Table 1
Percutaneous injury rate from peripheral catheters according to the number of devices purchased between January 2009 and December 2014 at a Brazilian public hospital, Belo Horizonte, Minas Gerais, 2015

Year	No. of devices purchased per year	Accidents per year	Injury rate*	95% confidence interval
2009	17,492	1	5.72	0.10-31.91
2010	17,151	0	—	—
2011	14,896	1	6.71	0.21-37.42
2012	16,127	0	—	—
2013	22,175	2	9.02	1.11-32.64
2014	22,576	2	8.86	1.10-32.03

*Number of injuries per year/total devices purchased in the same period ×100,000.

This shift toward the implementation of new technology was the main motivation behind this study. Its aim was to assess the annual rates of injuries involving peripheral venous catheters, with or without SEDs, between 2009 and 2014 in a Brazilian public hospital specialized in infectious diseases, in accordance with a formula proposed by other studies.[5,6]

The results showed 117 (100%) exposure events, mainly among women (n = 91; 77.8%) and the nursing team (n = 85; 72.6%). Of the total number of events, 70 (n = 117; 59.8%) injuries were percutaneous, and 6 involved peripheral catheters. Table 1 presents the rate of percutaneous injury from peripheral catheters according to the number of devices purchased.

Between 2013 and 2014, the records show 4 catheter injuries with SEDs, showing the importance of ongoing education in the use of these devices.

The device-specific needlestick injury rates increased over the last 2 years, when no safety devices were used. Limitations, such as the lack of data on notification forms about ongoing training of health workers in the use of these devices and details about how the device was handled, hindered an accurate explanation for such an increase. Similar findings were presented by other studies[3,5,6] and may be related to workers being more sensitized to notify their exposure injuries because of the implementation of the safety device program.[7]

Despite these limitations, our research can be considered a starting point for other studies in the hospital and in other services that comprise the Brazilian public hospital system and that have adopted SEDs. It also contributed to identifying points for improvement in the care protocol for workers exposed to biologic material and the training of workers for the use of new technologies.

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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.

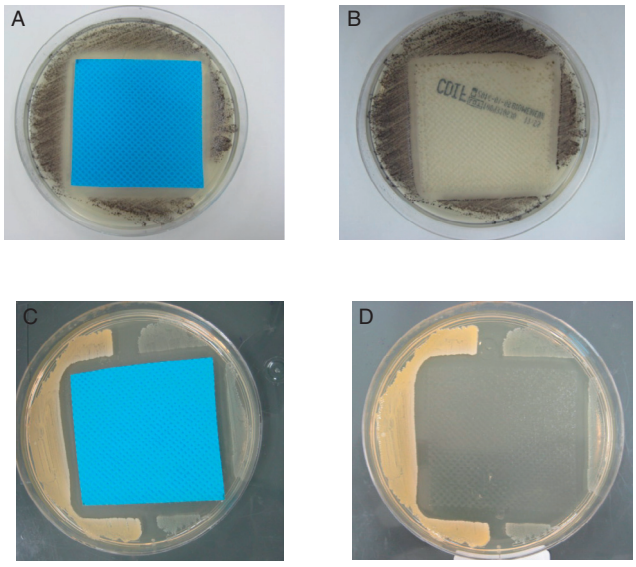

Fig 1. Images from 24-month testing for (A) *Clostridium difficile* (zone of inhibition), (B) *Clostridium difficile* (contact inhibition), (C) methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus faecium* (zone of inhibition), and (D) methicillin-resistant *S aureus*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

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 nonwoven, 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 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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Reply to Dikon in response to "A response to the relationship between different types of sharps containers and *Clostridium difficile* infection rates in acute care hospitals"

To the Editor:

We welcome the engagement and comments of Dikon on our recently published article describing the relationship between sharps disposal containers and *Clostridium difficile* infections in acute care