



IFPN Guideline for Skin Preparation of the Surgical Patient

Purpose

To reduce the potential for post-operative wound infection by comprehensive cleansing and disinfection of the patient's skin prior to surgical intervention.

Human skin is colonised by a large number of microorganisms, which are the 'resident or normal' flora and tend to live in the skin folds, hair follicles and sebaceous glands. In addition, contamination of the skin surfaces may occur by contact with dirt, debris or contaminated surfaces which are identified as 'transient flora'. The purpose of skin preparation is to remove as many of the microorganisms to avoid them causing a surgical site infection, should they get into the incision.

Recommendations

The incision site(s) and surrounding areas are cleaned prior to the start of surgery. This is usually undertaken in two stages, first the patient takes a bath or shower with soap and water either on the day before or the day of surgery. Soap solutions are recommended to physically remove dirt and transient micro-organisms.

Preparation of the skin in the region of the proposed incision is undertaken with an appropriate antiseptic solution, once the patient is in the perioperative area, which can kill the resident and transient microorganisms. The agents may be chlorhexidine, triclosan, iodine or alcohol forming the basis of the antiseptic. The action of cleaning the skin mechanically removes, chemically destroys and inhibits contaminating and colonising skin flora. Endogenous skin flora have been identified in the majority of surgical site infections (SSIs). Antimicrobial agents with sustained effect should be used to reduce the endogenous flora.

Selection of the cleansing agent includes individual patient assessment and that the antiseptic used should:-

- Contain broad spectrum properties
- Significantly reduce microorganisms on intact skin
- Be non-irritating and non-toxic
- Be rapid acting
- Have a persistent effect

GUIDELINE STATEMENT NUMBER	DATE RELEASED	DATE REVIEWED	REVIEW FREQUENCY	DATE TO REVIEW POLICY
1006	1995	November 2021	Every 4 years	Dec 2025



Persistence of the antimicrobial effect suppresses the re-growth of residual skin flora not removed by preoperative prepping, as well as suppressing transient microorganisms contacting the prepped site. (AORN)

Selection of the antimicrobial agent is based on, and follows individual patient assessment and documentation

- Patient allergies and sensitivity
- The operative site
- Condition of the patient's skin
- Presence of organic matter, including blood
- The surgeon's preference

The same agent should be used for all phases of the patient's skin preparation to ensure full residual benefit and consistent action. An indelible skin marker should have been used to mark the patient's operative site, so that it is not washed away during skin preparation.

Which antiseptics should be used for skin preparation?

The two main agents are Chlorhexidine gluconate (CHG) and Iodophors (povidine iodine, PI). They are each available as either an aqueous or alcohol -based solutions. The National Institute for Health and Care Excellence (NICE) recommend using one of the two agents for skin preparation with no evidence of superiority of either agent.

Antiseptic agents used as skin preparation agents on the skin of patients with known intolerance or hypersensitivity issues may cause reactions including rashes and blistering.

Alcohol based solutions should be used where they are ideally suited to the site of the incision. However, it should be noted that alcohol should not be used on mucous membranes or on patients with fragile skin. Aqueous solutions may be used in this instance.

The application of the skin preparation should be to the area of the potential incision to ensure that there is adequate area prepared in order to allow for extension of the incision, movement of the drapes and for drain placement.

GUIDELINE STATEMENT NUMBER	DATE RELEASED	DATE REVIEWED	REVIEW FREQUENCY	DATE TO REVIEW POLICY
1006	1995	November 2021	Every 4 years	Dec 2025



Good practice suggests that cleansing should begin at the centre of the potential incision moving steadily outwards in a circular fashion. The solution should be allowed to dry on the skin before the drapes are fixed and the incision made, in order to ensure sufficient contact time between the agent and the skin surface.

Any alcohol which pools under the patient must be removed before the drapes are applied to reduce the opportunity for fire caused by the alcohol.

Hair removal

Hair removal should only be undertaken if it directly interferes with the incision site or there is a risk it will contaminate the wound site. The perception that hair at the site increases microbial contamination and there for the risk of surgical site infection (SSI) is not supported by the evidence. Systematic reviews have found no difference in SSI rates between procedures where hair has been removed and no hair removal.

Hair removal from operative site occurs only if absolutely necessary. Determining factors include

- Location of incision
- Amount of hair
- Type of surgical procedure to be performed

Where hair removal is indicated the removal is performed:

- According to the surgeon's orders or facility policy
 - Undertaken by skilled personnel
 - In a manner that ensures skin integrity is preserved
-
- Clippers and/or depilatory agents are recommended (skin testing is required before using depilatory agents)
 - Shaving is undertaken only when other methods not available - wet shaving is preferable

As close to the time of surgery as possible in a clean area of the Operating suite to minimise the time available for wound colonisation of micro-organisms at the surgical site

GUIDELINE STATEMENT NUMBER	DATE RELEASED	DATE REVIEWED	REVIEW FREQUENCY	DATE TO REVIEW POLICY
1006	1995	November 2021	Every 4 years	Dec 2025



Skin Preparation should be documented in the patient's record.

Record of skin preparation may include but is not limited to:

- Skin condition/cleanliness
- Hair removal (if performed) including method of removal and area
- Skin preparation agent used i.e. antiseptic agent and strength
- Person undertaking the prep
- Onset and details of any hypersensitivity reactions
- Visual check at the end of the procedure.

Guidelines for skin preparation are included in a readily accessible in Perioperative Unit's Practice Manual and are reviewed at least bi-annually.

References:

- ACORN (2018) Australian College of Operating Room Nurses: Standards for Perioperative Nursing.
- AfPP (2016) Association for Perioperative Practice: Harrogate UK: Standards and Recommendations for Safe Perioperative Practice.
- AORN (2019) Association of peri-Operative Registered Nurses: Denver USA: Perioperative Standards and Recommended Practices.
- ORNAC (2017) Operating Room Nurses Association of Canada: Standards for Perioperative Nursing Practice.
- National Institute for Health and Care Excellence(NICE) guideline [NG125] Surgical site infections: prevention and treatment 2019 Accessed at <https://www.nice.org.uk/guidance/NG125>

IFPN acknowledges 3M for the support provided to enable review of this perioperative standard.

GUIDELINE STATEMENT NUMBER	DATE RELEASED	DATE REVIEWED	REVIEW FREQUENCY	DATE TO REVIEW POLICY
1006	1995	November 2021	Every 4 years	Dec 2025