LETTERS TO THE EDITOR

## Home-Based Preoperative Chlorhexidine Bathing Cloths to Prevent Surgical Site Infection

*To the Editor*—We read with interest the article by Bailey et al[1] titled "Economic Value of Dispensing Home-Based Preoperative Chlorhexidine Bathing Cloths to Prevent Surgical Site Infection." In their background rationale, the authors quote 2 studies,[2,3] both of which share the same authors, that they say show "chlorhexidine to be the optimal antiseptic agent for preoperative bathing in orthopedic patients."[1(p465)] However, neither of these trials were randomized, because the comparison was between those who complied and those who did not comply with a chlorhexidine bathing regime. In fact, in both studies the authors caution that prospectively randomized studies with larger numbers of compliant patients should be performed to further confirm findings.

It seems inconceivable that Bailey et al would base their computer simulation model on these 2 studies rather than on results from a recently updated Cochrane review[4] that included all randomized controlled trials published in this area. The review, in fact, shows no clear evidence of benefit for preoperative chlorhexidine in the prevention of surgical site infection. However, the authors overlook the results of this review in favor of "written personal communication" to support their chlorhexidine simulation study. We find this article to be disconcerting and misleading, with computer modeling based on inappropriate data.

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## Reply to Webster and Osborne

*To the Editor*—We thank Webster and Osborne[1] for reading our study titled "Economic Value of Dispensing Home-Based Preoperative Chlorhexidine Bathing Cloths to Prevent Surgical Site Infection"[2] with such interest. However, we do not agree with their analysis of our study.

First, our study focused on a novel technology (nonwoven polyester cloth) for preoperative home-based chlorhexidine bathing, which is a technology fundamentally different from the focus of the Cochrane review by Webster and Osborne.[3] In their 2008 randomized study of skin surface antiseptic levels, Edmiston and colleagues demonstrated that the nonwoven polyester fiber cloth was associated with larger concentrations of chlorhexidine gluconate on the surface of the skin, which in turn led to greater reductions in skin flora for patients using the polyester cloth, compared with patients who bathed using only the chlorhexidine liquid soap and a cotton cloth.[4] Although the Cochrane review provided a landscape of the interventions available, it did not include any studies that used the innovative chlorhexidine cloth.[3] The studies by Johnson et al[5] and Zywiel et al,[6] which were used to calibrate the base case of our simulations, further examine the antimicrobial potential of this novel technology, which is a fundamentally different application than the bathing described in the current Cochrane review.[3]

Second, our study clearly acknowledges the limitations of the Johnson et al[5] and Zywiel et al[6] study designs and therefore included broad sensitivity analyses that varied cloth efficacy (10%, 25%, 50%, and 75%) and patient compliance (0.25 to 2.0 times the baseline compliance distribution; mean [range] compliance, 15.3% [8.32%–20.0%]). Our analyses delineate the epidemiologic and economic value of preoperative bathing across these parameter ranges. We found that, even at a cloth efficacy as low as 10%, the intervention could still be cost-effective with increased patient compliance.[2]

Computational modeling can be a powerful tool when limited data are available from clinical studies, providing a land-