

Search question: Hand hygiene and equipment decontamination

Infection prevention and control is grounded in quality improvement activities and is critical for patient safety. Infection prevention programs use protocols and interventions to decrease the risk of health care-associated infection (HAI). HAIs are the most common complication seen in hospitalized patients and increase morbidity, mortality, costs, and length of stay, even after adjustment for underlying illness (1).

Standard infection control precautions (SICPs) are to be used by all staff, in all care settings, at all times, for all patients whether infection is known to be present or not, to ensure the safety of those being cared for, staff and visitors in the care environment. There are 10 elements of SICPs (2):

1. patient placement/assessment of infection risk
2. hand hygiene
3. respiratory and cough hygiene
4. personal protective equipment
5. safe management of the care environment
6. safe management of care equipment
7. safe management of healthcare linen
8. safe management of blood and body fluids
9. safe disposal of waste (including sharps)
10. occupational safety/managing prevention of exposure (including sharps)



This evidence summary focusses on just 2 SICPs, hand hygiene and safe management of care equipment.

Infection prevention and control forms part of the criteria against which acute trusts are inspected by the Care Quality Commission (CQC). The Department for health (2015) The Health and Social Care Act 2008 Code of Practice on the prevention and control of infections and related guidance (3), is still current and trusts must be compliant.

The World Health Organization (WHO) hand hygiene guideline (4), although published in 2009 is still relevant and has been adapted by NHS England for their National infection prevention and control manual for England (5). The manual includes the step-by-step images – how to hand wash see below.

Best Practice: How to hand wash step by step images

Steps 3-8 should take at least 15 seconds.

<p>1</p>  <p>Wet hands with water.</p>	<p>2</p>  <p>Apply enough soap to cover all hand surfaces.</p>	<p>3</p>  <p>Rub hands palm to palm.</p>
<p>4</p>  <p>Right palm over the back of the other hand with interlaced fingers and vice versa.</p>	<p>5</p>  <p>Palm to palm with fingers interlaced.</p>	<p>6</p>  <p>Backs of fingers to opposing palms with fingers interlocked.</p>
<p>7</p>  <p>Rotational rubbing of left thumb clasped in right palm and vice versa.</p>	<p>8</p>  <p>Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.</p>	<p>9</p>  <p>Rinse hands with water.</p>
<p>10</p>  <p>Dry thoroughly with towel.</p>	<p>11</p>  <p>Use elbow to turn off tap.</p>	<p>12</p>  <p>Steps 3-8 should take at least 15 seconds.</p> <p>... and your hands are safe*.</p>

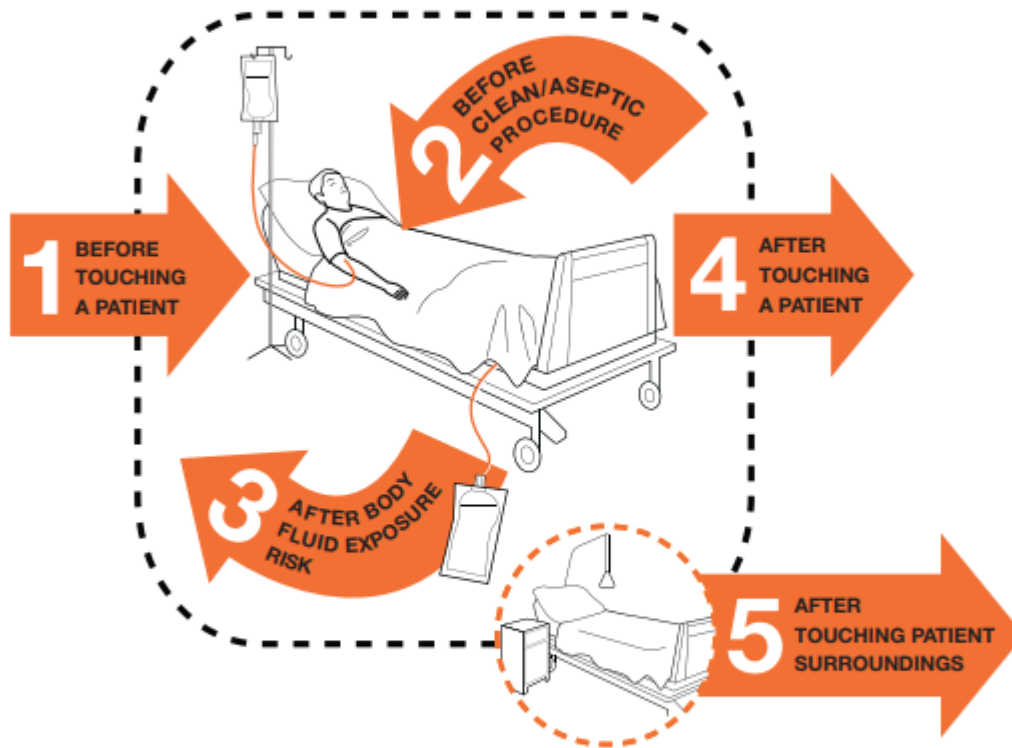
Adapted from the World Health Organization/Health Protection Scotland
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*Any skin complaints should be referred to local occupational health or GP.

NHS England (2022)

The WHO also runs an annual campaign, *save lives clean your hands* where they promote the 5 key moments for hand hygiene (6).

Your 5 Moments for Hand Hygiene



1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient when approaching him/her.
		WHY?	To protect the patient against harmful germs carried on your hands.
2	BEFORE CLEAN/ASEPTIC PROCEDURE	WHEN?	Clean your hands immediately before performing a clean/aseptic procedure.
		WHY?	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3	AFTER BODY FLUID EXPOSURE RISK	WHEN?	Clean your hands immediately after an exposure risk to body fluids (and after glove removal).
		WHY?	To protect yourself and the health-care environment from harmful patient germs.
4	AFTER TOUCHING A PATIENT	WHEN?	Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.
		WHY?	To protect yourself and the health-care environment from harmful patient germs.
5	AFTER TOUCHING PATIENT SURROUNDINGS	WHEN?	Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched.
		WHY?	To protect yourself and the health-care environment from harmful patient germs.

Technology

There are technologies available that will monitor hand hygiene compliance or the quality of hand hygiene. Some of these are to assist observers in monitoring hand hygiene compliance either by recording notes, having camera assisted observation or sensor-assisted observation. Wearable sensors have also been investigated but these are mainly worn on the wrist leading to issues with contamination. (7) The level of evidence on the usefulness of the technologies is very low.

Cleaning of Medical Devices

The type of cleaning required by medical devices will depend on the type of medical equipment (listed below). Guidelines for each individual device should be followed.

Approach to disinfection and sterilization of medical devices

Device classification	Devices (examples)	Spaulding process classification/time	Processes	EPA product classification
Noncritical (touches intact skin, not mucous membranes)	Stethoscopes, bedpans, blood pressure cuffs, patient furniture	Low-level disinfection: Kills most bacteria, some viruses and fungi. Cannot reliably kill resistant microorganisms (eg, tubercle bacilli, bacterial spores).	Chemical disinfectants; ethyl or isopropyl alcohol, sodium hypochlorite, hydrogen peroxide, quaternary ammonium germicidal detergent.	Hospital disinfectant without label claim for tuberculocidal activity
		Time: 10 minutes or less		
Semi-critical (touches intact mucous membranes [except dental])	Flexible endoscopes, laryngoscopes, endotracheal tubes, cervical diaphragms	High-level disinfection: Destroys all microorganisms except high numbers of bacterial spores.	Wet pasteurization or chemical disinfectants.* Heat sterilization preferred for between patient processing of heat stable instruments. Follow by rinsing with sterile water.	Sterilant/disinfectant
		Time: 20 minutes or more		
	Thermometers, hydrotherapy tanks	Intermediate-level disinfection: Inactivates tubercle bacilli, vegetative bacteria, most viruses and fungi. Does not necessarily kill bacterial spores.	Chemical disinfectants; sodium hypochlorite ethyl or isopropyl alcohol, phenolic and iodophor solutions.	Hospital disinfectant with label claim for tuberculocidal activity
Critical (enters sterile tissue or vascular system)	Implants, scalpels, needles, cardiac and urinary catheters	Sterilization.	Purchase as sterile. Sterilize by steam under pressure. If heat labile, use ethylene oxide gas or chemical sterilants.†	Sterilant/disinfectant
		Time: prolonged contact (hours)		

EPA: Environmental Protection Agency.

* 2% glutaraldehyde-based products, 6% stabilized hydrogen peroxide, chlorine, peracetic acid.

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Modified with permission from: Rutala WA. APIC guideline for selection and use of disinfectants. Am J Infect Control 1996; 24:313. Copyright © 1996 Mosby, Inc.

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Table 1: Deverick (2022)

Guidelines

National Institute for Health and Care Excellence (NICE). (2011) *Healthcare-associated infections: prevention and control*. [Online] Available at: <https://www.nice.org.uk/guidance/ph36> [Accessed 16 November 2022].

World Health Organization (WHO). (2009). *WHO guidelines on hand hygiene in health care*. [Online] Available at: <https://www.who.int/publications/i/item/9789241597906> [Accessed 16 November 2022]

SWB Trust guidelines are available on Connect:

Hand hygiene policy - <https://connect2.swbh.nhs.uk/wp-content/uploads/2016/07/Infection-Control-Hand-Hygiene-Policy-COI006-SWBH.pdf?x96270> This policy expired in 2019.

Policy on the decontamination of equipment - <https://connect2.swbh.nhs.uk/wp-content/uploads/2016/07/Infection-Control-Decontamination-of-Equipment-COI029-SWBH.pdf?x81262> This policy is due for review in 2023.

Infection prevention and control policy - <https://connect2.swbh.nhs.uk/wp-content/uploads/2016/07/Infection-Control-Policy-COI001-SWBH.pdf?x81262> This policy is due for review in 2025.

There are many more infection prevention and control policies on Connect, some examples are listed below:

[Estates Maintenance and Capital Works Infection Prevention and Control Policy \(COI043\) \(SWBH\)](#)

[Infection Control - Management of Outbreaks and Serious Infections](#)

[Infection Control Decontamination of Equipment \(COI029\) \(SWBH\)](#)

[Infection Control Policy \(COI/001\)](#)

[Infection Control; Asepsis Principles \(COI025\) \(SWBH\)](#)

[Infection Control; Blood and Body Fluid Spillages \(COI008\) \(SWBH\)](#)

[Infection Control; Blood Borne Viruses in Healthcare Environment \(COI014\) \(SWBH\)](#)

[Infection Control; Blood Cultures-Peripheral \(COI035\) \(SWBH\)](#)

[Infection Control; Clostridioides Difficile - Care and Management \(COI/037\)](#)

[Infection Control; Creutzfeldt-Jacob Disease \(CJD\) Policy \(COI015\) \(SWBH\)](#)

[Infection Control; Decontamination of Endoscopes \(COI030\) \(SWBH\)](#)

[Infection Control; Decontamination of Environment \(COI028\) \(SWBH\)](#)

[Infection Control; Gastrointestinal Infections \(COI016\) \(SWBH\)](#)

[Infection Control; Group A Streptococcal Infection Policy \(COI041\) \(SWBH\)](#)

[Infection Control; Hand Hygiene Policy \(COI006\) \(SWBH\)](#)

[Infection Control; Infestations; Human and Environmental \(COI017\) \(SWBH\)](#)

[Infection Control; Meningococcal Disease Policy \(COI018\) \(SWBH\)](#)

[Infection Control; MRSA - Care and Management \(COI036\) \(SWBH\)](#)

[Infection Control; Multi Resistant Organisms \(MRO\) Policy \(COI042\) \(SWBH\)](#)

[Infection Control; Outbreaks of Communicable Infections \(COI004\) \(SWBH\)](#)

[Infection Control; Personal Protective Clothing Use \(COI009\) \(SWBH\)](#)

[Infection Control; Tuberculosis \(TB\) \(COI021\) \(SWBH\)](#)

[Infection Control; Varicella-zoster Virus \(Chicken pox, Shingles\) \(COI023\) \(SWBH\)](#)

[Infection Control; Viral Haemorrhagic Fever \(COI024\) \(SWBH\)](#)

[Infection-Control-Communicable-Infections-Care-and-Management-of-Patients-COI013-SWBH](#)

[Infection-Control-Influenza-Prevention-and-Control-Policy-COI039-SWBH](#)

[Peripheral Intravenous Cannulation Management Policy \(PtCARE/074\)](#)

References/Further reading:

1. Deverick J Anderson. (2022). *Infection prevention: general principles*. [Online] Available at: <https://www.uptodate.com/contents/infection-prevention-general-principles> [Accessed 15 November 2022].
2. NHS England (2022). *National infection prevention and control manual (NIPCM) for England*. [Online] Available at <https://www.england.nhs.uk/national-infection-prevention-and-control-manual-nipcm-for-england/> [Accessed 15 November 2022].
3. Department for health (2015) *The Health and Social Care Act 2008 Code of Practice on the prevention and control of infections and related guidance* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/449049/Code_of_practice_280715_acc.pdf
4. World Health Organization (WHO). (2009). *WHO guidelines on hand hygiene in health care: first global patient safety challenge clean care is safer care*. [Online] Available at <https://apps.who.int/iris/rest/bitstreams/52455/retrieve> [Accessed 15 November 2022].
5. NHS England (2022). *National infection prevention and control manual (NIPCM) for England*. [Online] Available at <https://www.england.nhs.uk/national-infection-prevention-and-control-manual-nipcm-for-england/> [Accessed 15 November 2022].
6. World Health Organisation (WHO). (2009). *Your 5 moments for hand hygiene*. [Online] Available at [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/infection-prevention-and-control/your-5-moments-for-hand-hygiene-poster.pdf?sfvrsn=83e2fb0e_16](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/infection-prevention-and-control/your-5-moments-for-hand-hygiene-poster.pdf?sfvrsn=83e2fb0e_16) [Accessed 15 November 2022].
7. Wang, C. et al. (2021). 'Electronic monitoring systems for hand hygiene: systematic review of technology'. *Journal of Medical Internet Research*. 23(11), e27880.

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