WHITE PAPER

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Clinical foundations of patient hand hygiene

Why patient hand hygiene is important and the strategies that can be used to support it in the healthcare environment.

Authors

This document is the result of a collaboration between leading industry experts including:

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Introduction

Hand hygiene is a crucial intervention to prevent healthcare-associated infections (HCAIs): it removes microorganisms picked up by touch and prevents them being transferred to other patients or surfaces. Hand hygiene improvement strategies predominantly focus on the hands of healthcare workers; however, patients also need to perform hand hygiene to protect themselves from harmful microorganisms they might encounter in the healthcare environment.

This document explains why patient hand hygiene is important and the strategies that can be used to support it.

What are the risks to patients if they don't clean their hands

Microorganisms are present on surfaces throughout the healthcare environment and patients will pick them up on their hands when they touch them. Patients can also spread infections by contaminating their hands with respiratory or gastrointestinal pathogens[1,2].

Encouraging patients to decontaminate their hands will reduce the risk that they transfer harmful microorganisms onto susceptible sites such as IV devices, urine catheters or wounds where they may cause infection[3]. It will also reduce the risk they will ingest pathogens such as *Clostridioides difficile* (*C. diff*), norovirus or contaminate their mucous membranes with respiratory viruses such as influenza.

Studies have shown that patients are more likely to have pathogens on their hands than staff[4,5]. In one study that sampled 100 patients, 39% had at least one pathogen on their hands including *C. diff*, methicilllin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* (VRE), and Gram-negative microorganisms.[6]

The COVID-19 pandemic has shown us how important infection prevention measures are such as maintaining an effective hand hygiene[7]. This is particularly important in hospitals where there are many vulnerable patients.

Key risks

- Contamination of patient hands
- Transfer of respiratory or gastrointestinal pathogens
- Ingestion of harmful microorganisms
- Transfer of harmful microorganisms to susceptible sites
- Increased healthcare-associated infections

How likely are patients to clean their hands in hospital?

Studies suggest that whilst healthcare staff believe they offer patients the opportunity to wash their hands, in practice this rarely happens.[8-10]

A study that observed 303 patient hand hygiene opportunities found that hand decontamination occurred in only 13% of occasions and a means by which patients could decontaminate their hands was rarely available at the time the opportunity occurred.[11] Although single-use wrapped hand wipes are often placed on meal trays, this study found that patients did not recognise the purpose of the pack or the importance of cleansing their hands before eating and most were discarded unopened.

Barriers to compliance

Availability of hand hygiene solutions

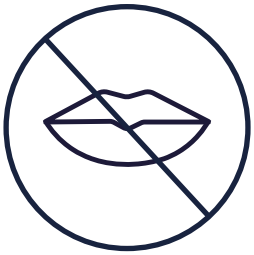
A study found that 47% of patients were not satisfied with their ability to maintain their hand hygiene in the hospital[12]. Although staff recognise patient hand hygiene as an important infection control measure, they 'rarely make hand hygiene available for patients'.[11]

Encouragement from staff

Patients often rely on healthcare workers to encourage and assist their hand hygiene. In fact, the importance of staff support was 'critical in determining whether patient hand hygiene occurred as they prompted almost 80% of the patient hand hygiene events'[11].

Poor mobility

Patients with poor mobility may find it difficult to access hand washing basins or alcohol gel dispensers[13]. This is also apparent for bed bound patients with mobility challenges or surgical drains[14].



Unpleasant taste and smell

Alcohol rub is often used as a means of sanitising hands in between hand washing. As a safety feature, alcohol rubs may contain a bittering agent to discourage drinking. However, for patients who use alcohol rub immediately before eating, the aftertaste of alcohol rub on their hands can be unpleasant[15].

Perceived value

Patients believe that hand sanitising products are made available for healthcare workers rather than themselves, and that their hand hygiene needs outweigh their own[12]. From a surveyed population, 26% of patients reported that cleaning their hands didn't make a difference in preventing them getting sicker.

Fear of asking

Patients and carers may feel unable to ask staff to help them clean their hands if the opportunity is not offered to them.[16]

When should patients clean their hands?

epic3 guidelines highlight the importance of patient hand hygiene in the clinical setting[17], emphasising that patients and relatives should be provided with information and appropriate products to carry out hand hygiene.

Unlike staff, patients are not in direct contact with other patients so the points when they need to wash their hands are not quite the same.

epic3 suggest that patients should be offered the opportunity to clean their hands before meals and after using the toilet, commode or bedpan/urinal, and that products **tailored to patient needs** should be made available which may include alcohol-based hand rub, hand wipes and access to handwash basins.

Key moments for patient hand hygiene

1. Before and after eating or drinking

2. After using a toilet or commode

3. After coughing, sneezing or touching your nose or mouth

4. Before and after touching an invasive device[18]

Although enabling patients to wash their hands with soap and water would be good, this can be logistically difficult in hospital where patients may have poor mobility and are not close to a handwash basin. A thorough cleanse with an antiseptic hand wipe is as effective as washing with soap and water[19]. Both these and alcohol-based hand rubs can be made available at the patient's bedside.

What can be done to support patient hand hygiene?

Improving patient hand hygiene has been shown to reduce the transmission of infections in hospital. A study that encouraged hand sanitisation twice a day for patients and their relatives reduced MRSA infections by 51%[20]. Similar positive results were shown in another facility in which encouraging patients to sanitise their hands every 4 hours was associated with a significant reduction in both viral respiratory infections and outbreaks caused by other pathogens[21].

Educating nursing staff about the importance of encouraging patient hand hygiene is key, but needs to be combined with making products for hand hygiene available to the patient at the bedside and within their reach, particularly for those who are bed bound.[22]

Key considerations for promoting patient hand hygiene include:

- Patients have easy access to a method of cleansing their hands at the critical points when this is necessary
- Staff, patients and their relatives are aware that patient hand hygiene is important and when it needs to be done
- Staff proactively encourage patients to clean their hands and assist those who need help to do so

The next page shows an example of a strategy to improve patient hand hygiene.

Investing a small amount into improving patient hand hygiene can reduce the spread of infection in healthcare settings and keep patients safe from infection. Initiatives to increase patient hand hygiene are more likely to work if the following factors are addressed:

Organisational support

This includes: making resources to support point-of-need hand decontamination available for patients; making information about patient hand hygiene available to patients, their relatives and staff; and supporting healthcare worker training and education.

Practical interventions

Ensure that hand hygiene facilities are easy for patients to access e.g. dispensers next to patients' beds, at the washbasin, or near the door, portable wipe packs or alcohol-based products for patients to use[24,25].

Leading by example

Senior staff should encourage and promote patient hand hygiene[23].

Raising awareness

Promotional tools can help drive patient compliance and communicate the reasons why performing hand hygiene is important, as well as how and when to do it[10]. Posters are a low cost and effective way of raising awareness, and reward stickers can be used in paediatric units to encourage good hand hygiene.

A strategy for improving patient hand hygiene[11]

Loveday HP, Tingle A, Wilson JA. Using a multimodal strategy to improve patient hand hygiene. *Am J Infect Control.* 2021;49(6):740-745

In 2018, the below multimodal strategy was implemented in 6 wards in the care of older people speciality in a UK hospital.

In total 18 weeks were spent observing patients' hand hygiene opportunities: 6 weeks auditing baseline behaviours. The effect of the bundle on patient hand hygiene was monitored by structured observation of hand hygiene opportunities over a 12-week period.

The patient hand bundle comprised:

- **Multipack of hand wipes** provided to each patient
- **Patient information card** advising patients when to perform hand hygiene with the hand wipe pack
- **Staff protocol for patient hand hygiene** advising opportunities for staff support to encourage patients to clean their hands

Implementation of the bundle resulted in patient hand hygiene compliance increasing from 13% to 60%.

Key to the success of the intervention was ensuring that all patients had a pack of wipes available at the bedside and other packs were readily available for staff to use for patients who needed assistance e.g., after using the commode or before meals.

Staff support to enable patient hand hygiene was critical. Even patients with impaired cognition would wipe their hands if it was placed there by a member of staff. Patients reported that they liked to have the wipes available so they could clean their hands themselves.

References

1. Noskin GA, Stosor V, Cooper I, Peterson LR. Recovery of Vancomycin-Resistant Enterococci on Fingertips and Environmental Surfaces. *Infect Control Hosp Epidemiol*. 1995;16(10):577-581. doi:10.1086/647011
2. Casewell M, Phillips I. Hands as route of transmission for Klebsiella species. *BMJ*. 1977;2(6098): 1315-1317. doi:10.1136/bmj.2.6098.1315
3. Pokrywka M, Feigel J, Douglas B, Grossberger S, Hensler A, Weber D. A bundle strategy including patient hand hygiene to decrease *Clostridium difficile infections*. . *Medsurg Nurs*. 2014;23(3):145-164
4. Lemmen SW, Häfner H, Zolldann D, Stanzel S, Lütticken R. Distribution of multi-resistant Gram-negative versus Gram-positive bacteria in the hospital inanimate environment. *J Hosp Infect*. 2004;56(3):191-197. doi:10.1016/j.jhin.2003.12.004
5. Bayuga S, Zeana C, Sahni J, Della-Latta P, El-Sadr W, Larson E. Prevalence and antimicrobial patterns of *Acinetobacter baumannii* on hands and nares of hospital personnel and patients: The iceberg phenomenon again. *Heart & Lung*. 2002;31(5):382-390. doi:10.1067/mhl.2002.126103
6. Istenes N, Bingham J, Hazelett S, Fleming E, Kirk J. Patients' potential role in the transmission of health care-associated infections: Prevalence of contamination with bacterial pathogens and patient attitudes toward hand hygiene. *Am J Infect Control*. 2013;41(9):793-798. doi:10.1016/j.ajic.2012.11.012
7. CDC (Centres for Disease Control and Prevention). When and How to Wash your hands. Published March 14, 2022. Accessed September 27, 2022. https://www.cdc.gov/handwashing/when-how-handwashing.html
8. Ardizzone LL, Smolowitz J, Kline N, Thom B, Larson EL. Patient hand hygiene practices in surgical patients. *Am J Infect Control*. 2013;41(6): 487-491. doi:10.1016/j.ajic.2012.05.029
9. Burnett E. Perceptions, attitudes, and behavior towards patient hand hygiene. *Am J Infect Control*. 2009;37(8):638-642. doi:10.1016/j.ajic.2009.04.281
10. Sunkesula VC, Knighton S, Zabarsky TF, Kundrapu S, Higgins PA, Donskey CJ. Four Moments for Patient Hand Hygiene: A Patient-Centered, Provider-Facilitated Model to Improve Patient Hand Hygiene. *Infect Control Hosp Epidemiol*. 2015;36(8):986-989. doi:10.1017/ice.2015.78
11. Loveday HP, Tingle A, Wilson JA. Using a multimodal strategy to improve patient hand hygiene. *Am J Infect Control*. 2021;49(6): 740-745. doi:10.1016/j.ajic.2020.12.011
12. Knighton SC, Richmond M, Zabarsky T, Dolansky M, Rai H, Donskey CJ. Patients' capability, opportunity, motivation, and perception of inpatient hand hygiene. *Am J Infect Control*. 2020;48(2):157-161. doi:10.1016/j.ajic.2019.09.001
13. Landers T, Abusalem S, Coty MB, Bingham J. Patient-centered hand hygiene: The next step in infection prevention. *Am J Infect Control*. 2012;40(4):S11-S17. doi:10.1016/j.ajic.2012.02.006
14. Haverstick S, Goodrich C, Freeman R, James S, Kullar R, Ahrens M. Patients' Hand Washing and Reducing Hospital-Acquired Infection. *Crit Care Nurse*. 2017;37(3):e1-e8. doi:10.4037/ccn2017694
15. Coronavirus (COVID-19) Update: FDA Continues to Ensure Availability of Alcohol-Based Hand Sanitizer During the COVID-19 Pandemic, Addresses Safety Concerns (FDA). https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-continues-ensure-availability-alcohol-based-hand-sanitizer-during. Published April 27, 2020. Accessed May 9, 2022.
16. Lent V, Eckstein EC, Cameron AS, Budavich R, Eckstein BC, Donskey CJ. Evaluation of patient participation in a patient empowerment initiative to improve hand hygiene practices in a Veterans Affairs medical center. *Am J Infect Control*. 2009;37(2):117-120. doi:10.1016/j.ajic.2008.04.248
17. Loveday HP, Wilson JA, Pratt RJ, et al. epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England. *Journal of Hospital Infection*. 2014;86: S1-S70. doi:10.1016/S0195-6701(13)60012-2
18. Improving pre-meal patient hand hygiene compliance; A quality improvement collaborative. National Excellence for Health and Care Excellence (NICE). https://www.nice.org.uk/sharedlearning/improving-pre-meal-patient-hand-hygiene-compliance-a-quality-improvement-collaborative. Published January 2019.
19. Wilkinson MAC, Kiernan MA, Wilson JA, Loveday HP, Bradley CR. Assessment of the efficacy of a patient hand wipe: development of a test method. *Journal of Hospital Infection*. 2018;98(4):339-344. doi:10.1016/j.jhin.2017.08.013
20. Gagné D, Bédard G, Maziade PJ. Systematic patients' hand disinfection: impact on meticillin-resistant *Staphylococcus aureus* infection rates in a community hospital. *Journal of Hospital Infection*. 2010;75(4):269-272. doi:10.1016/j.jhin.2010.02.028
21. Cheng VCC, Wu AKL, Cheung CHY, et al. Outbreak of human metapneumovirus infection in psychiatric inpatients: implications for directly observed use of alcohol hand rub in prevention of nosocomial outbreaks. *J Hosp Infect*. 2007;67(4):336-343. doi:10.1016/j.jhin.2007.09.010
22. Manresa Y, Abbo L, Sposato K, de Pascale D, Jimenez A. Improving patients' hand hygiene in the acute care setting: Is staff education enough? *Am J Infect Control*. 2020;48(9): 1100-1101. doi:10.1016/j.ajic.2019.12.007
23. Gaube S, Fischer P, Lermer E. Hand(y) hygiene insights: Applying three theoretical models to investigate hospital patients' and visitors' hand hygiene behavior. *PLoS One*. 2021;16(1):e0245543. doi:10.1371/journal.pone.0245543
24. Kampf G. The six golden rules to improve compliance in hand hygiene. *J Hosp Infect*. 2004;56:3-5. doi:10.1016/j.jhin.2003.12.023
25. Magiorakos AP, Suetens C, Boyd L, et al. National Hand Hygiene Campaigns in Europe, 2000-2009. *Eurosurveillance*. 2009;14(17). doi:10.2807/ese.14.17.19190-en

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