mediations, outreach efforts, and the goals and needs of participants are descriptively analyzed. A thematic analysis is being conducted on reported success stories from team members, with anonymous emblematic quotes highlighted. **Results:** A total of 314 individuals participated in the program, 115 were referred from community, the City of Milwaukee Office of Violence Prevention, 414LIFE hospital responders, or hospital medical personnel, and 199 participated specifically in school-based workshops. Outreach workers conducted 65 community and public education events, 87.7% of which were in partnership with other local organizations. Violence interrupters conducted 1,365 hours of conflict mediation for 157 interruptions, a mean of 8.7 hours per mediation. Success stories from violence interrupters and outreach workers indicate complex circumstances precipitating potential violence with conflict mediations lasting week to months. Team members also provided resources rooted in social determinants of health. For example, "participant has vowed to change [their] life with a second chance after [a] mediation involving a shooting. Since then, participant has gotten new job and enrolled in school full time. The next step is college after graduation in one year." **Conclusions:** Gun violence interruption and prevention programming requires significant time and resource investment by team members to reach those at risk for gun violence and to facilitate non-violent outcomes. This is the first work to our knowledge that details the input of gun violence interrupters to elucidate factors of their work which contributes to violence mitigation.

35. Implementing a community-based advocacy and support program for survivors of firearm injury

Lauren A. Magee, PhD[1], DeAndra Dycus[2], Michelle L. Miller PhD[3], Kendale Adams[2]

[1]Indiana University, Indianapolis, [2]Indianapolis Metro Police Department, [3]Indiana University School of Medicine

Background: Survivors of firearm injuries suffer adverse physical and emotional consequences due to their injury. Beyond Hospital Based Violence Intervention Programs, few programs exist within the community to connect survivors and families with needed social and clinical resources. The Nonfatal Advocacy and Support program was implemented in partnership with the local police department and three community-advocates, who are women who have been personally impacted by firearm violence. The goal is to outreach, screen for social determinants of health, posttraumatic stress disorder (PTSD)/depressive symptoms, and connect survivors of firearm injuries to needed resources to decrease future reinjury and improve health outcomes. **Methods:** The Nonfatal Advocates Program was implemented within the Indianapolis Metropolitan Police Department (IMPD) in partnership with three community-advocates in Indianapolis, Indiana in May 2022. The advocates outreach each survivor of firearm injury (N=767) by phone, email, in-person (if requested and if there are no safety concerns) and/or letter. Advocates make an initial contact within 48 hours of the shooting to assess immediate needs and follow-up at 2-weeks, 1- month, 2-months, 6-months, and 1-year. Advocates screen survivors for social determinants of health (SDOH), PTSD symptoms (using the PCL-6), and depressive symptoms (using the PHQ-2). We examine survivor demographics, feasibility of outreach, evaluate the engagement rate, assess SDOH and mental health symptoms at baseline and follow-up, and connection to services May 2022 – April 2023. **Results:** During the intervention period, there have been 767 survivors of firearm injury, 70% Black, 78% male, with an average age of 31 years. Advocates have outreached 616 (80%) survivors and connected with 266, an engagement rate of 43%. At initial contact, 214 (80%) survivors requested mental health/follow – up support, 170 (64%) requested SDOH needs, 120 (45%) requested Victim's Compensation/Disability support, and 74 (28%) needed connection with their case detective. At first follow-up, 50% of survivors screened positive for probable PTSD. Barriers to engagement included lack of contact information, disconnected phone number, full voicemail, and no call back. **Conclusions:** A community-based victim advocates program demonstrates feasibility to connect survivors of firearm injury to needed mental health and social services. Given half of survivors screened positive for probable PTSD, this is an important intervention point, and future work should explore other opportunities to connect with survivors. There is also a need to explore and identify alternative strategies to improve connection with survivors and families.

36. Firearm homicides of U.S. children and the role of intimate partner violence, 2003-2020

Rebecca F. Wilson, PhD[1]

[1]*Centers for Disease Control and Prevention*

Background: Examine the role of intimate partner violence (IPV) in firearm homicides of children aged 0–17 years. **Methods:** Data were from CDC's National Violent Death Reporting System (NVDRS; 49 states, District of Columbia, Puerto Rico; 2003–2020). Logistic regression was used to examine associations between various characteristics and IPV among child firearm homicides. **Results:** From 2003–2020, 11,594 child homicides were captured in NVDRS, of which 49.3% (n= 5,716) were firearm homicides; 12.0% (n=686) of child firearm homicides were IPV-related. Among IPV-related child firearm homicides, 86.0% (n=590) were child corollary victims (children whose death was connected to IPV between others); 14.0% (n=96) were teenage intimate partner victims. Child firearm homicides had greater odds of involving IPV when precipitated by conflict, crises, and co-occurring with the perpetrator's suicide compared with those without these characteristics. Over-half of IPV-related firearm homicides of child corollary victims included homicide of the intimate partner (94.1% the child's mother). Child firearm homicides perpetrated by mothers' male companions (aOR, 6.9; 95% CI, 3.9-12.1) and children's fathers (aOR, 4.5; 95% CI, 3.0-6.8) had greater odds of involving IPV compared with those perpetrated by mothers. **Conclusions:** Multiple factors were associated with greater odds of child firearm homicides being IPV-related. Strategies promoting healthy intimate partner relationships starting at a young age; assessment of danger to children in IPV situations; strengthening economic supports for families; creating safe,

stable, and nurturing relationships and environments for children; and addressing social and structural inequities, are important for preventing firearm homicides of children, including those involving IPV.

37. Perceived impact of living with an abuser with firearm ownership: Barriers to addressing threats to safety and recommendations for practitioners

Bushra Sabri PhD[1], Jacquelyn Campbell[1]

[1]*Johns Hopkins University*

Background: The presence of a firearm in abusive relationships increases the likelihood of a partner being killed. This study explored the impact of living with an abuser who owns a firearm, and barriers women face in reporting threats to safety due to the partners' possession of a firearm. Additionally, the study explored participants' perceptions of effective approaches to risk assessments and safety planning with women who are at-risk for being harmed by their partners' possession of a firearm. **Methods:** Data was collected using qualitative semi-structured interviews with 17 service providers and 45 immigrant women survivors of intimate partner violence. Providers were eligible if they had two or more years of experience serving immigrant survivors of IPV. Survivors were eligible if they were over 18 years of age, English-speaking foreign-born immigrant women residing in the United States, with experiences of IPV within the past year. The analysis was conducted using a content analysis procedure. **Results:** According to participants, the presence of firearm in a home can impact survivors in many ways including risk of firearm injury or fatality due to escalation or increase in violence, living in constant fear or threat, the presence of a firearm being a trigger due to prior exposures to firearms, and legal, financial, and immigration-related consequences. Participants shared impediments to reporting threats to safety such as lack of knowledge of firearm-related risks, lack of awareness about laws, resources and rights in the US, gender and social norms and personal barriers (immigration and financial). Both survivors and service providers provided suggestions for practitioners working with survivors who are at risk due to a presence of a firearm in their homes. These included conducting effective assessments of risks from harm by a firearm and developing adequate safety plans for survivors whose partners owned a firearm. **Conclusions:** The findings can be informative for safety planning with survivors of IPV whose partners own or have access to a firearm. Comprehensive assessment of risks and barriers can be used to develop individualized and tailored safety plans for survivors with a partner who possesses a firearm.

38. The double-edged sword of police shootings – the effect of black lives matter on reporting of intimate partner violence crimes

Zainab Hans PhD[1], Douglas Wiebe PhD[1], April Zeoli PhD[1]

[1]*University of Michigan*

Background: While social movements are often linked to significant societal changes, the assessment of their specific causal impacts is often constrained and limited in scope. The Black Lives Matter (BLM) movement emerged as a significant social movement with a primary focus on increasing awareness and advocating against instances of police use-of-force and fatal encounters. However, the movement's focus on racial disparities within the criminal justice system may have influenced how Black individuals perceive police responses to crime reporting. The movement's focus on addressing systemic racism within law enforcement may have affected trust levels between Black communities and the police. This erosion of trust could result in reduced willingness to engage with law enforcement, including reporting crimes. We study the effect of Black Lives Matter on reporting of intimate partner violence (IPV) crime by black women. **Methods:** We construct a monthly dataset of IPV crimes reported in 18 US cities from 2013 to 2019. We analyze the causal effect of Black Lives Matter movement by employing a difference in difference strategy over time and between victims' race. **Results:** The BLM

movement lowered reporting of IPV crimes by black women across a range of crime type with the largest decrease evidenced in simple assaults. Reporting of simple assaults decreased nearly 35%. The second largest decline was observed in assaults with blunt objects and knives (approximately 20%), while the likelihood of reporting a firearm assault decreases by 15%. The reduction in reporting was only significant for black women and no such change was observed for white women. **Conclusions:** Police shootings having far reaching consequences and erosion of trust in law enforcement can discourage help seeking by victims who already face structural inequalities and often have fewer alternatives for safely exiting an abusive relationship. As such, police use of force and fatal encounters have significant negative extraneities.

39. Using implementation science to bring firearm safety education & gun lock distribution to the pediatric intensive care unit

Anireddy R. Reddy MD MSHP[1], Joel Fein MD MPH[1], Dorothy Novick MD[1], Katelin Hoskins PhD MBE CRNP[2], Charlotte Z. Woods-Hill MD MSHP[1]

[1]Children's Hospital of Philadelphia, [2]University of Pennsylvania School of Nursing

Background: Firearm-related deaths are the leading cause of death among children and adolescents. Safe storage of firearms is a modifiable and evidence-based intervention to reduce firearm injury and death, however research has focused on primary care and emergency department settings; few, if any, have investigated the pediatric intensive care unit (PICU) as a potential setting. In addition to increasing the number of patients/families that are exposed to firearm safety education and gun lock distribution, the PICU is a unique environment for this intervention, as this is where the majority of pediatric deaths occur and where a deep trust develops during critical illness. We describe the application of implementation science methods to translate an existing firearm safety education and gun lock distribution intervention to the PICU. **Methods:** We used the Consolidated Framework for Implementation Research (CFIR) to identify factors influencing implementation. These factors were then incorporated into a PICU provider survey to prospectively measure implementation outcomes of acceptability, appropriateness, and feasibility using validated measures. We additionally queried providers about barriers and facilitators to implementation. With guidance from the Framework for Reporting and Modifications-Expanded (FRAME), this contextual inquiry informed PICU-specific adaptations to the evidence-based intervention . **Results:** Of 458 invited PICU providers, 127 completed the survey. Respondents included attendings, fellows, advanced practice providers, hospitalists, nurses, and social workers. 21% reported that at least one firearm was present in their household and 3 reported that a firearm was not safely stored. Respondents reported high acceptability (90%) and appropriateness (71.5%) with lower feasibility (63%). There was no significant difference in outcomes between firearm and non-firearm owners. The top three barriers identified were 1) insufficient time to provide education 2) not feeling equipped to provide education and 3) concern that families would not be accepting of the intervention. The top three facilitators were 1) receiving training on how to educate families 2) dedicated PICU providers to support the intervention and 3) dedicated staff apart from service team to provide education. Key adaptations to the intervention included 1) offering to all families without screening for presence of a firearm in the home and 2) piloting with trained, dedicated staff to support PICU providers. **Conclusions:** Our limited survey of interdisciplinary providers showed PICU providers are generally in favor of providing firearm safety education and gun lock distribution. Implementation science strategies can be used to translate evidence-based firearm storage interventions to higher acuity settings such as the PICU.

40. Library gun lock distribution program in Anne Arundel County, MD

Isabella Young[1]

[1]*Anne Arundel County Department of Health*

Background: Between 2020 and 2022, an average of 140 residents each year in Anne Arundel County visited a hospital due to a gun-related injury. This was a 23% increase from the previous years' average. **Methods:** The county Department of Health partnered with the Public Libraries to increase protective measures against gun injuries by providing free gun cable locks. The program aimed to determine if community members would pick up gun safety locks if they were available at local library branches. The program launched at three library locations in April 2023. Staff completed a form for each patron pick-up to capture location and demographic data. **Results:** In the first month of distribution, 541 community members picked up a total of 1,017 locks. Most community members reported hearing about the event through local news and the library's website. Of respondents who answered, 89% of patrons picked up the maximum daily limit of two locks. 35% of patrons picked up locks at a library in the same zip code that they resided in. As a result of the high utilization of the program in the first month, the program has expanded to three additional library branches in the county and library staff have begun to distribute gun locks at community events. **Conclusions:** Safe storage is a proven strategy for improving gun safety and preventing harm or unintended access. Anne Arundel County's gun safety lock distribution program has demonstrated the opportunity for local jurisdictions to distribute gun locks through local libraries to expand the reach of gun storage devices.

41. **Exploring safe storage beliefs of handgun owners in the United States: A Theory of Planned Behavior application**

Pranav Kapoor BS MPH[1], Rashad Freeman[1], Lauren A. Magee BA MS PhD[2], Jon T. Macy BA MPH PhD[1], Paul Branscum BS MS PhD[3]

[1]*Indiana University,* [2]*IUPUI,* [3]*Miami University of Ohio*

Background: Storing a gun safely in the household can help to prevent unintentional shootings and suicides. The purpose of this study was to elicit salient beliefs using the Theory of Planned Behavior (TPB) pertaining to safely storing handguns amongst gun owners to help identify opportunities for public health intervention. **Methods:** Using the TPB as a framework, behavioral (BB), injunctive normative (IN), descriptive normative (DN), and control (CB) beliefs were elicited from a sample of handgun owners in the United States (n=30). Data were collected via an online panel service (Forthright). Participants were asked 11 open ended questions: five related to BBs toward storing their handgun safely (e.g., perceived advantages/ disadvantages); two related to IN (e.g., those that would support/oppose; two related to DN (e.g., those most/least likely); and two related to CB (e.g., factors that prevents/enables safe storage). Data were coded in 2 rounds by 3 independent coders (PK, RF, PB) with an interrater agreement between 97-99% across the 4 beliefs categories. **Results:** Of the BB responses, the following 4 codes emerged: "Home defense" (97%), "shows that I am a responsible owner" (73%), "children would not have access to firearms" (57%), and "reduces risk of unintentional injury" (40%). The prominent IN codes were: Law Enforcement (37%), the NRA (20%), Family members (30%), Democrats (23%), Republicans (17%), School staff/Educators (20%), Gun rights activists (20%), and Gang members/Criminals (30%). Similarly, the prominent DN codes were: Law Enforcement (40%), Gun Hobbyist (23%), the NRA (20%), Family members (17%), Gang members/Criminals (33%), Parents with children (17%), Responsible/Law abiding Adults (23%). Finally, Cost of storage (50%), Space for safety devices (17%), The time to unlock or load my gun is too long for self-protection (17%), and Proximity to violent exposures (17%) were the prominent CB. **Conclusions:** Results suggest home defense is a major concern for gun owners; perhaps even more than being a responsible gun owner and preventing children from accessing firearms. Of importance, participants mentioned that cost of and space for storage impacted their decision to follow / not follow safe storage practices. Participants expressed beliefs of social pressure from people they knew and from places of authority. Future studies should examine if

broadcasting safe storage messaging that targets the common elicited beliefs from gun owners themselves can positively influence safe storage practices.

42. The impact of Permit-to-Purchase laws on juvenile weapons arrest rates stratified by race and sex

Liz Wagner BS[1], Mitchell Doucette PhD MS[1], Cassandra K. Crifasi PhD MPH[1]

[1]*Johns Hopkins Center for Gun Violence Solutions*

Background: Permit-to-Purchase (PTP) laws require individuals to obtain a permit from law enforcement before buying a firearm and previous research suggests adopting or repealing a PTP is significantly associated with firearm violence rates. PTP laws may impact juvenile firearm violence through weapons arrests of juveniles, as they are associated with lower rates of straw purchases and time-to-crime. **Methods:** Using data from the FBI's Uniform Crime Report (UCR), we examined overall juvenile weapons arrest rates and rates stratified by race and sex. We log transformed rates per 100,000. Using two causal methodologies: 1) the Two-stage Difference-in-Difference method (DiD2s) and 2) the Augmented synthetic control method (ASCM), we assessed the impact of PTP adoption and repeal from 1981-2019. During the study period, two states adopted a PTP law (Connecticut in 1995 and Maryland in 2013), and two states repealed a PTP law (Missouri in 2007 and Michigan in 2012). We compared PTP adopters to never-treated states and PTP repealers to always-treated states. Methodologies included several time-varying covariates. **Results:** The DiD2s results suggest that PTP adoption is associated with 84.5% lower rates of juvenile weapons arrests among young white citizens (Average Treatment Effect on the Treated (ATT) = -0.84, Standard Error (SE) = 0.31). However, PTP repeal was not associated with changes in weapons arrests. The ASCM results suggest that Connecticut's adoption of a PTP law likely drove much of the decrease seen in the DiD2s. PTP adoption in Connecticut was associated with a 58% reduction in juvenile weapons arrests (ATT = -0.578, SE = 0.08). PTP adoption in Connecticut was also associated with lower juvenile weapons arrests per 100,000 for young white citizens (ATT =0.640, SE = 0.08) and young females (ATT = -0.381, SE = 0.09). Missouri saw 40% lower rates of juvenile weapons arrests among young females (ATT = -0.403, SE = 0.12). **Conclusions:** Our findings provide evidence supporting the association between the implementation of PTP laws and a decrease in stratified juvenile weapons arrest rates. These results align with previous research that suggests PTP laws contribute to lower rates of straw purchases and reduced time to crime. It is important to note that the impact of PTP laws appears to be unevenly distributed, with significantly lower rates of weapons arrests observed among white individuals compared to their Black counterparts. This disparity raises concerns regarding potential disparities in law enforcement practices associated with these laws.

43. Differences in support for gun policy by voting behaviors

Cassandra Crifasi PhD MPH[1], Becca Valek[2], Julie Ward PhD MN RN PHNA-BC[3]

[1]*Center for Gun Violence Solutions, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health,* [2]*Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health,* [3]*Department of Medicine, Health, and Society and Public Policy, Vanderbilt University*

Background: While understanding the policy opinions of all Americans is important, policymakers are particularly interested in the opinions of Americans who vote. Voters may be more likely to change for whom they are voting based on perceived policy alignment with candidates. Elected officials may be concerned about supporting gun policies if they perceive there is a lack of support for a policy among their constituents. The 2023 National Survey of Gun Policy examined voting behaviors and support for various gun policies. **Methods:** The 2023 National Survey of Gun Policy was fielded from January 4 through February 6, 2023 using NORC's AmeriSpeak panel, a nationally representative, probability-based sample of US adults. We oversampled for gun owners and Black, Hispanic, and Asian Americans. Respondents were asked about voting behaviors in the 2020 and 2022 elections,

ease of voting, and support for various gun-related policies. Survey weights were applied (n=3,096) to generate representative estimates. Logistic regression and predictive probabilities were used to compare differences in policy support by voting behaviors. **Results:** Overall, 78% of respondents voted in 2020 (n=2,501) and 73% voted in 2022 (n=2,333). In both years, significantly larger proportions of gun owners voted (88% and 84%, respectively) than non-gun owners (73% and 68%, respectively). Respondents who were gun owners, ages 65 and over, white, and received a bachelor's degree or higher were significantly more likely to have voted in both 2020 and 2022. Of those who voted in 2020, 53% voted for Joe Biden, 42% voted for Donald Trump, and 6% voted for other options. Non-gun owners and Black respondents were significantly more likely to vote for Biden, whereas gun owners and white respondents were significantly more likely to vote for Trump. Voters in the 2020 election expressed significantly higher rates of support than non-voters for 15 of the 42 gun-related policies. Voters in the 2022 election expressed significantly higher rates of support than non-voters for 23 of the 42 policies. **Conclusions:** Americans who have voted in recent elections expressed higher levels of support for gun-related policies and regulations than those who did not vote. This knowledge is important as policymakers consider their constituents, particularly those who vote, when making decisions on gun policy.

44. From the local gun store to the state capital: Participatory action research as the cornerstone of growing and sustaining an out-of-home firearm storage network

Gala True PhD[1]

[1]South Central Mental Illness Research, Education, and Clinical Center and Louisiana State University

Background: Nationally, 70% of Veteran suicides involved a firearm. The 2021 White House plan to reduce military and Veteran suicide calls for "multi-state storage maps to help individuals find where they can safely store firearms outside of their homes." In several states, public health and firearm injury advocates have asked Federal Firearm Licensees (FFLs) for permission to be listed on statewide maps as locations that will consider a request to provide temporary firearm storage. However, this approach faces challenges including concerns from FFLs about logistics regarding how to provide temporary storage, the need to support staff in having conversations with customers about temporary storage, and potential liability upon returning firearms to owners. This presentation describes how our team of public health researchers and Veterans in Louisiana used a participatory action research (PAR) approach to address these concerns. **Methods:** We employed a multi-stage, PAR approach to developing The Armory Project (TAP), an out-of-home storage network of Louisiana FFLs. First, we built capacity by meeting with diverse community stakeholders to understand local attitudes around temporary out-of-home storage and preferred storage sites. Second, we identified and engaged 3 Veteran-owned, small business FFLs as partners to develop and pilot TAP. Third, we met regularly with our FFL partners to establish relationships and trust, and to collaboratively determine implementation methods and roles of different partners. Finally, we engaged in iterative cycles of evaluation, action, and reflection prior to publicizing a map or attempting to grow the program. **Results:** Our approach led to several notable outcomes, including passage of legislation that facilitates out-of-home storage by defining key terms and providing immunity from civil liability for FFLs that temporarily hold firearms. Since the initial pilot, TAP has grown to 10 locations and provided training on mental health, lethal means safety, and suicide prevention to over 40 FFL staff. Firearms have been stored for at least 25 individuals. TAP partners attend monthly Community of Practice calls, where they share logistics for providing storage and addressing challenges. Our team has developed a TAP implementation toolkit and provided consultation on our methods to groups seeking to do similar work. **Conclusions:** Employing a PAR approach was more time- and labor-intensive than approaches used to develop out-of-home storage maps in other states, but it also led to authentic and sustainable partnerships with FFLs and the passing of state legislation to remove a key barrier to FFLs providing temporary out-of-home storage.

45. A national study of firearm presence and storage practices in rural adolescent homes

Benjamin Linden Medical Student[1], Megan Sinik Medical Student[1], Charles Jennissen MD[1], Kristel Wetjen RN MSN[2], Pamela Hoogerwerf BS[2], Junlin Liao PhD[1]

[1]University of Iowa, [2]University of Iowa Stead Family Children's Hospital

Background: Firearm-related unintentional and suicide death rates are greater in rural areas, and firearm access greatly increases the risk of suicide. A major factor in preventing these tragedies is safe firearm storage. Our study objective was to evaluate firearm exposure and storage practices in the homes of rural adolescents including those living on farms and in the country. **Methods:** An anonymous survey was administered to a convenience sample of attendees at the 2021 National FFA (formerly Future Farmers of America) Convention & Expo at the University of Iowa Stead Family Children's Hospital injury prevention booth. 3,206 adolescents who were 13-18 years old participated; 45% lived on a farm. Descriptive, bivariate and multivariable logistic regression analyses were performed. **Results:** In their homes, 87% of participants reported having rifles/shotguns, 71% had handguns and 69% had both rifles/shotguns and handguns. Those living on farms were 7.5x and 2x more likely to have rifles/shotguns and handguns, respectively, as compared to those from towns. Rifles/shotguns and handguns were stored unlocked and/or loaded at least some of the time in 66% and 64% of homes, respectively. Those from farms were 1.5x and 1.7x more likely to have rifles/shotguns and handguns stored unlocked and loaded, respectively, as compared to those from town. The South, West and Midwest were 5.9x, 3.2x and 2.8x more likely to have rifles/shotguns and 8.1x, 5.2x and 4.3x more likely to have handguns stored loaded and unlocked, respectively, as compared to the Northeast. For homes with unlocked rifles/shotguns and unlocked handguns, 37% and 36% also stored ammunition unlocked, respectively. **Conclusions:** Our study found that the vast majority of rural adolescents surveyed lived in homes with firearms, and a large proportion of those firearms were not stored safely. There were significant differences regarding the presence and storage of firearms by demographic factors, especially the region where youth lived and their home setting (i.e., farms and ranches). Unsafe storage practices are likely contributing to the higher unintentional and suicide death rates seen in rural areas. Widespread efforts are needed to educate rural families about the importance of proper firearm and ammunition storage.

46. Violence begets violence: A qualitative study on the long-term psychosocial sequela of firearm injury in adolescence and young adulthood

Annalyn DeMello PhD MPH RN[1], LIam De Vassal[1], Angela Waguespack[1], Irma Alvarado[1], Jong Lee MD[1], Yu Lu PhD[2], Leila Wood PhD[1], Jeff Temple PhD[1]

[1]The University of Texas Medical Branch, [2]University of Oklahoma

Background: Although firearm violence among American youth is the leading cause of fatality, most injuries are non-fatal. The burden of surviving a gunshot wound (GSW) injury is largely unknown. A few studies indicate that post-injury sequela contribute to the risk of future interpersonal firearm violence, yet little is known regarding the mechanisms which lead to additional perpetration or victimization. This study explored the trajectories of firearm exposure among youth who survived a non-fatal GSW injury, from childhood living environments, to events preceding the injury, and post-injury psychosocial and behavioral sequelae. **Methods:** Using a qualitative, grounded theory approach, we recruited patients between the ages of 15 and 29 years at the time of their gunshot wound injuries (not self-inflicted). Participants were screened through a retrospective chart review of GSW patients who were treated at a Level I Trauma unit in southeast Texas from January 2019 through November 2022. Eligible patients were contacted by mail, email, and phone. A semi-structured interview guide elicited descriptions about past exposure to firearms in childhood and adolescence, and post-injury mental and behavioral sequelae. Each interview was coded by two co-investigators independently, then discussed for

consensus and meaning. **Results:** The study recruited 11 participants (~8% of eligible patients, 9 male, median age 23 years, median time elapsed since injury 1.5 years, race: 4 Black, 4 Hispanic White, 3 Non-Hispanic White). Nine cases involved interpersonal violence. Two additional case injuries resulted from unintentional firing and were analyzed for comparison. All participants advocated for firearm ownership to increase safety, although survivors of firearm assault described richer themes of distrusting people, anxiety, stronger concerns for safety, and willingness to react quickly with firearm use for defense. Most participants described being raised in safe communities but indicated that the potential for violence increased in late adolescence. **Conclusions:** Perceptions of imminent danger are influenced after surviving a firearm assault. Post-traumatic stress symptoms are prevalent 1-2 years after injury. Hospital strategies may include referrals and follow-up for psychosocial behavioral strategies to decrease the risk of unnecessary firearm use and perpetuation of violence. Structural surroundings during adolescence are pivotal to behavioral development, suggesting the need to develop firearm violence prevention strategies through schools and in underserved communities. Disclosure: This content is an extension of preliminary data that was poster presented at the 2022 National Research Conference on Firearm Injury Prevention, which included 5 participants and discussed physical sequela and hospital treatment outcomes.

47. Using machine learning to understand firearm-related crisis texts

Anna Yaros PhD[1], Caroline Oppenheimer[1], Ashley Lowe[1], Adam Bryant Miller[1], Rob Chew[1], Kirsty Weitzel[1]

[1]RTI International

Background: Every day, people across the US contact Crisis Text Line, a service responding to anonymous texts from people in crisis, many who are planning to use a firearm to hurt themselves or others, or who are being threatened by another person with a firearm. Texts that mention a firearm supply important data about moments before a potential violent firearm incident. By identifying how firearm crises are related to certain counselor-rated issue tags and other texter-provided characteristics, this presentation describes factors related to firearm crises with a goal of informing real-time prevention. **Methods:** We created a database of conversations with the Crisis Text Line beginning in August 2018 through August 2021, which included the onset of the COVID-19 pandemic and numerous high-profile shootings. Using keyword expansion, we built upon a keyword list and coded 500 randomly-selected messages with firearm-related keywords. Using natural language processing (NLP) word embedding models, we developed a machine learning algorithm to identify crisis involving a firearm. Each crisis conversation was also characterized by the crisis counselor's "issue tags" describing the topic of the conversation. **Results:** Keyword expansion identified 58,000 text conversations including a keyword related to firearms. This represented about 2.2% of unique texters and 1.4% of conversations. We found that firearms were significantly more likely to be mentioned in crisis texts related to abuse, racism concerns, and suicide. Moreover, conversations with texters along all levels of suicide risk severity, from those in which the texter expressed suicidal ideation only, to those that were at imminent risk and required active rescue (i.e., dispatch of emergency services to the texter's location), represented a larger proportion of firearm crisis conversations compared to non-firearm crisis conversations. In addition, among firearm suicide-related conversations, texters (vs. volunteer crisis counselors) were first to mention the firearm in over 93% of suicide related conversations. Finally, using time series analysis, we discovered that the number of firearm-related crisis conversations rose sharply above expected values following the Robb Elementary School shooting in Uvalde, Texas. **Conclusions:** The findings provide important information about the characteristics of people seeking help for a firearm-related crisis. By identifying texts from people immediately prior to a potential firearm violence incident, we explore how demographics and crisis types relate to firearm-related harms. These details will begin to help us further target research around firearm crises including for whom and when preventive interventions should be implemented..

48. Talking with patients about firearms: Do pharmacists, dentists, physical therapists, and other allied health professionals have a role?

Anne E. Massey MPH[1], Jennifer Stuber PhD[2], Ali Rowhani-Rahbar MD MPH PhD[3]

[1]*University of Washington, [2]University of Washington School of Social Work, [3]University of Washington School of Public Health*

Background: Given their frequent contact with the public and high credibility as messengers, healthcare professionals are poised to play an important role in preventing firearm-related harm. Discussing firearms and firearm safety in the context of suicide prevention may offer a framework that is acceptable to both patients and healthcare professionals. Prior discourse about this strategy has primarily focused on the potential role of physicians, nurse practitioners, and mental health professionals. However, the health field is expansive and there are many other professionals who are also well-positioned for these discussions. Accordingly, we assessed knowledge, beliefs, and confidence regarding firearm safety conversations among a group of pharmacists, dentists, physical therapists, and other allied health professionals, before and after they completed a suicide prevention training. **Methods:** From November 2018 through June 2023, 2,168 healthcare professionals completed a three-hour, web-based suicide prevention training. The course included specific content on firearm safety. Participants included pharmacists, dentists, dental hygienists, physical therapists, physical therapy assistants, occupational therapists, optometrists, chiropractors, acupuncturists, and other allied health professionals. All participants completed the pre-training assessment, and 970 (45% of all participants) also completed the post-training assessment. We used the McNemar-Bowker test to compare responses, pre- versus post-training, on: 1) knowledge regarding the burden of firearm suicide, 2) perceived patient acceptability regarding firearm safety conversations, and 3) confidence in one's own ability to deliver simple messages about firearm safety and to implement firearm safety behaviors in their own home. **Results:** We observed a statistically significant improvement (p <0.01) on each of the six firearm-related data elements that we evaluated, when comparing participants' pre- versus post-training responses. At baseline, over 77% (n=745) believed that patients were either interested (14.3%, n=137) or neutral (63.5%, n=608) in discussing locking and limiting access to firearms. At post-assessment, 85.1% (n=797) were confident in their ability to deliver a simple message to all patients about locking and limiting access to firearms. Additionally, 94.2% (n=884) were confident in their ability to make their own homes safer by locking and limiting access to firearms. **Conclusions:** Expanding the population of professionals engaging in firearm safety conversations, as well as their skills and confidence, could increase the uptake of protective firearm safety behaviors at the population level. Though suicide prevention may offer a useful context for these discussions, the safety behaviors involved could also prevent other firearm-related harm, such as mass shootings, other intentional interpersonal firearm violence, and unintentional firearm injury.

49. Cross-sectional analysis of the Colorado Gun Shop Project evaluation: Assessing readiness in firearm retailers and firearm-related businesses

Stesha Peacock MPH[1]

[1]*The Center for the Study and Prevention of Violence*

Background: The Colorado Gun Shop Project (GSP) is a community-driven suicide prevention partnership between the firearms community and local public health agencies. Trusted messengers provide suicide prevention materials to retail firearm locations. This project examined the extent to which the owner/manager of a firearm retail establishment's readiness to implement GSP was related to five behaviors aimed at reducing access to firearms for people in crisis. **Methods:** Secondary data collected from March to May of 2021 from a cross-sectional survey of the GSP was used to examine the establishment's readiness and its behaviors aimed at

reducing access to firearms (N=54). Readiness was measured by an owner/manager's motivation, innovative specific capacity, and general capacity to implement GSP. Logistic regressions were used to examine the odds ratio between readiness and the following self-reported behavioral outcomes: (1) engaging people close to them about the role safe storage can play in suicide, (2) encouraging employees to discuss the role safe storage can play in suicide prevention, (3) engaging customers about the role safe storage can play in suicide prevention, (4) including suicide prevention materials when making a sale, and (5) denying a firearm sale to a customer who is showing signs of being in crisis or displaying signs of suicide. **Results:** Motivation to implement GSP significantly increased the odds for three of five behavioral outcomes: (1) denying the sale of a firearm (p=0.029; OR =12.574, 95% CI [1.29, 122.528]), (2) engaging people close to them about safe storage (p=00.012; OR =18.409, 95% CI [1.91, 177.476]), and (3) encouraging employees to discuss safe storage to customers (p=0.004; OR =25.556, 95% CI [2.738, 238.492]). The fourth behavioral outcome, providing suicide prevention materials, was just outside of the range of significance (p=.0051; OR =9.736, 95% CI [0.99, 95.731]). The results from logistic regression analysis showed no significant (p <.05) increase in the odds that innovation-specific capacity or general capacity increased any of the five behavior outcomes. **Conclusions:** Motivation to implement GSP is the key driver to increasing the intended behavioral outcomes of GSP. Limitations of the study included a cross-sectional study design and a small sample size (n=54). More research is needed to examine the role readiness to implement GSP among firearm retail owners/managers play in the prevention of firearm suicide.

50. Firearm use and safety concerns among caregivers of community-dwelling U.S. adults with ADRD and firearm access: A qualitative study

Kayla A. Meza MPH[1], Faris Omeragic BS[1], Alex Bletz MS[1], Mikayla Viny BS[1], Rachel Johnson MS[1], Daniel D. Matlock MD MPH[1], Christopher E. Knoepke PhD MSW[1], Jennifer D. Portz PhD MSW[1], Megan Ranney MD MPH[1], Marian E. Betz MD MPH[1]

[1]CU Anschutz

Background: Firearm safety is a central tenet of responsible gun ownership. Yet, a recent national survey reported that only 20% of older American firearm owners have a plan for what to do with their guns if they became unable to safely handle them. Roughly 10% of all U.S. adults aged 65 years or older live with Alzheimer's disease and related dementias (ADRD), and a majority (~70%) of this population is supported by unpaid, informal caregivers such as spouses or children. Behavioral symptoms that commonly co-occur with ADRD (e.g., delusions, paranoia) raise concerns about unintentional injury or death, and caregivers report a lack of guidance around legal and logistic questions. We aimed to investigate firearm access and safety concerns amongst ADRD caregivers. **Methods:** We conducted in-depth interviews (IDIs) amongst participants enrolled in a nationwide trial testing the efficacy of an online firearm safety decision aid for ADRD caregivers. Trial participants were informal adult caregivers (of community-dwelling individuals with ADRD and firearm access) living in the U.S. who speak English or Spanish. Participants that expressed interest in IDIs were purposively sampled and scheduled within two weeks of completing the trial. Sessions (February-May 2023) were conducted virtually (i.e., phone or Zoom) and were audio recorded and transcribed verbatim. MAXQDA 2022 was used for qualitative data management and analysis. All transcripts were coded by two researchers and code application disparities were addressed through adjudication meetings. Themes were identified through a hybrid inductive-deductive approach. **Results:** Of the 21 interviewees, 52% were non-Hispanic white and 38% live in the Northeast U.S. 67% of caregivers and 81% of those with ADRD reported owning a gun. Analysis of IDIs revealed that unintentional firearm injury was the most common concern among caregivers. Storage practices of guns accessible to those with ADRD varied considerably (ranging from unlocked and loaded to locked, unloaded, and separate from ammunition) and was dependent on the gun owner and the purpose for the gun (e.g., home defense, hunting). Storage changes were informed by conversations between the caregiver, family members, and the person with ADRD. **Conclusions:** As

the population of community-dwelling people with ADRD grows within the US, more caregivers will seek guidance about firearm access. These findings highlight the urgent need for effective and acceptable interventions that 1) meet the broad and diverse needs of ADRD caregivers; 2) aid caregivers in making actionable decisions about firearm access; and 3) reduce firearm injury among older adults.

51. Peer Engagement and Exploration of Responsibility and Safety (PEERS): Development of a peer-delivered lethal means counseling intervention for firearm owning Veterans

Claire Houtsma PhD[1]

[1]*South Central Mental Illness Research, Education and Clinical Center*

Background: The age and sex-adjusted suicide rate among Veterans is significantly higher than that of the general adult population, with most deaths resulting from firearms. Importantly, risk for suicide is elevated when firearms are not secured (e.g., loaded), which is common among Veterans. Healthcare provider-delivered lethal means counseling (LMC), an intervention that promotes safe storage and/or temporary removal of firearms from the home, has demonstrated initial effectiveness for increasing secure storage and decreasing suicide risk. However, cultural and logistical barriers (e.g., mistrust of healthcare provider motive), may limit the effectiveness of these conversations between healthcare providers and Veterans. Indeed, firearm owning civilians and Veterans prefer to discuss firearm storage with military service members or fellow Veterans. Against this backdrop, the current study aimed to 1) adapt and expand an existing LMC intervention for peer-delivery among firearm owning Veterans, and 2) evaluate the feasibility and acceptability of this intervention. **Methods:** 1) Veteran, clinician, and research stakeholders (n = 9) participated in an iterative expert panel to modify and expand healthcare provider-delivered LMC to create Peer Engagement and Exploration of Responsibility and Safety (PEERS). 2) firearm owning Veteran interventionists (n = 3) were trained on and delivered PEERS to other firearm owning Veterans (n = 10; projected n of 15). Intervention feasibility and acceptability were measured using the Acceptability and Feasibility Assessment (AFA; questionnaire with total scores between 6-54), as well as through recruitment, enrollment, and retention rates (e.g., 100*[# referred/# reached]), and qualitative feedback from semi-structured interviews, analyzed using theoretical thematic analysis through a realist framework and semantic approach to theme identification. **Results:** Participants were 23-67 years old (M = 38.7, SD = 14.3), primarily male (90%), and White (90%). Participants served in the National Guard (60%), Army (30%), Navy (20%), and Marine Corps (10%). PEERS was viewed as feasible and acceptable, as evidenced by scores on the AFA (M = 51.5, SD = 2.0) which were well above the mean score of 30. Further, the recruitment, enrollment, and retention rates were 90%, 62.5%, and 90%, respectively. Finally, Veteran qualitative feedback was largely positive including themes highlighting comfort discussing firearms with fellow Veterans. **Conclusions:** Peer-delivered LMC (i.e., PEERS) is feasible and acceptable to firearm owning Veterans. This intervention has the potential to prevent Veteran suicide on a broad scale, as Veterans can access and connect with other firearm owning Veterans who would not otherwise be reached by existing healthcare provider efforts.

52. Firearm ownership, usage and storage within the Michigan Army National Guard

Mark A. Ilgen PhD[1], Amanda M. Price MS[1], Emily E. Yeagley MPH[1], Patrick Carter MD[1]

[1]*University of Michigan*

Background: National Guard Soldiers are at heightened risk for suicide. According to the CY21 Annual Report on Suicide in the Military, death by firearm continues to be the most common method of suicide among Service Members, with most suicides by firearm involving the use of a personally owned firearm. However, little is known about the firearm ownership practices among National Guard Soldiers, or their views on suicide prevention programs that may involve reducing access to lethal means. **Methods:** As part of an ongoing Center

for Disease Control (CDC)-funded translational study, Michigan Army National Guard (MIARNG) soldiers were recruited to participate in a randomized controlled trial aimed to evaluate and implement a brief suicide prevention intervention designed to increased use of crisis services. Soldiers completed a self-report survey on various topics including physical and mental health conditions, opinions on suicide prevention programs and crisis services, and firearm ownership. The present analyses focus on cross-sectional baseline data from 361 soldiers. **Results:** The average age of the sample was 27.2 years, and the majority were male (81.7%). Around 10.8% reported being of Hispanic, Latino, or Spanish origin, with 64.5% reporting being Caucasian. Among the soldiers, 59.6% reported having a working firearm at their home, with 43.8% reporting having 2 or more firearms. For those soldiers who reported owning a firearm, the most common reasons for ownership were for protection (54.0%) and recreation (35.3%). Only 2.3% reported owning a firearm for their role within the MIARNG. 44.7% reported practicing safe firearm storage, with firearms being unloaded and locked within the home, while 16.3% reported firearms being stored loaded and unlocked within the home. Overall, 65.4% of soldiers felt that it could be helpful for health care providers to discuss firearm access with their patients, however 40.2% of soldiers felt it would be unacceptable if a healthcare provider asked about their personal access to firearms. Soldiers who did not report owning firearms, however, were significantly more likely to endorse firearm access screening for all patients, while firearm owners were significantly more likely to endorse screening for only mental health, suicidal, or violent patients, or no screening at all ($X2 = 17.46$, $p<0.005$). **Conclusions:** National Guard Soldiers are at uniquely high risk for firearm suicide and perform roles with frequent access to firearms. Understanding their perceptions of firearms, storage and firearm-related public health messages could help inform future injury prevention efforts.

53. Associations between individual and area level factors and firearm-related suicide among Veterans

Robert Bossarte PhD[1], Catherine L. Dempsey PhD MPH[2], James C. West MD[3], David M. Benedek MD[3], Patricia T. Spangler PhD[3], Matthew K. Nock PhD[4], Kelly L. Zuromski PhD[4], Jingning Ao MPH[3], Matthew W. Georg MPH[3], Katy Haller MSPH[3], Deborah M. Probe MA[2], Robert J. Ursano MD[4].

[1]Department of Psychiatry and Behavioral Neuroscience, University of South Florida, [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, [3]Center for the Study of Traumatic Stress, Department of Psychiatry, Uniformed Services University of the Health Sciences, [4]Department of Psychology, Harvard University

Background: According to data from the Department of Veterans Affairs, injuries resulting from a firearm were responsible for nearly two-thirds of all deaths from suicide among Veterans of U.S. military service. Previous analyses have identified psychiatric characteristics, such as post-traumatic stress disorder or disorders related to emotion regulation, associated with increased risk of firearm ownership, or carrying behaviors. Area level factors, such as policies related firearm purchase and court-enforced restriction, have been associated with differences in rates of firearm mortality in existing studies. Few studies have simultaneously considered individual level factors, including demographic factors and psychiatric disorders, and policies related to firearm access and ownership on risk for suicide resulting from a firearm injury. **Methods:** We examined data obtained from STARRS-LS between 2011 and 2019 for deaths from suicide resulting from a firearm injury (n = 61). Individual level factors included demographic characteristics, psychiatric disorders, exposures to stress (lifetime and deployment), number of firearms in the home, and firearm storage and carrying practices. Area of residence was based on state of residence at the time of the last administrative record or survey report. Area level factors included state-level policies related to prohibited possessors, orders of protection, background checks and other restrictions on firearm ownership or access. Discrete time logistic regression models with six-month intervals were used to assess risk for firearm-related mortality beginning at the time of initial assessment until death or the end of the study period. **Results:** Soldiers and Veterans who began service at a younger age (OR=3.72 [95% CI = (1.29-10.71)] had an increased risk and those with more dependents had a lower risk (OR = 0.44 [95% CI =

(0.25 -0.76)] of firearm-related suicide. Ownership of multiple firearms was associated with increased risk of suicide (OR = 3.72 [95% CI = (1.29 -10.71)]. Multiple state level policies, including Extreme Risk Protection Orders (OR = 0.02 [95% CI = (0.01 -0.04)] and longer waiting periods (OR = 0.21 [95% CI = (0.08 -0.54)], were associated with lower risk of firearm-related suicide. **Conclusions:** Results from analyses included in this project provide evidence of the combined contributions of individual and area level factors on risk for firearm-related suicide. State-level policies delaying or restricting access to firearms were associated with lower risk for suicide among Veterans in these areas. These findings suggest that policies limiting access to firearms may reduce rates of mortality among Veterans at risk for suicide.

54. Perception of safety, reasons for firearm ownership and unsafe storage practices: Opportunities for suicide prevention in US. Army Servicemembers

Catherine L. Dempsey PhD MPH[1], David M. Benedek MD[2], Patricia T. Spangler PhD[2], James C. West MD[2], Matthew K. Nock PhD[3], Kelly L. Zuromski PhD[3], Matthew W. Georg MPH, Jingning Ao MPH[2], Katy Haller MSPH[2], Deborah M. Probe MA[1], Robert Bossarte PhD[4], Robert J. Ursano MD[2].

[1]Henry M. Jackson Foundation for the Advancement of Military Medicine, [2]Center for the Study of Traumatic Stress, Department of Psychiatry, Uniformed Services University of the Health Sciences, [3]Department of Psychology, Harvard University, [4]Department of Psychiatry and Behavioral Neuroscience, University of South Florida

Background: Firearm suicide deaths reached epidemic proportions in the United States in 2021. Veterans bear a disproportionate share of this burden, representing over 69.4% of suicide deaths by firearms. Unsafe storage practices have previously been linked to suicide deaths, however research is limited on the reasons for firearm ownership, unsafe storage and suicide death. The objective of this study is to identify specific reasons service members' next of kin (NOK) report that their deceased loved one owned guns and the relationship between reported reason(s) for ownership, storage practices, and suicidal behavior. **Methods:** Data via structured interviews from the Soldiers Health Outcomes Study (SHOS-B), a case-control study that compares suicide decedents (U.S. Army Soldiers who died by suicide while on active duty; n = 135) and controls of two types: 1) propensity matched (n = 128) and 2) Army soldiers reporting suicidal ideation in the past year (n = 108). A mixed-methods approach consisting of qualitative and quantitative analyses examined a subset of gun owners (n = 31 suicide decedents cases and n = 92 propensity-score matched and suicide ideator controls). Qualitative analyses used a conventional content analytic approach to analyze the text responses. Quantitative analyses consisted of multivariable logistic regression analyses to examine predictors of firearm safe storage practices. Coefficients were exponentiated in logistic models to create ORs with 95% CIs. **Results:** Informants reported safety and protection as the most frequent reason for gun ownership. Soldiers who owned guns for safety/protection were three times more likely to store their guns unsafely (OR = 3.8, 95% CI, 1.7-8.8, p = 0.0017). Soldiers who received a diagnosis of Generalized Anxiety Disorder from the military medical record were more likely to store their guns unsafely (OR = 2.83, 95% CI, 1.25-6.41, $\chi 2$ = 6.22 p = 0.0126). **Conclusions:** Safety/protection is the most frequent reason for gun ownership reported for U.S. Army suicide decedents. Owning a gun for safety/protection increased the odds nearly 4 times of guns stored unsafely in their home. Future quantitative studies examining the interaction between gun ownership for safety/protection and storage practices may help target interventions to prevent suicide.

55. Policy and advocacy in adversarial times: Gains made in Texas

Sandra McKay MD[1]

[1]McGovern Medical School at the University of Texas Health Science Center at Houston

Background: Firearm related legislation has proven to be challenging to address in Texas, with historically leaning to loosening of restrictions following mass shooting events. With leading the country in deadliest mass shootings, and also with high firearm ownership, it is imperative to consider policy solutions to address firearm injury. Additionally, the state has the highest Veteran population in the country. Veterans are twice as likely to die by suicide than a non-Veteran, and 68% of Veterans who died by suicide used a firearm. Policy options to promote secure storage and temporary out of home storage are imperative in Texas. **Methods:** A coalition of key stakeholders was convened with the onset of the 88th legislative session to promote policy solutions to decrease firearm unintentional injury and firearm suicide. The coalition met virtually every month, and communicated via email in between. The members consisted of public health researchers, Veterans advocates, providers of Veterans services, physicians, firearm injury prevention advocates and firearm retailers. Legislation was identified tracked by the coalition to monitor and provide expert feedback and testimony when appropriate. **Results:** Five meetings were held during the session, and 6 bills were tracked. Key legislation was identified and targeted for priority for the coalition, which was provision for firearm retailer liability protection if they provided temporary out of home storage to firearm owners, as this was seen among firearm retailers as a key gap in the community. This bill passed the House but failed to receive a hearing in Senate Committee. **Conclusions:** Convening of a diverse group of engaged stakeholders to promote firearm injury prevention is imperative when addressing policy in states like Texas, where community support is essential. It was noted that while only 1 bill relating to firearm injury prevention actually passed the House and Senate, there were several legislators who crossed party lines for the first time. This could indicate that for bills that have broad support from communities and coalitions with representation that includes firearm owners and retailers, this will help support policy and potentially shift mindsets.

56. Evaluating New Haven's PRESS program, a collaborative approach to reducing gun violence

Dijonee Talley MS[1]

[1]*Special Projects Director, Community Resilience, City of New Haven*

Background: In 2021, the City of New Haven's established an Office of Violence Prevention (OVP), the first municipal OVP in the state of Connecticut. Soon after it implemented a pilot violence prevention program, known as the Program for Reintegration, Engagement, Safety, and Support (PRESS). PRESS is an intensive interagency approach that engages law enforcement, community corrections, and community-based violence prevention and intervention programs to support returning citizens with gun-related and violent convictions as well as individuals in the community at highest risk for being involved in gun violence. The goal of PRESS is to substantially reduce gun violence in the city through comprehensive case management and enhanced access to resources and services for referred clients. **Methods:** The current study is a process evaluation of the PRESS initiative, which uses interviews with key stakeholder representatives from PRESS partner agencies and a sample of PRESS clients, as well as non-participant observations of case conferences and other team meetings. **Results:** Analysis of data will allow us to draw conclusions and provide insights regarding the successes and challenges of implementing this new collaborative model; mechanisms for building trust and fostering meaningful and productive collaboration among partner organizations; and goal-setting and decision-making processes in collaborative settings. We will also offer preliminary findings of program impact based on outcomes for PRESS clients. **Conclusions:** The findings will have important implications for other cities considering similar violence prevention and intervention programs. Additionally, it will expand on the current literature on collaboration and intergovernmental relations among law enforcement agencies and community-based organizations engaged in violence prevention and intervention work.