

## ***Killing it: Can a Biofilm-Disrupting, Antimicrobial Wound Cleanser Improve Wound Healing?***

### Background

Antibiotic-resistant infections are becoming increasingly prevalent and are a major concern for both civilian and military health systems. Combat wounds, in particular, are prone to infection and may develop hard-to-treat biofilms due to delayed treatment. A product that disrupts microbial biofilm and kills the biofilm-protected micro-organisms, while not damaging human tissue, may lead to infection mitigation so chronic wounds can progress to healing. Furthermore, with biofilm disruption, microbes lose their protection such that systemic antibiotics as well as topical antimicrobials can be effective.

### Objectives

We sought to compare the effectiveness of BIAKŌS Antimicrobial Skin and Wound cleanser to Vashe Wound cleanser in the ability to decrease biofilm formation in chronic wounds as well as the ability to decrease healing time of chronic wounds. We conducted this clinical evaluation as retrospective chart review.

### Methods

Fifteen subjects with various stages of wounds will be evaluated on day zero to establish wound presence and will be assessed by clinical staff. Subjects will receive daily wound treatment with either Vashe or BIAKŌS wound cleanser based on assigned provider. One wound care nurse will solely utilize one product and the other provider will solely use the alternative product throughout the evaluation period. Subjects' wounds will be assessed by wound care team on day zero until the end of study period using MolecuLight. The wound care treatment will be conducted over a 4 week period in a standardized fashion. Patient age, gender, comorbidities, type of wound, duration, wound track size, Bates Jensen Wound Score, and MolecuLight photos pre-and post- each treatment will be collected.

### Results

Preliminary review of the first 3 patients in each group demonstrated wound size reduction between 43-85% in the BIAKŌS group and 28-33% in the Vashe group. The reduction in Bates Jensen Wound Score was 20-38% in the BIAKŌS group and 0% in the Vashe group. The MolecuLight photos demonstrated a subjectively greater reduction in biofilm luminescence in the BIAKŌS group.

### Discussion/Conclusion

BIAKŌS Antimicrobial Skin and Wound Cleanser appears to reduce biofilm formation and persistence, leading to decreased time to wound closure and improvement in wound score. We will continue to assess up to fifteen patients in each group to determine if this wound cleanser promotes healing of chronic wounds. This PI project will inform future clinical research which will seek to determine the ability of the same antimicrobial product in its gel formula to reduce wound infection in acute traumatic wounds and decrease wound healing time. Our ultimate goal is to determine if use of a topical antimicrobial gel applied on acute wounds can mitigate clinical incidence of sepsis by reducing wound infection rates in trauma patients.

## Disclaimer

The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components. The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DODI 3216.02\_AFI 40-402.