

## Purpose:

Our goal is to summarize current EBP research on infection risks of gel nails. Current UM BWMC policy prohibits the use of methyl acrylate (UV hardened) gel nails for health care workers. Hand hygiene is critical to reducing infection risk for patients, however UM BWMC policy is not based on experimental data, but on expert opinion.



Figure 1. The nails subungual space and gel nail grow-out.

## Background:

Current policy prohibiting the use of methyl acrylate (UV hardened) gel nails may be based on the concern that as nails grow out, this creates a crack in the subungual space that may reduce the effectiveness of hand hygiene and pose an infection risk for patients. (Hewlett et. al., 2018) (conversations with supervisors, 2019) Currently, EBP is needed to support this concern as the space also occurs with grow out of approved nail polish.

Johns Hopkins Hospital policy allows gel nail polish for health care workers. (JHH Policy, 2019) CDC hand hygiene guidelines for nail polish are based on research from 2002 which does not include data on gel nails. The Association for peri-operative Registered Nurses (2019, updated in 2016) stated that since there is no research, the safe approach was to not accept gel nails.

## Literature Review and Summary of Evidence

- Bowden, Vicky R. & Greenberg, Cindy Smith et. al. (2016) Artificial nails as well as chipped nail polish are not permitted. (No evidence based research to explain this policy)
- Hewlett et. al. (2018) performed an experimental study comparing gel nails (UV hardened) on 74 health care workers (HCW) at three hospitals: Omaha, NE; Pomona, CA; and Indianapolis, IN and found no significant difference in bacterial burden on gel nails over time, or before or after hand hygiene. See Figure 2.
- “The trials concluded that freshly painted nails, compared with natural (unpolished) nails had a lower bacterial load, however, comparing the mean value” (Arrowsmith and Taylor, 2014).
- Cimon and Featherstone (2017) “Two guidelines recommend removal of all hand and wrist jewelry and no wearing of nail polish, while one guideline recommends allowance of a simple finger band and unchipped nail polish. The guidance in all cases does not appear to be based on strong evidence”

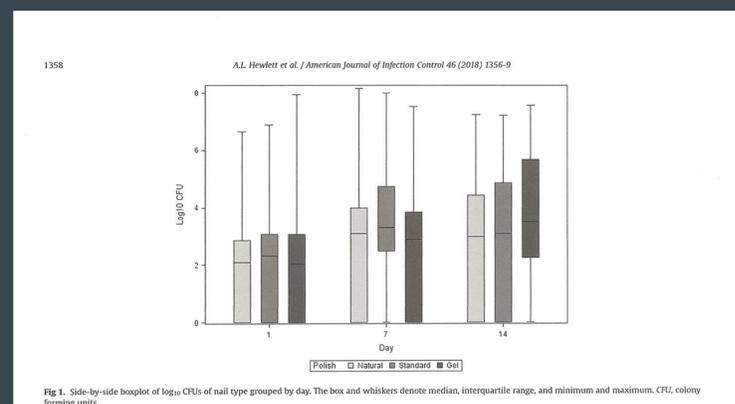


Figure 2. Hewlett et al. (2018). There was no significant difference in bacterial burden on HCW with gel nails compared to standard nail polish and natural nails over 14 days.

## Practice Question

In employees involved with direct patient care, how does nail lacquer (standard nail polish) compare with methyl acrylate (UV hardened, cannot be removed with acetone) gel nails, in the incidence of outbreaks of infection due to gram-negative bacteria, coagulase negative *Staphylococcus*, yeast, and *Corynebacterium*?

## Conclusion:

Current gel nail policy at UM BWMC is determined by expert opinion that gel nails increase risk of infection for patients. This is an issue that some nurses feel strongly about such that they have been sent home and this can affect staffing levels and morale of RNs. We recommend further research to investigate the microorganism accumulation levels on gel nails in comparison to our current practice to determine best practice in regard to nail decoration and its effects on patient care.

## Recommendations:

We hope our analysis of EBP on gel nails sets the foundation for future human trial research at BWMC. We suggest research trials with RNs in clinical practice using gel nails over time as the nail grows out to determine if there is more bacteria with standard nail polish compared to gel nail polish.

## Recommended UMBWMC Experiment:

We propose conducting repeat trials of bacterial burden and damage to gel nails over a four week period of time with artificial fingers and hope to do future human trials on nails treated with standard nail polish and methyl acrylate gel polish. Throughout a four week experimental process, the wear and tear on nail coating and bacterial burden would be analyzed before and after use of alcohol hand cleanser.

## References:

Available upon request