



Invited Commentary | Emergency Medicine

# The Research Agenda for Stop the Bleed Beyond Focused Empiricism in Prehospital Hemorrhage Control

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We live in times when public health challenges have become a looming presence in daily life. Although infectious disease is currently foremost in public awareness, we are reminded that many other threats remain. In the United States, trauma continues to be the leading cause of mortality for people younger than 45 years. Mass casualty shooting events are one of the most visible manifestations of the toll of firearm violence. In *JAMA Network Open*, Goralnick et al<sup>1</sup> present their comprehensive vision for research into the efficacy and effectiveness of prehospital hemorrhage control by civilian lay responders.

In response to the Sandy Hook Elementary School shooting of 2012, the American College of Surgeons convened the Hartford Consensus Conference, a meeting of experts from the medical, emergency medical services, fire and rescue, law enforcement, and military communities to improve survival of such events. It was noted at the time that these events were uncommon but horrific. Building on the success of Tactical Combat Casualty Care in the US military, principles of hemorrhage control were adopted for broad civilian application, resulting in the Bleeding Control Course. A concerted effort by this broad coalition has resulted in a claim of more than 1 million civilians trained worldwide in principles of hemorrhage control under the umbrella of "Stop the Bleed."<sup>2</sup>

In a 2016 *JAMA* commentary, Berwick et al<sup>3</sup> praised this innovation born of necessity: "That urgency was inconsistent with reliance on slow and costly clinical trials to inform improvements in trauma care practices."<sup>3</sup> Instead, the Military Health System "embrace[d] a culture of continuous performance improvement and a more agile approach to advancing combat casualty care."<sup>3</sup> The authors hold up military medicine as putting the learning health framework into practice even before the Institute of Medicine described it. The results speak for themselves, with only 9.3% of wounded service members dying of their injuries compared to 23% during the Vietnam war.

More recently however, it has been noted that there may not be a broad applicability of these skills. One recent study<sup>4</sup> cited a 4.6% incidence of firearm injuries that would have benefitted from the application of a tourniquet. To counter this, others cite benefits to empowering bystanders.<sup>5</sup> To address the knowledge gaps involved in the Stop the Bleed program, Goralnick and collaborators<sup>1</sup> assembled a panel of experts representing surgery, military medicine, emergency medicine, and implementation experts. They explicitly attempted to look broadly, not only on the individual medical intervention, but also on its broader psychological and social implications.

Facing a future with multiple looming threats and clear economic constraints, it is more important than ever to evaluate the effectiveness of these large-scale health initiatives. By their broad, well-considered evaluation, Goralnick et al<sup>1</sup> have shown a way forward in evaluating the implications of this prehospital intervention and creating a framework for a truly learning trauma care system.

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## ARTICLE INFORMATION

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