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Letter to the Editor

Missing a trick? Response to: 'Disinfectant wipes are appropriate to control microbial bioburden from surfaces'

Sir,

It is with interest that we read the comments from Dr Stephanie Dancer. The manuscript by Sattar *et al.*<sup>1</sup> describes the use of a control test method to measure the efficacy of pre-wetted wipes. The method, which is now an ASTM standard (ASTM E2967-15), was used to measure the efficacy of a number of pre-wetted antimicrobial wipes. The innovation of this method is that it strictly controlled the wiping action, which is crucial for the activity of the product.<sup>2</sup> We are in full agreement with Dr Dancer, that multiple parameters can affect the efficacy of the wipes in healthcare settings.<sup>2</sup>

In terms of experimental set up, it is difficult to get wipe fabric on its own.

Furthermore, formulations are often tailored to the fabric to improve wipe performance. In addition the ASTM 2967-15 test will use a high microbial inoculum on surfaces to ensure that a  $>4 \log_{10}$  reduction can be achieved. This is the case for other efficacy standard tests measuring biocidal product activity.

We agree With Dr Dancer that the fabric itself with no formulation will contribute to the ability of the wipe to remove bioburden from the surface and this has been reported in several studies using the same methodology principle.<sup>1,3,4</sup> However, often the non-formulated control wipes did not perform as well as formulated pre-wetted wipes. This is the case in our study where pre-wetted antimicrobial wipes achieved at least  $2 \log_{10}$  reduction more from surfaces than J-cloth used as the control wipe.<sup>1</sup> In the study from Siani *et al.*<sup>3</sup> non-medicated wipes remove  $1.13 \pm 0.36$  and  $0.97 \pm 0.22$  *Clostridium difficile* NCTC12727 and R20291 ribotype 027, respectively. The removal of endospores from a stainless steel surface with the non-medicated wipe was much lower than with some of the pre-wetted antimicrobial wipes tested (the best one

achieving 4 log<sub>10</sub> reduction from surfaces against the NCTC12727 spores). Williams *et al.*<sup>4</sup> tested a non-medicated (control) wipe and a pre-wetted 'antimicrobial' wipe against a number of *Staphylococcus aureus* isolates including methicillin-resistant ones, and for the majority of the isolates the control wipe performed less well than the formulated wipe; differences of 1-2 log<sub>10</sub> in dirty conditions to 2-4 log<sub>10</sub> in clean conditions were recorded. Dr Dancer raised the interesting point that detergent wipes may be sufficient to remove bioburden from surfaces. Detergent wipes are formulated wipes that contain a number of anionic and non-ionic surfactants and other excipients that one would agree are not necessarily eco-friendly. As for their ability to remove microbial bioburden from surfaces, a recent comprehensive study using the ASTM 2967-15 methodology showed that there was an important variability in the efficacy of commercially available detergent wipes to remove microbial bioburden from surfaces. In addition, all these wipes transferred bacteria or spores between surfaces.<sup>5</sup> As Dr Dancer mentioned, if wipes are used appropriately, the ability of removing 3 log<sub>10</sub> microbial contamination from surfaces may be sufficient. However, the evidence is that pre-wetted wipes are not used properly and often they are used on multiple surfaces despite the 'one wipe-one surface-one direction' message we launched back in 2007. With this in mind the addition of disinfectant, might provide an additional safety net that could palliate product misuse. Manufacturers and end users have now a dedicated pre-wetted wipe test they can rely on to improve product performance and demonstrate product efficacy. Part of improving product performance will undoubtedly include the choice of the correct material-formulation combination to ensure maximum efficacy. Finally, product efficacy also required the appropriate education of the end users and for that manufacturers can play a role notably with clear wipe usage instructions.

### **Conflict of interest**

None to declare

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