

Jewellery, nail polish and artificial nails: Why it is necessary to do without them while working in health care.



The latest recommendations indicate that jewellery, nail polish and artificial fingernails impair proper hand hygiene in healthcare settings. The reasons given are:

1. They serve as potential reservoirs of pathogens.
2. They cause increased perforation of gloves.
3. They increase the risk of work-related injuries.

What data and regulations are relevant in this context and how can they be used as supporting arguments in practice? An overview.

1. Potential reservoirs of pathogens

Various studies found that jewellery and wedding rings, but also brittle nail polish or artificial fingernails, were responsible for an increased bacterial density. Gram-negative bacteria such as *Enterobacter cloacae*, *Klebsiella spp.* and *Acinetobacter spp.*, which are clinically relevant and responsible for a significant number of nosocomial infections, as well as *Staphylococcus aureus* were detected under rings.^{1,2,3} Although the number of bacterial colonies found seemed to correlate with the number of rings worn, no increased transmission rate had been shown.⁴

Brittle nail polish is a risk because with microorganisms accumulating in its grooves and niches, it becomes a source of danger compared to the surface of smooth and unpainted nails.⁵

Artificial fingernails have repeatedly been identified as the cause of outbreaks and infections: in various studies, genotyping of different microorganisms revealed that artificial fingernails were both a reservoir of pathogens and the cause of transmissions.^{5,6}



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2. Glove perforations

Wearing rings leads to an increased rate of perforation of gloves. This was investigated, for example, in a study with double-gloved hands during joint replacement surgeries.⁷ A damaged glove can lead to pathogens of the resident and transient skin flora of health care workers being transferred to surfaces and patients. Especially during surgeries, there is a risk of causing surgical site



infection — a type of infection that has serious consequences for the patients, but also for the medical facility concerned.

Too long (artificial) fingernails also lead to an increased risk of glove perforation.

3. Risk of work-related injuries

Jewellery on fingers and wrists are a source of danger in two respects::

- It is possible to get caught on jewellery, which can cause serious injury in a work environment where patients are repositioned or equipment or its parts are being transported, to name just two examples.
- Patients may be unintentionally injured during treatment and care if, for example, jewellery has sharp edges or polished stones.

The section 4.1.7. of the Technical Rules for Biological Agents in Health Care and Welfare (TRBA 250) therefore

stipulates that rings, bracelets, wristwatches or other jewellery must not be worn on hands or forearms.⁸

Furthermore, the Technical Rules for Hazardous Substances — Hazards through Skin Contact, Identification — Assessment — Measures (TRGS 401) explain that the exposure to moisture or hazardous substances under arm and hand jewellery promotes the development of abnormal skin changes and that wearing jewellery must therefore be avoided for reasons of professional skin protection.⁹

Conclusions

Fingernails that are natural, clean and are trimmed short and round, and no jewellery on hands and forearms are an important precondition for the work of medical and nursing staff in the healthcare sector.



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Practical Tip

Three ideas on how hygiene practitioners can promote the implementation of hand hygiene guidelines regarding jewellery, nail polish and artificial fingernails.

1. Education

Inform your colleagues about the facts and give them examples from the professional literature. Make use of demonstrations in training courses, e. g. with the UV lamp and a fluorescent. Wearing a ring and then applying the Dermalux solution and using the UV lamp can illustrate that hand disinfection is not adequately possible under the piece of jewellery.

2. Motivation

Describe the benefits of following the rules for everyone involved and emphasise the safety of your colleagues in particular. Talk about the daily routine when coming to work and changing clothes by suggesting rituals to remember to take off the jewellery.

3. Reminder

Approach your colleagues in an appreciative but confident manner if you notice that they do not adhere to the guidelines regarding nail polish, artificial fingernails or jewellery. Jointly agree by when implementation (e. g. removal of artificial fingernails) will have taken place and then follow up.

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¹ Lowbury EJJ. Aseptic methods in the operating suite. *Lancet*, 1968, 1:705–709

² Hoffman PN et al. Micro-organisms isolated from skin under wedding rings worn by hospital staff. *BMJ*, 1985, 290:206–207

³ Jacobson G et al. Handwashing: ring-wearing and number of microorganisms. *Nursing Research*, 1985, 34:186–188

⁴ Trick WE, Vernon MO, Hayes RA et al (2003): Impact of ring wearing on hand contamination and comparison of hand hygiene agents in a hospital. *Clin Infect Dis* 36(11):1383–1390

⁵ Händehygiene in Einrichtungen des Gesundheitswesens: Empfehlung der Kommission für Krankenhaushygiene und Infektionsprävention (KRINKO) beim Robert Koch-Institut (RKI) Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz. 2016;59(9):1189-220

⁶ WHO Guidelines on Hand Hygiene in Health Care: First Global Patient Safety Challenge Clean Care Is Safer Care. Geneva: World Health Organization; 2009

⁷ Nicolai P, Aldam CH, Allen PW. Increased awareness of glove perforation in major joint replacement. A prospective, randomised study of Regent Biogel Reveal gloves. *J Bone Joint Surg Br*. 1997;79(3):371-3

⁸ TRBA 250: Biologische Arbeitsstoffe im Gesundheitswesen und in der Wohlfahrtspflege. GMBI 2014(10-11):206

⁹ TRGS 401: Gefährdung durch Hautkontakt. GMBI 2022:895-926