

# RESEARCH ON TAP

# Gun Violence

Thursday, October 5, 2023

[bu.edu/research/events](https://bu.edu/research/events)



**Boston University** Office of Research

# Agenda

- Welcome Remarks
- Presentations
  - Jonathan Jay
  - Salma Abdalla
  - Mohammed Abba-Aji
  - Andrew Bacher-Hicks
  - Lisa Allee
  - Michael R. Ulrich
  - Dane Scantling
  - Rachel Sayko Adams
  - James Silver
  - Elizabeth Pino
- Closing Remarks

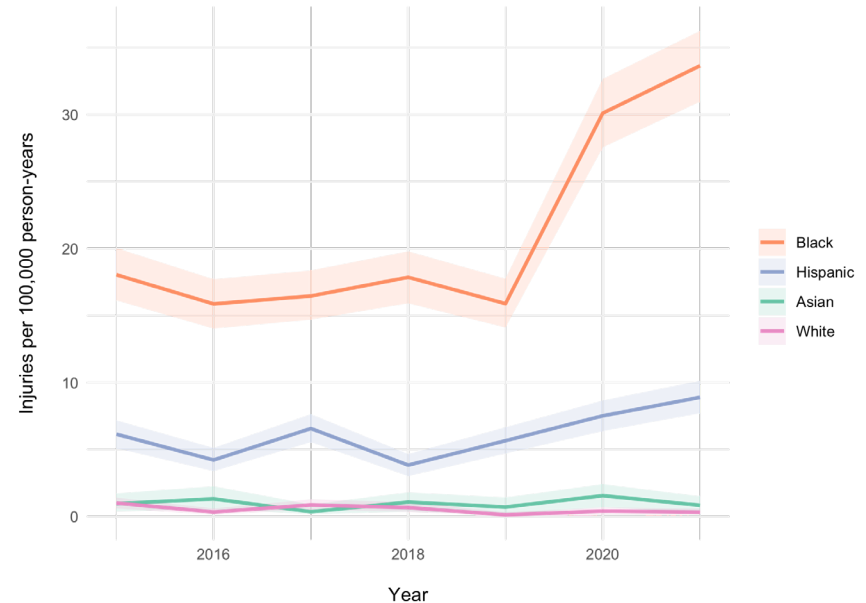
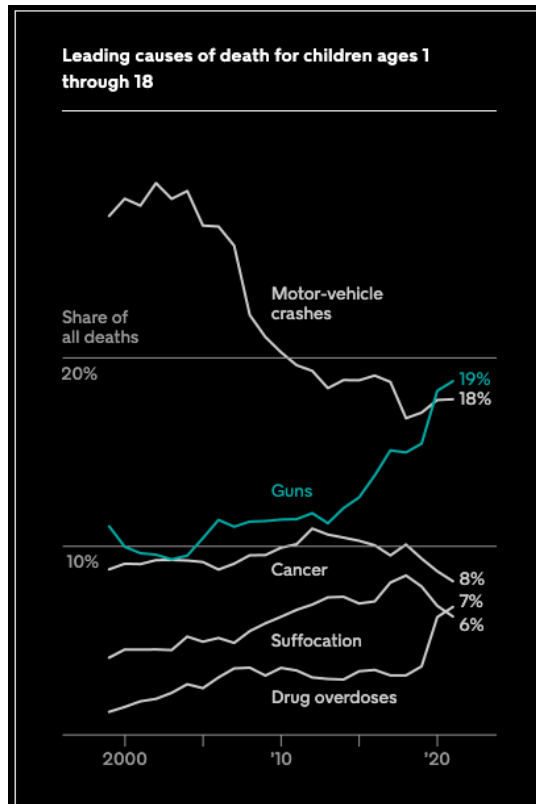
## Emerging Directions in Gun Violence Research at BU

# Jonathan Jay, DrPH, JD

Assistant Professor  
School of Public Health



# Firearm injuries are the leading cause of death for U.S. children and teens



In 4 major U.S. cities during COVID:

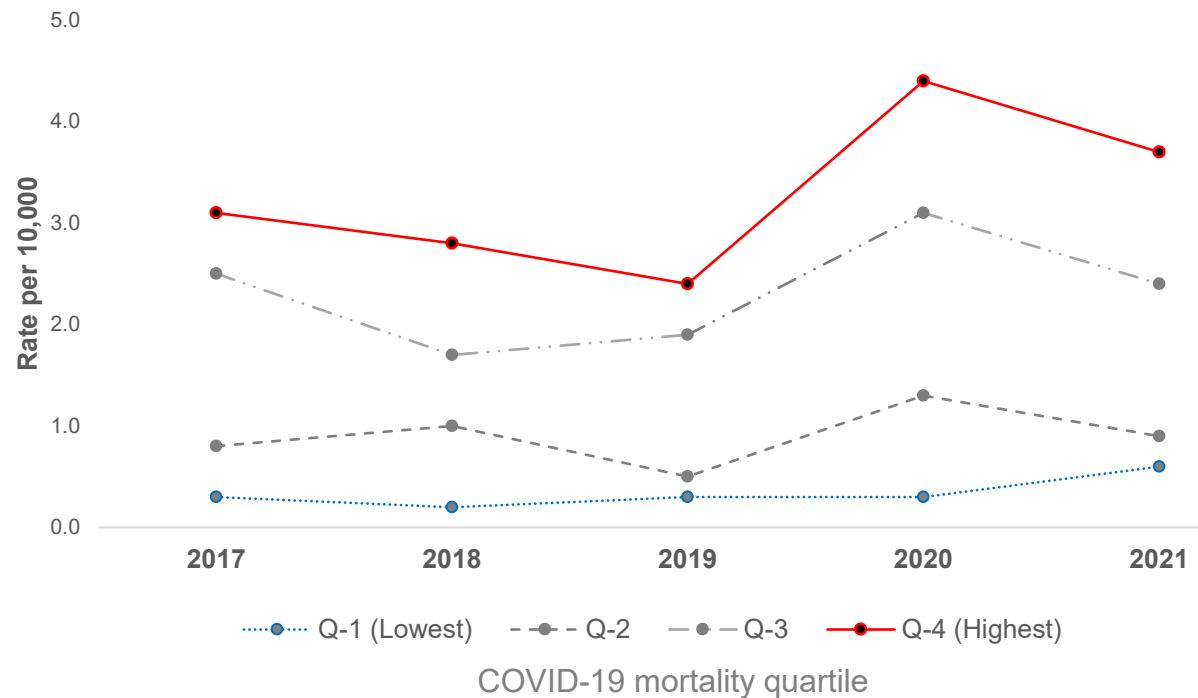
- Child FA assault rates increased **1.93x**
- No increase among non-Hispanic White children
- Black-White disparity rises to RR = **100.66** (95% CI [59.06, 232.66])

## Spatial co-occurrence of **firearm homicides** and opioid overdose deaths by level of **COVID-19 mortality**: Chicago, IL, 2017-2021

Data = Cook County Medical Examiner records, 2017-2022

- **Zip codes with highest COVID-19 mortality had highest firearm homicide rates**
- Pandemic-related firearm homicide spike was concentrated in zip codes w/ high COVID mortality
- Similar results for opioid overdose deaths (not shown)

Firearm homicide rates by year and COVID-19 mortality quartile

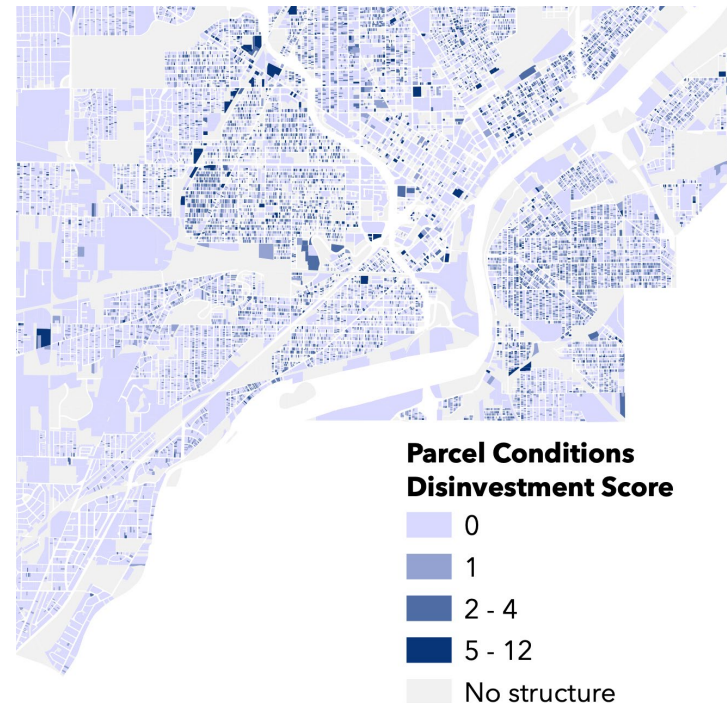


Suzanne McLone, MPH  
Epidemiology doctoral student  
(lead author)

# The Intersection of Physical Disinvestment and Firearm Shootings in Toledo: A Spatial Case-Control Analysis

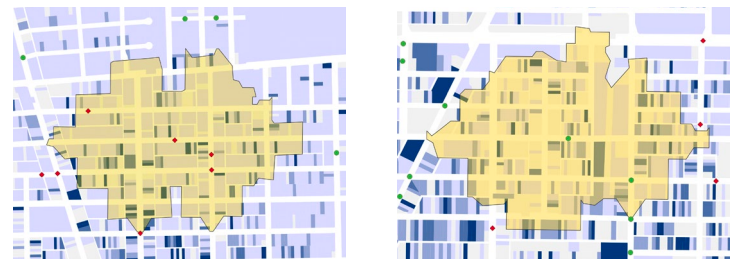
- Data: Toledo PD gun violence outcomes, Lucas County Land Bank parcel survey
- Exposure: physical disinvestment (average disrepair w/in 5 min walk)
- Design: case-control, matched 1:4 on NH poverty, land use

**1-unit increase in phys. dis't → 2.24 times odds of GV (95%CI: 1.52, 3.28)**



Emma Gause, MA MS  
Research Scientist, BUSPH  
(lead author)

5-minute walking buffer examples:



# Bias in Rehabilitation Services Access for Survivors of Gun Violence

- Violence intervention advocates noted **high rates of denials from private rehabilitation services** for victims of gun violence
- **Disparate outcomes:** 51% of gun violence victims denied transfer to rehab services, vs. 14% of motor vehicle crash patients
  - 6.3x OR in bivariate model
- **Biased language found in healthcare notes** that are shared with rehabilitation centers to determine acceptance status
  - Stereotyping, categorizing patients as “difficult”, disapproving language, unilateral decision making, questioning authority



BMC VIAP program  
(partners)



Alexa Courtepatte,  
MPH '23 (lead author) 7

# A Population Health Science Approach to Gun Violence

# Salma Abdalla

Assistant Professor  
Global Health and Epidemiology  
School of Public Health





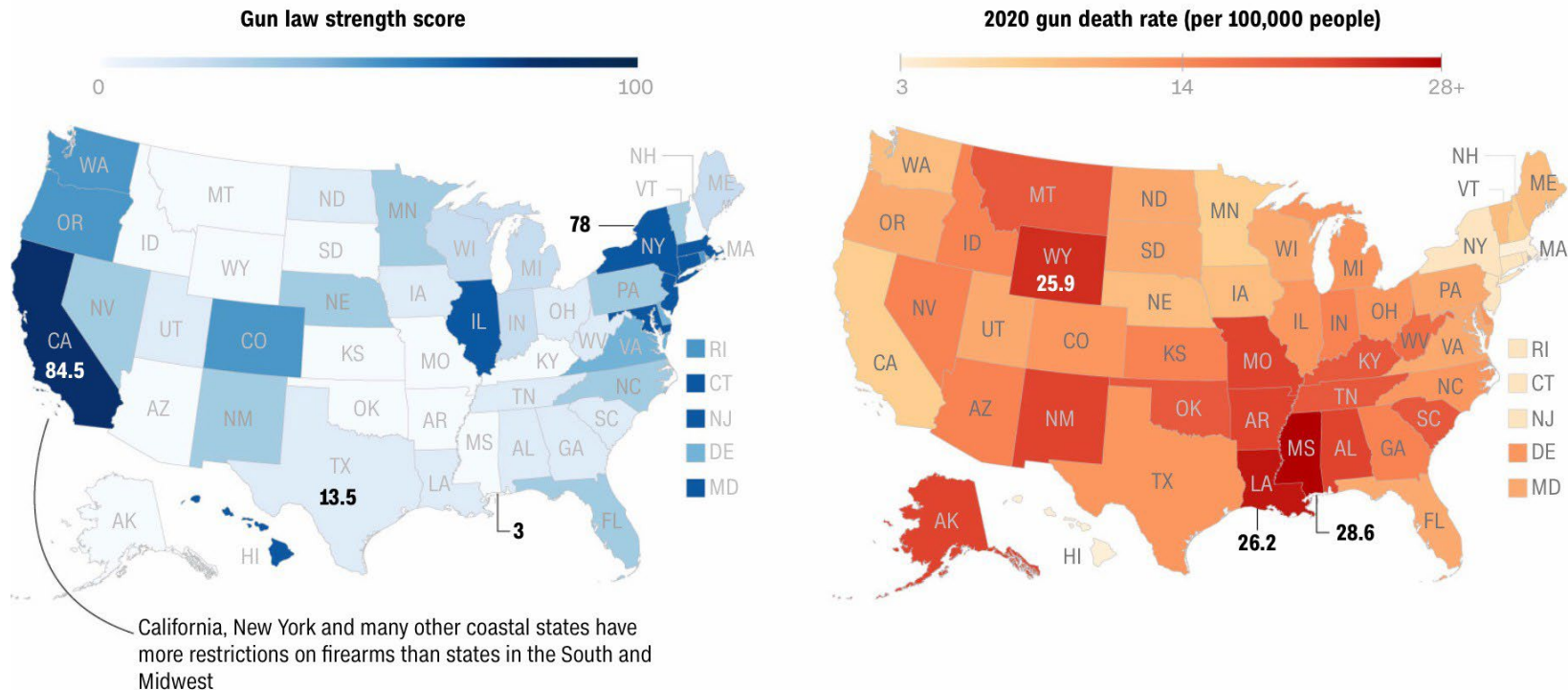
## Guns as the inescapable vector



Adapted from: <https://www.commonwealthfund.org/publications/2023/apr/health-costs-gun-violence-how-us-compares-other-countries>

# How gun safety laws affect firearm mortality rates

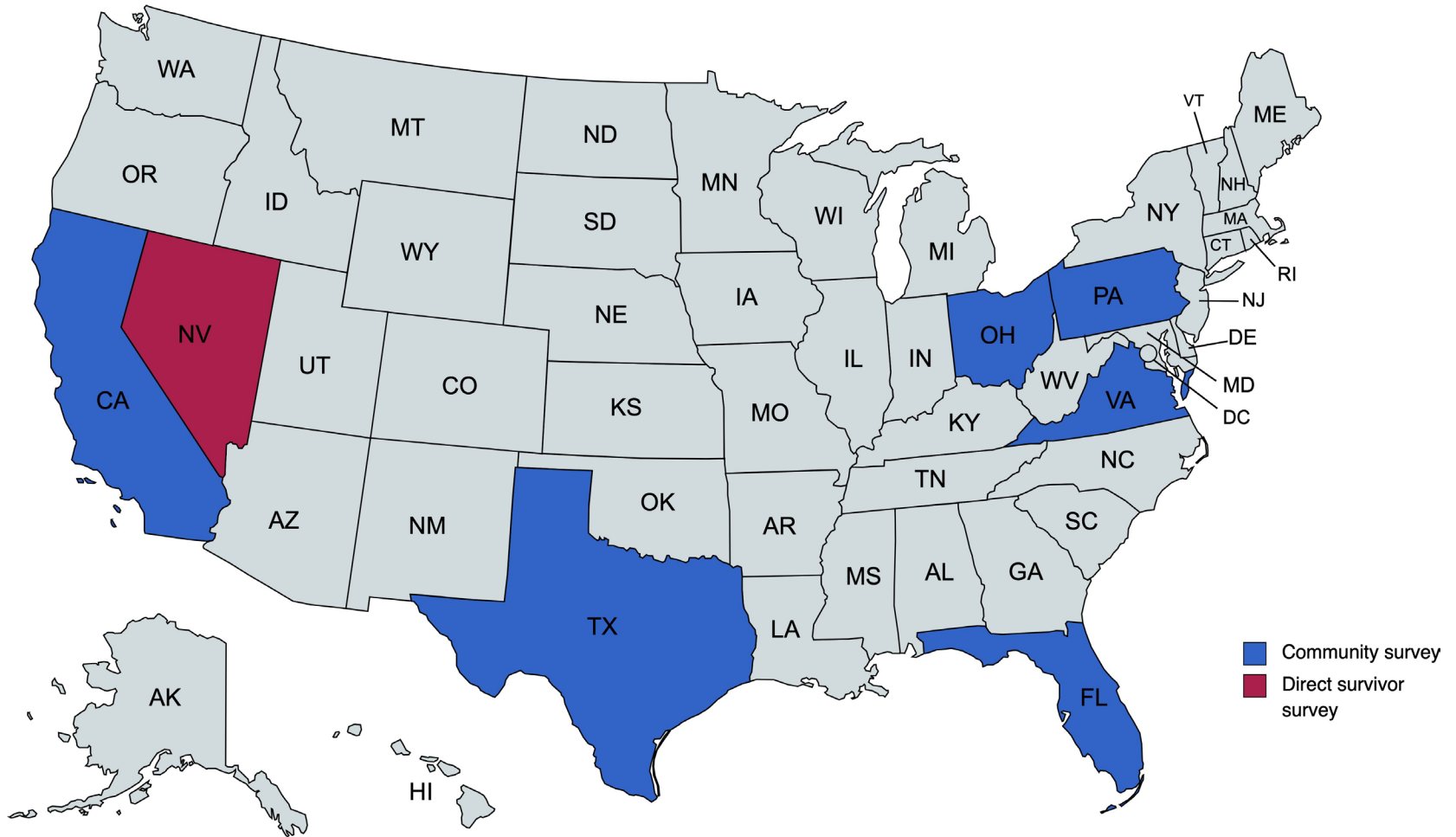
Data compiled by Everytown for Gun Safety shows that many states with stronger gun ownership laws have lower rates of gun deaths than states with more lax laws.



Note: Everytown determines the overall strength of state gun laws by examining where the state stands on 50 different policies and assigning the state a composite score. The methodology for the ranking system can be found [here](#).

Source: Everytown for Gun Safety, Centers for Disease Control and Prevention

Graphic: Priya Krishnakumar, CNN

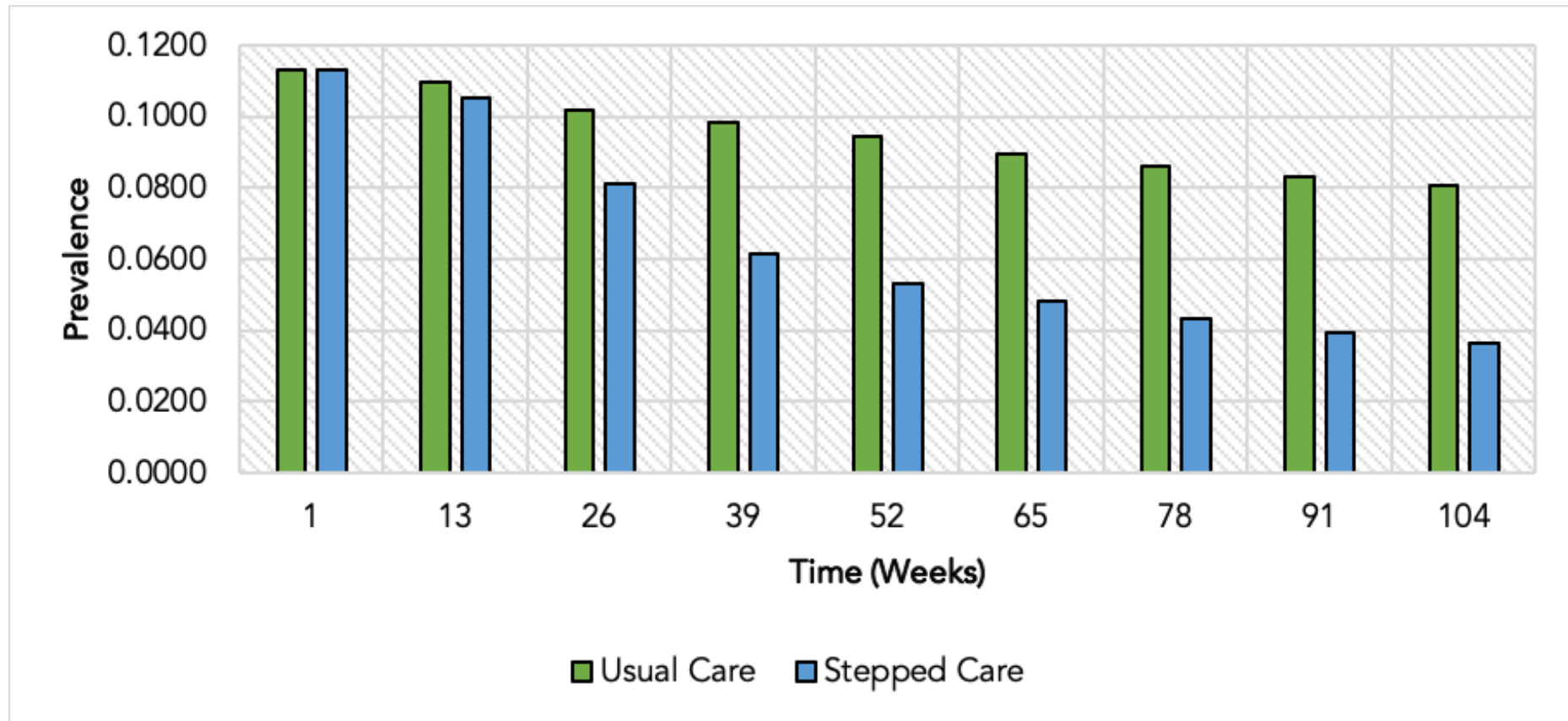


Created with mapchart.net



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# Treatment effectiveness of stepped care vs usual care among the Fort Lauderdale, Florida population: An agent-based model



[Abdalla@bu.edu](mailto:Abdalla@bu.edu)



# A Population Health Approach to Understanding and Mitigating the Impact of Gun Violence

# Mohammed Abba-Aji

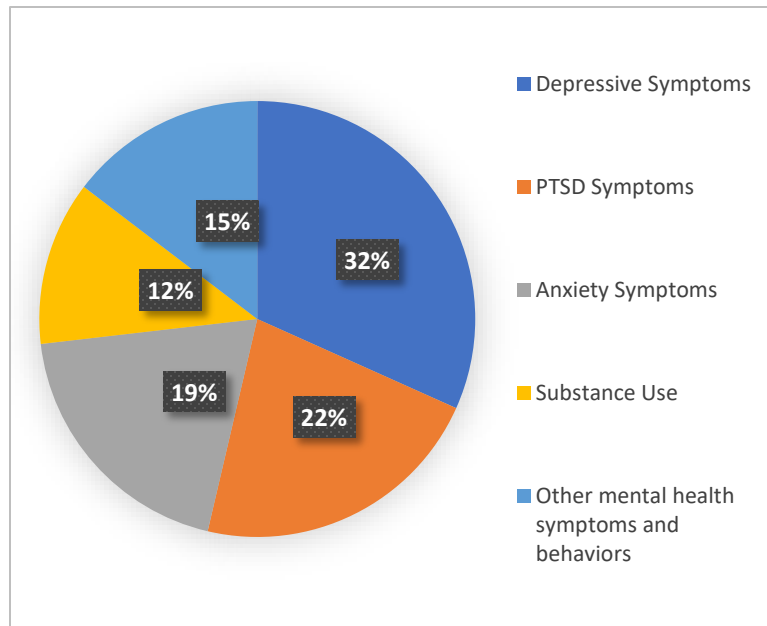
Research Fellow

Department of Epidemiology, School of Public Health

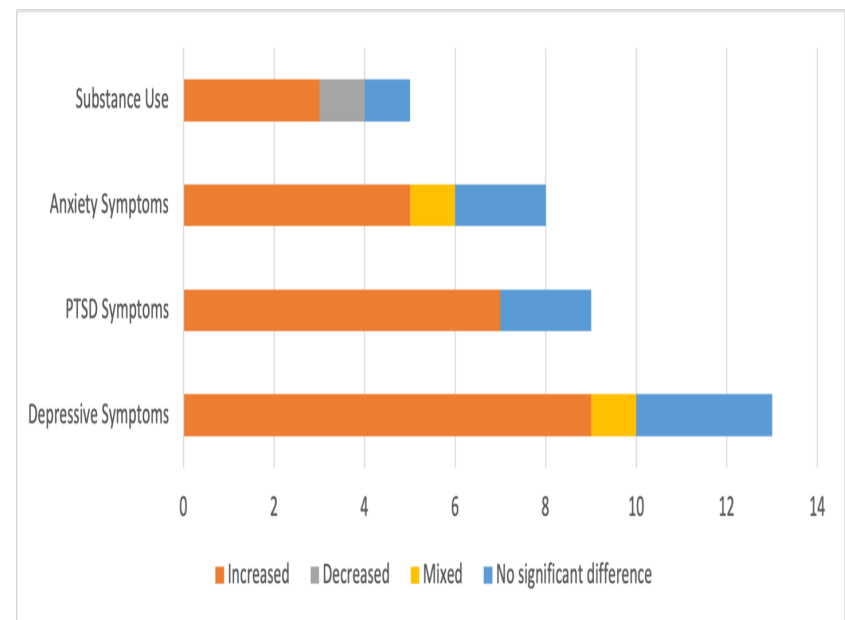


# Mental Health Consequences of Gun Violence

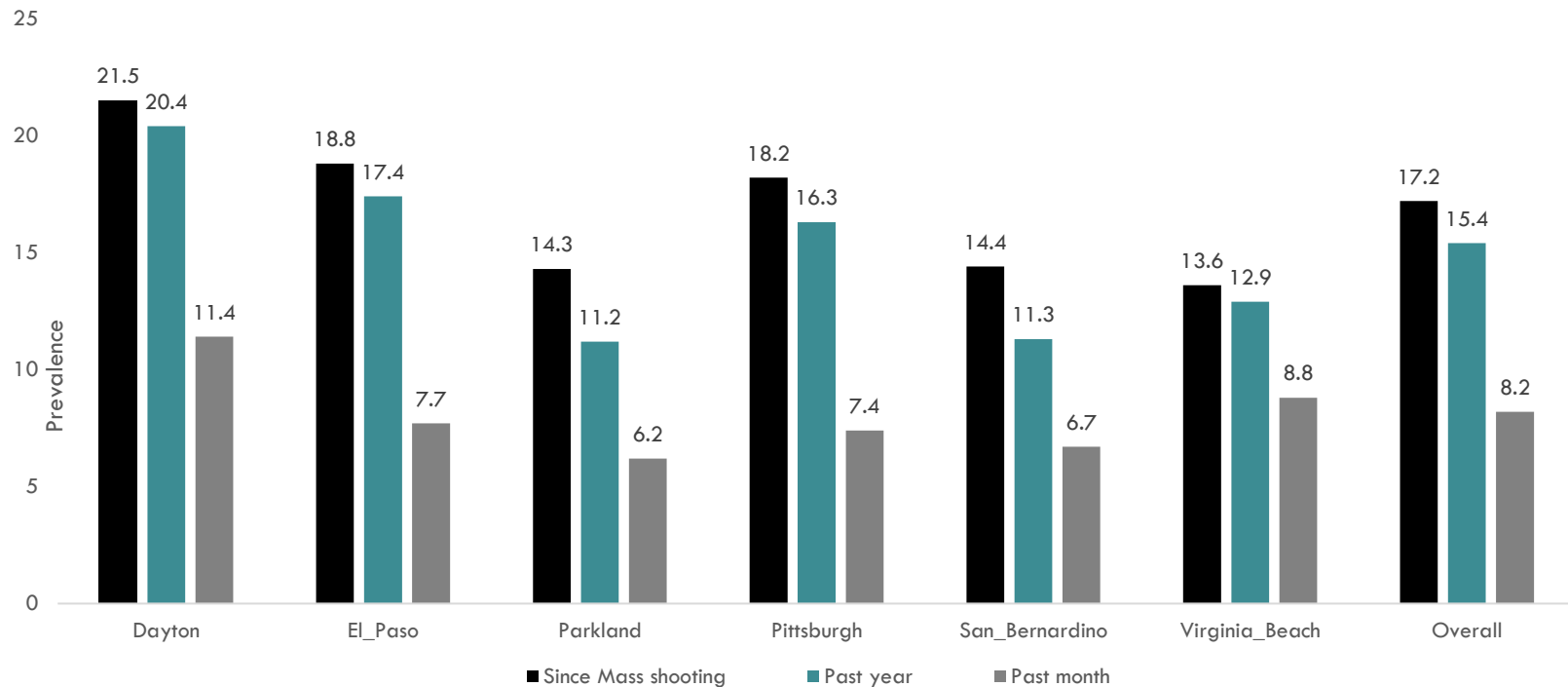
Distribution of studies by indicators



Study findings by indicators



# Community Mental Health After Mass Shootings

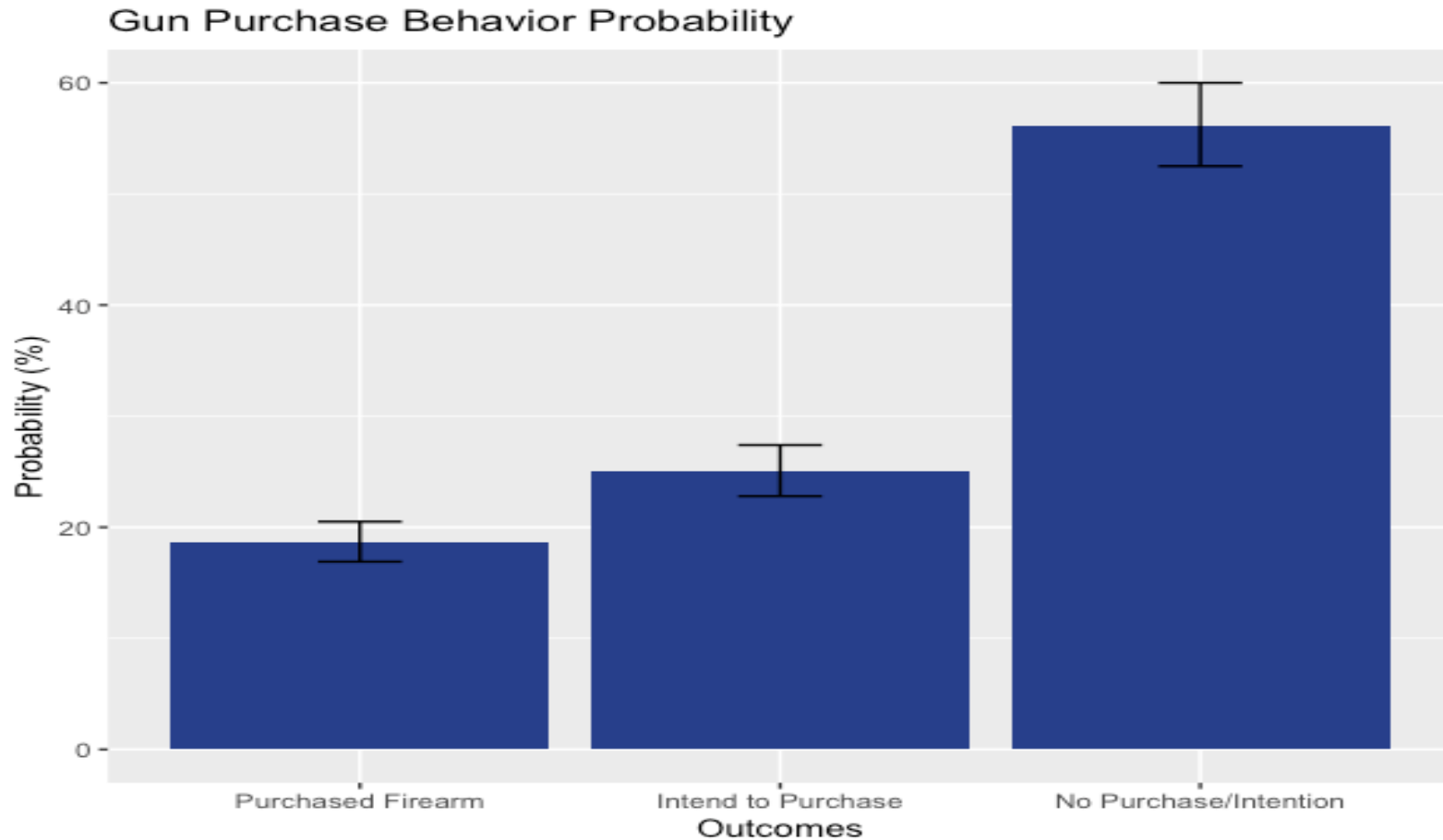




# Mental Health of Las Vegas Shooting Survivors

- Data from 177 victims/survivors of the Las Vegas mass shooting.
- High burden of major depressive episode (MDE) and Post-traumatic stress disorder (PTSD) among victims/survivors.
- Severe exposure to the mass shooting and low social support were associated with a greater risk for MDE and PTSD.

# Gun purchasing behaviors



# **The School to Prison Pipeline: Long-Run Impacts of School Suspensions on Adult Crime**

# Andrew Bacher-Hicks

Assistant Professor  
Education Leadership & Policy Studies, Wheelock



# Suspensions and the “School to Prison Pipeline”

- Shifting Federal Guidance on School Discipline
  - 2014: Obama urges schools to reduce suspensions
  - 2018: Trump administration rescinds Obama guidance
  - 2023: Biden again urges schools to reduce suspensions
- The debate is fueled by three facts:
  1. Increased use of suspensions for minor infractions
  2. Large racial gaps in suspensions
  3. Suspensions predict low educational attainment and future criminal justice involvement
- Little causal evidence on the net effects of strict school discipline
  - Could benefit (e.g., deter anti-social behavior, more order)
  - Could harm (e.g., lost instructional time, spillovers from grouping at risk peers)

The Washington Post

*Democracy Dies in Darkness*

## Biden administration issues civil rights guidance on school discipline

The guidance comes as several states are looking to allow schools to more harshly punish students

By Moriah Ballingt and Donna St. George

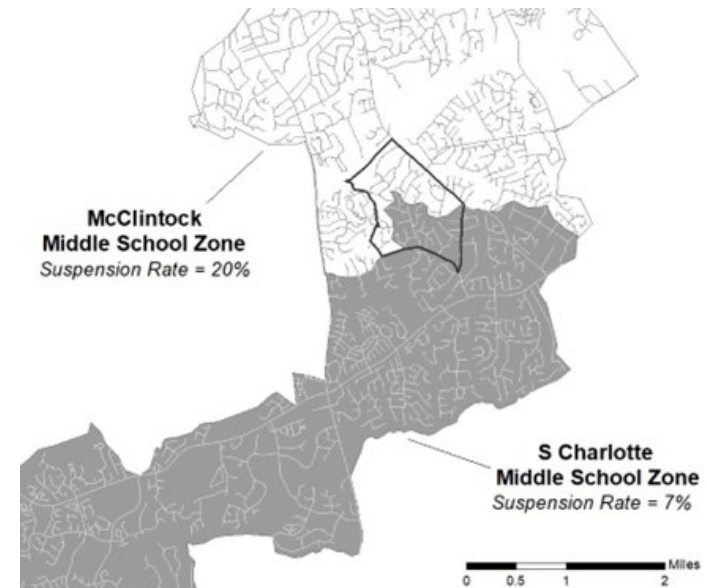
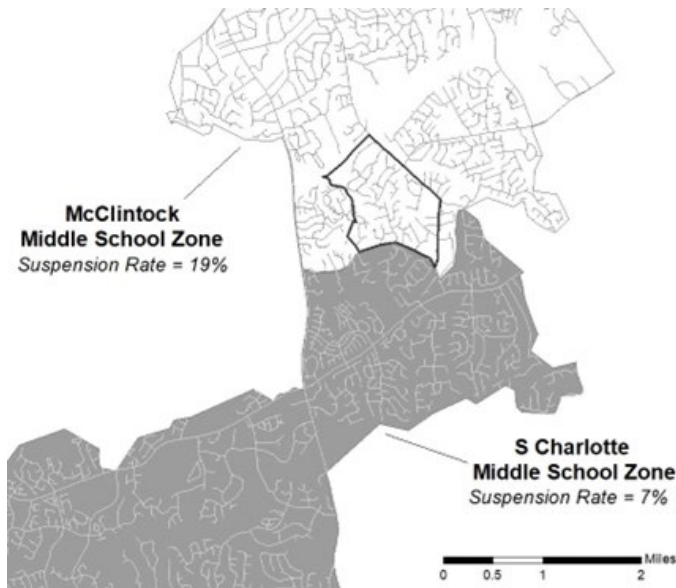
May 28, 2023 at 10:15 a.m. EDT



U.S. Assistant Attorney General for the Civil Rights Division Kristen Clarke authored a letter to schools nationwide reminding them of their obligations to treat students equitably in school discipline matters. (Anne Moneymaker/Getty Images)

# This Paper: Research Questions and Method Overview

- **Two key research questions:**
  - What are the net effects of “strict” schools on long-run outcomes?
  - Is the effect disproportionate for some students?
- **Primary empirical approach:** CMS school zone boundary change in 2003
  - Identified by students who live in the same neighborhood and were assigned the same school in 2002, but suddenly assigned to different schools in 2003



# Long-Run Impacts of Assignment to 1 SD "Stricter" School

	Adult Crime (Ages 16-21)				Educ. Attainment	
	Arrest	Incarc.	Num. Arrest	Num. Incarc.	HS Dropout	4-Year College
Full Sample (26,246)	0.032*** (0.009)	0.025*** (0.007)	0.137*** (0.039)	0.110*** (0.033)	0.017* (0.010)	-0.024** (0.011)
Demographics & baseline test scores	✓	✓	✓	✓	✓	✓
Neighborhood by prior school zone FE	✓	✓	✓	✓	✓	✓
Cohort FE	✓	✓	✓	✓	✓	✓

**Interpretation:** Estimates are roughly twice as large for male students of color, suggesting disproportionate impact of strict schools.

# Conclusion and Implications

- Students assigned to strict schools are more likely to be suspended in subsequent years and have worse long-run outcomes:
  - Increases in adult arrests and incarcerations;
  - Decreases in educational attainment;
  - Disproportionate impacts for male students of color.
- No spillover benefits from deterrence/incapacitation of disruptive peers.
- Strictness is unrelated peer or school characteristics, but *is* affected by school leadership.
- Implications:
  - Reducing exclusionary discipline may disrupt the “school-to-prison pipeline” particularly for men of color.
  - School leaders have the power to change school discipline practices.

# **Clinician Perspectives on Legal Expansion of ERPO Filing at Boston Medical Center**

## **Lisa Allee MSW, LICSW**

Assistant Professor, Department of Surgery  
Boston University Chobanian & Avedisian School of Medicine  
Director, Community Violence Response Team (CVRT)  
Boston Medical Center



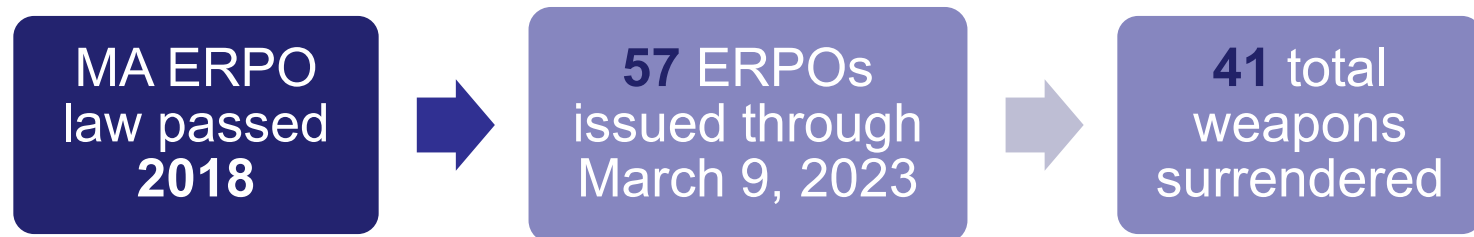


# WHAT'S AN ERPO?

## Extreme risk protection order or “red flag order”

A legal firearm removal order issued against a person who is licensed to possess or carry a firearm

- Requested by family member OR household member
- Removes weapons for up to ONE year, can be extended
- Flags respondents in the national gun registry database during background checks when trying to purchase a firearm



## Extreme Risk Protection Orders: An Opportunity to Improve Gun Violence Prevention Training

Suhas Gondji, Alexander G. Pomerantz, and Chana A. Sacks, MD, MPH

## News media coverage of extreme risk protection order policies surrounding the Parkland shooting: a mixed-methods analysis

Rocco Pallin , Amanda J. Aubel, Christopher E. Knoepke, Veronica A. Pear, Garen J. Wintemute & Nicole Kravitz-Wirtz

### COLUMNS

## Firearm Injury Prevention and Extreme Risk Protection Orders

Wortzel, Hal S. MD; Simonetti, Joseph A. MD, MPH; Ryan, Arthur T. PhD; Matarazzo, Bridget B. PsyD

### Original Investigation

June 4, 2021

## Public Awareness of and Personal Willingness to Use California's Extreme Risk Protection Order Law to Prevent Firearm-Related Harm

Nicole Kravitz-Wirtz, PhD, MPH<sup>1</sup>; Amanda J. Aubel, MPH<sup>1</sup>; Rocco Pallin, MPH<sup>1</sup>; Garen J. Wintemute, MD, MPH<sup>1</sup>

### COMMENTARY

### Open Access

## The color of risk protection orders: gun violence, gun laws, and racial justice

Jeffrey W. Swanson<sup>1,2</sup>

## Extreme risk protection orders in response to threats of multiple victim/mass shooting in six U.S. states: A descriptive study

April M. Zeoli<sup>1,2</sup>, Shannon Frattaroli<sup>1,2</sup>, Leslie M. Barnard<sup>1,2</sup>, Andrew Bowen<sup>1,2</sup>, Annette Christy<sup>1,2</sup>, Michele Foster<sup>1,2</sup>, Reena Kapoor<sup>1,2</sup>, Christopher Knoepke<sup>1,2</sup>, Wenjuan Ma<sup>1,2</sup>, Amy Moloczniak<sup>1,2</sup>, Michael Norko<sup>1,2</sup>, Elise Omaki<sup>1,2</sup>, Jennifer K. Poruk<sup>1,2</sup>, Veronica A. Pear<sup>1,2</sup>, Ali Rowhani-Rahbar<sup>1,2</sup>, Julia P. Schleimer<sup>1,2</sup>, Jeffrey W. Swanson<sup>1,2</sup>, Garen J. Wintemute<sup>1,2</sup>

## Civilian Petitioners and Extreme Risk Protection Orders in the State of Washington

Laura Prater, M.P.H., Ph.D., Lauren Rooney, M.P.H., Andrew G. Bowen, B.A., Kelsey Conrick, M.P.H., Ayah Mustafa, B.S.P.H., Megan Moore, M.S.W., Ph.D., Frederick P. Rivara, M.D., M.P.H., Ali Rowhani-Rahbar, M.D., Ph.D.



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## Extreme risk protection orders, race/ethnicity, and equity: Evidence from California

V.A. Pear<sup>a,b,\*</sup>, J.P. Schleimer<sup>a,b,1</sup>, A.J. Aubel<sup>a,b</sup>, S. Buggs<sup>a,b</sup>, C.E. Knoepke<sup>c,d</sup>, R. Pallin<sup>a,b</sup>, A.B. Shev<sup>a,b</sup>, E. Tomsich<sup>a,b</sup>, G.J. Wintemute<sup>a,b</sup>, N. Kravitz-Wirtz<sup>a,b</sup>

## Beyond Legislative Lethal Means Restriction Approaches to Suicide Prevention

Aaron J. Kivisto

Journal of the American Academy of Psychiatry and the Law Online June 2022, 50 (2) 170-176; DOI: <https://doi.org/10.29158/JAAPL.210140-21>

### ORIGINAL CONTRIBUTION

### Open Access

## Extreme risk protection orders in King County, Washington: the epidemiology of dangerous behaviors and an intervention response

Shannon Frattaroli<sup>1,2\*</sup>, Elise Omaki<sup>2</sup>, Amy Moloczniak<sup>2</sup>, Adelyn Alchin<sup>3</sup>, Renee Hopkins<sup>4</sup>, Sandra Shanahan<sup>5</sup> and Anne Levinson<sup>6</sup>

# WHAT'S THE DATA?

### RESEARCH ARTICLE

## Physicians' perspectives on Extreme Risk Protection Orders (ERPOs) in the clinical setting: Challenges and opportunities for gun violence prevention

Ashley Hollo<sup>1,\*</sup>, Amy VanderStoep<sup>1,\*</sup>, Shannon Frattaroli<sup>2</sup>

### SHORT REPORT

### Open Access

## Colorado's first year of extreme risk protection orders

Leslie M. Barnard<sup>1,2\*</sup>, Megan McCarthy<sup>2</sup>, Christopher E. Knoepke<sup>3,4</sup>, Sabrina Kaplan<sup>5</sup>, James Engeln<sup>6</sup> and Marian E. Betz<sup>2,6</sup>

### JOURNAL ARTICLE

## Social Workers' Perspectives on Extreme Risk Protection Orders

Kelsey M Conrick , Emma Gause, Frederick P Rivara, Ali Rowhani-Rahbar, Megan Moore

## Extreme Risk Protection Orders in Washington : A Statewide Descriptive Study

Ali Rowhani-Rahbar<sup>1</sup>, M Alex Bellenger<sup>2</sup>, Lauren Gibb<sup>2</sup>, Heather Chesnut<sup>3</sup>, Madison Lowry-Schiller<sup>1</sup>, Emma Gause<sup>1</sup>, Miriam J Haviland<sup>2</sup>, Frederick P Rivara<sup>4</sup>

### RESEARCH

### Open Access

## A comparative content analysis of newspaper coverage about extreme risk protection order policies in passing and non-passing US states

Amanda J. Aubel<sup>1,2\*</sup>, Rocco Pallin<sup>1</sup>, Christopher E. Knoepke<sup>1</sup>, Garen J. Wintemute<sup>1,2</sup> and Nicole Kravitz-Wirtz<sup>1,2</sup>

### Original Investigation | Public Health

June 18, 2020

## Assessment of Extreme Risk Protection Order Use in California From 2016 to 2019

Rocco Pallin, MPH<sup>1</sup>; Julia P. Schleimer, MPH<sup>1</sup>; Veronica A. Pear, MPH<sup>1</sup>; et al

### Original Investigation | Public Health

December 20, 2019

## Assessment of Physician Self-reported Knowledge and Use of Maryland's Extreme Risk Protection Order Law

### SHORT REPORT

### Open Access

## The association between permit-to-purchase laws and shootings by police

Cassandra K. Crifasi<sup>1\*</sup>, Julie Ward<sup>1</sup>, Alex D. McCourt<sup>1</sup>, Daniel Webster<sup>1</sup> and Mitchell L. Doucette<sup>1</sup>

## Extreme Risk Protection Orders in Washington State: Understanding the Role of Health Professionals

Kelsey M Conrick<sup>1,2</sup>, Adam Davis<sup>1</sup>, Lauren Rooney<sup>2</sup>, M Alex Bellenger<sup>2</sup>, Frederick P Rivara<sup>2,3</sup>, Ali Rowhani-Rahbar<sup>2,4</sup>, Megan Moore<sup>1,2</sup>

## Extreme Risk Protection Orders in Older Adults in Six U.S. States: A Descriptive Study

Marian E Betz<sup>1,2,3</sup>, Shannon Frattaroli<sup>4</sup>, Christopher E Knoepke<sup>2,5,6</sup>, Rachel Johnson<sup>7</sup>, Annette Christy<sup>8</sup>, Julia P Schleimer<sup>9,10,11</sup>, Veronica A Pear<sup>9</sup>, Megan McCarthy<sup>2</sup>, Reena Kapoor<sup>12</sup>, Michael A Norko<sup>12</sup>, Ali Rowhani-Rahbar<sup>10,11</sup>, Wenjuan Ma<sup>13</sup>, Garen J Wintemute<sup>9</sup>, Jeffrey W Swanson<sup>14</sup>, April M Zeoli<sup>15,16</sup>

## A Double-Filter Provision for Expanded Red Flag Laws: A Proposal for Balancing Rights and Risks in Preventing Gun Violence

Gabriel A Delaney<sup>1</sup>, Jacob D Charles<sup>1</sup>

### RESEARCH

### Open Access

## The origins of California's gun violence restraining order law: a case study using Kingdon's multiple streams framework

Elizabeth A. Tomsich<sup>1,2</sup>, Veronica A. Pear<sup>1,2</sup>, Julia P. Schleimer<sup>1,2</sup> and Garen J. Wintemute<sup>1,2</sup>

## Understanding the Process, Context, and Characteristics of Extreme Risk Protection Orders: A Statewide Study

Lauren Rooney, Kelsey M Conrick, M Alex Bellenger, Megan Moore, Miriam J Haviland, Emma Gause, Frederick P Rivara, Ali Rowhani-Rahbar

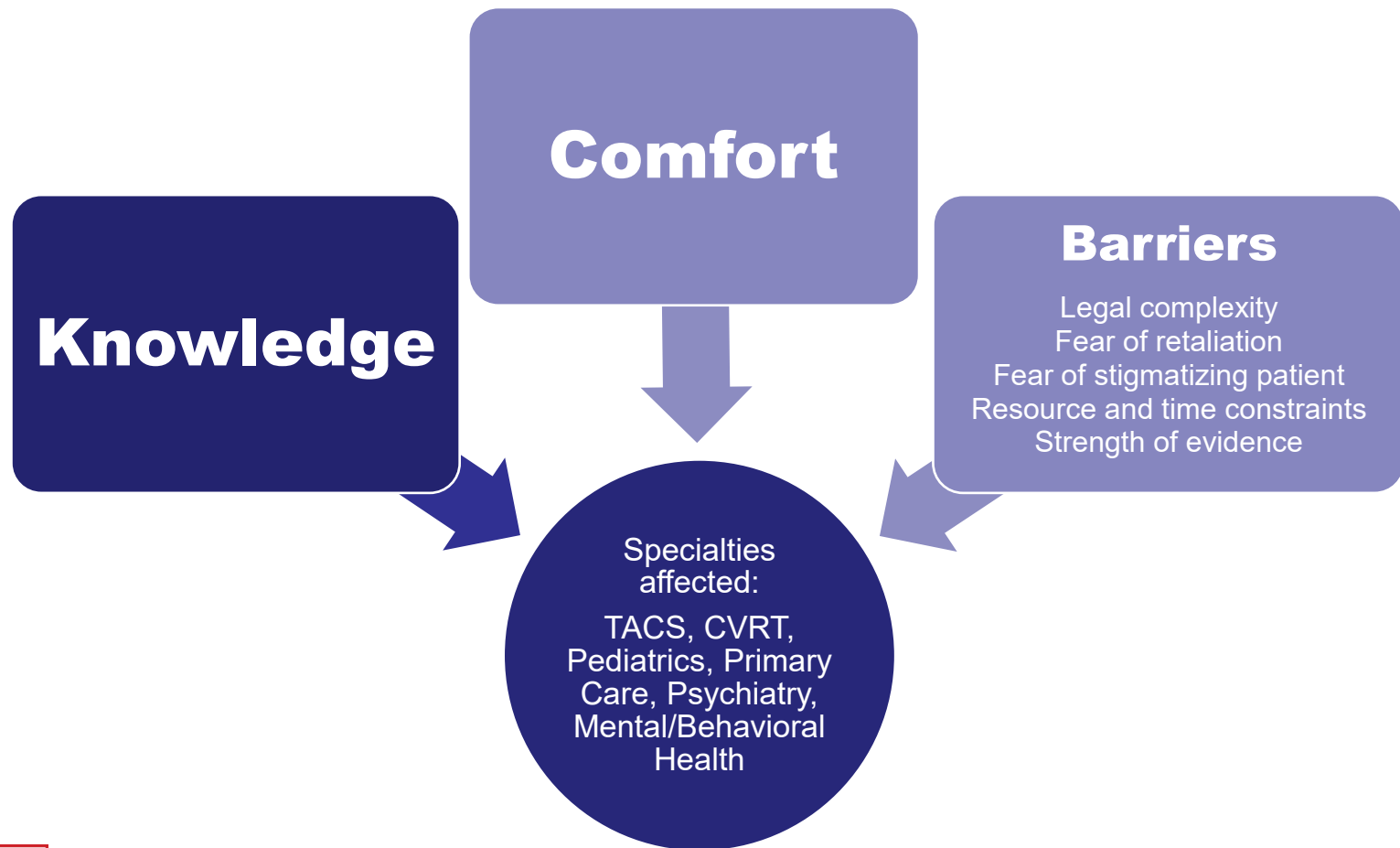
## Survey of Washington clinicians' willingness to use and preferences related to extreme risk protection orders

Emma L. Gause<sup>a,\*</sup>, Kelsey Conrick<sup>a,b</sup>, Megan Moore<sup>b</sup>, Ali Rowhani-Rahbar<sup>a,c</sup>, Frederick P. Rivara<sup>a,c,d</sup>

## Extreme Risk Protection Orders Intended to Prevent Mass Shootings: A Case Series

Garen J Wintemute<sup>1</sup>, Veronica A Pear<sup>1</sup>, Julia P Schleimer<sup>1</sup>, Rocco Pallin<sup>1</sup>, Sydney Sohl<sup>1</sup>, Nicole Kravitz-Wirtz<sup>1</sup>, Elizabeth A Tomsich<sup>1</sup>

# CLINICIAN FILING: WHAT WE KNOW



# UTILIZING DATA: EDUCATION AND POLICY ADVOCACY

- Create **clinician-specific ERPO education** protocols
- Evaluate feasibility and implementation of structures needed for health care systems to adequately support clinician uptake
- **Push for legislation** allowing clinicians to file in all states that have ERPO laws currently and in the future
- Long-term: collaborate with national and state-level healthcare associations to advocate for **uniform ERPO legislation** and streamlined filing processes **nationwide**



## *Bruen's* Burdens on Racial & Gender Disparities in Gun Violence

# Michael R. Ulrich, JD, MPH

Assistant Professor

Center for Health Law, Ethics, & Human Rights

Boston University School of Public Health & School of Law



# *NYSRPA v. Bruen* (2022)

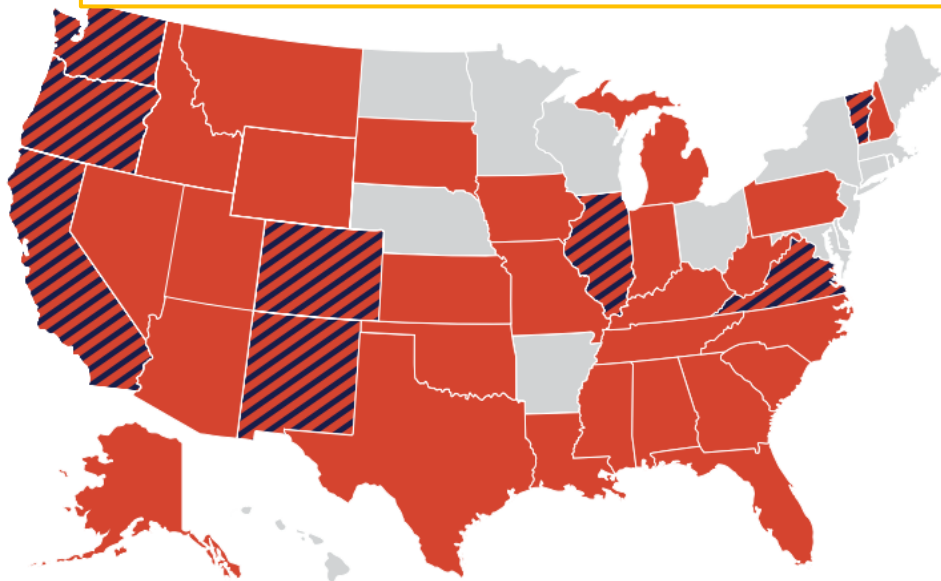
- **Issue**: “proper cause” restriction for carrying firearms in public
- **Constitutional test**:
  - (1) “when the Second Amendment’s **plain text covers an individual’s conduct**, the Constitution presumptively protects that conduct.”
  - (2) “government must demonstrate that the regulation is **consistent with this Nation’s historical tradition of firearm regulation**.”
- **Part (2): How & Why**
  - “whether modern and historical regulations impose a **comparable burden** on the right of armed self-defense and whether that burden is **comparably justified**”





People See Black Men as Larger, More Threatening Than Same-Sized White Men

Black Boys Viewed as Older, Less Innocent Than Whites, Research Finds



While 27 states have adopted Stand Your Ground laws, an additional eight remove the duty to retreat through court decisions.

- States with Stand Your Ground Laws
- States with Stand Your Ground standards due to court decisions



350%

The killing of a Black person by a white civilian is 350% more likely to be found to be justified than if the victim were white.

# *NYSRPA v. Bruen* (2022)

“when a challenged regulation addresses a general **societal problem that has persisted** since the 18<sup>th</sup> century, the **lack of a distinctly similar historical regulation addressing that problem is relevant evidence** that the challenged regulation is inconsistent with the Second Amendment.”



## *United States v. Rahimi (oral argument 11/7/23)*

- **Issue**: prohibiting firearms possession by people subject to domestic violence restraining orders
- *United States v. Perez-Gallan*:
  - “Domestic violence, or violence against anyone for that matter, is not just a modern problem.”
  - “it is better to draw the curtain, shut out the public gaze, and leave the parties to forget and forgive” (quoting the NC Supreme Court in 1874)
  - “even into the early twentieth century, judges were ‘more likely to confiscate a wife beater’s liquor than his guns.’”
- *United States v. Rahimi (5<sup>th</sup> Circuit)*:
  - “we previously concluded that the societal benefits of §922(g)(8) outweighed its burden ... But *Bruen* forecloses any such analysis in favor of a historical analogical inquiry”

# Death by the Minute: Inequities in Access to Trauma Care for Victims of Firearm Violence

## Dane Scantling DO, MPH

Assistant Professor of Surgery

Department of Surgery

Division of Trauma and Acute Care Surgery

Boston University Chobanian and Avedisian School of Medicine

Boston Medical Center



# Background

Greater hospital transport times and thus definitive hemorrhage control convey worse outcomes in penetrating trauma and ambulance interventions are unhelpful

- *Byrne et al*: Up to 23% of firearm fatalities associated with greater hospital transport time
- *Karrison et al*: 0.26% increased odds of death per 2 min increase in travel distance

## Key Knowledge Gaps:

Unknown if time to definitive care is related to death after a Boston shooting

- Hypothesis: increased time to care associated with death after a shooting

Equity in temporal access to a trauma center has not been studied

- Hypothesis: temporal access to a trauma center will be inequitable by race and ethnicity

# Methods

## Data Sources

### **Boston Police Department (2006-2023)**

- Type of shooting
- Victim demographics
- Date and location of Shooting

### **United States Decennial Census (2020)**

- TIGER Shapefiles
- % population that is Black

### **American College of Surgeons**

- Level one trauma center locations

### **Boston EMS**

- Ambulance station locations



## Methodology

### **Geospatial Coding**

- Geocode shooting, hospital and EMS station locations (ArcGIS)
- Overlaid on Boston census shapefiles

### **Exposure Variables and Analysis**

- Network analysis of road conditions/traffic patterns and nearest hospital/EMS station drive times and distances for each victim location
- Univariate logistic regression with assessment for spatial autocorrelation
- Multivariable spatial logit regression and spatial weighting

# Results

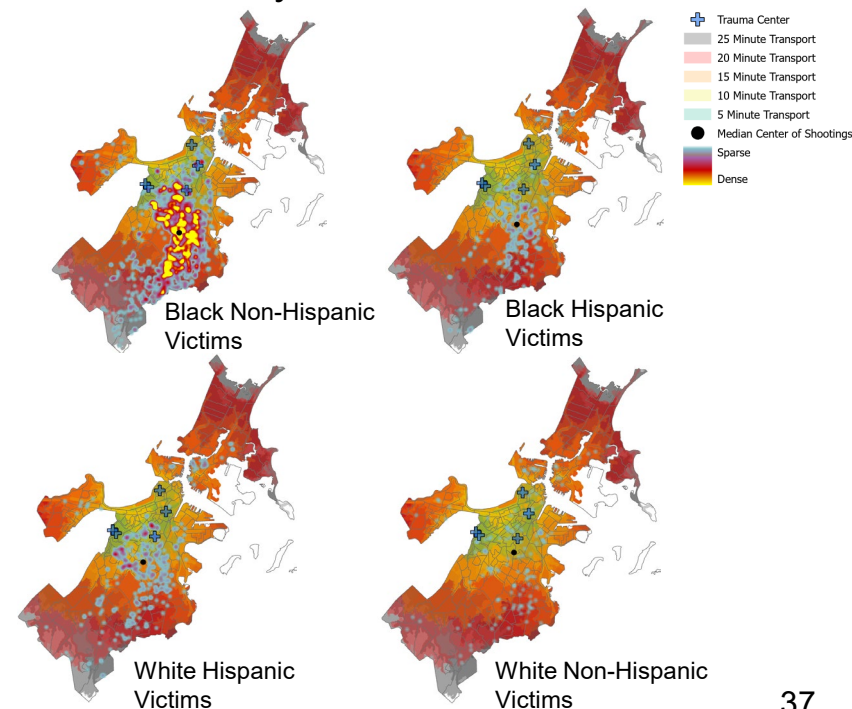
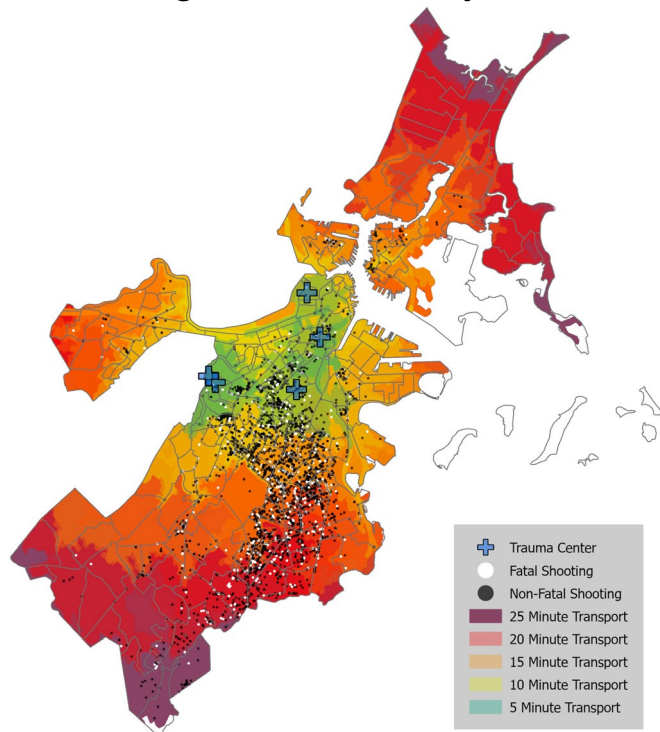
- 4,545 shootings and 758 deaths
- Overall 77% Black non-Hispanic, 8% Black Hispanic, 11% white Hispanic and 3.6% white

## Spatial Autoregressive Model

- Time to Care: aOR 1.024/minute
- Victim Age: aOR 1.020/year

## Equity in Temporal Access to Care

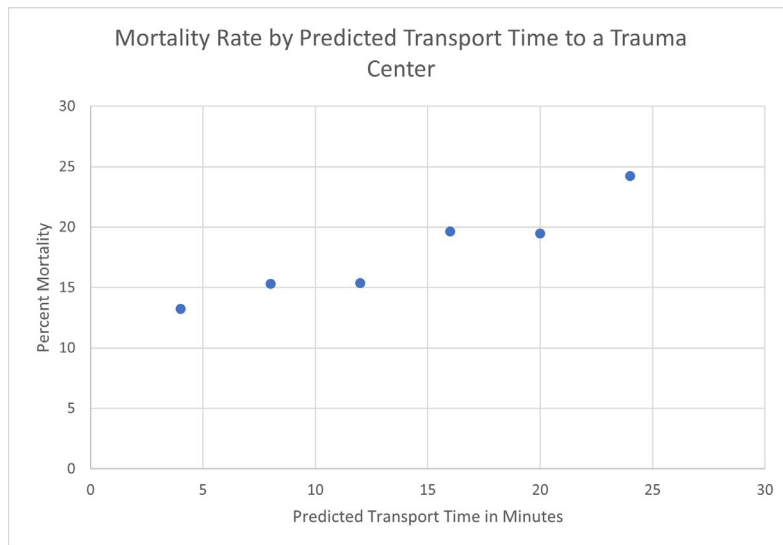
- Black non-Hispanic victims with the longest transport times, followed by Black Hispanic, white Hispanic and then white non-Hispanic victims
- No mortality difference



# Conclusions

## Time to a Trauma Center in Boston is Related to Death

- Trauma deserts exist within our city
- If we can't bring the hospital to them – can we bring them to the hospital faster?
- Other means of more rapid transport



## Temporal Access to Trauma Care is Not Equal

- Significant racial and ethnic disparities exist
- Mortality was not different – possibly due to differences in ages, injuries or power
- Counterfactual transposed times for white and non-white victims suggest that equitable times would reduce non-white deaths

## Future Directions

- Incorporate injury and intervention data
- Explore reductions in time to care had police transport been used
- Engage community for input

# **Risk for Death by Suicide Among Military Members and Veterans: Intersections with Substance Use and Firearms**

## **Rachel Sayko Adams, PhD, MPH**

**Research Associate Professor  
Department of Health Law, Policy and Management,  
Boston University School of Public Health**

This presentation is based on work supported, in part, by the Department of Veterans Affairs and National Institutes of Health but does not necessarily represent the views of the VA, NIH, or the United States Government.  
Photos are publicly available from the Defense Visual Information Distribution Service.



# Military Members and Veterans are more likely to engage in risky substance use and develop addiction

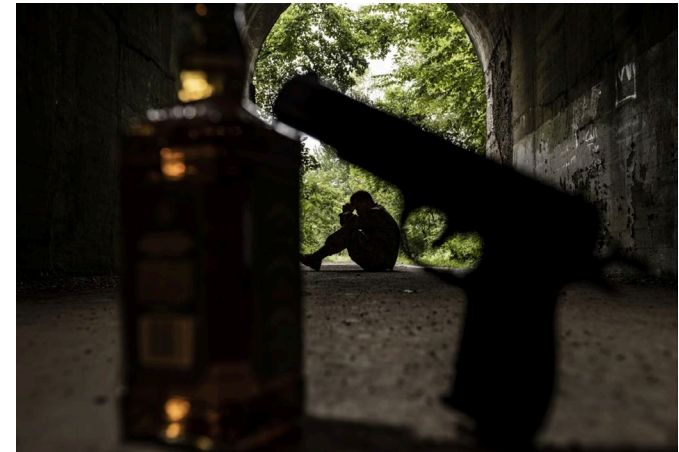
- Institute of Medicine declared substance use in the military a public health crisis
- The military is America's heaviest drinking profession
- Veterans have very high rates of substance use disorders
  - Access to SUD treatment is very low in the DoD
- Military members and Veterans have been disproportionately impacted by the suicide and opioid overdose crises
  - Substance use plays a large role in both crises





# Heavy substance using population with access to and training using firearms

- Military members are trained to use firearms with precision
- 45% of Veterans own a firearm vs. 33% of non-Veterans
- Military members and Veterans are at higher risk for firearm suicide compared to civilians
- 7/10 Veteran suicide deaths are a result of firearm injuries
  - Over 90% of suicide deaths by firearm are from personally owned firearms
  - Firearms are a very deadly means of suicide, particularly if you are trained at using firearms



# Suicide prevention efforts and lethal means safety needed for subgroups at high risk for substance use problems

## Suicide and Traumatic Brain Injury Among Individuals Seeking Veterans Health Administration Services Between Fiscal Years 2006 and 2015

*Trisha A. Hostetter, MPH; Claire A. Hoffmire, PhD; Jeri E. Forster, PhD; Rachel Sayko Adams, PhD, MPH; Kelly A. Stearns-Yoder, MA; Lisa A. Brenner, PhD*

- Veterans with TBI had increased odds of death by firearms
- Veterans with moderate/severe TBI had more than double the odds of firearm suicide compared to suicide by other means



JAMA  
Network | **Open**™

Original Investigation | Psychiatry

### Associations of Military-Related Traumatic Brain Injury With New-Onset Mental Health Conditions and Suicide Risk

Lisa A. Brenner, PhD; Jeri E. Forster, PhD; Jaimie L. Gradus, DMSc, DSc, MPH; Trisha A. Hostetter, MPH; Claire A. Hoffmire, PhD; Colin G. Walsh, MD, MA; Mary Jo Larson, PhD, MPA; Kelly A. Stearns-Yoder, MA; Rachel Sayko Adams, PhD, MPH

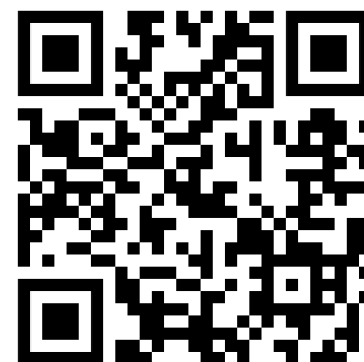
- The largest effect of new onset behavioral health conditions with death by suicide was through new onset SUD and AUD

# Future Directions - What can we learn about firearm related mortality by examining multiple cause of death fields?

- Mortality studies rely solely on underlying cause of death fields
- Alcohol-related mortality doubled when using a more inclusive case definition to examine the true burden of mortality related to suicide, alcohol use, or drug use
- When looking at intentional self-harm firearm deaths, what portion of deaths include alcohol or drug multiple cause of death codes?



Keep it Secure: FIREARM SUICIDE PREVENTION & LETHAL MEANS SAFETY



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Vo  
<https://doi.org/10.1093/aje/kwz344>  
Advance Access

## Original Contribution

Are We Undercounting the True Burden of Mortality Related to Suicide, Alcohol Use, or Drug Use? An Analysis Using Death Certificate Data From Colorado Veterans

Talia L. Spark\*, Rachel Sayko Adams, Claire A. Hoffmire, Jeri E. Forster, and Lisa A. Brenner

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# **Public Mass Shooters and the Interpersonal Theory of Suicide**

## **James Silver, PhD, JD**

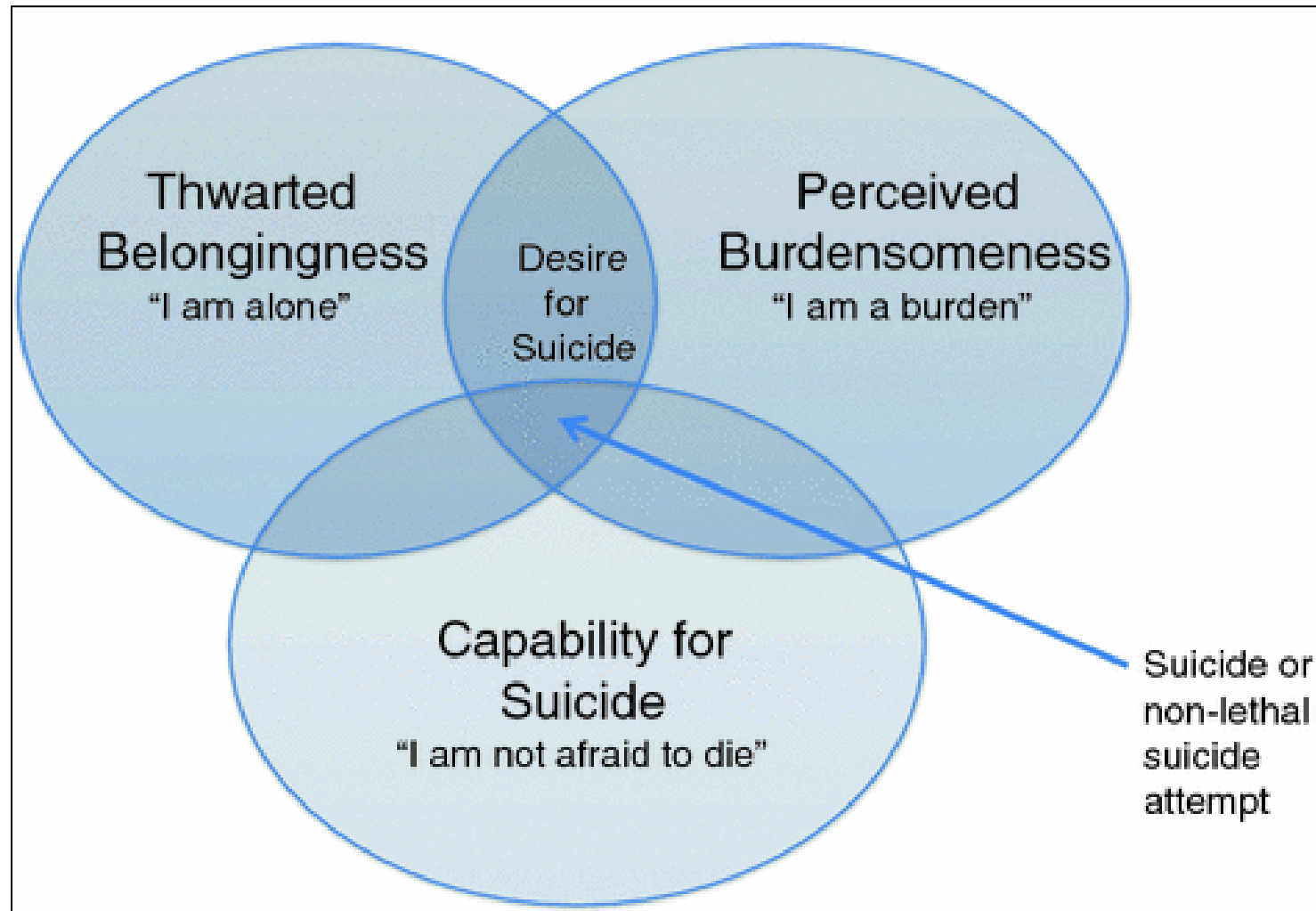
Associate Professor of the Practice  
Department of Applied Social Sciences, Metropolitan College



## Public Mass Shooters and Suicidality

- 4+ killed in public over short time
  - El Paso Walmart
  - Parkland School
  - Las Vegas Music Festival
  - Pulse Nightclub
- Drive the national dialogue about gun violence
- 40% of attackers die by suicide at scene
- *60% of attackers – equivalent of suicide (“Final Act”)*
  - *EX: Parkland Shooter*

# Joiner's Interpersonal Theory of Suicide



## Could Suicidality Be a *Cause*?

- 2022 study comparing children with suicidal ideation to depressed children
- Children with active suicidal ideation were nearly **12 times as likely to express homicidal thoughts** as children without suicidal ideation<sup>2</sup>
- *Does this finding hold for adolescents/adults?*

2. Hennefield, L., Hao, J. M., Joiner, T. E., Whalen, D. J., Giorio, C., & Luby, J. L. (2022). Young children with suicidal thoughts and behaviors more likely to resolve conflicts with violence, homicide, or suicide: A study of internal working models using narratives. *Journal of psychopathology and clinical science*, 131(1), 26.

## The Study

- *Re-think* role of suicidality in public mass shootings
- Create unique dataset/public mass shooters since 2000
- Research Questions:
  - 1. Can IPTS explain differences between attackers who die by suicide and those that commit “final act”?
  - 2. Evidence that suicidality precedes homicidal ideation?
  - 3. Evidence that suicidality is a driver of these attacks?
- Potential: Harness interest in preventing public mass shootings to direct resources to suicide prevention



# **Residential Neighborhood Deprivation and the Risks for Reinjury and Violence Perpetration Among Survivors of Firearm and Stabbing Injuries**

## **Elizabeth Pino, PhD**

Assistant Professor  
Department of Emergency Medicine,  
Boston University Chobanian & Avedisian School of Medicine

# Background and Research Objective

- Survivors of violence are at heightened risk of either being injured again or using violence against others

Among survivors of firearm and stabbing injuries, to determine if the level of neighborhood deprivation is associated with the risk of (1) police encounters for violence perpetration and (2) violent reinjury



Index violent injury

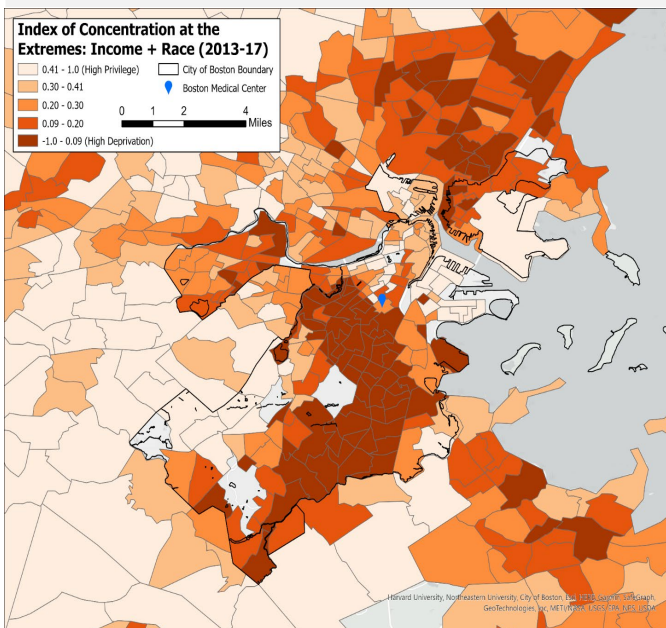
Residential neighborhood deprivation

Adverse outcomes and risk factors

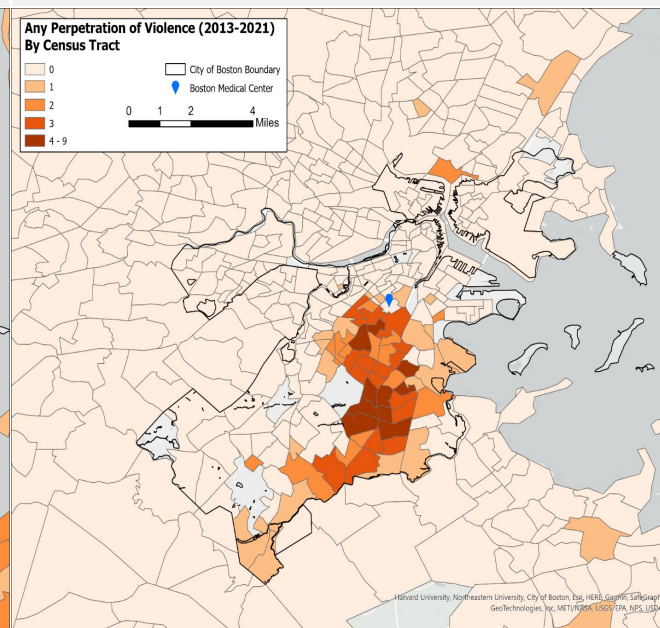


# Outcome 1: Police-Reported Violence Perpetration

## Neighborhood deprivation by census tract



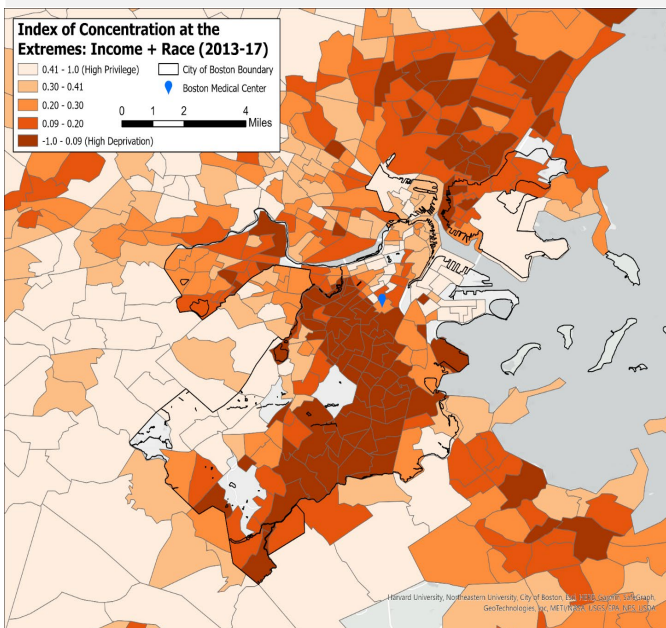
## Frequency of violence perpetration



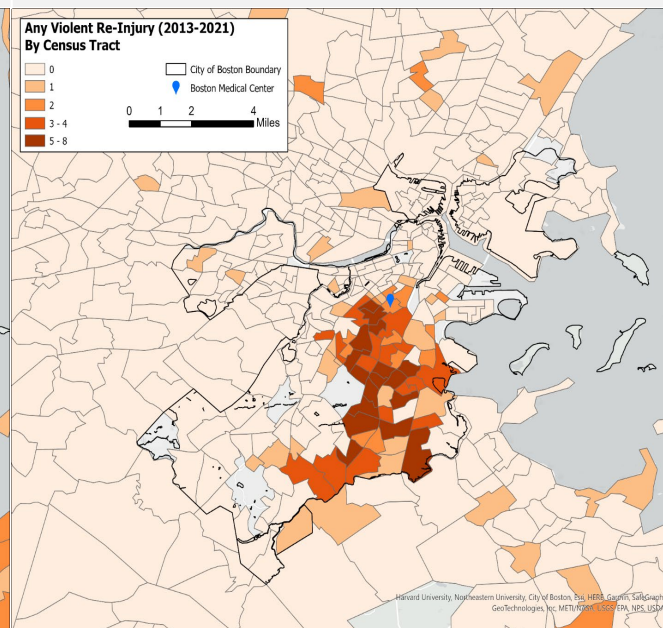
- At 3-years following index injury, there were 161 / 1843 (8.7%) individuals with incidents of alleged violence perpetration.
- For every 10% increase in neighborhood deprivation, there was a **13% increase in risk for violence perpetration**.  
HR=1.13, 95%CI [1.03-1.25], p=0.01
- Patients at highest risk for carrying out violence were **younger, male, and non-Hispanic Black**.

# Outcome 2. Violent Reinjury

## Neighborhood deprivation by census tract



## Frequency of violent reinjury



- At 3-years following index injury, there were 214 / 1843 (**11.6%**) individuals with violent reinjuries.
- For every 10% increase in neighborhood deprivation, there was **no change in risk for violent reinjury**.  
 $HR=1.03$ , 95%CI [0.96-1.11],  $p=0.38$
- Patients at highest risk for violent reinjury had a baseline **diagnosis of substance use disorder**.

# Implications

- For survivors of firearm and stabbing injuries, living in a more economically deprived and socially marginalized area was associated with an increased risk of using violence against others.
- Interventions should include investments into neighborhoods most impacted by violent injuries to help reduce the downstream transmission of violence.

# Future Directions

- Assess the effectiveness of client engagement with VIAP against violent reinjury and violence perpetration outcomes.
- Investigate the relationship between the neighborhood deprivation level of the residential location and injury location in driving gun violence.

# THANK YOU!



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Fairness, and Accountability  
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Measuring Corporate Impacts on  
the Environment & Society  
November 13, 2023 | 4-6 pm

## RESEARCH HOW-TO

Meet the American Association for  
Cancer Research  
October 11, 2023 | 12-1 pm

Meet AFAR and the Hevolution  
Foundation  
October 19, 2023 | 12-1 pm

