



# Combat Casualty Infection Mitigation in a Prolonged Field Care Environment

\$299K

U.S. AIR FORCE



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## Problem, Hypothesis and Military Relevance

- **Problem:** Austere environments and prolonged field care present significant difficulties in preventing and treating wound infections after combat casualties. Existing standard of care treatments have not solved these problems and even antibiotics, when available, are becoming less efficacious and do not prevent biofilm formation.
- **Hypothesis:** The proposed copper-infused treatments will improve healing times and markedly reduce microbial wound infections, including the formation of biofilms, in a military relevant large animal wound infection model.
- **Military Relevance:** This proposal closes EM RDD Gap #2, Prevent Wound Infection.

## Proposed Solution

A copper-infused wound dressing and medical transport blanket have been developed to harness the anti-microbial properties of copper.

**SO1. Evaluate efficacy of copper wound dressings against battlefield-relevant pathogen combinations.** Wound healing and microbial load testing will be performed to compare copper wound dressings to standard of care in a large animal excisional wound model. Wound infection and healing will be followed for up to 18 days

**SO2. Examine antimicrobial efficacy of copper-lined medical transport blanket.** Testing will occur as above, but dressings will be replaced by individual wound blankets and standard of care will simulate point of injury transport conditions.

A.



B.

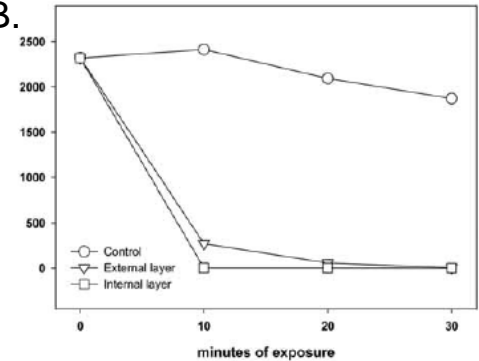


Figure 1. A. MedCu Wound Dressing. B. The luminescence emitted by *Photobacterium leiognathi* exposed to the internal or external layers of the wound dressings was determined by using a CheckLight ToxScreen Kit. As a negative control the bacteria were exposed to a control fabric not containing copper.

## Timeline and Total Cost (direct and indirect)

Activities	22	23
In vivo copper dressing testing		
In vivo copper blanket		
Data analysis and reporting		
<b>Estimated Total Budget (\$299K)</b>	<b>\$157</b>	<b>\$142</b>

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