

Centre for Healthcare Related Infection Surveillance and Prevention
& Tuberculosis Control

GUIDELINE

Hand Hygiene

General Requirements

Overview

The major route of transmission of micro-organisms, including multi-resistant organisms (MRO) such as methicillin resistant *Staphylococcus aureus* (MRSA), in healthcare facilities has been determined as the unwashed hands of healthcare workers (HCWs). On average, infections affect 1 in 10 of hospital admissions¹.

Hand hygiene is the cornerstone of all infection prevention and control programs.

Hand hygiene is the most important measure in preventing or reducing healthcare associated infections (HAI). HCWs must perform hand hygiene before touching a patient, before a procedure, after a procedure or body fluid exposure, after touching a patient or after touching a patient's surroundings.

Other opportunities for hand hygiene include but are not limited to food preparation, linen handling and staff involved in maintenance of facilities.

The 5 Moments for Hand Hygiene

The 5 Moments for Hand Hygiene are described in Figure 1². For more detailed information on implementation and auditing hand hygiene compliance refer to the Hand Hygiene Australia (HHA) 5 Moments for Hand Hygiene Manual available from:

www.hha.org.au/ForHealthcareWorkers/manual.aspx

Figure 1



Location of Alcohol-Based Hand Rub Dispensers

To achieve a maximum effect and optimal compliance of HCWs with hand hygiene requirements, alcohol-based hand rub (ABHR) should be easily available from dispensers placed:

- close to the point of care

OR

- attached to the frame of patients' beds

OR

- next to each patient's bed

AND

- near the door to each patient room

AND

- at staff stations or chart and medication trolleys

AND

- not adjacent to sinks avoiding any confusion between soap and alcohol-based hand hygiene products

AND

- at the entry to clinical areas/wards

Continual monitoring needs to be undertaken to ensure alcohol-based hand hygiene product is not removed and bottles are replaced regularly. Refer to the Fire and Safety Issues fact sheet for detailed information on product placement and Occupational Health and Safety considerations. Available from:

www.health.qld.gov.au/chrisp/hand_hygiene/safety.pdf

For further recommendations on placement of dispensers (including height) refer to the Recommendation for the Placement of ABHR in Public Areas of Health Facilities here:

www.hha.org.au/UserFiles/file/Manual/9_RecomendationsforABHRPlacement.pdf

Hand Hygiene Technique

There are three types of hand hygiene techniques:

1. Routine/Social
2. Aseptic/Clinical
3. Surgical

Routine/Social Hand Hygiene²⁻³

Plain liquid soaps have minimal, if any, antimicrobial activity and are suitable for routine/social hand washing. Hand washing with plain liquid soap can remove dirt, soil, and various organic substances from the hands and loosely adherent transient flora (micro-organisms).

Refer to the HHA 5 Moments for Hand Hygiene Manual to determine when to perform hand hygiene. Available from: www.hha.org.au/ForHealthcareWorkers/manual.aspx


Routine/Social Hand Hygiene - Soap and Water:

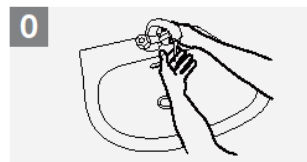
1. Ensure jewellery has been removed
2. Wet hands thoroughly and lather vigorously using a neutral pH liquid soap for 15-30 seconds
3. Rub hands palm to palm
4. Right palm over left dorsum with interlaced fingers and vice versa
5. Palm to palm with fingers interlaced
6. Backs of fingers to opposing palms 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 under running water
10. Do not touch taps with clean hands – if elbow or foot controls are not available, use paper towel to turn off taps
11. Pat hands dry using paper towel
12. Hand Wash posters (Figure 2) are available from:
www.health.qld.gov.au/chrisp/hand_hygiene/How_To_HandWash_web.pdf

Figure 2

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

 Duration of the entire procedure: 40-60 seconds



0 Wet hands with water;



1 Apply enough soap to cover all hand surfaces;



2 Rub hands palm to palm;



3 Right palm over left dorsum with interlaced fingers and vice versa;



4 Palm to palm with fingers interlaced;



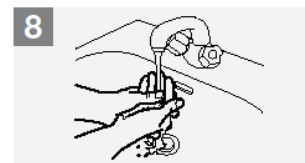
5 Backs of fingers to opposing palms with fingers interlocked;



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



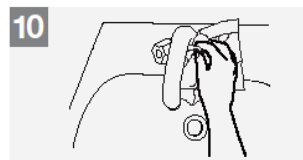
7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



8 Rinse hands with water;



9 Dry hands thoroughly with a single use towel;



10 Use towel to turn off faucet;



11 Your hands are now safe.

Clean hands are life savers



Routine/Social Hand Hygiene - Alcohol-based hand product (ABHP):

ABHPs are more effective against most bacteria and many viruses than either plain liquid soap or antimicrobial soap². If hands are visibly soiled they must be washed with soap and water. Hand hygiene should be performed using soap and water when *Clostridium difficile* or non-enveloped viruses (such as, norovirus) are known or suspected to be present³.

1. Ensure jewellery has been removed
2. Apply quantity of alcohol-based hand hygiene product as per manufacturer's recommendations into cupped hand
3. Rub hands palm to palm
4. Right palm over left dorsum with interlaced fingers and vice versa
5. Palm to palm with fingers interlaced
6. Backs of fingers to opposing palms with fingers interlaced
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. Rubbing hands together until hands are dry before continuing with patient care, do not rub off excess product
10. Alcohol based hand rub posters (Figure 3) are available from:
www.health.qld.gov.au/chrisp/hand_hygiene/How_To_HandRub_web.pdf

Figure 3

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

⌚ Duration of the entire procedure: 20-30 seconds



Clean hands are life savers



Aseptic/Clinical Hand Hygiene²⁻³

Aseptic/clinical hand hygiene is undertaken to remove transient micro-organisms and inhibit the growth of resident micro-organisms prior to any care activity that implies a direct or indirect contact with a mucous membrane, non-intact skin or an invasive medical device. During such a procedure no micro-organisms should be transmitted⁴.

1. Ensure jewellery has been removed
2. Wash hands thoroughly using an antimicrobial soap (e.g. chlorhexidine gluconate 2% soap) for one minute using the technique outlined in Routine/Social Hand Hygiene
3. Rinse carefully
4. Do not touch taps with clean hands – if elbow or foot controls are not available, use paper towel to turn off taps
5. Pat dry hands using clean paper towels

OR

1. If hands are not visibly soiled
2. Apply quantity of alcohol-based hand hygiene product as per manufacturer's recommendations into cupped hand
3. Perform hand hygiene using the technique outlined in Routine/Social Hand Hygiene-Alcohol Based Hand Product.

Surgical Hand Wash (extracted from ACORN Standards 2013)⁵

- A five minute scrub which includes cleaning of the fingernails is to be undertaken as the first scrub of the day
- Subsequent scrubs of three minutes duration (which omit the fingernails) are undertaken between cases
- Hands are kept higher than the elbows at all times to allow water to run in one direction only – from clean to dirty (hands to elbows)
- The bristles of the nail brush are used to clean the fingernails only
- Arms are washed in a circular motion, from the hands to the elbows without returning to the hands
- The antimicrobial soap used for the first scrub of the day should continue to be used for subsequent scrubs

Procedure: first scrub of the day five minutes:

Step 1: Duration 1 minute

1. Open and prepare a nail cleaner and scrub brush for later use. Note: single use disposable brush/sponges impregnated with antimicrobial soap are also available.
2. Rinse the hands and arms and wash with sufficient antimicrobial soap to ensure adequate skin coverage to 2.5 cm above the elbow and contact time with the antimicrobial soap
3. With the hands under gently running water, use the nail cleaner to remove debris from underneath the fingernails. The antimicrobial soap is left in contact with the forearms while the fingernails are cleaned

4. When finished with the nail cleaner discard in a safe manner and rinse the hands and forearms

Step 2: Duration 2 minutes

5. Apply antimicrobial soap to the bristles of the scrub brush and continue cleaning the fingernails.
6. Apply antimicrobial soap to the sponge side of the brush and wash all surfaces of hands and forearms working from the nail beds and between fingers before proceeding to wash the forearms (to the level of the elbow) using circular hand motions. Apply more antimicrobial soap if necessary. On completion, dispose of the scrub brush in a safe manner and rinse the hands and forearms.

Step 3: Duration 2 minutes

7. Hands and forearms are washed again using the same principles and procedures above, but stopping at mid forearm. On completion, rinse the hands and forearms.
8. Hands are washed again using the same principles and procedures.
9. Finally, the hands and forearms are rinsed thoroughly.
10. Remain at the scrub sink until the hands and arms are free of excess water, being careful to avoid splash, contamination or injury on wet surfaces.
11. Approach the gown trolley and grasp the sterile towel by one corner, being careful to avoid contamination of the sterile field with drips from hands (which are clean, not sterile).
12. Step back from the sterile field and with hands outstretched, allow the towel to unfold, being careful to avoid contamination by contact with unsterile scrub attire.
13. Using one half of the unfolded towel as a barrier between hands, pat dry or wipe the opposite fingers and hand, moving down the forearm to the elbow in a circular motion, without returning to the hand. This half of the towel comes in contact with skin above the elbow and is not used again.
14. Grasp the opposite half of the towel and release the contaminated half. Pat dry or wipe the opposite fingers and hand, moving down the forearm to the elbow in a circular motion, without returning to the hand.
15. Drop the used towel into an appropriate container being careful to avoid contamination from further handling of the towel. Hands are to remain above the waste level and away from the unsterile scrub suit at all times.

Procedure: subsequent scrubs of the day three minutes:

Step 1: Duration two minutes

1. Preliminary step: Rinse the hands and arms and wash with sufficient antimicrobial soap to 2.5cm above the elbows (20 seconds). This preliminary step ensures adequate skin coverage and contact time during Step 1.
2. Without rinsing, apply additional antimicrobial soap and wash all surfaces of hands and forearms working from nail beds and between fingers before proceeding to wash the forearms (to the level of the elbows) using circular motions. Apply more antimicrobial soap if necessary.
3. On completion, rinse the hands and forearms

Step 2: Duration one minute

4. Hands and forearms are washed again using the same principles and procedures above, but stopping at mid forearm. On completion rinse the hands and forearms. Finally, the hands and forearms are rinsed thoroughly and steps 10-15 above are followed.

Procedure: scrubbing using an alcohol-based hand rub solution

To ensure hands and arms have no physical evidence of soiling.

Step 1 of the 5 minute standardised scrubbing procedure is undertaken prior to the first scrubbing procedure of the day using an alcohol-based hand rub solution. Rinse and thoroughly dry hands prior to commencing the rub procedure.

A social hand wash must be performed prior to subsequent scrubbing procedures using alcohol based hand rub solution; ensuring hands are rinsed and dried.

Step 1: Rubbing hands and forearms to the elbow

1. Dispense approximately 5 ml (three doses) of alcohol-based hand rub in the palm of your left hand, using elbow of your other arm to operate the dispenser.
2. Dip the fingertips of your right hand in the hand rub to decontaminate under the nails.
3. Smear the hand rub on the right forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the hand rub has completely evaporated.
4. Repeat procedure for the left arm.
5. Dispense approximately 5 ml (three doses) of alcohol-based hand rub in the palm of your right hand, using elbow of your other arm to operate the dispenser.
6. Dip the fingertips of your left hand in the hand rub to decontaminate under the nails.
7. Smear the hand rub on the left forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the hand rub has completely evaporated.

Step 2 – Rubbing hands to mid-forearms

8. Cover the whole surface of the hands up to the wrist with alcohol-based hand rub, rubbing palm against palm with a rotating movement.

Step 3 – Rubbing hands only

9. Rub the back of the hands, including the wrists, moving back and forth.
10. Rub palm against palm back and forth with fingers interlinked.
11. Rub the back of the fingers in the palm of the other hand with a sideways back and forth movement and rub the thumbs by rotating in the clasped palm.
12. When hands are dry, sterile surgical clothing and gloves can be donned.

At all times, ensure sufficient surgical hand rub is used so as to keep hands and forearms wet throughout the procedure.

ACORN – in accordance with WHO – recommends a minimum of three (3) applications/steps are used, if not more, for a period of three (3) to five (5) minutes, in conjunction with the manufacturer's instructions.⁵

Bare Below the Elbows Initiative

The effectiveness of hand hygiene is improved when: skin is intact, nails are natural, short and unvarnished; hands and forearms are free of jewellery; and sleeves are above the elbow⁶. Staff having direct contact with patients or a patient's environment should comply with the steps outlined below:

- bracelets, wrist watches and rings with stones or ridges are not to be worn when providing clinical care. A single flat ring/band may be worn but should not interfere with effective hand hygiene practice
- long sleeved clothing should be rolled up above the elbow so as not interfere with effective hand hygiene practice
- nails should be kept short and clean and nail polish should not be worn. Artificial nails (gel or acrylic) must not be worn by any care staff/health care workers with direct patient contact
- any breached skin (cuts, dermatitis or abrasion) should be covered with a waterproof film dressing. Staff with dermatitis should report for evaluation as per local procedures
- long ties and lanyards are also not recommended. Retractable (or similar) ID card holders are recommended in place of lanyards and should be cleaned regularly. If ties are worn they should be tucked in or secured⁷.

Glossary of Terms

Term	Definition	Source
Aseptic Procedure	Any care activity that implies a direct or indirect contact with a mucous membrane, non-intact skin, an invasive medical device. During such a procedure no germs should be transmitted.	WHO Hand Hygiene: Why, How & When? Available from: www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf

References and Suggested Reading

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6. Metro South Health. *Princess Alexandra Hospital Procedure Manual. Hand Hygiene*. Australia. 2013. Available only to Queensland Health users from URL: <http://paweb.sth.health.qld.gov.au/sqrm/qiu/documents/procedures/01229.pdf>
7. Department of Health and Human Services, Tasmania. *Hand Hygiene Policy*. Australia. 2010. Available from URL: www.dhhs.tas.gov.au/_data/assets/pdf_file/0006/72393/Hand_Hygiene_Policy_2010.pdf

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