

Dorset Infection Control Forum Consensus Guideline

HAND HYGIENE

Infection Control Policy 7

Approved by Infection Control Committee	Version	Issue Date	Review Date	Contact Person
	1	June 05	June 07	Infection Control

HAND HYGIENE GUIDELINE FOR HEALTHCARE WORKERS

• INTRODUCTION:

The transmission of microorganisms from one patient to another via the hands of healthcare workers, or from hands that have become contaminated from the environment can result in significant adverse outcomes. Healthcare associated infection leads to the death of 5,000¹ patients and costs the NHS £1 billion a year.

International studies show that infection rates can be reduced by 10-50% when healthcare staff regularly clean their hands².

Clinical teams are required to demonstrate high, sustained levels of compliance with hand washing and hand disinfection policies/protocols³

Where microorganisms are introduced into clinical sites (such as surgical wounds, intravascular catheter sites or urinary drainage systems) there presents a direct clinical threat.

Where potential pathogens (organisms with the capability to cause disease) that are transmitted by the hands are then able to establish themselves as either temporary or permanent colonisers of the patient there presents an indirect clinical threat, but with real possibilities of then causing infection at susceptible sites⁴

• 1. MICROBIOLOGY OF THE HANDS

Decontamination refers to the process for the physical removal of blood, body fluids and transient organisms. **Transient organisms** are those organisms located on the skin surface acquired by direct contact with other people, equipment or body sites as a result of everyday activities such as:-

- Handling patients washing materials
- Handling patients clothing
- Bed making
- Sluice room activities
- Handling curtains

This results in the hands being exceedingly efficient vectors of potential infection.

Transient organisms are however easily removed by washing the hands, which in turn reduces the risk from cross-infection.

Also present on the hands are **Resident organisms**, commonly termed normal flora or commensals. These live continuously with each of us deeply seated within the epidermis, in skin crevices, hair follicles, sweat glands and beneath fingernails. Their function is to protect the skin from invasion by more harmful organisms.

Whilst these micro-organisms are not usually implicated in infections they may enter and establish infection at times of surgery or invasive procedures such as manipulation of wound dressings, intravascular catheter sites or urinary drainage systems⁵

Resident organisms are not easily removed by normal hand washing – and their removal will be discussed later.

- **2. WHEN MUST YOU DECONTAMINATE YOUR HANDS IN RELATION TO PATIENT CARE?**

There is no set frequency for hand washing – it is determined by actions – those completed and those intended to be performed⁵

Four key factors need to be considered in deciding necessity for hand decontamination:

- The level of anticipated contact with patients, objects or equipment
- The extent of contamination that may occur within that contact
- The patient care activities being performed
- The susceptibility of that patient

Hands must be decontaminated immediately prior to each and every episode of direct patient contact/care and following any activity or contact that potentially results in the hands becoming contaminated⁵

- **3. CHOICE OF CLEANSING AGENT**

- Routine hand decontamination:

Liquid soap, in sealed disposable cartridges, and water is effective for the removal of physical dirt or soiling. This will remove transient microorganisms and render the hands socially clean.

Bars of soap are not advised in clinical areas as gross bacterial contamination can occur if the soap is left lying in a pool of water.

Soft, good quality, disposable paper towels should be used to thoroughly dry the hands^{4,5}

- Alcohol hand rubs:

Alcohol hand rubs provide a useful alternative when there is a need for rapid hand disinfection, or when access to facilities is difficult or inconvenient (for example during ward rounds, or working within the Community setting.)

Alcohol based hand rubs are not effective at removing physical dirt or soiling.

Alcohol preparations may not be effective against some viruses (for example enteroviruses) owing to the relatively short exposure time of the agent on the hands and for this reason washing with soap and water prior to the application of alcohol hand rub is required^{4,5}

Apply alcohol hand rub (or wash the hands with liquid soap and water) between different caring activities for the same patient or between caring for different patients.

- Antiseptic (anti-microbial) hand decontamination:

Anti-microbial preparations are those that kill or inhibit microorganisms

There are a variety of aqueous antiseptic agents available, which differ, in their active ingredients. These include:

- Chlorhexidine gluconate
- Povidone-iodine
- Triclosan

Each providing a prolonged effect on reducing the microbial load on the hands.

Preparations containing antimicrobial agents have different effects on specific organisms. For example Chlorhexidine has been suggested to be less effective than Povidone-iodine at removing MRSA from contaminated hands.

Preparations with a residual effect are not considered to be necessary for everyday clinical practice but may be advised for some invasive procedures and in outbreak situations^{4,5}

- Surgical hand decontamination:

The agents for surgical hand decontamination are the same as for antiseptic (antimicrobial) hand decontamination.

• **4. CORRECT TECHNIQUE FOR HAND DECONTAMINATION:**

Hand decontamination using a good technique (that ensures all surfaces of the hands are covered) at the right time is the most important factor.

Effective technique involves 3 stages as described in the table below:

<p>1. Preparation: Ensure that nails are short</p> <p>Do not wear false nails</p>	<p>Rationale: To allow for ease of cleaning beneath the nails as it has been identified that most microbes on the hands originate from beneath the nails. Also, to avoid glove tears</p> <p>False nails have been shown to harbour high levels of microorganisms as they are likely to discourage vigorous hand washing and are difficult to keep clean.</p>
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<p>Do not wear hand jewellery – other than smooth bands e.g wedding ring.</p> <p>Roll back sleeves to expose wrists and forearms and do not wear a wrist watch in clinical practice</p>	<p>They may also cause injury to patients and cause glove tears</p> <p>Rings that have ridges or stones have been found to present with higher bacterial counts. Additionally they interfere with thorough hand washing and make it more difficult to put on disposable gloves</p> <p>It may be necessary to wash the forearms if they have been contaminated, and the wearing of wrist watches renders the area inaccessible</p>
<p>2. Washing and rinsing: Wet hands under tepid running water BEFORE applying liquid soap</p> <p>Ensure that the hand wash agent comes into contact with ALL surfaces of the hands</p> <p>The hands must be rubbed together vigorously for a MINIMUM of 10-15 seconds paying particular attention to the fingertips, thumbs, between the fingers and beneath wedding bands</p> <p>Rinse the hand thoroughly beneath tepid running water</p>	<p>Rationale: To minimise damage to the skin caused by repeated applications of agent and to ensure the production of a good lather</p> <p>To maximise decontamination (see ‘six-step’ technique; Appendix 1)</p> <p>To maximise decontamination (see ‘six-step’ technique; Appendix 1)</p> <p>To remove cleansing agent and microorganisms</p>
<p>3. Drying: Dry the hands thoroughly with a good quality, absorbent, disposable paper towel</p> <p>Dispose of the hand towel into a foot operated waste bin</p>	<p>Rationale: To remove residual microorganisms and old dead skin cells from the hands</p> <p>To avoid recontamination of the hands</p>

- When using an alcohol hand rub hands must be free from visible dirt and organic material.
- The hand rub must come into contact with all surfaces of the hands.

- The hands must be vigorously rubbed together paying particular attention to the fingertips, thumbs and between the fingers until the rub has evaporated and the hands are dry^{4,5}

- **5. GENERAL CARE OF THE HANDS:**

¹Bacterial counts increase when the skin is damaged and wetting of the hands prior to washing (particularly with antiseptic agents) is important in protecting the skin, as is thorough rinsing and drying to avoid soreness and chapping.

Regular application of a non-ionic based hand cream will protect the skin from the drying effects of regular hand decontamination.

Communal jars of hand cream are to be avoided as the contents are likely to become contaminated.

Whilst at work protect damaged skin, cuts, abrasions, lesions on the hands and forearms with an impermeable waterproof dressing.

Seek Occupational Health advice without delay if a particular liquid soap, antiseptic preparation or alcohol based product appears to be causing skin irritation^{4,5}

Fingernails must be short enough to allow the individual to thoroughly clean beneath them and artificial nails must not be worn as these have been shown to harbour harmful bacteria and present difficulty in eliminating bacteria with hand cleansing⁶

- **REFERENCES:**

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4. Pratt RJ, Pellowe C, Loveday HP et al (2001) The *epic* Project: Developing National Evidence-based Guidelines for Preventing Healthcare Associated Infections.

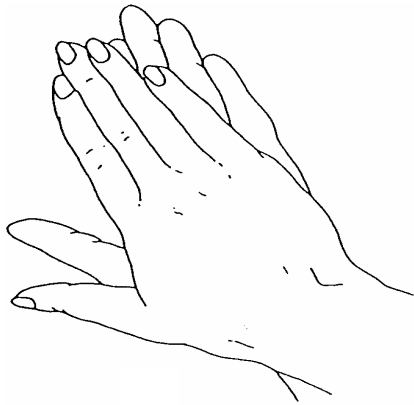
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6. McNeil S, Foster C, Hedderwick S and Kauffman C (2001) Effect of Hand Cleansing with Antimicrobial Soap or Alcohol-Based Gel on Microbial Colonization of Artificial Fingernails Worn by Health Care Workers. *Clinical Infectious Diseases* 32: 367-72

HANDWASHING KNOWHOW

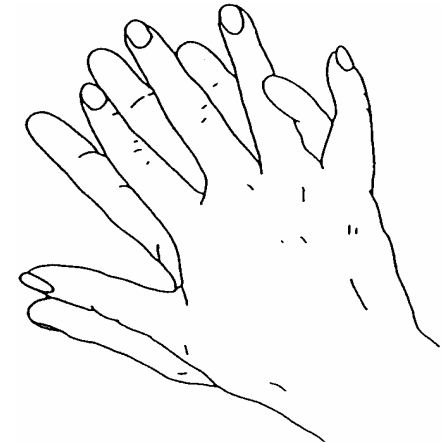
WET hands FIRST, add ONE squeeze from soap dispenser



1. Palm to Palm



**2. Right palm over left dorsum (back)
Left palm over right dorsum**



3. Palm to palm, fingers interlaced



**4. Back of finger to opposing palms
with fingers interlaced.**



**5. Rotation rubbing of right thumb
clapsed over left palm. Repeat with left**



**6. Rotational rubbing of each
palm**