Creating consensus: Developing a firearm injury research agenda

Megan Ranney, MD, MPH
Associate Professor of Emergency Medicine
Alpert Medical School, Brown University
@meganranney
Disclosures

• Research support from NIH for violence prevention research (including as part of the FACTS consortium)
• SAEM Board of Directors
• Chief Research Officer of AFFIRM
What does it mean to create consensus?
Priorities for Research to Reduce the Threat of Firearm-Related Violence

In 2010, more than 105,000 people were injured or killed by firearms in the United States as the result of a firearm-related incident. Numerous highly publicized mass shootings in Newtown, CT; Aurora, CO; Oak Creek, WI; and Tucson, AZ, have propelled the American public’s interest in protecting our children and communities from the harmful effects of firearm violence. While many Americans legally own firearms for a variety of activities, legal and well-documented firearm violence poses a serious threat to public safety and well-being.

In January 2013, President Barack Obama issued 23 executive orders directing federal agencies to improve knowledge of the causes of firearm violence, what might help prevent it, and how to minimize its impact on public health. To do so, the commissions directed to the Centers for Disease Control and Prevention (CDC) to, along with other federal agencies, immediately begin identifying the next pressing problems in firearm violence research.

To help identify important research topics, the CDC and the CDC Foundation asked the Institute of Medicine to collaborate with the National Research Council to examine a committee tasked with developing a research agenda that focuses on three of the most pressing problems in firearm violence research:

- Characteristics of firearm violence
- Interventions and strategies for reducing firearm violence
- Gun safety technology
- Video games and other media
- Risk and protective factors
Firearm-Related Injury and Death in the United States: A Call to Action From 8 Health Professional Organizations and the American Bar Association

Consensus Statement

American Association for the Surgery of Trauma statement on firearm injuries

SPECIAL REPORT

Firearm injury prevention: A consensus approach to reducing preventable deaths

Policy Statement

AMA Calls Gun Violence “A Public Health Crisis”

For immediate release: Jun 14, 2016
Limited body of research:

53 articles examine clinician attitudes/practice patterns re: firearm injury

7 articles examine patient attitudes to firearm screening

12 articles assess patient-level interventions (only 6 RCTs)
Who are the stakeholders?

ACEP Technical Advisory Group

• Harrison Alter, MD
• Christopher E. Barsotti, MD
• Marian (Emmy) Betz, MD, MPH
• Jesse Borke, MD
• Edwin D. Boudreaux, PhD
• Kathleen Brown, MD
• Patrick M. Carter, MD
• Magdalena Cerdá, PhD, MPH
• Bianca Frisby, MPH
• Peter W. Crane, MD, MBA
• Rebecca Cunningham, MD
• Jahan Fahimi, MD
• Eric W. Fleegler, MD
• Jonathan Fletcher, MD
• Brian Geyer, MD, PhD
• Stephen Y. Liang, MD
• Matthew J. Miller, MD, MPH, ScD
• Robert E. O’Connor, MD, MPH (ACEP Board of Directors Liaison)
• Andrew Papachristos, PhD
• Megan L. Ranney, MD, MPH
• Fred Rivara, MD, MPH
• Ali Rowhani-Rahbar, MD, MPH, PhD
• Manish N. Shah, MD, MPH
• Jeffrey G. Swanson, MA, PhD
• Jody A. Vogel, MD
• Muhammad Waseem, MD, MS
• Garen Wintemute, MD, MPH
Method: Nominal group technique

1) idea generation
2) round-robin presentation
3) structured discussion
4) ranking of ideas
Phase 1: Structuring the Process

5 Types of Firearm Injury

- self-directed violence (suicide and attempted suicide)
- intimate partner violence
- peer (non-partner) violence
- mass violence
- unintentional ("accidental") injury

Haddon Matrix

https://injuryprevention.bmj.com/content/4/4/302
Phase 2: Generation, Discussion, and Iterative Refinement of Questions

- Literature review: 61 questions
- Round Robin: 222 questions
- Refinement: 63 questions
Phase 3: Finalization

Internal online rank-order system to establish priority: 63 questions

Consensus by eliminating questions that met predetermined criteria: 59 questions

In-person vote and presentation to external stakeholders 59 questions
Final Questions

• Highlighted questions that are directly relevant for clinical practice, vs those that are not

• 16 of 59 mapped to IOM 2013 reports
Final Questions

Directly Relevant to ED Clinical Practice

1. In which health care settings (primary care, ED, psychiatry, out-of-hospital, etc) are firearm injury prevention screening and interventions feasible, acceptable, effective, and cost-effective?

2. Which screening and intervention modalities (eg, electronic, face to face, written) are effective for each of the key domains in firearm injury research?

3. What are the moderators of acceptability and effectiveness of screening and interventions (eg, demographics, state-specific legislation, reasons for gun ownership, political views, specific patterns of substance use) for clinicians and patients?

4. What types of tailoring increase screening and interventions' acceptability and effectiveness? For whom?

5. Should screening to assess the risk of (each type of) firearm injury be universal? If selective, what factors (eg, childhood injury patterns, history of ED visits, demographics, previous violence, mental illness, specific patterns of substance use) need to be considered for a valid assessment of firearm injury risk?

6. What is the effect of various types of interventions on both short- and long-term outcomes (eg, PTSD, chronic pain, future injury) after a firearm injury?

7. What are the positive and negative outcomes of firearm injury prevention screening and interventions?

8. What are the confidentiality, legal, regulatory, and compliance issues that affect research and clinical care in regard to firearm injuries?

9. How can health care providers most effectively engage and collaborate with firearm owners on the topic of firearm injury?

General Emergency Medicine–Relevant Research

10. To what extent is the prevention of firearm violence (compared with prevention of other types of injury or violence) unique?

11. What is the relative effectiveness of educational, engineering, enforcement, and economic interventions to prevent firearm injury? Does the effectiveness of these programs differ for specific subgroups, eg, perpetrators vs victims?

12. What is the community-level effect of firearm injury and exposure (including costs, biomedical outcomes, psychological outcomes, and social/economic conditions)?

13. What is the effect of the community on firearm injury patterns within and across different types of injury?

14. What types of research approaches (eg, enhanced data reporting systems) would improve the study of firearm injury?

15. What are the right outcome measures for firearm injury research? (Decreased deaths? Decreased nonfatal injuries? Improved safe storage? Decreased firearm carriage? Other?)

16. To what extent do policies and their variable enforcement affect risk of each subtype of firearm injury on the level of both the individual and the population?

17. What are the risk factors for IPV-related firearm injury among both victims and perpetrators?

18. How do IPV events differ between gun owners and nongun owners?

19. Among gun owners, what determines whether a gun is used in an IPV event?

20. What is the effect of IPV-related firearm legislation, such as firearm forfeiture programs for people under an IPV restraining order, on IPV incidence and severity?
Figure 4. Peer violence–related firearm injury research questions. *Maps to priorities similar to that of the Institute of Medicine/National Research Council’s 2013 consensus report.12

Directly Relevant to ED Clinical Practice
1. What is the role of acute ED care (e.g., staff interactions, pain medication, invasive procedures) in development of posttraumatic stress syndrome?

General Emergency Medicine–Relevant Research
2. What is the relative influence of community-based violence interventions, community policing, and other community-based prevention efforts on firearm-related assaults?*

3. What is the effect of social media use, including cyber bullying, on the incidence/likelihood of firearm assault?*

4. What approaches are most effective in reducing racial and ethnic disparities in firearm-related assault?*

5. To what extent do firearm injury events cluster geospatially in relation to retaliation from previous violence, as well as to place-based environmental factors (e.g., alcohol outlets, green space)?*

6. What factors influence the likelihood of someone’s carrying or acquiring a firearm?*

7. What is the relationship between violence exposure, PTSD, and future firearm acquisition?*

Figure 6. Unintentional-injury–related firearm injury research questions. *Maps to priorities similar to that of the Institute of Medicine/National Research Council’s 2013 consensus report.12

Directly Relevant to ED Clinical Practice
1. How can emergency care providers effectively interact with parents and patients to enhance their knowledge about and increase their responsiveness to preventing unintentional firearm injury, including practicing safe gun storage?

General Emergency Medicine–Relevant Research
2. What are the risk factors for unintentional firearm injury among specific demographic subgroups?*

3. What are the knowledge, attitude, and beliefs of key stakeholders that may facilitate successful individual- and community-level interventions to prevent unintentional firearm injury?

4. How do safe storage methods help prevent unintentional firearm injuries?*

5. What specific methods are most effective in reducing the risk of sustaining unintentional firearm injuries?

6. What effect do gun technologies (e.g., smart guns, personalized guns) have on the risk of unintentional firearm injury?*

7. How do unintentional firearm injury survivors’ psychological outcomes differ from that of survivors of other types of gun injuries?

Figure 5. Mass violence–related firearm injury research questions. *Maps to priorities similar to that of the Institute of Medicine/National Research Council’s 2013 consensus report.12

Directly Relevant to ED Clinical Practice
1. What definition of mass violence is clinically relevant to acute and episodic care?

2. Are there specific signs, symptoms, or types of presentation that should trigger a clinician’s safety concern for more than one person (besides the patient him/herself)?

3. To what degree is a patient’s firearm access relevant to clinical decisionmaking about risk of mass violence?

4. What are the knowledge, attitudes, and beliefs of clinicians that may facilitate or impede assessment of risk of mass violence?

5. Does physician level of concern for mass violence correlate with actual risk of mass violence?

6. Is the threat of violence in the ED setting a sentinel event for completed violence (i.e., the same clinical/longitudinal construct)?

7. To what extent do active shooter plans and infrastructure changes (bulletproof glass, metal detectors, emergency medical services protocols, etc.) affect incidence of and morbidity/mortality from ED mass shooting events?

General Emergency Medicine–Relevant Research
8. Are there particular firearm-related characteristics (e.g., firearm capacity, amount of time since firearm acquisition) that correlate with risk of mass violence?

9. What is the epidemiology of PTSD, anxiety, depression, and other mental health disorders among communities and providers exposed to mass violence?*
A Consensus-Driven Agenda for Emergency Medicine Firearm Injury Prevention Research

Megan L. Ranney, MD, MPH*; Jonathan Fletcher, MD; Harrison Alter, MD, MPH; Christopher Barsotti, MD; Vikhyet S. Bebarta, MD; Marian E. Betz, MD, MPH; Patrick M. Carter, MD; Magdalena Cerda, DrPH, MPH; Rebecca M. Cunningham, MD; Peter Crane, MD, MBA; Jahan Fahimi, MD, MPH; Matthew J. Miller, MD, MPH; Ali Rowhani-Rahbar, MD, MPH; Jody A. Vogel, MD, MSc; Garen J. Wintemute, MD, MPH; Muhammad Waseem, MD, MS; Marish N. Shah, MD, MPH; on behalf of the ACEP Technical Advisory Group on Firearm Injury Research, a Subcommittee of the ACEP Research Committee

*Corresponding Author. E-mail: mranney@lifespan.org, Twitter: @meganranney.

**Study objective:** To identify critical emergency medicine–focused firearm injury research questions and develop an evidence-based research agenda.

**Methods:** National content experts were recruited to a technical advisory group for the American College of Emergency Physicians Research Committee. Nominal group technique was used to identify research questions by consensus. The technical advisory group decided to focus on 5 widely accepted categorizations of firearm injury. Subgroups conducted literature reviews on each topic and developed preliminary lists of emergency medicine–relevant research questions. In-person meetings and conference calls were held to iteratively refine the extensive list of research questions, following nominal group technique guidelines. Feedback from external stakeholders was reviewed and integrated.

**Results:** Fifty-nine final emergency medicine–relevant research questions were identified, including questions that cut across all firearm injury topics and questions specific to self-directed violence (suicide and attempted suicide), intimate partner violence, peer (nonpartner) violence, mass violence, and unintentional (“accidental”) injury. Some questions could be addressed through research conducted in emergency departments; others would require work in other settings.

**Conclusion:** The technical advisory group identified key emergency medicine–relevant firearm injury research questions. Emergency medicine–specific data are limited for most of these questions. Funders and researchers should consider increasing their attention to firearm injury prevention and control, particularly to the questions identified here and in other recently developed research agendas. [Ann Emerg Med. 2017;69:227-240.]
Yes, You Can: Physicians, Patients, and Firearms

Garen J. Wintemute, MD, MPH; Marrian E. Betz, MD, MPH; Megan L. Rainey, MD, MPH

Article, Author, and Disclosure Information

Abstract

Physicians have unique opportunities to help prevent firearm violence. Concern has developed that federal and state laws or regulations prohibit physicians from asking or counseling patients about firearms and disclosing patient information about firearms to others, even when threats to health and safety may be involved. This is not the case. In this article, the authors explain the statutes in question, emphasizing that physicians may ask about firearms (with rare exceptions), may counsel about firearms as they do about other health matters, and may disclose information to third parties when necessary. The authors then review circumstances under which questions about firearms might be most appropriate if they are not asked routinely. Such circumstances include instances when the patient provides information or exhibits behavior suggesting an acutely increased risk for violence, whether to himself or others, or when the patient possesses other individual-level risk factors for violence, such as alcohol abuse. The article summarizes the literature on current physician practices in asking and counseling about firearms, which are done far less commonly than recommended. Barriers to engaging in those practices,
<table>
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<tr>
<th>Condition</th>
<th>Examples</th>
<th>How to Respond When Patients Have Firearm Access</th>
</tr>
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<tbody>
<tr>
<td>Acute risk for violence to self or others (based on information or behavior)</td>
<td>Suicidal ideation or intent, Homicidal ideation or intent</td>
<td>This is an emergency. Act promptly to ensure safe storage, in cooperation with patient if possible. If necessary, disclose to others who are able to reduce risk (family, caregivers, psychiatric services, law enforcement)</td>
</tr>
<tr>
<td>Individual-level risk factors for violence to self or others or unintentional firearm injury</td>
<td>History of violence, Alcohol or drug abuse, Serious mental illness, especially: In combination with substance abuse or violence During acute exacerbations After violent victimization Conditions impairing cognition and judgment</td>
<td>Counsel on safe storage (5 Ls* or similar). Counsel on risk reduction. When capacity is diminished, consider disclosure to others who are able to reduce risk</td>
</tr>
<tr>
<td>Member of demographic group at increased risk for violence to self or others or unintentional firearm injury</td>
<td>Middle-aged and older white men, Young African American men, Children and adolescents</td>
<td>Counsel on safe storage (5 Ls* or similar). Counsel on risk reduction. For minors, involve parents</td>
</tr>
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* Locked, Loaded, Little children, feeling Low, Learned owner. If the patient indicates that a firearm is in the home, questions on the following topics should be asked: "Is it loaded?" "Is it locked?" "Are there little children present?" "Is the operator feeling low?" "Is the operator learned about firearm safety?" and "Is the operator experiencing any type of cognitive impairment?" (77, 78).
When should I engage with my patients about firearms?

There are a variety of clinical scenarios in which it may be useful to engage with patients about firearms. But these conversations are particularly important when there is a potential risk of gun-related injury. These risk factors include if someone in the patient’s household is a young child, is a teenager, suffers from suicidal thoughts or depression, has a history of violence, or suffers from a condition that results in an altered mental state such as drug addiction or dementia.

How should I approach conversations with my patients about guns?

Your patients will have differing backgrounds and views when it comes to guns. Engaging in a conversation may be difficult, but we encourage you to take steps to have the discussion. Though the method of discussion will be factually and clinically specific, here are some general thoughts about how best to avoid a confrontational dialogue and provide clinically appropriate suggestions:

- Focus on health. As a health care expert, you are equipped to advise patients about the potential health impact of guns and collaboratively brainstorm ways to reduce risk.
- Provide context for the questions. For example, include questions about firearms in routine screening regarding household hazards for "Do you have a gun?" Instead, you could say, "Some of my patients have guns at home, and some gun owners with suicidal thoughts choose to make their guns less accessible. Are you interested in talking about that?"
- Consider starting with open-ended questions to avoid sounding judgmental (e.g., "Do you have any concerns about the accessibility of your gun?" instead of "Is your gun safely secured?").
- Meet patients where they are. Where there is a risk, see if you can brainstorm harm-reduction measures with the patient, as opposed to prescribing one specific solution. For example, rather than advising a patient to get rid of a gun, you could suggest that there are a number of different ways to make guns less accessible, ranging from selling/surrendering the gun to disassembling, to temporarily storing the gun outside the home.

Relevant Massachusetts law
GL c. 19A, § 15
GL c. 19C, § 8
GL c. 119, § 11A
GL c. 123, § 36

Relevant Federal law
45 C.F.R. 164.508
45 C.F.R. 164.532(c), (d), (f), (j)
45 C.F.R. 162.302(b)(3)

Health and Human Services has clarified that "the provider is presumed to have had a good faith belief when his or her beliefs are based upon the provider's actual knowledge (i.e., based on the provider's own interaction with the patient) or reliance on a credible representation by a person with
THOUGHTS-FEELINGS-ACTIONS TRIANGLE

FEELINGS

THOUGHTS

ACTIONS

iDOVE

WEEK 1: This wk we'll be texting abt the triangle (thoughts-feelings-action). Remember, you CAN handle negative thoughts & feelings!

Hi, this is iDove. How are you feeling today? (1= really bad, 5=great).

REMEMBER: 1+2=3 --> Your feelings are a result of what you THINK and what you DO. You may be able to think or act your way to a better day tmrw :)

Talk it out with someone you trust: a teacher, friend, family
Mortality Rate vs Funding for 30 Leading Causes of Death in the United States. HIV indicates human immunodeficiency virus. Shaded areas indicate 95% CIs. Plotting is on a log-log scale. Funding represents the total funding awarded over the years 2004 to 2015. Dollar amounts have not been corrected for the year in which they were reported.

2004-2015: Only 1.6% of predicted funding ($1.4 billion predicted vs $22 million observed)

Mortality Rate vs Funding for 30 Leading Causes of Death in the United States. HIV indicates human immunodeficiency virus. Shaded areas indicate 95% CIs. Plotting is on a log-log scale. Funding represents the total funding awarded over the years 2004 to 2015. Dollar amounts have not been corrected for the year in which they were reported.
Fatality and Severity of Firearm Injuries in a Denver Trauma Center, 2000-2013

Gunshot wounds are the only type of traumatic injury with INCREASING case-fatality rates.
A research agenda is just an agenda without funding & action...
Over the past 2 days, hundreds of doctors have shared heartbreaking accounts of how #gunviolence is a #publichealth issue. These are the stories of #docs4gunsense ... May their words make a difference.

@choo_ek @physicianwomen @darakass @gitapensa

10:18 PM - 26 Feb 2018

640 Retweets 824 Likes

The result of a bullet ricocheting inside the skull and destroying the brain on CT scan. The worst trauma I have seen. GUNS ARE A PUBLIC HEALTH ISSUE – Gen Geller MD, NY #docs4gunsense @drangeneller

3 Retweets 44 Likes
Questions?

Megan Ranney, MD, MPH
@meganranney
Megan_ranney@brown.edu