

# Military data supporting damage control resuscitation has altered civilian practice

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A new study that surveyed Trauma Medical Directors (TMD's) at 245 trauma centers has found that damage control resuscitation (DCR) practices that originated in military settings have been widely adapted in civilian practices across the United States. The study, "Military to civilian translation of surgical battlefield innovations in surgical trauma care," is published in the December issue of *Surgery*.

The study found that the majority (67.8 percent) of responding TMD's indicated routine use of a blood product ratio of 1:1:1 (packed [red blood cells](#): frozen fresh plasma: platelets). Usage of this ratio, which emulates the natural ratio of components in whole blood, has been shown to increase patient survival rates. Usage of the ratio originated in military settings, where whole blood is typically more readily available. Additionally, more than 95% of responding TMD's had adopted a written massive transfusion protocol (MTP). Military influence was directly credited in the majority of cases. TMD's reported that military data supporting DCR has significantly altered civilian practice at their institutions and that this strategy is now strongly practiced in large and small [trauma centers](#) alike.

This study is published just months after the Institute of Medicine has established an ad hoc committee, intended to understand the "military [trauma care](#)'s learning health system and its translation to the civilian sector."

"Historically, many improvements in trauma care have been observed

during war and innovations made on the battlefield due to the large and concentrated number of severely injured patients," explained Colonel Lorne Blackbourne, former commander of the U.S. Army Institute Of Surgical Research and last author of the study. "The objective of this work in particular was to gauge the extent to which recent battlefield innovations used in the conflicts in Iraq/Afghanistan have been adapted to civilian practice. The U.S. military is honored to make even a small contribution to the improvement in civilian trauma care-from which the U.S. military has gained immense advancements due to the tireless efforts in research in civilian trauma during the times of peace."

"Historically, improvements in operative trauma care have been driven by war and innovations on the battlefield," explained Colonel Lorne Blackbourne, commander of the U.S. Army Institute of Surgical Research and last author of the study. "The objective of this work in particular was to gauge the extent to which recent battlefield innovations used in the conflicts in Iraq/Afghanistan have shaped civilian practice."

To determine which interventions to include, the study's authors gathered an expert physician/surgeon panel, consisting of representatives from both military and civilian trauma and the emergency medical field. Using a modified Delphi method, the panel collectively identified four types, or domains, of interventions for which the military had published significant clinical data: (1) DCR (2) tourniquet use, (3) use of hemostatic agents, and (4) prehospital interventions, including intraosseous catheter access and needle thoracostomy.

Based on panel recommendations, a 47-question survey was designed and administered to TMD's at 630 trauma centers across the country to assess the relevance and function of each of the four domains. Of these, 245 responded. TMD's reported high civilian use of DCR; but only mixed adoption of the other three interventions corresponded to expressed concerns regarding the extent of concomitant civilian research

to support military research and experience.

"It's clear that civilian researchers have a significant role to play in terms of conducting research that builds trauma surgeon awareness of military techniques and their translation to civilian settings," said Adil Haider, MD, MPH, Kessler Director of the Center for Surgery and Public Health at Brigham and Women's Hospital, lead author of the study. "Governing bodies and supporting agencies like the IOM also have an important role to play in terms of fostering partnerships between [military](#) and civilian trauma centers. The sharing of best practices and dissemination of findings will be essential as we look to broaden the evidence base for battlefield innovations not just to improve care for frontline soldiers in future combat operations, but to improve civilian [trauma](#) care as well."

**More information:** Adil H. Haider et al. Military-to-civilian translation of battlefield innovations in operative trauma care, *Surgery* (2015). [DOI: 10.1016/j.surg.2015.06.026](https://doi.org/10.1016/j.surg.2015.06.026)

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