Healthcare Innovations
How practice has changed

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Tissue adhesives for bacterial inhibition in extracorporeal membrane oxygenation cannulae

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BACKGROUND

ECMO cannulae infection can occur at **quadruple the rate** of central venous catheter infections & significantly impact **patient morbidity & paediatric mortality**.

The objective of this study was to assess **antimicrobial properties** of two **n-butyl-2-octyl cyanoacrylate tissue adhesives** (TA) for bacterial inhibition at peripheral ECMO cannulae insertion sites.

METHODS

Antimicrobial properties against *S. epidermidis* were assessed using modified agar disk-diffusion (n=3) & simulated agar cannulation insertion site (n=20) models.

Microorganism inhibition was visually inspected and evidenced by the presence or absence of a TA bacterial inhibition zone at 24 and 72 hours.

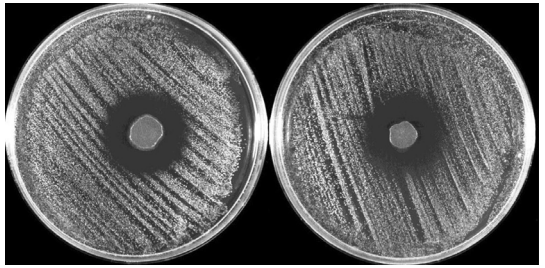

Fig 1: Antimicrobial effects of Glubran Tiss2 (L) & SecurePortIV (R)

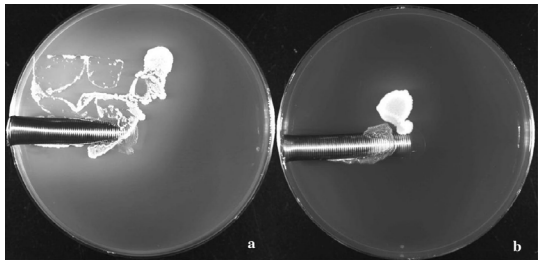

Fig 2: Bacterial migration a) transparent dressing only; b) Glubran Tiss2; c) SecurePortIV only; d) SecurePortIV & dressing

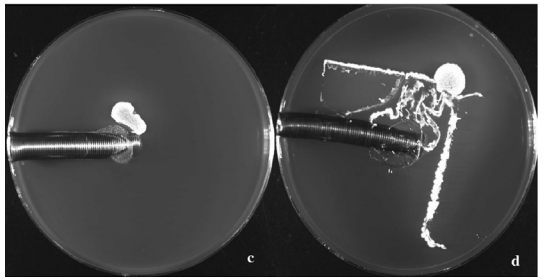

Fig 2: Bacterial migration c) SecurePortIV only; d) SecurePortIV & dressing

RESULTS

Both TAs also demonstrated distinct **zones of inhibition** produced when applied to agar plates seeded with *S. epidermidis* (see Fig 1).

Both TAs provided **effective barriers to bacterial migration** under cannula dressings, to cannula insertion sites and down cannula tunnels (see Fig 2).

CONCLUSIONS

N-butyl-2-octyl cyanoacrylate TA appears to **inhibit bacterial growth and migration** of *S. epidermidis*.

TA on cannulae insertion sites may be a potential bedside strategy for infection prevention in ECMO but requires further testing.