Surgical Scrubbing, Gowning and Gloving and Personal Protective Equipment - Full Clinical Guideline

Reference no.:

1. Introduction

Surgical hand antisepsis supports in the defence against surgical site infections, as it reduces the number of microorganisms found on the skin, (Association for Perioperative practice, 2022). Surgical hand antisepsis, or surgical scrubbing, should be performed immediately before donning a sterile gown and gloves, prior to a surgical or invasive procedure.

2. Aim and Purpose

The aim and purpose of this guideline is to refer to a specific, standardised set of steps to undertake when performing scrubbing, gowning, and gloving for an invasive procedure.

3. Definitions, Keywords

Surgical hand antisepsis, scrubbing, donning

4. Guideline

All staff that work in the operating theatre must receive training and education on the principles of asepsis. For all levels of theatre staff (Nurse, ATP, ODP, HCSW), this is covered on the theatre foundation programme where the theory and practical aspects are delivered. All theatre staff must also complete their respective competencies covering scrub practice. Aseptic practice should also be a part of the regular theatre audits to ensure staff are meeting the standard procedures.

Facilities

The height of the sink and furniture should facilitate hand and arm washing and prevent the splashing of the theatre attire. Hot and cold water should be provided at a steady flow rate.

A trolley/shelf should be provided for opening gown packs. The height of the trolley/shelf should facilitate gowning and gloving and be wide enough for the sterile pack to be fully opened.

A choice of scrub solutions should be available to cater for staff with allergies.

Surgical Hand antisepsis

Surgical hand antisepsis is an extension of hand washing, (AFPP, 2014) and is defined as the antiseptic surgical scrub or antiseptic hand rub performed before donning sterile attire preoperatively.

All staff should be wearing the appropriate theatre attire prior to starting surgical hand antisepsis. This includes a fresh, laundered scrub suit consisting of top and trousers, a surgical mask and visor if required, all hair covered by a surgical hat and clean hand and nails.

Fingernails should be short and free from nail polish or artificial nails (including acrylic and gel).

Staff should be bare below the elbows and all below elbow jewellery must be removed. Where a plain wedding band cannot be removed, the area around and underneath the ring must be carefully cleaned as much as possible during the scrubbing process, (Humphreys *et al,* 2023). The wearing of religious jewellery is permitted if the jewellery is discrete and complies with infection control.

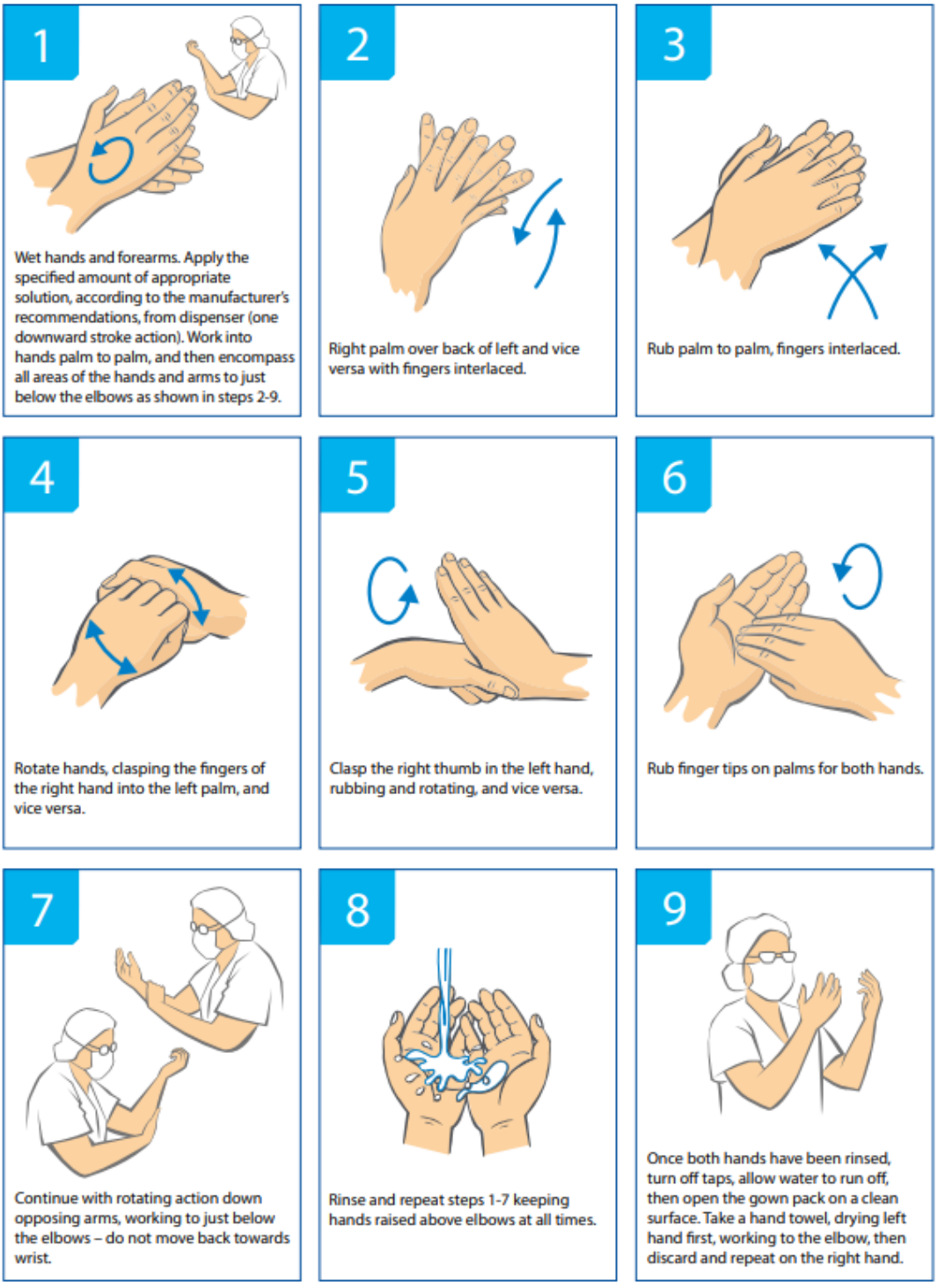
Those staff who wear a Kara (steel bangle) may do so if it is cleaned thoroughly and pushed up the arm away from the wrist and taped to enable effective clinical hand washing/surgical hand antisepsis. As an alternative the Kara can be worn on a necklace or placed in the pocket of the scrub attire.

The hands and forearms should be free from lesions or breaks in the skin integrity. For any minor lesions, a sterile waterproof dressing can be applied after performing surgical hand antisepsis.

Water should be set at a comfortable temperature and at a steady flow rate.

When necessary, nails should be cleaned with a disposable nail pick. The use of a scrubbing brush is not recommended as this can cause damage to the skin which increases microbial colonisation of the skin.

Hands and arms must be wet before applying the antimicrobial handwash solution and the wash should include the hands and arms to just below the elbows. During each of the steps detailed below, keep the hands (clean area) above the elbows (dirty area) whilst allowing the water to drain away.



Association for perioperative practice (2020)

After the final rinse, hands should be elevated to drain off excess water. The taps should be turned off using the elbows. Vigorous shaking of the hands should be avoided.

The surgical hand antisepsis should take between three and five minutes to complete.

If the surgical scrubs become too wet, the protection from the surgical gown can be compromised. It may be necessary to change the theatre scrubs prior to re-scrubbing.

Hands must be dried thoroughly using sterile handtowels as wet surfaces can more easily spread microorganisms. These should be used to blot the hands, adhering to the principle of working from the fingertips to the elbows, paying particular attention to the web spaces, using one towel per hand. The towel needs to be discarded immediately after use and should not be reused to dry the hands.

Hands must be held higher than the elbows away from the body during both the surgical scrubbing and after completion.

Surgical antimicrobial solutions

There are three types of antiseptic solution available:

1. Aqueous surgical scrub: these usually contain chlorohexidine gluconate or povidone-iodine.
2. Standard alcohol rubs: Can only be used after the first scrub of the day, and hands should not be visibly contaminated. The alcohol hand rub should be rubbed onto the arms and forearms before letting it air dry until all the solution has evaporated.
3. Alcohol rubs containing an additional active ingredient: In the United Kingdom the active ingredient is chlorhexidine.

Alternative solutions must be available for those staff who are allergic to the conventional surgical scrub solutions or staff who are pregnant. Which is currently, Sterillium med which should be used for all cases scrubbed for that day. Sterillium med is an ethanol-based hand disinfectant. This is rubbed, undiluted into the dry

hands, ensuring all of the hands are completely covered during the application, this should be 90 seconds for surgical hand antisepsis. The Sterillium med should be applied after washing with hand soap. Any staff with an allergy to the conventional solutions requires an occupational health referral.

Use of Alcohol rubs

Alcohol rubs that contain chlorhexidine and isopropyl alcohol 70% can be used if the scrub person is scrubbing for cases with a fast turnaround and the scrub person does not leave the operating theatre.

When using alcohol hand rubs, the solution needs to be in contact with the skin for two minutes. Consideration needs to be given to the risk status of the patient for example those suffering from an enteric infection, in these cases the full surgical hand antisepsis process must be adhered too.

Gowning

All surgical gowns whether reusable or disposable should be CE marked and should be of a wraparound style to protect the sterile field. The sterile gowns outer packaging can be opened by any member of the team, care must be taken to not touch the inside of the gown pack. The sterile packaging inside can only be opened after the Scrub Practitioner has performed surgical hand antisepsis.

After surgical hand antisepsis, the gown should be donned. The gown should be donned away from the sterile field and hands need to be thoroughly dried.

Only the inside of the gown should be touched by the wearer to avoid desterilising the outside of the sterile gown. The gown should be picked up by the wearer with the neck label facing uppermost. You must ensure that you have enough space to don the gown without compromising the sterility. If the gown sleeves touch anything deemed unsterile, then a sterile sleeve cover should be worn, or the gown removed and a new gown donned.

A member of the team should then assist with the tying of the gown by crossing over the neck ties or Velcro straps and fastening the waist ties without touching anything other than the inside ties/straps.

The gown should then be closed at the back by the scrub person handing out the cardboard tab from the gown to the circulating person. If the gown tie becomes detached from the card. If at any point the tie is desterilised a new gown needs to be donned.

Gloving

Sterile gloves act as a barrier to prevent transmission of infection between staff and patients. Surgical gloves must be a good fit to ensure the wearer has comfort, dexterity and maintains sensitivity.

Double gloving can be used in surgery where there is a high risk of glove perforation such as those involving cutting, sawing, or drilling. The use of coloured indicator gloves (the wearing of a different colour glove underneath the outer glove), allows for greater detection of perforations within the outer glove.

There must be alternative gloves available for those staff with a latex allergy/sensitivity or to wear when caring for a patient with a latex allergy/sensitivity.

The closed method of gloving is the preferred technique for donning sterile gloves to avoid contamination of the outside of the glove.

If gloves are required to be changed intraoperatively due to puncture or contamination, the gloves must be removed to avoid contamination of the wearers sterile attire or the sterile field. A new glove must be donned with the aid of a surgical team member.

Intraoperative and post-procedure

Hands must be kept at or above the level of the waist and below the level of the shoulders. Hands should be always visible to avoid the inadvertent contamination of the sterile field.

After the procedure, gloves and gowns are considered clinical waste and must be disposed of within the correct waste bin.

Hands must be washed thoroughly with soap and water once the protective equipment has been removed.

5. References (including any links to NICE Guidance etc.)

Association for Perioperative Practice., (2020). *Guide to surgical hand antisepsis.* Standards and recommendations for safe perioperative practice., fifth edition., Harrogate, United Kingdom.

Association for Perioperative Practice., (2014). *A guide to surgical hand antisepsis.,* Available from: www.afpp.org.uk [accessed 29.12.2023].

Humphreys, H., Bak, A., Ridgway, E., Wilson, A.P.R., Vos, M.C., Woodhead, K., Haill, C., Xuereb, D., Walker, J.M., Bostock, J., Marsden, G.L., Pinkney, T., Kumar, R., and Hoffman, P., (2023). Rituals and behaviours in the operating theatre - joint guidelines of the Healthcare Infection Society and the European Society of Clinical Microbiology and Infectious Diseases., *Journal of Hospital Infection.,* https://doi.org/10/1016/j.jhin. 2023.06.009.

6. Documentation Controls (these go at the end of the document but before any appendices)

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Intended Recipients: Assistant Theatre Practitioners, Theatre Practitioners, Health Care Support Workers, Surgeons, Anaesthetists, those that perform the scrub role in outpatient areas.				
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7. Appendices