Prontosan®

Type	Improved Wound Healing	Prevention and Removal of Biofilm	Antimicrobial Activity	Cytotoxicity and Tolerability	Quality of Life	Cost-effective	Page
In-vitro			●				17

Polihexanide and betaine containing wound care solution and gel reduce the growth of microorganisms by more than LOG 5 in-vitro.

Stolarck R, Minnich K, Olinger S, et al.
J Clin Pharmacol 2010;50(9):1071.

Objective
To investigate the antimicrobial effects as a possible supportive mechanism of action of Prontosan® Wound Irrigation Solution and Prontosan® Wound Gel.

Methods
In-vitro testing was performed according to USP 32-NF 27 2009, method 51 evaluating 13 microorganisms at 7, 14, and 28 days following exposure to 3 lots of the compounds/products.

Results
Growth reduction was nearly identical at each of the 3 evaluation days and above log 5 for all 3 lots of gel and solution in 12/13 organisms tested. Log 5.8 (average): *Staphylococcus epidermidis (5.9, 5.8, 5.8); Log 5.7: Pseudomonas aeruginosa (5.7, 5.7, 5.6), Serratia marcescens (5.7. 5.7. 5.6), Candida albicanas (5.7, 5.7, 5. 7); Log 5.6:, Vancomycin resistant Enterococcus faecalis (5.6, 5.6. 5.6), Proteus mirabilis (5.7, 5.6, 5.6); Log 5.5: Staphylococcus aureus (5.5, 5.5, 5.5), Methicillin-resistant Staphylococcus aureus (5.5, 5.5, 5.4), Acinetbacter baumanii (5.6, 5.5, 5.5): Log 5.4: Escherichia coli (5.5, 5.4, 5.4), Enterobacter cloacae (5.5, 5.4, 5.4); Log 5.3: Enterococcus faecalis (5.3, 5.3, 5.3).* In A. brasiliensis the log reductions were for the gel 1.9 (1.9, 1.9, 1.8), 2.1 (2.1, 2.1, 2.1), and 2.5 (3.2, 2.2, 2.1) and for the solution 2.1 (2.2, 2.1, 2.0), 2.3 (2.3, 2.3, 2.2), and 2.8 (2.8, 2.8, 2.7) at 7, 14, and 28 days, respectively.

Conclusion
The log 5 reductions in antimicrobial activity in 12/13 microorganisms tested is suggested as a possible supportive mechanism of action of enhanced wound healing when using a combination of 0.1% polyhexanide and 0.1% of betaine either as a gel or an irrigation solution.

Log growth reduction at 7, 14 and 28 days for Prontosan® Wound Irrigation Solution and Prontosan® Wound Gel.

Microorganism	7 days	14 days	28 days
Staphylococcus epidermis	5.9	5.8	5.8
Pseudomonas aeruginosa	5.7	5.7	5.6
Serratia marcescens	5.7	5.7	5.6
Candida albicans	5.7	5.7	5.7
Vancomycin resistant Enterococcus faecalis	5.6	5.6	5.6
Proteus mirabilis	5.7	5.6	5.6
Staphylococcus aureus	5.5	5.5	5.5
Methicillin resistant Staphylococcus aureus	5.5	5.5	5.4
Acinetbacter baumanii	5.6	5.5	5.5
Escherichia coli	5.5	5.4	5.4
Enterobacter cloacae	5.5	5.4	5.4
Enterococcus faecalis	5.3	5.3	5.3
A. brasiliensis		see abstract	