Clinical Practice

Practical procedures

Hand hygiene

Infection control 2: hand hygiene using alcohol-based hand rub

Healthcare-associated infections (HCAIs) are a serious risk to patients, staff and visitors and are estimated to cost the NHS £1bn a year. National surveys have identified the prevalence of HCAIs in hospital patients of 6.4% in England in 2011 (Health Protection Agency, 2012), 4.6% in Scotland in 2016 (NHSC Scotland, 2017), 4.0% in Wales in 2011 (Public Health Wales, 2012), and 4.2% in Northern Ireland in 2011/12 (Public Health Agency, 2012).

Both resident and transient bacteria will be present on hands; if transferred from the hands of a health professional to susceptible sites such as wounds or invasive devices they can cause life-threatening infections, while transfer to non-vulnerable sites can leave patients colonised with bacteria that could cause a future infection in the patient or expose staff and visitors to the risk of infection (Loveday et al, 2014).

Why is hand hygiene important?
The most common mode of transmission of pathogens associated with HCAIs in care settings is via the contaminated hands of health professionals (World Health Organization, 2009). Transmission from a health professional’s hands to a patient takes place in sequential steps:

- Organisms are transferred to the health professional’s hands from a patient or the environment;
- The health professional fails to perform effective hand hygiene;
- The health professional’s hands come into contact with a patient, or a vulnerable site such as the entry point for an invasive device.

Hand hygiene is the primary measure proven to be effective in preventing HCAIs and is the cornerstone of good infection prevention and control (IPC) practice (WHO, 2009). Current national and international guidance has consistently identified that effective hand decontamination results in significant reductions in potential pathogens on the hands. Loveday et al (2014) say it is therefore logical that effective decontamination decreases the incidence of preventable HCAIs, leading to a reduction in patient morbidity and mortality.

Hand decontamination can be achieved using alcohol-based handrub (ABHR) or liquid soap and water. Staff should receive regular training on how to undertake the correct hand hygiene technique.

This article, the second in a six-part series on infection prevention and control, discusses when hand hygiene should be performed, which hand hygiene procedure to use in different situations, and the procedure for cleansing the hands with ABHR.

Part 6 in this series will discuss how to clean the hands using soap and water, and how to protect skin integrity.

When to perform hand hygiene
The WHO (2009) advises that health professionals’ hands should be decontaminated at five critical points before, during and after patient care activity; these are known as My Five Moments for Hand Hygiene:

- Before touching a patient;
- Before clean/aseptic procedure;
- After body fluid exposure/risk;
- After touching a patient;
- After touching patient surroundings.

Hand hygiene resources and health professionals’ compliance with hand hygiene guidelines should be audited at regular intervals and the results should be fed back to health professionals to improve and sustain levels of compliance (Loveday et al, 2014).

Which cleansing agent to use
Choosing the appropriate method of hand decontamination depends on assessing a number of factors:

- The nature of the care intervention being provided;
- The availability of resources at or near the point of care;
- What is practically possible;
- The acceptability of preparations or materials in terms of ease of use, time and access, as well as dermatological effects (Loveday et al, 2014).

While either effective handwashing or effective use of ABHR will remove transient microorganisms to make the hands socially clean, ABHR will also substantially reduce resident microorganisms. It is, therefore,
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Fig 1. Apply handrub

Fig 2. Rub palm to palm

Fig 3. Rub back of hand with palm

Fig 4. Rub with fingers interlaced

recommended for routine use due to its increased efficacy, easy availability at the point of care and general acceptability to health professionals (Loveday et al, 2014).

However, while ABHR reduces some resident microorganisms, it is not effective against all species (for example some viruses including norovirus and spore-forming microorganisms such as Clostridium difficile). In addition, it will not remove dirt and organic material and may not be effective in some outbreak situations; in such situations handwashing with soap and water is required.

Loveday et al (2014) recommend that ABHR is used to decontaminate hands before and after direct patient contact and clinical care except in the following situations, when soap and water must be used:

- When caring for patients with vomiting or diarrhoeal illness, regardless of whether or not gloves have been worn.

The procedure

Handrub should be available at the point of care in healthcare. With regards to staff working in community settings, they should carry their own ABHR to ensure that they have some available when they visit patients’ homes or other non-healthcare facilities.

Before performing hand hygiene, you should:

- Expose your forearms (bare below the elbows);
- Ensure all hand/wrist jewellery is removed (staff members should be bare below the elbows at all times when working so should not be wearing any jewellery other than a single, plain metal ring, which should be removed or moved up the finger to wash underneath it, then moved back during hand hygiene if required by local policy);
- Ensure fingernails are clean and short, and artificial nails or nail products are not worn;
- Cover any cuts or abrasions with a waterproof dressing.

To decontaminate hands using ABHR:

1. Ensure the hands are free of dirt and organic material.
2. Apply a palmful of handrub in a cupped hand and cover all surfaces (Fig 1).
3. Rub hands palm to palm (Fig 2).
4. Rub back of each hand with palm of other hand with fingers interlaced (Fig 3).
5. Rub hands with fingers interlaced (Fig 4).

6. Rub with back of fingers to opposing palms with fingers interlocked (Fig 5).

7. Rub each thumb clasped in opposite hand using a rotational movement (Fig 6).

8. Rub tips of fingers in opposite palm in a circular motion (Fig 7).

9. Rub each wrist with opposite hand (Fig 8).

10. Once dry, your hands are safe (20-30 seconds).

Part 3, on using gloves and aprons, will be published in July NT

References