

Letters and comments

Bare below the elbows

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COMMENT ON

Burger A, Wijewardena C, Clayson S, Greatorex RA. Bare below elbows: does this policy affect hand washing efficacy and reduce bacterial colonisation? *Ann R Coll Surg Engl* 2011; **93**: 13–16

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We read with interest the work of Burger *et al* and commend the authors for attempting to address the 'paucity of evidence' supporting the current UK Department of Health guidelines on uniforms and work wear, colloquially known as the 'bare below the elbows' policy. Nevertheless, we feel several points require consideration by the authors before meaningful, robust conclusions can be made in this important subject area.

Firstly, the authors focus on the absence of clothing around the wrists facilitating more effective hand hygiene. However, the more important reason for the policy may in fact be the risk of transmission of pathogens from clothing and jewellery to patients and hence the guidance that these 'should not unintentionally come into contact with patients'¹ during routine clinical care. This is supported by research from many authors,^{2–5} including Treacle *et al* (reporting a high rate of bacterial contamination on the white coats of physicians) and Trick *et al* (reporting that ring wearing increases the frequency of hand contamination), and highlights the need to define clearly the terms 'bare below the elbows' (BBE) and 'not bare' (NB); Burger *et al* imply that there were individuals in both of their study groups wearing rings and watches and this may have introduced considerable confounding to the results.

Secondly, we would question both the intervention under study (hand washing) and the sampling and culture methods used to detect colony counts in the participants. There is now an abundance of literature that supports the efficacy of hand rubbing with alcohol versus the use of antiseptic soap⁶ and hand washing between each patient (unless the hands are visibly soiled) is inefficient, unnecessary and may lead to skin conditions that can reduce both compliance and effectiveness of hand decontamination.⁷ We would advocate that the application of alcoholic hand rub, now considered the norm in most institutions, would be a more appropriate

intervention in this instance. Previous studies have found the prevalence of healthcare worker MRSA colonisation to be up to 10% and that of the general population to be ~1%; the low yields (0 out of 1,112 plates) in this study may indicate an insensitive sampling method rather than low prevalence. The wide range in colony counts observed (0–1,000) supports the hypothesis that the sampling and culture method is too inaccurate for the study to be interpretable and this may also explain the paradoxical increase in colony counts following hand washing that was seen in some participants.

Finally, we would hypothesise that significant bias is present within the study, both due to the considerable publicity surrounding healthcare infections and the 'zero tolerance' approach to those not following local guidelines. These factors would incentivise any participant in the study (and particularly those not adhering to BBE policy) to 'perform well' during a hand washing exercise. The potentially uneven distribution of specialties in the BBE and NB groups (not reported by Burger *et al*) would again risk the introduction of bias. Differences in attire (surgical scrubs vs traditional work wear) and in type of patient interaction exist between specialties and indeed within clinical grades and these factors need careful consideration when designing a study of this type as well as when interpreting study findings.

We recognise the many difficulties inherent in undertaking a study in this complex field and while we do not wish to be overly critical of this work we feel that the considerations above are both valid and important. In order to reach firm conclusions about the effectiveness of the BBE policy, it is therefore essential that any clinical results are interpreted in the context of the current literature and that bias and confounding are minimised during study design.

References

1. Department of Health. Uniforms and workwear: Guidance on uniform and workwear policies for NHS employers. London: DH; 2010.
2. Treacle AM, Thom KA, Furuno JP *et al*. Bacterial contamination of health care workers' white coats. *Am J Infect Control* 2009; **37**: 101–105.
3. Trick WE, Vernon MO, Hayes RA *et al*. Impact of ring wearing on hand contamination and comparison of hand hygiene agents in a hospital. *Clin Infect Dis* 2003; **36**: 1,383–1,390.
4. McNeil SA, Foster CL, Hedderwick SA, Kauffman CA. Effect of hand cleansing with antimicrobial soap or alcohol-based gel on microbial colonization of artificial fingernails worn by health care workers. *Clin Infect Dis* 2001; **32**: 367–372.
5. Yildirim I, Ceyhan M, Cengiz AB *et al*. A prospective comparative study of the relationship between different types of ring and microbial hand colonization among pediatric intensive care unit nurses. *Int J Nurs Stud* 2008; **45**: 1,572–1,576.
6. Girou E, Loyeau S, Legrand P *et al*. Efficacy of handrubbing with alcohol based solution versus standard handwashing with antiseptic soap: randomised clinical trial. *BMJ* 2002; **325**: 362.
7. Kampf G, Löffler H. Dermatological aspects of a successful introduction and continuation of alcohol-based hand rubs for hygienic hand disinfection. *J Hosp Infect* 2003; **55**: 1–7.