

# Get Wise to Hand Hygiene



## A guide on practical advice for hand hygiene

### Introduction

Hand hygiene is widely acknowledged to be the single most important activity that reduces the spread of infection. Hand hygiene should be performed immediately before and after every episode of hands being contaminated.

There are four stages to quality hand hygiene

1. **Hand cleansing** – This fundamental step in hand hygiene is best practice. Apart from cleaning any visible soiling from hands, the physical action of good hand washing technique will remove high levels of bacteria and viruses also present on the skin.
2. **Hand sanitising** – Very useful in reducing bacterial counts on visibly clean hands when access to soap and water are not available.
3. **Hand drying** – It is important for optimum hygiene to dry hands thoroughly using absorbent disposable hand towels after washing because **some bacteria remain on hands** after washing, and these bacteria are more easily spread via **wet hands than dry ones**.
4. **Hand moisturising/rebalancing** – Good skin condition is an important element in ensuring good hand hygiene practice and moisturising is the most important step in maintaining healthy skin condition by keeping the skin soft and supple and avoiding dryness, soreness and cracking, especially when hands are washed frequently.

### When to cleanse and when to sanitise

There needs to be more education and awareness regarding the appropriate use of soap and water and alcohol based hand sanitisers. There must be a clear understanding of how and when these different applications should be used.

**Hand cleansing** using the correct technique with mild soap and water and then drying hands with paper towels is the best policy to help prevent the spread of germs, and for cleaning visible dirt from hands as well as many bacteria and viruses.

**Hand sanitising** with an alcohol based sanitiser, with a minimum of 60% alcohol as an active ingredient, can be a very good substitute to washing hands provided hands are not actually dirty, for use without water, to kill germs and provide a high level of hand hygiene and skin disinfection on visibly clean hands.<sup>1</sup>

The World Health Organisation (WHO) claims that 'hand sanitising may be of benefit when used after hand cleansing but it should not be regarded as a substitute for soap and water since sanitisers will not remove any contamination from the hands. It should therefore be remembered that alcohol sanitisers are not suitable for use on hands that are dirty, contaminated and soiled, e.g. faeces and secretions, or during outbreaks of diarrhoeal illness, e.g. Norovirus and C diff. In these instances, washing hands with mild soap and water is necessary.<sup>2</sup>



<sup>1</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3291447/>

<sup>2</sup> [http://www.who.int/gpsc/5may/tools/who\\_guidelines-handhygiene\\_summary.pdf](http://www.who.int/gpsc/5may/tools/who_guidelines-handhygiene_summary.pdf)

### What type of soap and sanitisers do I need to be using?

There is a common misconception that anti-bacterial soaps provide a better level of protection than ordinary soaps and therefore should be used widely. In reality, infection control nurses advocate that the use of a mild soap (preferably dermatologically tested), which is kind to the hands and therefore encourages regular hand washing, coupled with good hand washing technique is much more important than the use of an anti-bacteria soap.

In a study which split a thousand households into two groups, one group received anti-bacterial cleaning soaps and the other plain soaps. Neither the researchers nor the participants knew which type of soap they were using. "In terms of infection rates and sickness, we found absolutely no difference between anti-bacterial soap and regular soap", said Dr Elaine Larson, Director of the Centre of Disciplinary Research on Anti-Microbial Resistance at Colombia University.

Anti-bacterial soap is not recommended for wide use as there is a concern that germs will develop resistance and those using it will become lazy from using high-tech soaps. It is however recommended that Anti-bacterial soap is to be used in certain high risk

#### Alcohol-based v. alcohol-free hand sanitiser

	Alcohol-based	Alcohol-free
Kills 99.9% of germs and bacteria	Y	Y
Fragrance Free	N	Y
Flammable	Y	N
Irritates skin/causes cracking	Y	N
Non-Damaging to floors and other surfaces	Y	N
Extended Persistency	N	Y
Breaks through dirt	N	Y
Recognised by the CDC and WHO	Y	N
Antiseptic (can be applied to wounds)	N	Y
Organic Compound	N	Y
Imbedded Moisturiser	N	Y
More cost effective	N	Y
Leaves residue after use	Y	N

Please see page 8 for further information.

areas such as food preparation and handling areas, in surgical conditions, treatment rooms and clinical areas.

The risk, when using low specification soaps, is that they can contain harsh chemicals which irritate the skin, leading to drying out, cracking, and redness which in turn can cause occupational dermatitis. This then leads to less regular hand washing for fear of exacerbating the problem and hand hygiene levels deteriorate, hence the importance of using a good quality mild soap.

Examples of further research findings for using soaps can be reviewed within the below links for interest only:

- [http://www.cumc.columbia.edu/publications/in-vivo/Vol1\\_Iss20\\_dec04\\_02/washing.html](http://www.cumc.columbia.edu/publications/in-vivo/Vol1_Iss20_dec04_02/washing.html)
- <https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm378393.htm>

### How much alcohol should a hand sanitiser contain to be effective?

The Centres for Disease Control and Prevention (CDC) in the USA says that washing hands with soap and water is the best way to reduce the number of microbes on them in most situations. If soap and water are not available it is recommended to use an alcohol based hand sanitiser that contains **at least 60% alcohol** as the active ingredient and use enough to cover all surfaces of the hands and fingers to achieve effective disinfection. The average hand sanitiser contains about 62% alcohol.<sup>3</sup>

### Which type of soap dispensers should I be using? Is it important?

There are two main types of soap dispensers, safe sealed cartridge systems and bulk fill or refillable dispensers and it is really important to understand why one is so much more hygienic than the other.

We wash our hands with soap to kill germs and bacteria, however if we are using soap from a bulk-fill or refillable soap dispenser we could be washing our hands with contaminated soap as bulk-fill soap

<sup>3</sup> <https://www.cdc.gov/handhygiene/science/index.html>

dispensers are a breeding ground for bacteria and are often inadequately cleaned. The issue is you can't always see the harmful germs and bacteria, but they can result in the risk of germs spreading.

Refillable bulk dispensers can leave hands with 25 times more bacteria after washing. Once the lid is removed and refilled with soap, airborne germs and bacteria can enter the reservoir and can contaminate the soap. Dispensers are rarely cleaned and filled correctly and there is an increased risk of spreading germs and bacteria by washing hands with contaminated soap.

There are typically more bacteria in a bulk filled soap dispenser than in a toilet in the same bathroom, the Centre for Disease Control and Prevention (CDC) **warns do not add soap to a partially empty soap dispenser.** This practise of topping off dispensers can lead to bacterial contamination of soap.

The safe alternative to bulk fill dispensers are hygienically sealed cartridge systems which are ultra-sonically airtight being free from complete air and gases for maximum hygiene.

### Hygienic hand drying

We often say that hand washing is the key to preventing the spread of illness. But wet hands increase the risk of transmitting bacteria, **“so drying is an equally important step in prevention,”** says urgent care specialist Theresa Lash-Ritter, MD.<sup>4</sup>

Lots of research has focused on handwashing and hand drying techniques. In one study, microbiologists compared jet air dryers with warm air dryers and paper towels. What they found was disturbing:

- Jet air dryers dispersed **20 times more viruses** than warm air dryers and **over 190 times** more than paper towels at six different heights and nine different distances.
- The impact was greatest at 2.5 feet – 4.1 feet which is about face level for a small child.

The way each method works helps to explain the results.

- Jet air dryers force air out sideways at ultra high speeds.
- Warm air dryers work by evaporation.
- Paper towels absorb water.

Drying your hands with paper towels not only dries them faster, but the friction also dislodges bacteria to leave them cleaner.

### The best way to get your hands really clean

The Centre for Disease Control and Prevention recommends the following method:

- Use warm or cold water. Wet your hands, then turn off the tap and apply soap.
- Lather well, washing the backs of your hands, between your fingers and beneath your nails.
- Wash for a minimum of 20-30 seconds – about as long as it takes to sing ‘Happy Birthday’ twice.
- Rinse well under clean running water.
- Dry hands thoroughly with a disposable paper towel.

View the diagram on page 5 ‘How to wash your hands effectively’.

If soap and water are not accessible, hand sanitisers that contain **at least 60% alcohol** (World Health Organisation (WHO) guidance recommends a minimum of 60% compliant with BS EN 1500:2013) can be used, but do note they won't clean visible dirt or grease, they can't kill all germs and they can't remove harmful chemicals. For effective disinfection it is advisable to cover all surfaces of the hands and fingers.



<sup>4</sup> <https://health.clevelandclinic.org/the-dirty-truth-about-hand-dryers/>

Which germs are on our hands



**Clostridium difficile**  
Colitis

**Novovirus**  
Foodborne illness

**Bacteriodes**  
Can give you many infections

**E.coli**  
Diarrhoea or urinary tract infection

**Influenza A**  
Pneumonia also a mild respiratory illnesses

**MRSA**  
Methicillin  
Staphylococcus Aureus (from skin or in the nose)

**Staphylococcus**  
Boil or pimples

**Shigella**  
Diarrhoea

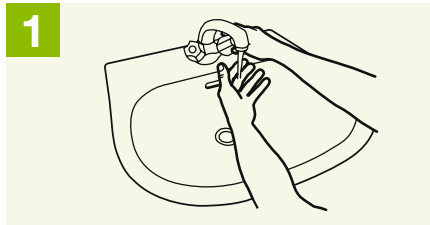
**Klebsiella**  
Wound infections

**Haemophilus**  
Pink eye

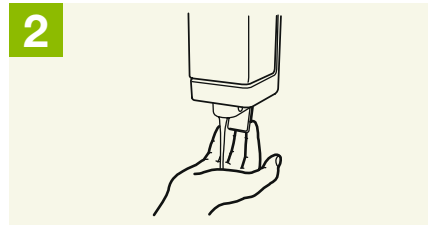
**Pseudomonas aeruginosa**  
Infection

Don't spread germs!  
Wash your hands after going to the bathroom and before eating

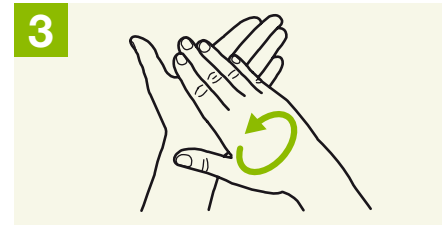
## How to wash your hands effectively



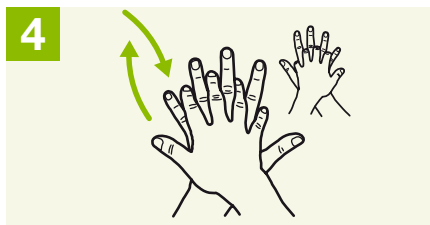
1 Wet hands with water



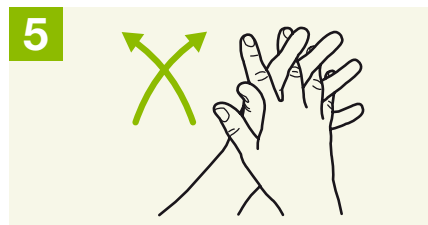
2 Apply enough soap to cover all hand surfaces



3 Rub hands palm to palm



4 Right palm over left hand with interlaced fingers and vice versa



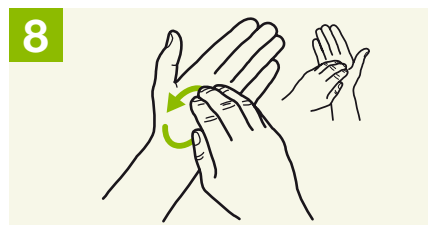
5 Palm to palm with fingers interlaced



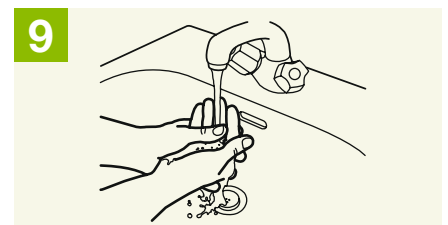
6 Backs of fingers to opposing palms with fingers interlocked



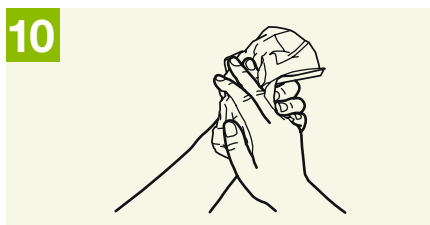
7 Rotational rubbing of left thumb clasped in right palm and vice versa



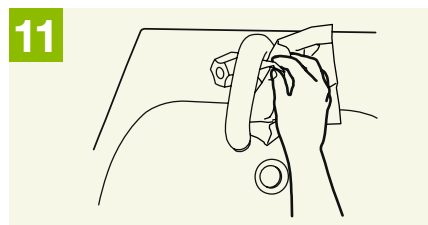
8 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa



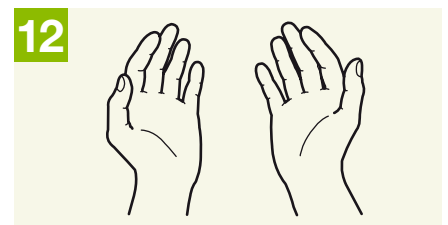
9 Rinse hands with water



10 Dry hands thoroughly with a single use towel



11 Use towel to turn off the tap



12 Your hands are now safe.

How to sanitise your hands

1a

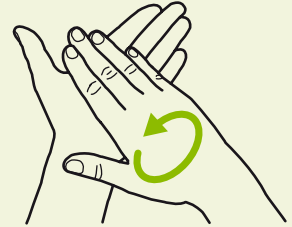


Apply a palmful of the product in a cupped hand, covering all surfaces

1b

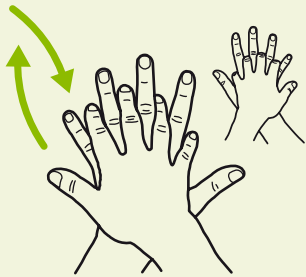


2



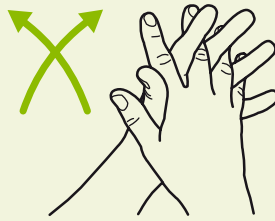
Rub hands palm to palm

3



Right palm over left hand with interlaced fingers and vice versa

4



Palm to palm with fingers interlaced

5



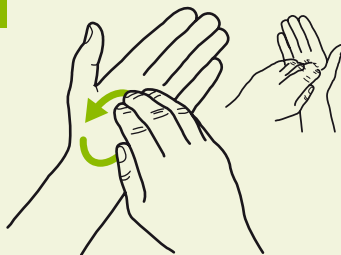
Backs of fingers to opposing palms with fingers interlocked

6



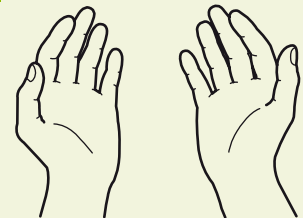
Rotational rubbing of left thumb clasped in right palm and vice versa

7



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

8



Once dry, your hands are safe.

### The importance of hand hygiene in different religions

There are several reasons why religious and cultural issues should be considered when dealing with the topic of hand hygiene and planning a strategy to promote it in health-care settings. The World Health Organisation (WHO) have issued guidelines that are intended to be disseminated all over the world and

in settings where very different cultural and religious beliefs may strongly influence their implementation. Furthermore, the guidelines consider new aspects of hand hygiene promotion, including behavioural and transcultural issues. For further information visit this link – <http://www.who.int/gpsc/5may/tools/9789241597906/en/> (Chapter 17).

Religion	Specific indications for hand hygiene	Type of cleansing	Alcohol prohibition		
			Existence	Reason	Potentially affecting use of alcohol based handrub
<b>Buddhism</b>	After each meal	Hygienic	Yes	It kills living organisms (bacteria)	Yes, but surmountable
	To wash the hands of the deceased At New Year, young people pour water over elders' hands	Symbolic Symbolic			
<b>Christianity</b>	Before the consecration of bread and wine	Ritual	No	—	No
	After handling Holy Oil (Catholics)	Hygienic			
<b>Hinduism</b>	During a worship ceremony (puja)	Ritual	Yes	It causes mental impairment	No
	End of prayer (water)	Ritual			
	After any unclean act (toilet)	Hygienic			
	Before and after any meal	Hygienic			
<b>Islam</b>	Repeating ablutions at least three times with running water before prayers (5 times a day)	Ritual	Yes	It causes disconnection from a state of spiritual awareness or consciousness	Yes, but surmountable. Very advanced and close scrutiny of the problem
	Before and after any meal	Hygienic			
	After going to the toilet	Hygienic			
	After touching a dog, shoes or a cadaver After handling anything soiled	Hygienic Hygienic			
<b>Judaism</b>	Immediately after waking in the morning	Hygienic	No	—	No
	Before and after each meal	Hygienic			
	Before praying	Ritual			
	Before the beginning of Shabbat	Ritual			
	After going to the toilet	Hygienic			
<b>Orthodox Christianity</b>	After putting on liturgical vestments before beginning the ceremony	Ritual	No	—	No
	Before the consecration of bread and wine	Ritual			
<b>Sikhism</b>	Early in the morning	Hygienic	Yes	Unacceptable behaviour as disrespectful of the faith. Considered as an intoxicant.	Yes, but probably surmountable
	Before every religious activity	Ritual			
	Before cooking and entering the community food hall	Hygienic			
	After each meal After taking off or putting on shoes	Hygienic Hygienic			

### Non alcohol products versus alcohol products

Alcohol-free hand sanitisers entered the market to address the concerns and complaints that stemmed from the use of gels. In many ways, they have succeeded. Typically, these solutions are much easier on the hands and pose much less of a threat in cases of accidental ingestion, and also pose a lesser potential as a fire hazard and are non-damaging to surfaces. One other clear benefit is the extended persistence that occurs. The product's ability to kill bacteria ends once the product has dried on the skin whereas the benzalkonium chloride based low alcohol-free products continue to provide protection well after the solution has dried.

One possible drawback with the alcohol-free solutions is that they most often come in the form of foam. While this usually results in a more pleasing experience for the user (as opposed to gels) it does require a special foaming mechanism in the dispenser, often making converting from a non-foaming system cost prohibitive as it could require new hardware to be installed.

Despite some clear benefits, alcohol-free based products have yet to gain real traction in the health market. Alcohol-based gels continue to be favoured by health organisations, and therefore seen as a more credible solution by many in the field. It's not that these organisations don't recognise the effectiveness of Benzalkonium Chloride based solutions, however, the term "alcohol-free" could apply to any number of products on the market. (It's a broad term that makes it impossible for agencies like the FDA and the WHO to endorse.)

### Right product, right place, right for you and your teams

Because both types of products do more or less the same job in killing harmful microbes, choosing the right product is a matter of assessing your needs against your environment, budget, and personal preference.

For example, if you work in a school, care home, a mental health hospital or manufacturing workplace an alcohol-free system would most likely provide you the most peace of mind and protection from ingestion or fire. If you work in a hospital that requires you to follow strict guidelines set by the NHS, you may need to go with an alcohol-based gel.

Whatever your needs, having an effective hand sanitiser as part of your preventative defence against illness and disease is a crucial part of a healthy environment.

### Where can I contact approved suppliers for products and advice?

Please visit the BHTA Website – go to "Find a Member" and search for "Decontamination and Infection Prevention" to find a list of reputable manufacturers and suppliers.

This Get Wise Leaflet was put together by industry experts at the BHTA.

[www.bhta.com](http://www.bhta.com)

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