

# Clinical and antimicrobial efficacy of a silver foam dressing with silicone adhesive in diabetic foot ulcers with mild infection

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# Biatain® Silicone Ag demonstrated a significant reduction in bioburden in the wound bed

## Aim

To evaluate the clinical and microbiological effects of a silver foam dressing.

## Methods

Biatain Silicone Ag was used on 19 patients presenting a Diabetic Foot Ulcer with mild infection. All patients received standard of care (cleansing, debridement, offloading) but did not receive antibiotics or other antiseptics during the study as this could influence microbiological results.

To evaluate the clinical effectiveness, the presence and quality of granulation tissue in wound bed was rated every week with a Wollina Wound Score ranging from 0-7 (including percentage, color and consistence of granulation tissue). Wound area reduction and wound closure were evaluated every week.

To evaluate the microbiological effectiveness, soft tissue punch biopsies (2mm) were taken every third week (0, 3, 6) for qualitative and quantitative microbiological analysis.

## Clinical results

- At inclusion, mean wound duration was 22.4 weeks, mean age of participants was 63 years, 95% had Type II diabetes and 81% had neuropathy
- Wound scores improved significantly from a mean of 3.9 at inclusion to a mean of 6.1 after 6 weeks ( $p < 0.001$ )
- Mean wound area reduction was 60.4% after 4 weeks and 70.6% after 6 weeks ( $p < 0.001$ )
- 63% of the patients had at least 50% reduction in wound area after 4 weeks and 79% after 6 weeks ( $p = 0.010$ )
- This is indicative of a positive healing trajectory, which was confirmed during the 18 weeks follow-up period

## Microbiological results

- Clinical improvement in DFUs was accompanied by change in bioburden
- Treatment with the silver dressing resulted in significant decreases in the bioburden of classically considered diabetic foot ulcer pathogenic organisms such as *Staphylococcus aureus*, including methicillin-resistant *Staphylococcus aureus*, *Enterobacteriaceae* species, *Pseudomonas aeruginosa*, and other nonfermenting gram-negative bacilli
- Mean 1.78 Log reduction of bioburden in the wound bed (CFU/g;  $p = 0.004$ )

Pathogenic organisms	CFU/g reduction in wound bed
<i>S aureus</i>	1.1 ± 1.8 Log <sub>10</sub>
MRSA	2.2 ± 0.0 Log <sub>10</sub>
<i>Enterobacteriaceae</i>	0.5 ± 0.9 Log <sub>10</sub>
<i>P aeruginosa</i>	0.3 ± 1.1 Log <sub>10</sub>
other NFGNB	1.5 ± 1.4 Log <sub>10</sub>

## Case examples

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67-year-old patient with an infected diabetic foot ulcer that had been present for 8 weeks prior to treatment with Biatain Silicone Ag.



**DAY 1**

80% sloughy tissue, moderate exudate, signs of infection

Bacterial load:  
4.29 log<sup>10</sup> CFU\*/g



**WEEK 3**

**46% decrease in area**

Bacterial load:  
2.45 log<sup>10</sup> CFU/g



**WEEK 6**

**74% decrease in area**

Bacterial load:  
1.30 log<sup>10</sup> CFU/g



**WEEK 9**

**Complete healing**

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80-year-old patient with an infected diabetic foot ulcer that had been present for 8 weeks without progression.



**WEEK 1**

Bacterial load:  
**19,500 CFU/ml**



**WEEK 3**

Bacterial load:  
**280 CFU/ml**



**WEEK 6**

Bacterial load:  
**20 CFU/ml**

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