

EVIDENCE OF BIOFILMS ON GAUZES: A POTENTIAL CONCERN IN WOUND CARE?

Emma Woods¹, Mike Walker¹, Chris Cochrane², Steven Percival¹

¹ *ConvaTec, Deeside, United Kingdom*, ² *University of Liverpool, Liverpool, United Kingdom*

Aim: The aim of this study was to assess whether common wound pathogens were able to grow as biofilms on gauzes and whether the extracellular components of biofilms have effects on fibroblast cell viability.

Methods: Gauzes were submerged into a growth medium (containing calf serum) together with *Pseudomonas aeruginosa* or *Staphylococcus aureus* (10⁷cfu/ml) and incubated at 35°C (± 2°C) for 24 hours. Following incubation, all gauzes were washed twice in sterile water to remove planktonic bacteria and assessed for biofilm growth. Gauzes were visualised for biofilm presence by environmental scanning electron microscopy (ESEM) and rapid scanning confocal laser microscopy (RSCLM). Gauze with biofilm (plus controls) and supernatants were applied to collagen gels and contraction was measured for 96 hours and cell viability was then determined.

Results: Biofilm evidence was clearly evident on gauze following microscopic visualisation. Biofilms on gauze were found to kill fibroblasts

Conclusion/Discussion: In conclusion bacteria from chronic wounds will migrate and adhere to gauze. Biofilms growing on gauze may act by disseminating planktonic bacteria back into the wound bed, together with their extracellular components e.g. toxins and enzymes, which may delay wound healing.