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### RAPID SCANNING LASER CONFOCAL MICROSCOPY (RSLCM) AS A METHOD TO ASSESS THE EFFICACY OF IONIC SILVER ON BIOFILMS

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**Aim:** This study was set up to address the ability to model a biofilm and visualise its response to the addition of an antimicrobial silver dressing.

**Methods:** Using a LabTek coverglass chambered slide, biofilms of common wound bacteria *P. aeruginosa* and *S. aureus* were grown for 24-48 hours at  $37\pm 3^{\circ}\text{C}$ . The silver containing dressings were then placed on the surface of the biofilm and cell death monitored at 3, 24 and 48 hours after the dressing was added using a Live Dead BacLight stain. Control biofilms received either no dressing or were exposed to a non-silver containing dressing.

**Results:** The control biofilms with no dressing added showed continued maturation of viable microcolonies and increased cell density as a result of cell proliferation on the surface of the coverglass. Biofilms exposed to a non-silver dressing showed little evidence of cell death; however cell density and microcolony development were impaired in comparison to the no dressing control. Dressing fibres were visible in images of biofilms exposed to wound dressings, providing evidence of intimate contact between the dressing and the biofilm.

**Conclusions/Discussion:** Results showed that biofilms exposed to the silver-containing dressing were killed (in each field of view analysed) after a maximum of 48 hours. This study demonstrates that biofilms formed by our own common wound-infective biofilm forming bacteria can be successfully managed with the addition of an antimicrobial silver dressing.