Simulated-use testing of bedpan and urinal washer disinfectors: evaluation of Clostridium difficile spore survival and cleaning efficacy.

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Abstract

BACKGROUND:

Reusable bedpans and urinals are frequently cleaned and decontaminated using washer-disinfectors (WDs) that may be located in the central processing department (CPD) or on the ward. The objective of this study was to determine how efficiently the WDs provided cleaning and to evaluate the ability of such WDs to kill Clostridium difficile spores.

METHODS:

The cleaning efficacy of 2 bedpan/urinal WDs (1 in the ward [ward-WD] and 1 in the CPD [CPD-WD]) were evaluated using simulated-use testing that included an ultraviolet-visible marker (UVM) that is readily removed when exposed to liquid. In addition, a proprietary test object surgical instrument (TOSI) device was used to assess the efficacy of the WDs. Artificial test soil (ATS) and C. difficile spore removal and killing also were evaluated. The removal of approximately 10(6) C. difficile spores and subsequent killing of these spores was assessed using autoclaved stool and/or urine as the soil challenge.

RESULTS:

Reusable stainless steel bedpans, plastic bedpans, and plastic urinals were assessed. Triplicate testing done on 3 separate days using TOSI devices, UVM, ATS, and stool and urine soils indicated that the ward-WD did not demonstrate adequate cleaning. It was determined that installation errors accounted for the inadequate cleaning. But the ward-WD did not adequately inactivate C. difficile spores even when the installation problems were corrected and the manufacturer-adjusted maximal thermal conditions were used. The CPD-WD was able not only to adequately clean the test devices of organic soil, but also to completely inactivate the 6 logs of C. difficile spores placed in sealed ampules inside the WD.

CONCLUSION:

The results of this study indicate that user testing of the efficacy of WDs is critical to ensure appropriate functionality. The currently accepted thermal decontamination parameters for all bedpan WDs (ie, 80˚C for 1 minute) are not adequate to eliminate C. difficile spores from bedpans.

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