



Army-525: Boosting Battlefield Blood Supply

SPONSORING ORGANIZATION

U.S. Army

CHALLENGE

Soldiers and military medical teams need a reliable, sustainable blood supply during combat operations where hospitals and transportation are not available to provide life-saving treatments.

RELEVANT CONTEXT

- Blood banks in combat zones are essential but difficult to sustain. They are costly, hard to transport, limited in supply, and constrained by how quickly blood degrades. Maintaining a reliable supply is a major logistical challenge for the U.S. Army.
- Army units deploy close to the enemy to respond quickly and effectively, but this means they are far from major airfields, hospitals, and transportation hubs. Soldiers must carry the medical essentials needed to survive until helicopters can reach them.
- Army Medics assess and determine blood needs, with O-negative blood in highest demand since it is universally compatible.
- Blood transportation is complex, ranging from sanitized freezer trucks to handheld coolers. Because blood degrades quickly, ensuring a viable supply for combat operations is a persistent challenge.
- The blood market is tightly restricted for ethical reasons, creating scarcity and driving up costs (as high as \$135 per unit).
- Since the Vietnam War, military doctrine has required access to a blood bank before soldiers are sent into combat, but supply chains remain limited. The Army encourages both civilian and soldier blood drives near combat zones, though several barriers remain:
 - Misconceptions that donating blood reduces military readiness or requires time off.
 - Restrictive geographic bans stemming from Mad Cow disease, which could now be overcome with advanced screening.
 - Religious objections in some communities.
 - Fear of needles, pain, or general reluctance to donate.

IMPACT

U.S. Army medical professionals could save more lives by ensuring an adequate blood supply, reducing risks during combat medical procedures, and overcoming current limitations on the care they can provide.

POTENTIAL BENEFICIARIES

Soldiers in combat zones, Military Medical Teams, Hospital workers and staff.

TEAM RECOMMENDED SKILLSETS

Biology, Biomedical Sciences, Biomedical Engineering, Chemistry.



PROBLEM SPONSOR

Rank / Senior Leader Name: CPT Frederick Maxwell Breslow

Title, Department: Bradley Fellow, Georgetown University, McCourt School of Public Policy

DoW Organization: The Pentagon

SENIOR LEADER

Rank / Senior Leader Name: COL Neal J. Lape

Title, Department: DAMO-FIRES, HQDA-G3/5/7

DoD Organization: HQ, U.S. Army