



This document is a guide for information only. Local decisions must be made after consultation with your microbiology, infection control, theatre, and pharmacy teams as appropriate for your clinical setting and governance arrangements.

SITUATION

- Most Dermatologists typically use dilute aqueous chlorhexidine solutions for cleaning the skin prior to common surgical skin procedures.
- Tisept® and Unisept® are common examples. There are supply problems and they appear to have been discontinued.
 - **Tisept** (yellow solution) - chlorhexidine gluconate 0.015% + cetrimide 0.15% (*latter is a detergent*)
 - **Unisept** (pink solution): chlorhexidine gluconate 0.05%
- Skin surgery procedures vary from very minor low risk clean biopsies to contaminated body sites near mucous membranes, or complex prolonged facial surgery.
- Various similar antiseptic solutions exist for skin preparation, wound cleansing, surgical scrub, and equipment cleaning. It is recommended to use the most appropriate licensed option for the intended application.
- Many of the available preparations are not safe around the eyes and inside the ears.

BACKGROUND

Licensed options include:

Chlorhexidine/alcohol

- 0.5% chlorhexidine in 70% alcohol solution (Hydrex Pink; Prevasol)
- 2.0% chlorhexidine in 70% isopropyl alcohol applicators (ChloraPrep)

Chlorhexidine

- **Hydrex™** (chlorhexidine 4% plus detergent & various excipients):
 - Intended use for surgeon arm scrubbing and patient showering but can be used immediately pre-op. Leaves residue that needs washing off with saline afterwards.

Povidone-iodine/alcohol

- 10% povidone-iodine alcoholic solution (Videne alcoholic tincture)

Povidone iodine

- 10% povidone-iodine solution (Videne or Betadine antiseptic solution)
 - Leaves a brownish coloured residue helpful for identifying the prepped area, but needs to be washed off post procedure.
- 7.5% povidone-iodine surgical scrub solution (Betadine or Videne surgical scrub)
 - Apply saline then work into a lather and clean skin for several minutes, then must be rinsed off after use before incision

Other options

- Other preparations of aqueous chlorhexidine without alcohol
- Sterile normal saline (usually used for wound irrigation but can be used for skin prep)

WARNINGS

All

- Ensure evaporation to dryness for any antiseptic skin preparations prior to procedure (this ensures optimal antiseptics and safety)
- Risk of anaphylaxis - ensure use of a WHO checklist to confirm no allergies to the intended preparation before skin preparation begins.

Alcohol containing preparations

- Avoid contact with mucous membranes (around eyes, external acoustic meatus etc)
- **Fire risk:**
 - avoid pooling or soaking into any surrounding clothing or drapes
 - use of electrosurgery (Hyfrecator/bipolar diathermy) can cause ignition, fire and severe burns

Povidone iodine

- Avoid regular use in patients with thyroid disorders (in adults)
- Can be used on mucous membranes. Flush with saline afterwards.

Chlorhexidine

- Avoid or only use highly dilute plain solutions around eyes (e.g. chlorhexidine 0.05% or 0.1%)¹, external acoustic meatus, mucous membranes and pre-term babies (irritant and ototoxic).

ASSESSMENT

- NICE recommends alcohol containing chlorhexidine as first choice for optimal skin antiseptics, then aqueous chlorhexidine, then alcoholic povidone iodine, then povidone iodine.
- However the level of training for doctors and nursing staff in Dermatology units varies greatly, and is not necessarily aligned to that of general theatres.
- Alcohol containing preparations carry a serious risk of fire and burns, requiring careful procedures for their safe use. Staff training needs to be comprehensive and regularly updated for new team members.
- We suggest it is likely to be more practical in most units to choose only one or two options as first line, and not to include alcohol; it may also be useful to identify second line choices in case of further supply chain failures.

RECOMMENDATION

- **The safest most effective and practical single choice for most units is likely to be 10% povidone iodine solution (i.e. without alcohol). This should be diluted 50:50 with sterile normal saline around the eyes and ears (i.e. to create 5% povidone iodine).**¹
- For units that can put in place appropriate governance processes for alcoholic solutions to be used safely, then chlorhexidine + alcohol solutions could be considered away from mucous membranes.

References

1. Kanclerz, P., Myers, W.G. Potential substitutes for povidone-iodine in ocular surgery. *Eye*35, 2657–2659 (2021).
2. <https://www.nice.org.uk/guidance/ng125> [Accessed June 2023]