

Hand Hygiene and Fingernails

What you need to know

Presented by

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National Infection Control Guidelines

- Fingernails should be kept short and clean, and artificial fingernails should not be worn
- It is good practice to not wear nail polish
 - If it must be used it should not be chipped and should be removed every 4 days (AORN 2007)
- The consensus recommendation is to strongly discourage the wearing of watches, rings or other jewellery during health care
 - If jewellery must be worn in clinical areas it should be limited to a plain band (e.g. wedding ring) and this should be moved about on the finger during hand hygiene practices
 - In high-risk settings such as operating suites/rooms, any jewellery, even a plain band, should not be worn

• NHMRC (2010) *Australian Guidelines for the Prevention and Control of Infection in Healthcare* p. 40

ESBL *Klebsiella pneumoniae*

- Nine infants in NICU developed ESBL *K. pneumoniae* infection
 - Organism usually carried in the gut of colonised patients
- Two HCW carried it on their hands
 - One had artificial nails
 - The other had long, manicured natural nails
- Removal of artificial nails and cutting the long nails resolved the carriage of this organism and cessation of the outbreak

• Gupta *et al.* (2004)

Pseudomonas aureginosa

- 16 patients developed *P. aureginosa* infection after cardiothoracic surgery
 - 5 died
 - 9 suffered ongoing complications
 - 2 recovered
- These infections were caused by wound contamination from the thumbnail of a scrub nurse, despite the appropriate use of latex surgical gloves

• McNeil *et al.* (2001)

The source

- The nurse had been wearing flesh-colored nail polish to hide severe onycholysis of the right thumbnail
- Cultures demonstrated that the subungual region of the nail persistently yielded colonies of *P. aeruginosa* and *Candida albicans*
- Many of the cosmetic products in her home were also heavily contaminated with *P. aeruginosa*

• McNeil *et al.* (2001)

But she was wearing gloves!

- There are several mechanisms by which gloves may fail
 - Breaks that allowed passage of organisms
 - Glove perforation can occur in up to 50% of surgical procedures
 - Frequency of perforations increases with complexity and duration of procedures
 - Inherent physical and chemical properties of latex surgical gloves
 - Natural rubber latex is porous and allows uptake of aqueous fluids into the latex membrane
 - Glove hydration decreases glove strength and increases permeability to viruses and chemicals
 - During the cardiac surgery gloves were immersed in cold solutions [slush]
 - It is interesting to note that the outbreak corresponded to the introduction of powder-free latex surgical gloves

• McNeil *et al.* (2001)

Onycholysis – separation of the nail from the nail bed



<http://www.nailsmag.com>

Pseudomonas – the dreaded ‘greenie’



<http://www.nailsmag.com>

Weakened nails after removal of artificial nails



<http://www.nailsmag.com>

Contact dermatitis



<http://www.nailsmag.com>

Onychomycosis – fungal nail infection



<http://www.nailsmag.com>

Summary

- According to the National Infection Control Guidelines each healthcare facility should develop policies on the wearing of jewellery, artificial fingernails or nail polish by healthcare workers
- The consensus recommendations from WHO are that HCWs do not wear artificial fingernails or extenders when having direct contact with patients and natural nails should be kept short ($\leq 0.5\text{cm}$ long)
 - Hand Hygiene Australia www.hha.org.au

The challenge

- What policy are you going to implement in your facility?



<http://www.telegraph.co.uk/>

References

- Gupta, A., Della-Latta, P., Todd, B., San Gabriel, P., Haas, J., Wu, F., Rubenstein, D. & Saiman, L. (2004) 'Outbreak of extended-spectrum beta-lactamase-producing *Klebsiella pneumoniae* in a neonatal intensive care unit linked to artificial nails.' *Infection Control and Hospital Epidemiology* 25 (3):210-215
- McNeil, S A., Nordstrom-Lerner, L., Malani, PN., Zervos, M. & Kauffman, CA. (2001) 'Outbreak of Sternal Surgical Site Infections Due to *Pseudomonas aeruginosa* Traced to a Scrub Nurse with Onychomycosis.' *Clinical Infectious Diseases* 2001 33:317-23