Health care workers use disposable microfiber cloths for cleaning clinical equipment

To the Editor:

Standard precautions require all clinical equipment to be cleaned between patient use. Cleaning equipment of patients colonized with vancomycin-resistant Enterococcus (VRE) had previously involved a 2-step cleaning process with detergent and water followed by disinfection with hypochlorite solution 1,000 ppm using a disposable detergent wipe or paper towel. Environmental services have been using a chemical-free system since 2011.

In January 2014, disposable microfiber cloths (D-MFCs) (Rubbermaid HYGEN, Rubbermaid, Winchester, VA) were introduced at Monash Health, a large metropolitan health service with 2,150 beds and 14,000 staff. The D-MFCs are used by dampening with water and provided a system for cleaning sensitive equipment that could not be disinfected with hypochlorite solution. The D-MFCs consist of 2 blended materials (nylon and polyester) that are mechanically split to provide ultrafine 3-5 micron filaments. Prior to use, health care workers were trained and educated with presentations and flyers by infection control staff.

Over the next 9 months, the D-MFCs were implemented across all clinical areas of the health service.

Prior to implementation, fluorescent assessment was undertaken comparing the cleaning capability of the standard detergent wipes and the D-MFCs. Fluorescent markings 5 x 5 cm were placed on a laminate surface and allowed to dry. The same person cleaned each surface using a paper towel with detergent and water, a

![Fig 1. Growth of viable bacteria after attempted removal with different wipes. The control plate is an inoculated plate after 24 hours (10^6 colony forming unit concentration): (A) paper towel; (B) detergent wipe; (C) reusable microfiber cloth; (D) disposable microfiber cloth.](image-url)
disposable detergent wipe impregnated with HC90, a reusable microfiber cloth (R-MFC), or the D-MFCs. Each area was examined using an ultraviolet light. Results showed that all surfaces cleaned with either the R-MFC or D-MFC were free of fluorescent marks, but streaking remained after cleaning with the paper towel or detergent wipe.

Surfaces (5 × 5 cm) were also microbiologically tested after inoculating with 10⁶ and 10⁷ colony forming units of the VRE vanB strain that was causing an outbreak in the neonatal unit. This was left untouched for 24 hours. The operator cleaned each surface using a standardized wiping method with each of the 4 cleaning cloths. The area was then swabbed and inoculated onto a horse blood agar plate to detect any remaining viable VRE. Results showed that all VRE were removed when using either the R-MFC or D-MFC, but heavy growth was still detected after detergent wipes and paper towels had been used (Fig 1).

Prior to the introduction of this new product, cleaning of clinical equipment in our neonatal unit was undertaken using paper towel and detergent. When VRE was detected in November 2013, some neonates were not able to undergo routine developmental testing and assessment because the sensitive equipment could not be disinfected with hypochlorite solution.

The D-MFCs were shown to remove VRE, eliminating the need to disinfect with hypochlorite solution. Advantages of this chemical-free system include time efficiency, occupational health and safety benefits, reduced water use, cost opportunities, and capacity to provide superior cleaning, regardless of the patient’s perceived risk.²

In summary, these D-MFCs enabled our health service to complete the transition to a superior cleaning system. Capacity is now available for cleaning of instrumentation or sensitive equipment that could not be used if patients were infected or colonized with multidrug-resistant organisms.