ACS COT Firearm Study Informational Webinar

September 21, 2020
The American College of Surgeons Approach to Firearm Injury Prevention

Ronald M. Stewart, MD
Medical Director, Trauma Programs American College of Surgeons
Transformational Trauma System Approach
Firearm Injury Prevention
Conflicting Polar Philosophies

Two Conflicting Stories

• Two contrasting narratives regarding firearms

• Guns = Protection & Freedom

• Guns = Violence and Limitation of Freedom
COT Guiding Principles for Firearm Injury Prevention

1. A medical/public health problem-not a political problem

2. Search for evidenced based violence prevention programs to implement
   567 ACS verified trauma centers in US

3. Forum for civil, collegial and professional dialogue–
   • Centered on developing consensus regarding how best to reduce firearm injuries and deaths
   • Consciously avoid forums or outlets which may lead to polarization
   • Inclusive, engagement with stakeholder groups across spectrum
Is it possible to have a common story that leads to cooperation?
**Common American Narrative**
Inclusive of the Two Conflicting Narratives

- Liberty protected by the US Constitution
- Violence major cause of preventable death & suffering
- Significantly reduce death and disability by:
  - Working together
  - Understand & address underlying causes of violence
  - Make firearm ownership as safe as possible

- Firearm and Violence Narrative
  - Firearms generally harmful
  - Generally unnecessary in civil life
  - Decrease personal liberty because of increased risk of harm
  - Emblem of violence
  - Gun Control translates to Violence Control

- Firearm and Freedom Narrative
  - Firearms generally beneficial
  - Necessary for personal protection and safety
  - Protected, Constitutional right
  - Emblem of freedom
  - Gun Control translates to Freedom Control

“We all own the epidemic of violence in America and courageous leadership is needed. Firearm owners, those who don’t own firearms, advocacy groups across the spectrum, the faith community…and the general public must commit to working together.”

Stewart RM, Kuhls DA, Rotondo MF and Bulger EM
DOI: https://doi.org/10.1016/j.jamcollsurg.2018.04.006
Why?

To eliminate needless suffering and death of our patients, our colleagues and our communities.
We are beginning to understand that how people attempt suicide plays a crucial role in whether they live or die.

Cathy Barber, Harvard Firearm Injury Prevention Center
ACS Committee on Trauma

Approach to Trauma Systems

“Complex Problem Solving”

• Inclusive of all points of view
• Dialogue and consensus centered upon:
  What is the right thing to do for the patient?
• Timely, Structured, Cooperation and Communication
• Bias for action
Improving Firearm Safety
Engage Firearm Owners as a Part of the Solution

Surgeons — many of them gun owners — recommend new gun-safety approaches

“People tend to change or moderate their position on a closely held belief when the prevailing argument comes from a trusted insider.”

Jeremy Faust MD, Washington Post, November 14, 2018
Recommendations from the American College of Surgeons Committee on Trauma’s Firearm Strategy Team (FAST) Workgroup: Chicago Consensus I

**COT Consensus Approach**

1. Promote a public health approach
2. Implement violence prevention programs in ACS trauma centers
3. Foster a forum for civil dialogue with goal of moving toward a consensus regarding interventions aimed at reducing firearm injuries and deaths

Inclusive of all points of view

**FAST Workgroup**

Twenty-two surgeons (608 years cumulative experience caring for injured patients)
Eighteen experienced firearm owners plus 4 ACS/COT leaders
210 firearms owned
5 current NRA members
9 past/present military service
1 law enforcement professional

Consensus approach to develop durable recommendations

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**Common American Narrative**

- Liberty protected by the US Constitution
- Violence is a major cause of preventable death & suffering
- Significantly reduce death & disability by working together to:
  - Understand & address underlying causes of violence
  - Make firearm ownership as safe as possible

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**Recommendations**

1) Robust background check for all purchases and all transfers of firearms (Universal background check)
2) Support firearm registration and implementation of an electronic database for all registered firearms
3) Reassessment of the firearms designated within each of the NFA classifications...with consideration given to recategorization of high capacity, magazine-fed, semi-automatic, high velocity firearms
4) Formal gun safety training for all new gun owners
5) Requirement for safe and controlled firearm storage. Owners not providing reasonable, safe firearm storage are responsible for adverse events related to discharge of their firearm(s)
6) Individuals deemed an imminent threat to themselves or others should have ownership temporarily or permanently restricted based on due process
7) Development of firearm technology that would significantly reduce the risk of self-harm, prevent unintentional discharge, and prevent unintended use
8) Non-partisan research for firearm injury, including prevention, must be federally funded
9) The public, professionals in law enforcement, and the press should take steps to eliminate notoriety of the shooter
10) See something, say something. Recognition of mental health warning signs with early referral to treatment and law enforcement

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DOI: https://doi.org/
Working to Understand and Address Root Causes
Improving Social determinants of health to Attenuate Violence (ISAVE)
Understanding & Addressing Root Causes of Violence

ISAVE

Poverty  📊💰
Inequity  🧑🏾‍👜➡️Hopelessness-Structural Violence
Injustice
Short life expectancy

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Research

• Advocacy for funding to match burden of the disease
• Interface-acute care-public health-mental health
• Violence control research
  – Understanding fundamental causes
  – Develop evidenced based strategies to reduce violence & firearm injury
  – Needs your expertise, leadership and advocacy
• Firearm safety research
  – Culturally competent counseling
  – Safe storage
  – Lethal means safety
  – Technology
Advocate for Research
Immediate Opportunities:

- Public health & medical approach
- *Work together* to reduce firearm injury
  - Understanding and reducing violence
  - Firearm ownership as safe as possible
- Research at a level *to match burden of the disease*
Thank You
Burden of firearm injuries

Frederick P. Rivara, MD, MPH
University of Washington

Deborah A. Kuhls MD, FACS, FCCM
University of Nevada Las Vegas
Firearm deaths in the U.S. over the last 37 years

Deaths
Deaths per 100,000


Rate
Rates of Firearm and MV deaths in the U.S.
Non-fatal firearm injuries in the U.S.

- CDC WISQARS: Based on NEISS probability sample drawn in 1997; data are recognized as being unreliable
- Healthcare Cost and Utilization Project: Not real time; limited fields; based on administrative billing data
- National Violent Death Reporting System (NVDRS): does not capture non-lethal injuries.
- These databases do not collect or report on clinical information such as severity of injuries and their outcomes, nor do they provide data that better contextualize injuries
- The First Report of the Expert Panel on Firearms Data Infrastructure,” published by the NORC, concluded that:
  - “In terms of content, the gaps in knowledge are vast—few of the key policy questions ... can be adequately addressed from existing data to inform evidence-based firearms policymaking.”
There is no nationwide comprehensive public health dataset that provides a robust description of non-lethal firearm injuries, hospitalization characteristics, circumstances leading up to and surrounding the event, risk factors related to the persons involved, and community-level factors that predispose to these risks.
Burden of firearm injuries: Next Steps

Frederick P. Rivara, MD, MPH
University of Washington

Deborah A. Kuhls MD, FACS, FCCM
University of Nevada Las Vegas
Inform a Public Health Approach to Injury Prevention

• Quantify the number of patients, injuries, care resources, disposition and impact on patients
• Better understand the circumstances of firearm injury by Intentionality to inform prevention
  – Unintentional (safety)
  – Intentional self-harm (access)
  – Intentional other-harm (violence)
Inform a Public Health Approach to Injury Prevention

• Identify co-morbidities including mental health and other **individual** risk factors for firearm injuries.
• Identify community risk factors for injury and opportunities for intervention → prevention
  – Primary prevention in community outreach
  – Preventing a “next injury”
Rates of Firearm and MV deaths in the U.S.

A Public Health Approach was used to DECREASE MOTOR VEHICLE Deaths
We can apply an INFORMED Public Health Approach to DECREASE FIREARM Deaths

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Gun Safety and Your Health

A PROACTIVE GUIDE TO PROTECT YOU AND THOSE AROUND YOU

- Safe Gun Handling
- Safe Gun Storage
- Storing Ammunition (Bullets) away from Guns
- Storage at a Safe, Remote Location
- Keep Children and Family Safe
- What to Do When a Friend or Family Member Is at Risk and Has Access to a Gun
- Disposing of an Unwanted Gun

https://www.facs.org/-/media/files/quality-programs/trauma/ipc/gunsafety_brochure.ashx
Study Overview

Avery Nathens, MD, PhD, MPH, FRCPSC, FACS
Principal Investigator
Overview of Study

Study Background

• Awarded by the National Collaborative on Gun Violence Research (https://ncgvr.org/)
  – Mission: To fund and disseminate nonpartisan, scientific research that offers the public and policymakers a factual basis for developing fair and effective gun policies

• Project Investigators:
  – Avery Nathens, MD, PhD, MPH, FRCPS, FACS
  – Deborah Kuhl, MD, FACS, FCCM

• Co-Investigators:
  – Fred Rivara, MD, MPH
  – Ashley Hink, MD, MPH
Summary

- Overarching objectives:
  - Create a nationally representative dataset of predominantly non-lethal firearm injuries
    - Unique platform to better understand both individual and community level risk factors around firearm injury
  - Assess the association between individual-level and community-level risk factors and the circumstances in which injuries occur
- Prospective, multi-center study with ACS TQIP centers
- Collect and submit additional data elements on firearm injuries cared for in trauma centers
  - Demographics, patient risk factors, circumstances of injury, early functional outcome information
Aim 1

Develop a nationally representative dataset of predominately non-lethal firearm injuries treated at trauma centers.

- Additional data elements will include expanded demographics, patient risk factors, circumstances of injury, and outcome information.
- Extend data collection to patients who are discharged from the ED
- Data collection: linked at patient level
- Robust data dictionary
- Data validation upon submission
Describe the risk factors for non-lethal firearm injuries, the circumstances and preceding context in which injuries occur, the severity of injuries, healthcare resource utilization, and functional outcomes at discharge.

- Assess how these domains differ based on injury intent, victim age, and urbanicity
- Assess how victim characteristics, risk factors and circumstances differ between lethal and non-lethal firearm injuries
Explore the association between the circumstances and context of injury with individual and community-level risk factors to identify potential modifiable factors for targeted interventions.

- Link patient data by zip code to community- and neighborhood-level indices:
  - Area Deprivation Index
  - Unmet Needs Score
  - Community Need Index

- Assess social determinants of health and disparities
Develop national estimates of the annual incidence of non-lethal firearm injuries in the U.S.

- Work with University of Washington Institute for Health Metrics and Evaluation to develop estimates and quantify the national, and possibly, global burden of disease for firearm injuries
Which patients will require additional data collection?

• All firearm injury patients
  – Qualifying for NTDS and treated/discharged from the ED
  – Any firearm injury, primary mechanism or otherwise

• Admissions starting in early 2021 and continuing for up to 12 months
What additional data will be collected?

• Leveraging NTDS as much as possible
• Additional data elements:
  – New information or information in a new format
  – Structured like NTDS elements, including validation
• 21 – 30 additional data elements
• NCGVR data dictionary provided prior to enrollment
• Data elements across 4 domains:
  – Demographics
  – Risk factors
  – Circumstances of injury
  – Early functional status and/or healthcare needs at discharge
**EMPLOYMENT STATUS**

**Definition**
Employment and/or student status of the patient at the time of injury.

**Element Values**
1. Employed
2. Homemaker
3. Unemployed
4. Unreported employment
5. Student
6. Retired

**Additional Information**
- Report all that apply.
- *Unreported employment* refers to jobs or activities sometimes referred to as “off the books” or “cash under the table.” These roles are often not reported to the government or taxable, and often not protected by safety, protection or other labor laws. Examples include babysitting or informal childcare, day farm or construction labor, migrant farm work, illicit labor (prostitution, dealing illicit substances), and housework or yardwork not associated with an employer.

**Data Source Hierarchy Guide**
1. H&P
2. Initial consult notes
3. Social work
4. Physical and occupational therapy
ADVERSE EXPERIENCES AND/OR EXPOSURES TYPE

Definition
Patient's Adverse Experiences and/or Exposures type(s).

Element Values

1. Emotional abuse
2. Physical abuse
3. Sexual abuse/sexual assault
4. Mother treated violently (exposure to IPV)
5. Substance abuse in household
6. Mental illness in household
7. Parental separation or divorce
8. Incarcerated household member
9. Emotional neglect
10. Physical neglect
11. Exposure to community violence
12. Loss of a parent or primary caregiver as a child
13. Homelessness or housing insecurity
14. Food insecurity
15. Major illness or injury
16. Being in child protective custody

Additional Information

- Report all that apply.
- Definitions:
  - Emotional abuse: A parent, stepparent, or adult living in your home swore at you, insulted you, put you down, or acted in a way that made you afraid that you might be physically hurt.
  - Physical abuse: A parent, stepparent, or adult living in your home pushed, grabbed, slapped, threw something at you, or hit you so hard that you had marks or were injured.
  - Sexual abuse/sexual assault: An adult, relative, family friend, or stranger who was at least 5 years older than you ever touched or fondled your body in a sexual way, made you touch his/her body in a sexual way, attempted to have any type of sexual intercourse with you.
  - Mother treated violently (exposure to IPV): Your mother or stepmother was pushed, grabbed, slapped, had something thrown at her, kicked, bitten, hit with a fist, hit with something hard, repeatedly hit for over at least a few minutes, or ever threatened or hurt by a knife or gun by your father (or stepfather) or mother's boyfriend.
  - Substance abuse in the household: A household member was a problem drinker or alcoholic or a household member used street drugs.
  - Mental illness in the household: A household member was depressed or mentally ill or a household member attempted suicide.
  - Parental separation or divorce: Your parents were ever separated or divorced.
  - Incarcerated household member: A household member went to prison.
  - Emotional neglect: Someone in your family helped you feel important or special, you felt loved, people in your family looked out for each other and felt close to each other, and your family was a source of strength and support.
  - Physical neglect: There was someone to take care of you, protect you, and take you to the doctor if needed; you didn’t have enough to eat, your parents were too drunk or too high to take care of you, and you had to wear dirty clothes.
  - Exposure to community violence: Witness or hearing gun or other forms of violent assault in the community (non-family) or knowing a friend or family member who were injured or killed by community violence.
• Circumstances of Injury
  – Intent of Injury
  – Setting of Injury
  – Relationship to Shooter
  – Type of Firearm Used
  – Owner of Firearm Used (*Self-inflicted and Unintentional only*)
  – Firearm Storage (*Self-inflicted and Unintentional only*)
  – Context of Injury (categorized by Intent of Injury)
  – Context of Injury Description
• Early Functional Status and/or Healthcare Needs at Discharge
  – Functional Status
  – Rehabilitation/Post-Discharge Needs
  – Home Health Needs
  – Psychosocial Ancillary Services
• Notable features:
  – One narrative element (Context of Injury Description) – caution against submitting identifying information
  – Other narratives abstracted into response values (e.g. Adverse Experiences and/or Exposures Type)
  – May require obtaining more information from patient, or obtaining information from other data sources not commonly accessed
Additional Data

- Notable features:
  - Dedicated elements (e.g. Intent; Setting) instead of ICD-10 due to importance and specificity
  - Similarities with NTDS elements (e.g. NCGVR Mental Illness vs. NTDS Mental/Personality Disorders) may require close attention
Additional Data

• Data Linkage
  – Linked with NTDS data and external community-level datasets
  – Patient IDs **must match** between NTDS and NCGVR
  – Incident/Home ZIP best at 9 digits
• NTDS elements on non-NTDS patients
  – For patients treated and discharged from the ED (non-NTDS), must report the following NTDS elements:
    • Demographics
    • Incident/Home ZIP
    • Injury, Arrival, Discharge Dates/Times
    • ED/Hospital Vitals
    • AIS
    • Payment
    • Disposition
How will data be collected and reported?

• NTDS data elements via the existing process
• All additional data elements via a web-based, direct-data-entry platform provided by the ACS and integrated with the TQP Data Center
• Data entered to the platform at discharge and linked with NTDS data once submitted
Data Collection

• Highlights
  – Web-based and secure; used to submit data to ACS already
  – No changes to NTDS process and no additional burden of work from registry products
  – No additional cost for access
  – No data import function – manually data entry in the platform
  – Access to your data in the platform for the duration
  – ZIP and Patient ID needed for linkage
Summary

- Additional 21 – 30 data elements collected on all firearm injury patients, starting with admissions in early 2021 and continuing for up to 12 months.
  - Also ~30 NTDS elements on patients treated and discharged from the ED
- Collected and reported using a web-based, direct-data-entry platform provided without cost by the ACS
Benefits of Participation

Ashley Hink, MD, MPH
Co-Investigator
Assistant Professor, Division of General & Acute Care Surgery
Medical University of South Carolina
Opportunities for Trauma Center and Community-Level Studies

• Descriptive data of your patient population... ability to utilize *your* data & *aggregated* data for further analysis
  – Epidemiology and burden of non-fatal firearm injuries
  – Comparative analysis to other injured patient populations
  – Subgroup analysis
  – Geospatial analysis of firearm injuries, heat maps
  – Services provided, health services research (costs, re-admissions, etc.)
  – Pre-post analysis for interventions, community changes, policy changes
  – Long-term outcomes
Where is the Problem? Why is there a Problem?

Laskecki et al, JOT 2018

Area Deprivation Index
Income, education, housing quality and employment

https://www.neighborhoodatlas.medicine.wisc.edu/#about-anchor
Inform Needs of Your Patient Population – Opportunities for Prevention, Intervention & Support

• What are the common risks (individual & community)?
• What are the common circumstances?
• Where are most injuries occurring in the community?
• What services might be needed to minimize risk of recidivism and improve recovery?

Needs Assessment for Hospital & Community Violence Intervention Programs
Inform Efforts Community Efforts to Improve Social Determinants of Health

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60 Cases: 75% of Incident and Risk Data Available

Enhancing Firearm Injury Data – Can Trauma Centers Fill the Holes? Hink et al, 2020

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Deconstructing Non-Fatal Firearm Injury Data

How Could this Help Inform Prevention & Intervention?

Assault Injuries

- Community Violence: 35%
- Interpersonal Conflict: 15%
- IPV: 15%
- Bystander: 15%
- Unknown: 10%
- Not Assessed: 10%

Public
Firearm Access

Mental Illness

Substance Abuse

History of Assault

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How Does This Data Tell A Story?

And Show Opportunities for Improvement?

Who
- 59 years-old

Risks
- IPV (emotional, controlling)
- Prior Suicidal Threat (ED)
- Firearm in Home

Incident
- Husband Shot Patient During Argument
- Handgun (owned by Husband)

Evaluation
- Psych Rehab
- Psychiatry
- Safety Assessment

Follow-up
- Multiple Outpatient Visits
- Rehab Medicine

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Linkage to Additional Local Data

- Limitation of firearm injury data... datasets don’t talk
- Ability to aggregate your center data with local police, coroner data
  - Complete epidemiologic burden
    - Shots fired + threats + assaults + mortality
  - Criminal justice outcomes
  - Firearm data
    - Origin of gun? Legality? Owner? Stolen?
Contribution to Improving Understanding of Burden & Risks of Non-Fatal Firearm Injuries in the U.S.

• Fill Major Gaps in U.S. Data
  – Descriptive details of patients, risks, circumstances of non-fatal firearm injuries
  – Non-fatal firearm injury national estimates

• Why us?
  – We are their caregivers, access to detailed data
  – 70% of GSW’s treated at U.S. trauma centers
  – Capture under-studied, communities, patients
  – Advance science, prevention & recovery

Benefits of Participation

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Next Steps

Tamara Kozyckyj, MPH
ACS Staff
Next Steps

With Your Center
• Obtain approval from your leadership
• Identify a center lead for the project
• Share information on study with staff
• Check your center IRB requirements

With TQP/COT
• Confirm study participation by completing survey form
• Participate in all additional data collection training offered by TQP
Confirm Participation

Confirm your center’s participation in the study by November 16

- Must complete Survey Monkey form to indicate intent to participate:
  - https://www.surveymonkey.com/r/FTPZNH7
Check your Center Specific Requirements

• The study funder requires ACS COT to apply for IRB
  – We are using a third-party Central IRB system, Advarra, which will supplement existing BAA/DUA’s in place with each TQIP center
Important Dates

• Confirm participation by Monday, November 16
  – [https://www.surveymonkey.com/r/FTPZNH7](https://www.surveymonkey.com/r/FTPZNH7)

• Questions? Email traumaquality@facs.org