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Letters to the editor

Disposable antimicrobial and sporicidal privacy curtains: Cost benefit of hanging longer

To the Editor:

The patient environment may harbor potential pathogens making it a possible source for cross-transmission to the hands of health care workers, patients, and visitors.¹

Privacy curtains surrounding patient beds are constantly touched and may become a reservoir for dissemination.^{2,3} A recent outbreak in an ear, nose, and throat ward revealed 10 fabric curtains were contaminated with the same strain of group A *Streptococcus* as were 3 affected patients in the cancer ward.⁴

Disposable antimicrobial and sporicidal privacy curtains have been marketed over the past few years as a passive infection prevention strategy. New technologies have delivered a variety of treated and embedded substances onto the surfaces of synthetic curtains.⁵ Silver-impregnated curtains were hung in our intensive care unit in 2012 and had excellent antimicrobial and sporicidal activity for 6 months.⁶ Recent formulations have extended protective activity for 2 years, thus providing extra savings related to laundering and labor.

We sought to test antimicrobial activity for 1 antimicrobial and sporicidal product (Endurocide, Aberdeenshire, Scotland), against a range of multiresistant microorganisms to establish activity for the claimed 24-month period.⁷ These curtains are composed of non-woven, extruded polypropylene with 0.5 mm thickness (100 gsm). They are impregnated with a blend of quaternary ammonium chlorides and polyorganosiloxane (a repellent negatively charged silicone) as well as being fire retardant. The biostatic and biocidal properties also prevent bacteria from penetrating or multiplying on the curtain.

Testing followed the same methodology as previously, wherein zone of inhibition and contact inhibition was determined against a range of microorganisms (gram negative: extended-spectrum β -lactamase *Escherichia coli*, *Stenotrophomonas maltophilia*, carbapenemase-producing *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa*; and gram positive: methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *Enterococcus faecium*, and coagulase-negative staphylococci), *Candida albicans*, and spores of *Clostridium difficile*.⁶

Excellent results were achieved for both zone of inhibition and contact inhibition when tested at baseline, 6, 12, 18, and 24 months with no visible loss of activity (Fig 1).

There were cost benefits for replacing standard fabric curtains with the newer formulation (Endurocide) sporicidal and antimicrobial curtains. The cost of laundering fabric curtains was AUS\$4

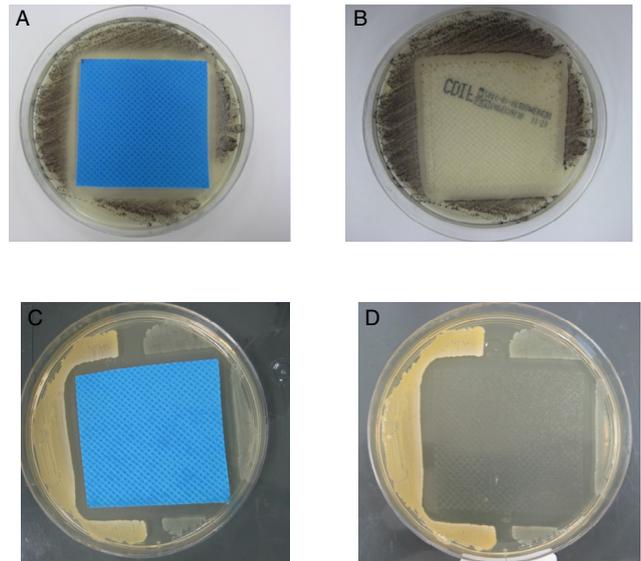


Fig 1. Images from 24-month testing for (A) *Clostridium difficile* (zone of inhibition), (B) *Clostridium difficile* (contact inhibition), (C) methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus faecium* (zone of inhibition), and (D) methicillin-resistant *S aureus* and vancomycin-resistant *E faecium* (contact inhibition).

per screen with a labor cost of AUS\$10 to remove and rehang. Based on a routine schedule of 3 months this would mean 8 changes over 2 years at a total cost of AUS\$112. If ad hoc changes were required due to patients discharged from contact precautions, then an additional cost of AUS\$19 (due to extra setup requirements) would be incurred per episode. The disposable curtains cost AUS\$45 to purchase and AUS\$10 to hang for the 2-year duration, thus cutting the overall cost by more than 50%. In addition, the curtains provide sporicidal and antimicrobial protection to all patients, staff, and visitors accessing the patient area. Another advantage includes a safety advantage for staff members changing the curtains because they are only required to climb ladders once instead of 8 times during a 2-year period.

The final consideration is the environment-related effect of transporting, washing, and reusing fabric curtains compared with the disposable polypropylene curtains that can be recycled via the plastic recycling stream.

Our health service promotes the implementation of the new formulation Endurocide privacy curtains from both a cost-effectiveness and safety perspective.

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Conflicts of Interest: None to report.

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