# Findings do not support chlorhexidine bathing in ICUs

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Once daily bathing with disposable cloths with the topical antimicrobial agent chlorhexidine of critically ill patients did not reduce the incidence of health care-associated infections, according to a study appearing in *JAMA*. The study is being released to coincide with its presentation at the Society of Critical Care Medicine's 44th Critical Care Congress.

Infections acquired during hospitalization (health care associated infections) are associated with increased hospital length of stay, rates of death, and increased costs. The skin of hospitalized patients is a reservoir for infectious pathogens. Subsequent invasion by skin flora is thought to be a mechanism contributing to health care-associated infections. Chlorhexidine is a broad-spectrum topical antimicrobial agent that, when used to bathe the skin, may decrease the bacterial burden, thereby reducing infections. Chlorhexidine bathing is incorporated into some expert guidelines, according to background information in the article.

Michael J. Noto, M.D., Ph.D., of Vanderbilt University, Nashville, Tenn., and colleagues conducted a study in which five adult intensive care units in Nashville performed once-daily bathing of all patients (n = 9,340) with disposable cloths impregnated with 2 percent chlorhexidine or nonantimicrobial cloths as a control. Bathing treatments were performed for a 10-week period followed by a 2-week washout period (a period allowed in order to eliminate the effect of the first intervention before starting a new intervention), during which patients were bathed with nonantimicrobial disposable cloths, before crossover (switching) to the alternate bathing treatment for another 10 weeks.

A total of 55 infections occurred during the chlorhexidine bathing period (4 central line-associated bloodstream infections [CLABSIs], 21 catheter-associated urinary tract infections [CAUTIs], 17 ventilator-associated pneumonia [VAP], and 13 Clostridium difficile) and 60 infections during the control bathing periods (4 CLABSI, 32 CAUTI, 8 VAP, and 16 C difficile infections). After adjusting for various factors, no significant difference between groups in the rate of the primary outcome (composite of these infections) was detected.

Other infection-related secondary outcomes, including health care-associated bloodstream infections, blood culture contamination, and clinical cultures positive for multi-drug resistant organisms were also not improved by chlorhexidine.

"The finding that chlorhexidine bathing did not reduce infections in this study suggests that such bathing may not be necessary, resulting in cost saving and avoidance of unnecessary [antimicrobial] exposure without adversely affecting clinical outcome," the authors write.

In an accompanying editorial, Didier Pittet, M.D., M.S., of the University of Geneva Hospitals, Geneva, Switzerland, and Derek C. Angus, M.D., M.P.H., of the University of Pittsburgh School of Medicine, and Associate Editor, *JAMA*, write that "widespread treatment of patients with antimicrobials - whether antibiotics, antivirals, antifungals, or biocides - has never been a good idea."

"Issues around chlorhexidine use include allergy, costs, resistance, and even safety. Although chlorhexidine bathing was found previously to reduce health care-acquired infection, the largest benefit appears to be in settings where the baseline prevalence of multidrug-resistant organisms is high. In these settings, the same benefits potentially could be gained through other approaches, such as improved hand hygiene, which may be safer and less likely to affect the ecology of bacterial resistance in the

ICU. The current study by Noto et al suggests that widespread adoption of daily chlorhexidine bathing is not indicated at this point, a position also articulated in the 2014 Society for Healthcare Epidemiology of America guidelines. Rather, for institutions with infection rates similar to those reported in the current study, a simpler, less expensive approach that focuses on basic hygiene practices seems best."

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