

Efficacy of Antimicrobial Wound Spray in Healing Chronic Lower Extremity Wounds

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INTRODUCTION

revyve™ Antimicrobial Wound Spray allows for a non-aerosol spray application of the FDA 510(k) cleared revyve™ Antimicrobial wound gel. This product uses coactive+ technology (EDTA + Citric Acid) to attack bacterial biofilm in chronic wounds. The antimicrobial mechanism of action of this product involves disrupting microbial cell membranes leading to bacterial cell lysis. The new spray formulation is designed for a painless, non-contact delivery that can be rinsed with cool water or saline. It also eliminates any direct physical contact with the wound, reducing pain. Our study aimed to evaluate the efficacy of revyve™ Antimicrobial Wound Gel Spray in reduction of wound size, bacterial burden, and pain in atypical lower extremity wounds.

METHODS

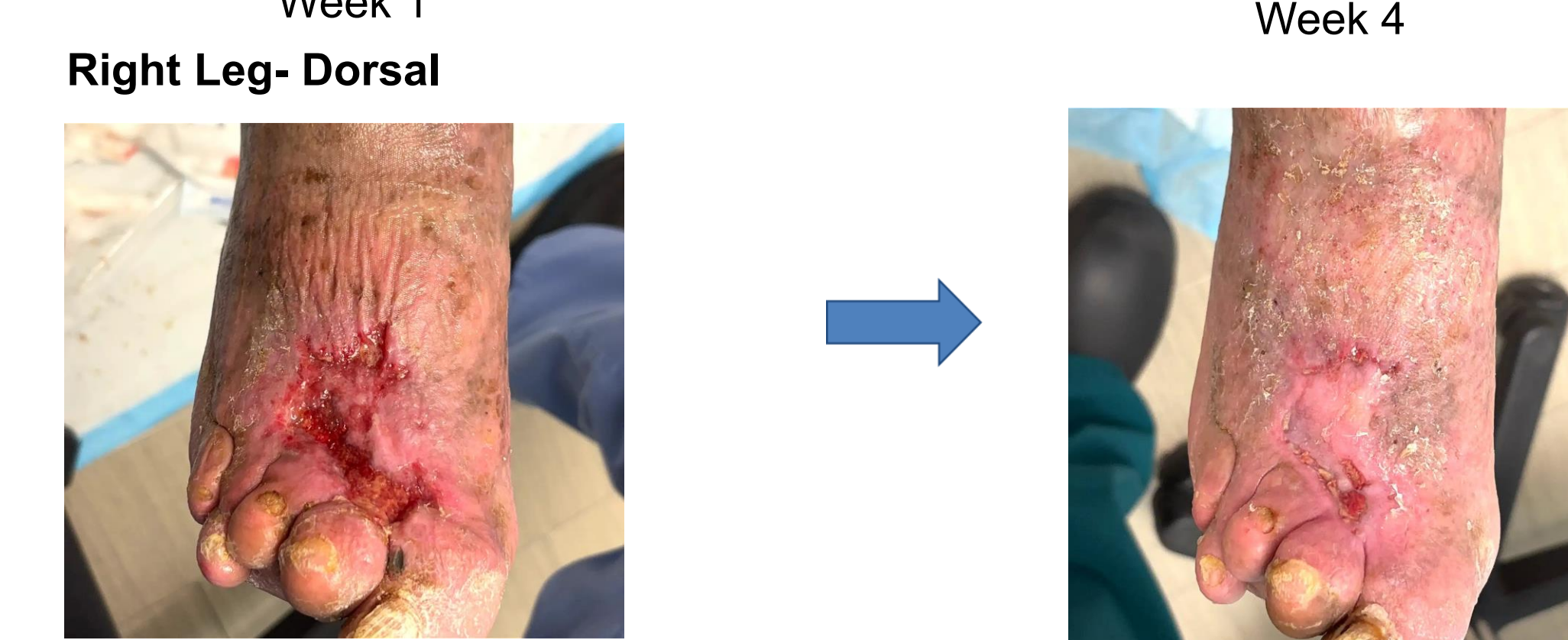
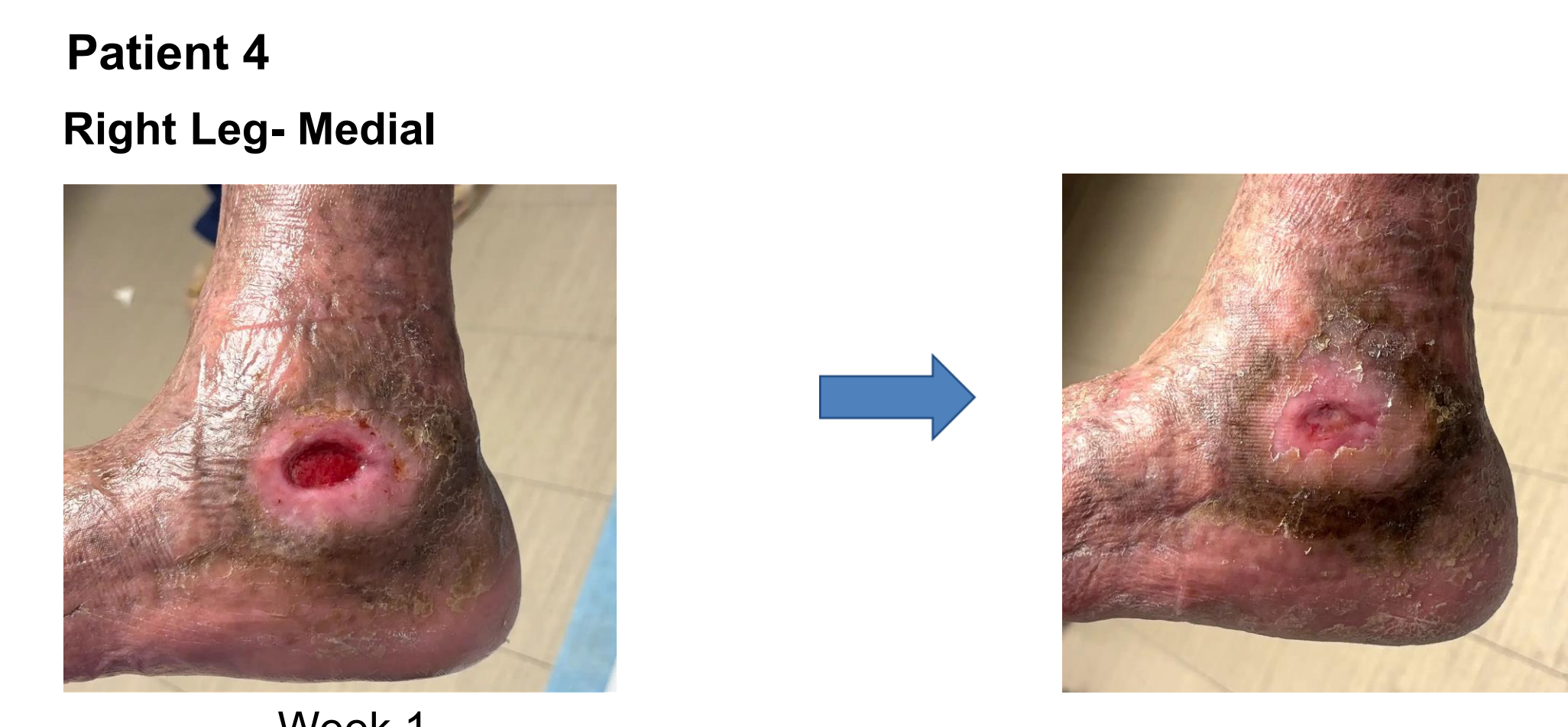
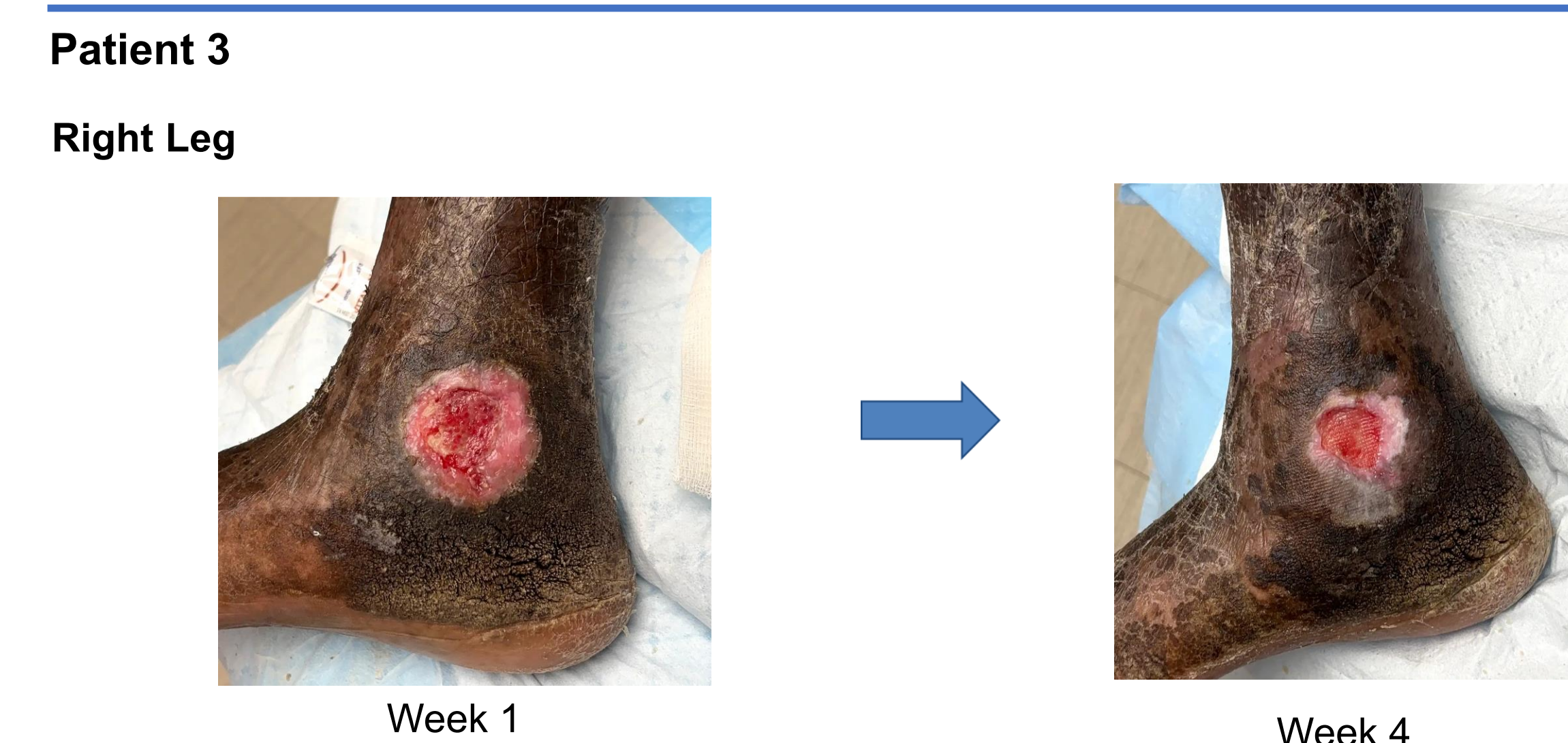
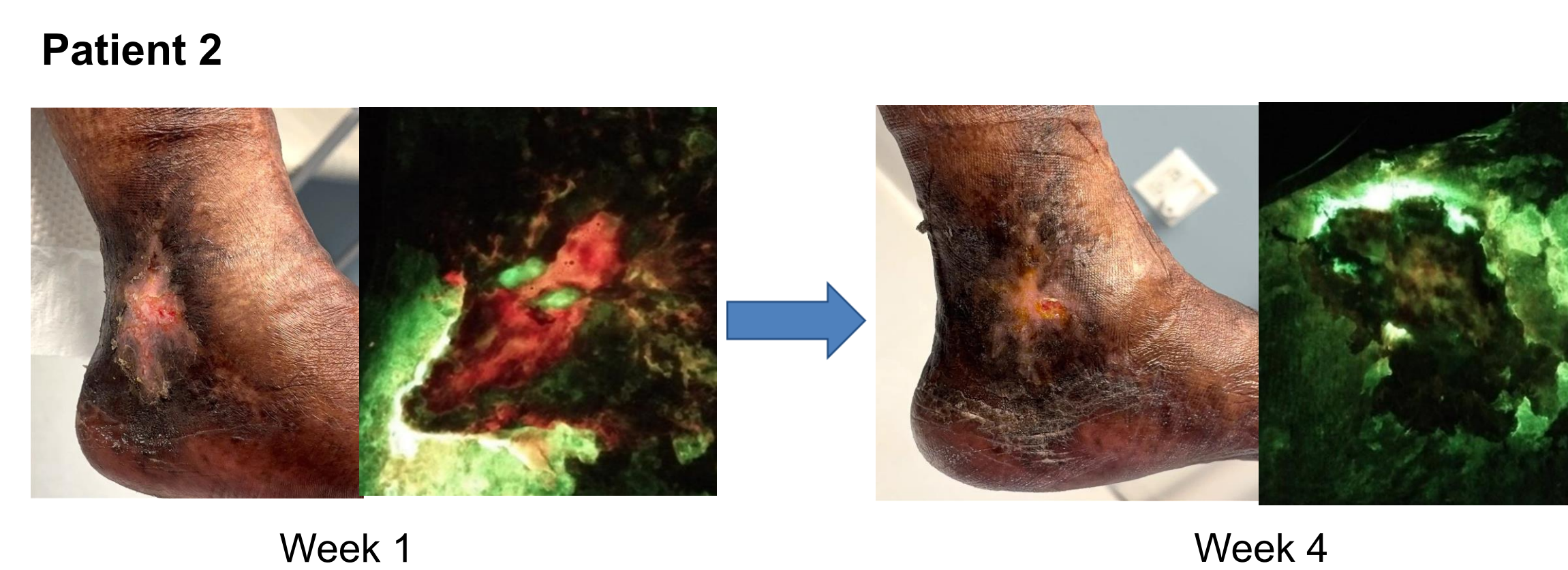
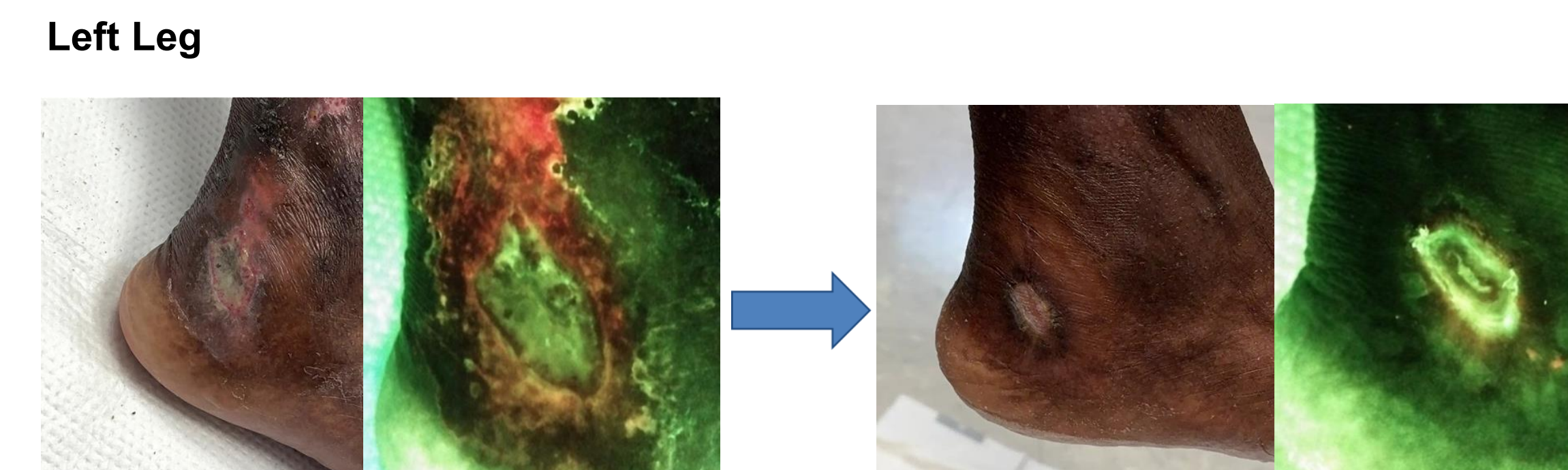
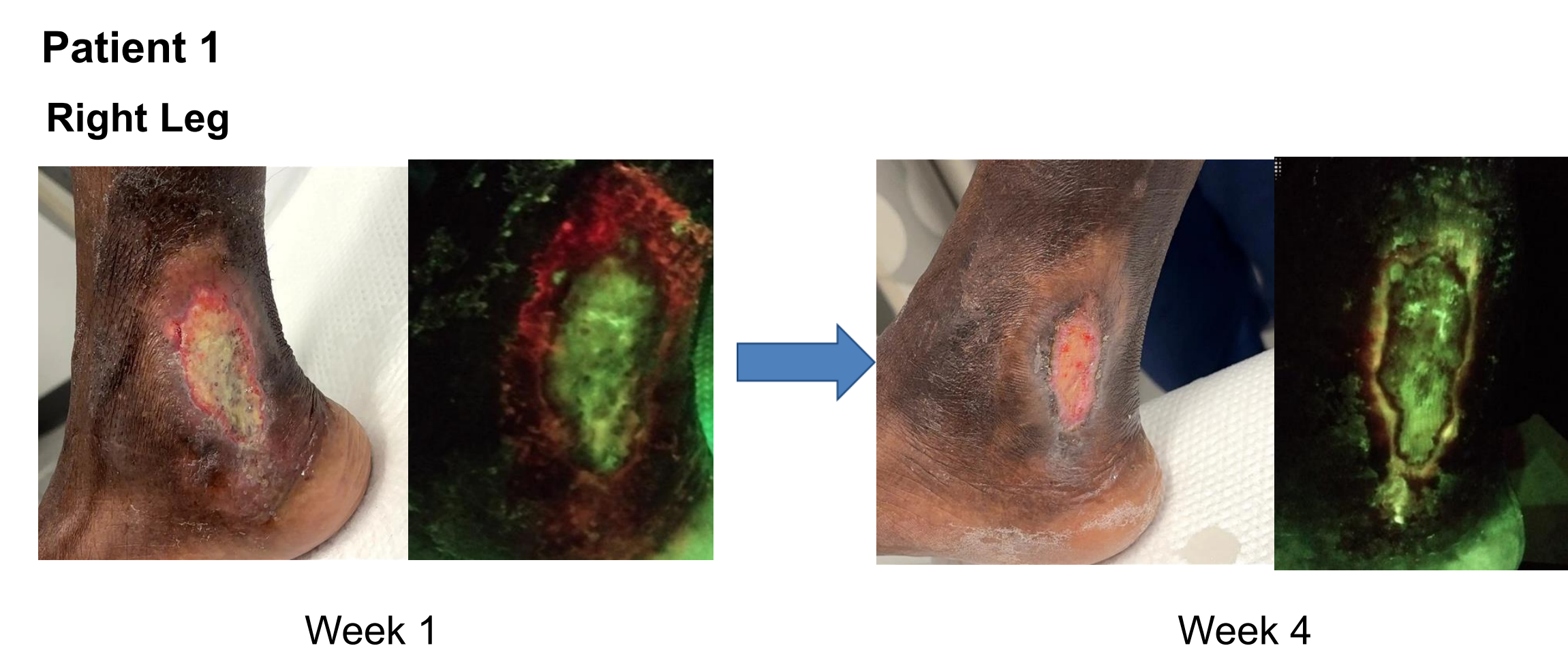
revyve™ spray was applied 1x per week to 13 lower extremity wounds (7 total subjects) for 4 weeks. Wound size, pain score (scale of 1-10), and Wound Quality of Life (QoL) score were evaluated weekly. MolecuLight DX imaging technology, which utilizes violet fluorescent light and detects bacterial loads of $>10^4$ CFU/g was used weekly to evaluate the bacterial burden in each wound.

Wound etiologies included in this study:

- Sickle cell disease
- Chronic venous insufficiency
- Obesity
- Lymphedema
- Type II Diabetes

• The average healing rate of all wounds was calculated using a mixed effects model

RESULTS



- Two wounds achieved complete closure at 4 weeks
- Mean Wound Area Reduction in all 13 wounds after 4 weeks: 63.91%
- Average Healing Rate of 16.74% (95% CI (9.70-32.78), $p < 0.05$) (see Figure 1)
- Mean pain score for all wounds (scale of 1-10) at week 1 was 7.7 and at week 4 was 4.7
- Wound QoL questionnaires showed improvement in quality of life from “quite a lot of impairment” to “moderate impairment” after 4 weeks
- MolecuLight DX images showed decreased bacterial load in 7 of the 13 wounds.

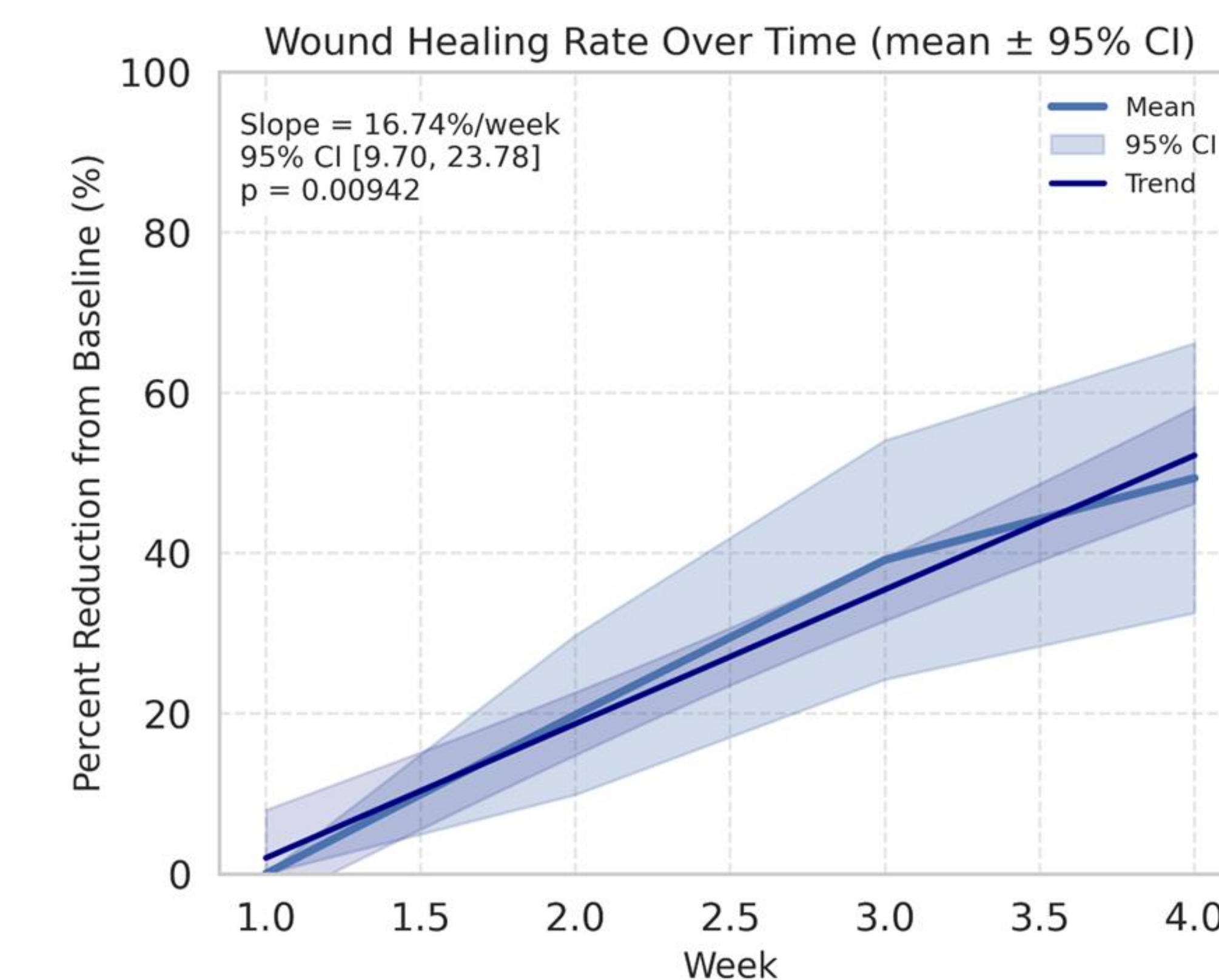


Figure 1. Mean % reduction per week. Wounds healed steadily over time.

CONCLUSION

While our sample size was limited, revyve™ Antimicrobial Wound Spray appears to be effective in wound area reduction, decreasing bacterial load, and improving quality of life in patients with chronic lower extremity wounds. Treatment was associated with a statistically significant and clinically meaningful acceleration in wound healing, reflected by an average 16% weekly reduction in wound area from the baseline. We also found that patients had a decrease in pain after using revyve™ Antimicrobial spray for 4 weeks. This may be because this spray allows for no direct contact with the wound, reducing handling and disturbance during weekly dressing changes. While our findings were clinically significant, additional evaluation of revyve™ spray compared to placebo may be beneficial to make definitive conclusions regarding this treatment modality.