

Letter to the Editor

Nail polish used by healthcare personnel does not increase the rate of healthcare-associated infections

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To the Editor,

We have read with great interest the recent practice recommendations by Glowitz et al on the prevention of healthcare-associated infections (HAIs) through hand hygiene that were published in your journal.¹ The guidelines cover all aspects of hand hygiene relevant to the prevention of HAIs. However, the data and recommendations related to the use of nail polish among scrubbed individuals who interact with the sterile field should be more thoroughly and accurately discussed. The authors recommend that “these individuals should not wear fingernail polish or gel shellac” and rate the quality of evidence for this recommendation as HIGH, but they cite only one original study.² In that study, investigators evaluated the bacterial burden of gel nails, standard nail polish, and natural, unpolished nails on the hands of healthcare personnel both before and after hand hygiene with an alcohol-based hand rub 1, 7, and 14 days after product application. The study results were “Reductions in the bacterial burden of natural nails and standard polish, but not gel polish, ($P = .001$, $P = .0028$, and $P = .98$, respectively) were seen after hand hygiene. All three nail types become more contaminated with bacteria over time. Standard polish and natural nails may be more amenable to hand hygiene than gel polish.” They also reported, however, that “posthand hygiene mean CFUs did not differ significantly between groups.” Several other recent studies have come to similar conclusions. For example, in one study, investigators compared the microbial burden of unpolished nails to that of nails with 1-day and 4-day-old standard nail polish.³ They found that 1-day-old polish exhibited fewer gram-positive microorganisms than unpolished nails (599 colony-forming units (CFUs) vs 771 CFU, $P = .04$) and that 4-day-old polish showed significantly more gram-positive microorganisms than 1-day-old polish (925 CFU vs 599 CFU, $P = .03$). A similar trend was observed for gram-negative microorganisms, but the differences were not statistically significant. Another study came to similar results “The risk of growing a pathogenic microorganism after hand disinfection due to nails coated with a conditioner or a hybrid varnish was similar to that of natural nails.”⁴ The investigators noted, however, that a long-lasting regular nail varnish increased the risk of ineffective hand hygiene. It should be noted that these studies assessed the bacterial burden of fingernails but did not assess the impact of nail

polish on HAIs. Therefore, these studies cannot be used as definitive evidence that nail polish increases the risk of HAIs.

Fewer studies have assessed the impact of nail polish and gel shellac on the effectiveness of surgical hand scrub. The authors of the most recent Cochrane Database systematic review of this topic, published in 2014, concluded that there was “insufficient evidence to determine whether wearing nail polish affects the number of bacteria on the skin post-scrub.”⁵ A more recently reported randomized controlled trial found no significant differences in the reduction of viable bacterial counts after a surgical hand scrub performed 1 and 14 days after a manicure between natural nails and nails coated with gel nail polish.⁶ At the time of the most recent Cochrane Database review, there had been no trials of the impact of nail polish on rates of surgical site infection (SSI).⁵ Since that time, however, the results of a block-randomized clinical trial conducted among surgical staff participating in cesarean deliveries found no difference in SSI rates between procedures performed by staff wearing nail polish (1.3%) and those performed by staff without nail polish (2.8%, $P = .155$).⁷ Additionally, there was no difference in SSI rates between regular nail polish and gel nail polish (1.4% vs 1.4%, $P = .988$). SSI rates associated with chipped nail polish were higher than those associated with non-chipped nail polish (2.7% vs 0.9%), but this difference was not statistically significant ($P = .335$).

In conclusion, the available data suggest that some types of nail polish do not interfere with the effectiveness of routine hand hygiene or surgical scrub. Additionally, one recent study, published after the literature search was conducted for the hand hygiene practice recommendations,¹ suggests that the use of nail polish by surgical personnel does not increase the rate of SSIs after cesarean delivery. Our suggestion is to publish an addition to the recommendations by Glowitz et al about different types and conditions of nail polish, varnish, ultraviolet gels, and artificial fingernails in healthcare workers involved in sterile procedures and their potential for HAIs. The nail polish industry has advanced in the last few decades, and the quality and smoothness of these products may not reduce the effectiveness of hand hygiene or increase the risk of HAIs.

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