

Surgical skin prep decision tool

Preventing harm caused by incorrect selection of surgical skin preparation solution

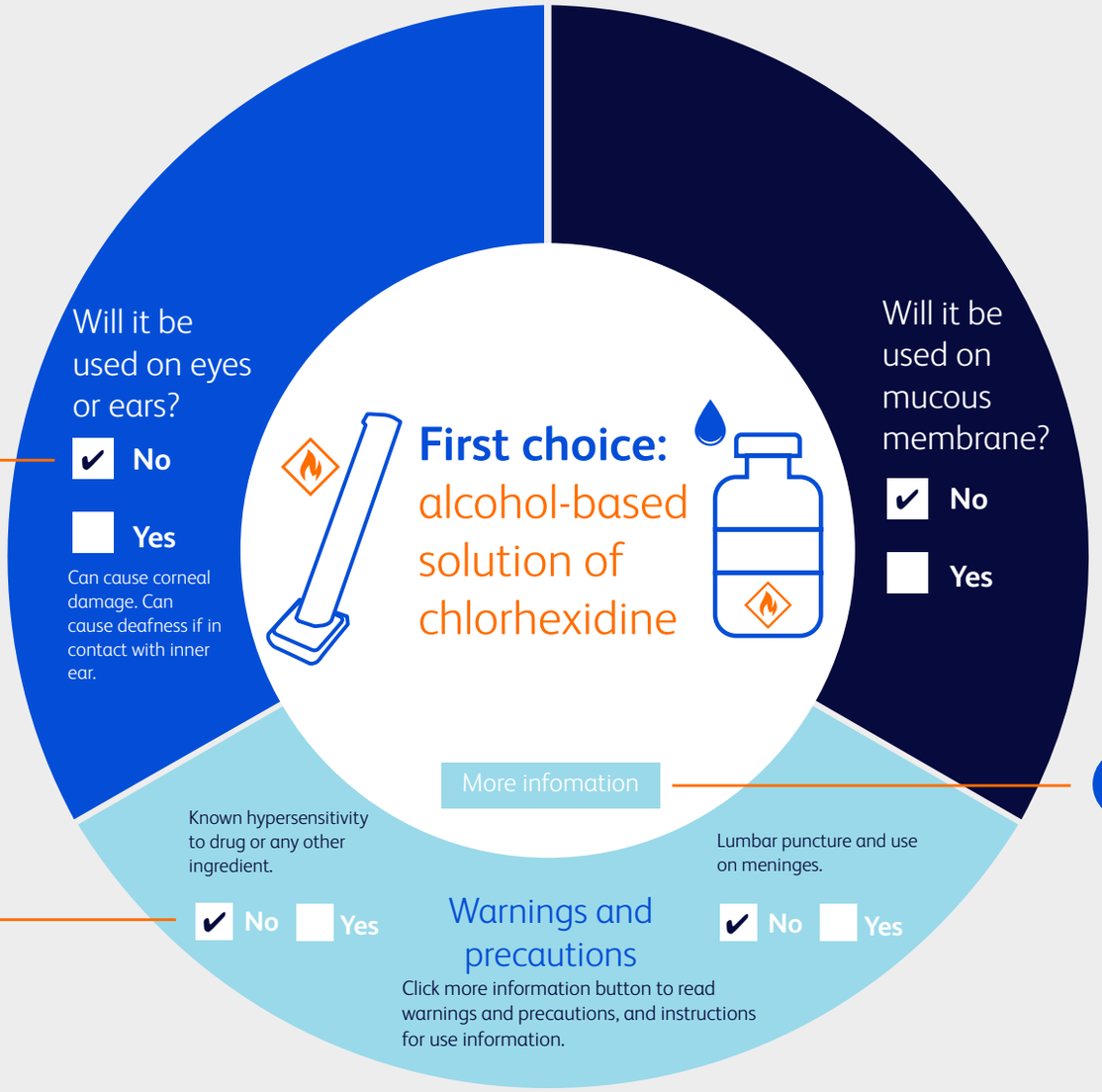
Enter

AfPP PROGRESSING SAFER SURGERY
The Association for Perioperative Practice

NHS

BD

How to use this surgical skin prep tool



1 **Check where the product will be used**

2 **Check for known hypersensitivity**

3 **Click “more information” for product specific information**

Leeds pathway

4 **Click to Leeds Pathway clinical guidelines for Surgical Site Skin Preparation**

Start here

5 **When you have finished your path, click ‘home’ to start again**

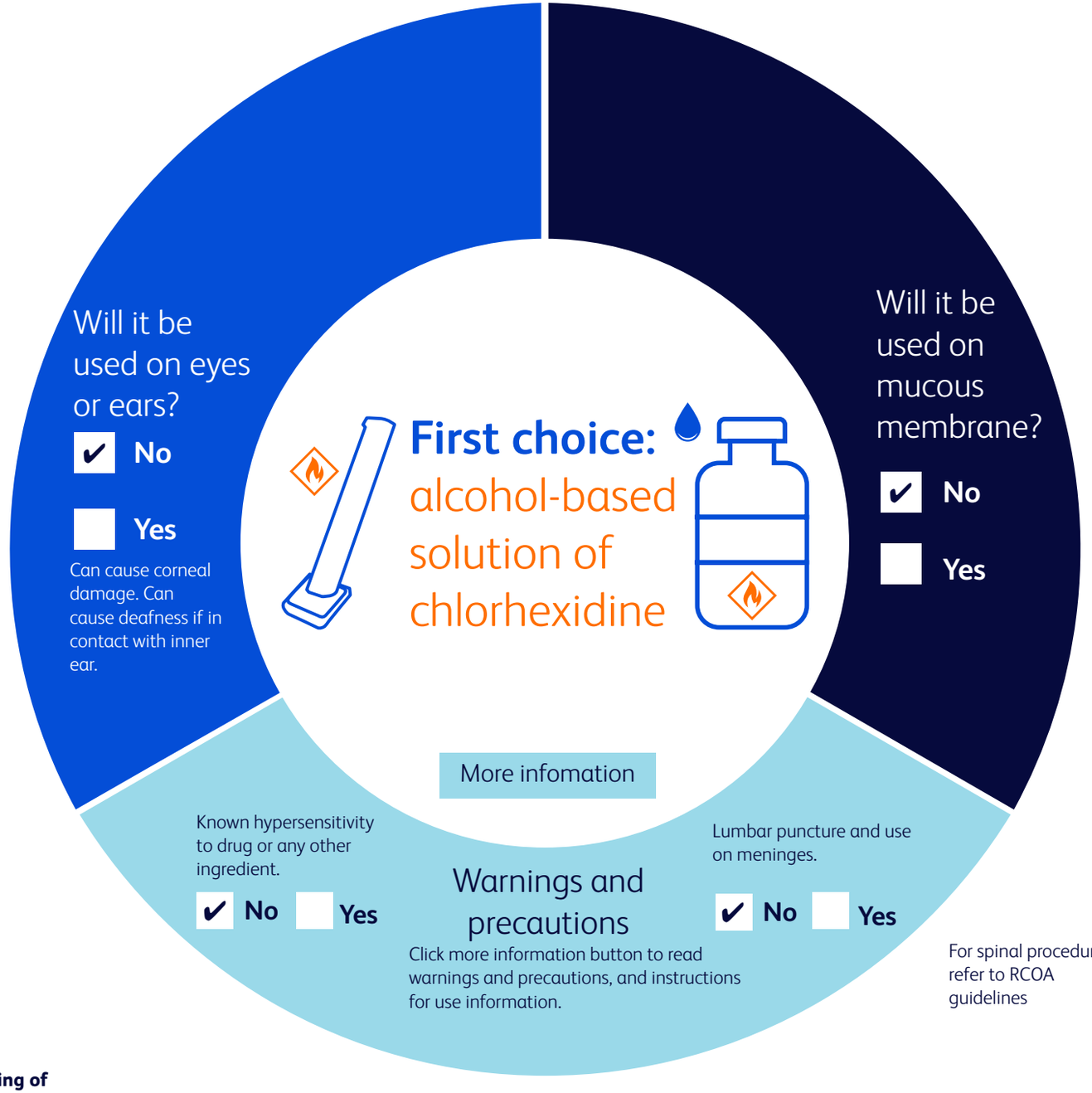
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline[1]

First choice:
alcohol-based solution of chlorhexidine

At the time of publication (April 2019), **0.5% chlorhexidine** in 70% alcohol solution was licensed for 'preoperative skin disinfection prior to minor surgical procedures' and only **2.0% chlorhexidine** in 70% alcohol applicators were licensed for 'disinfection of the skin prior to invasive medical procedures'.

One possible exception to the use of 2% might be where neurotoxicity is a concern e.g. spinal procedures



For consideration when used next to **mucous membrane** refer to local policy, guidance or protocol.

For considerations when using on **face,** refer to Leeds pathway

Leeds pathway

Prevent pooling of prep fluid

Surgical fire risk

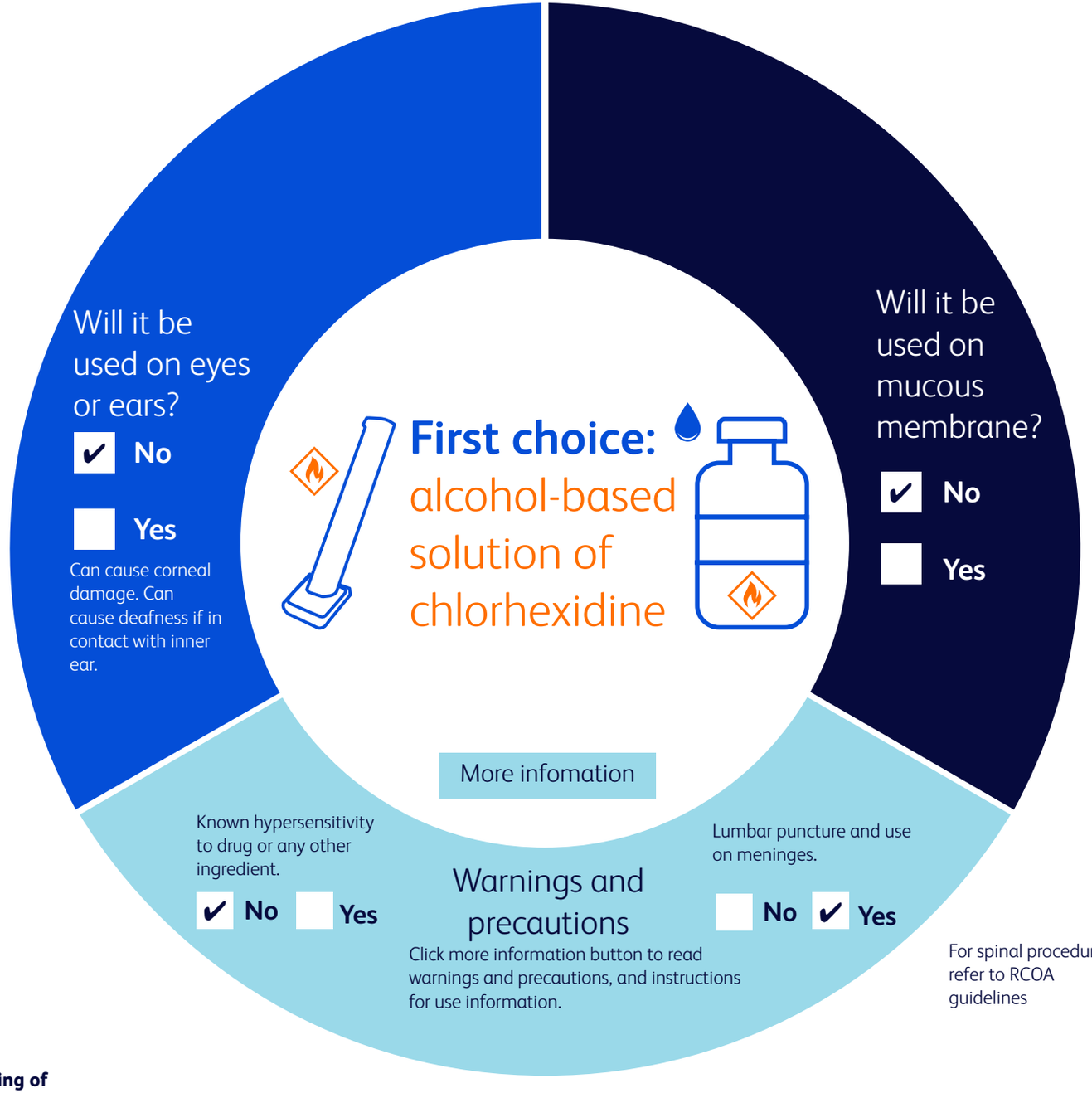
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Prevent pooling of prep fluid

Leeds pathway

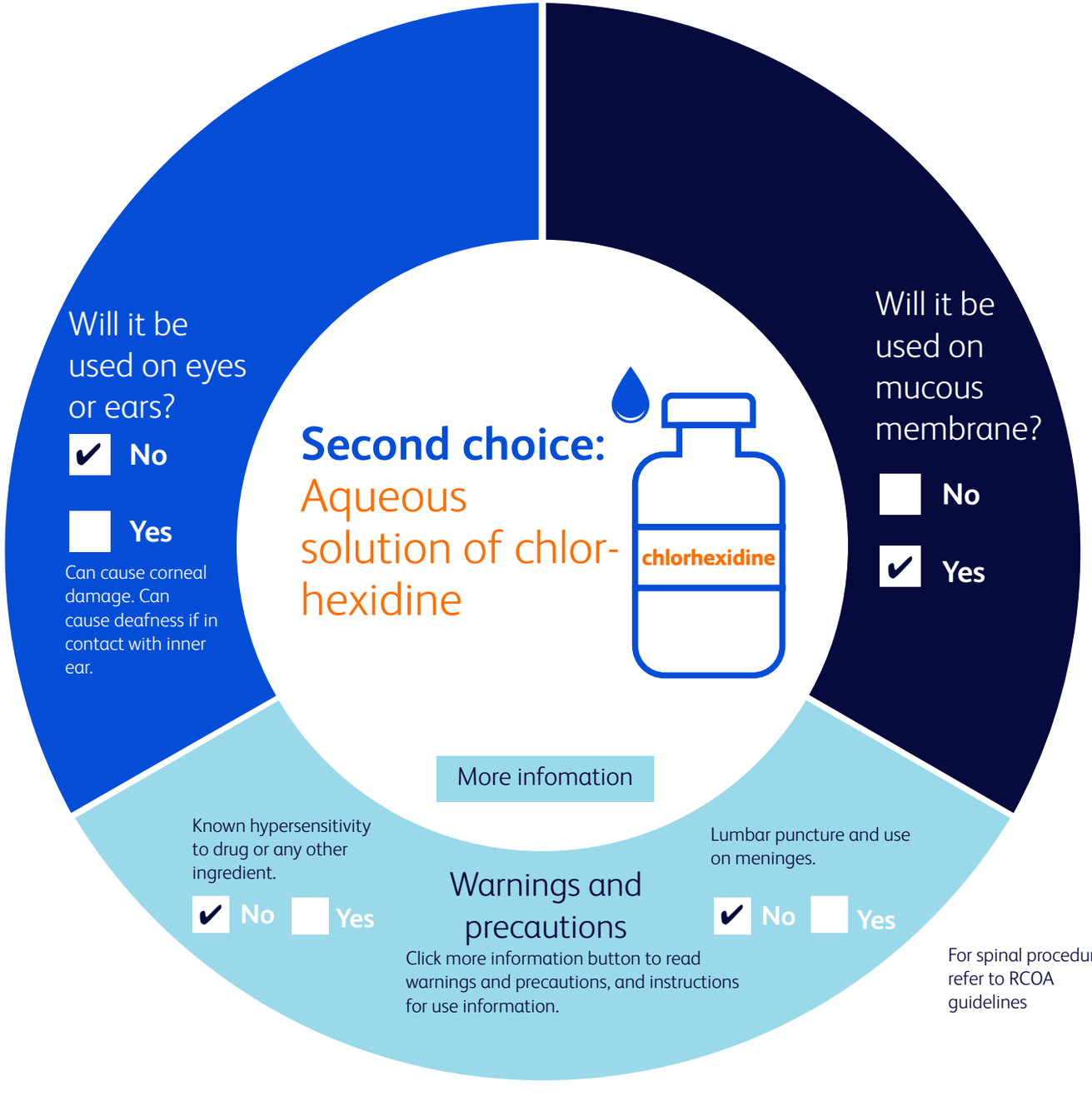
Surgical fire risk

Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline[1]

Second choice:
aqueous solution of chlorhexidine

At the time of publication (April 2019), 4.0% aqueous chlorhexidine was licensed for 'preoperative and postoperative skin antisepsis for patients undergoing elective surgery'; however, relevant instructions were limited to use as a body wash to be used before the person enters the operating theatre.



Leeds pathway

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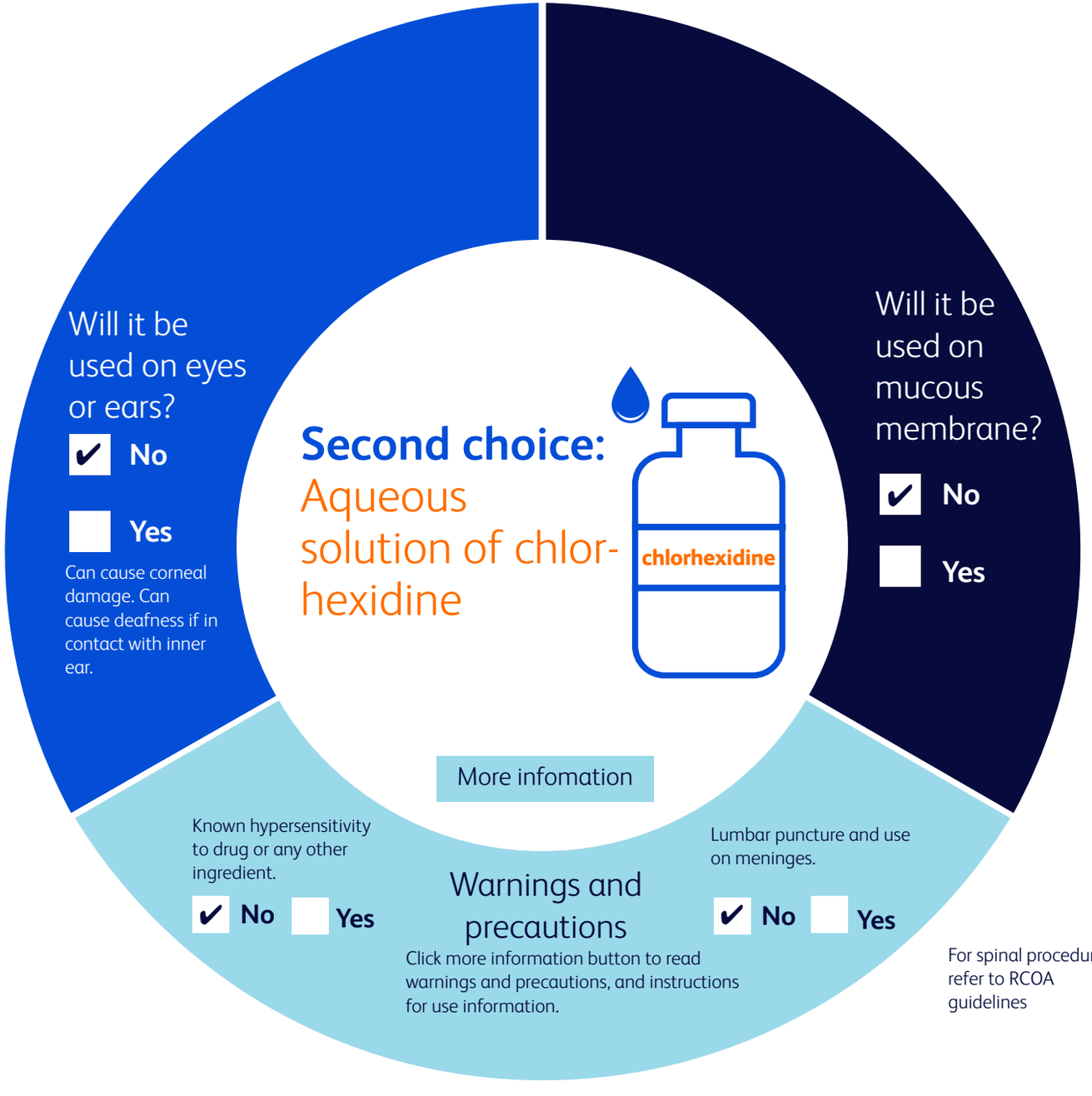
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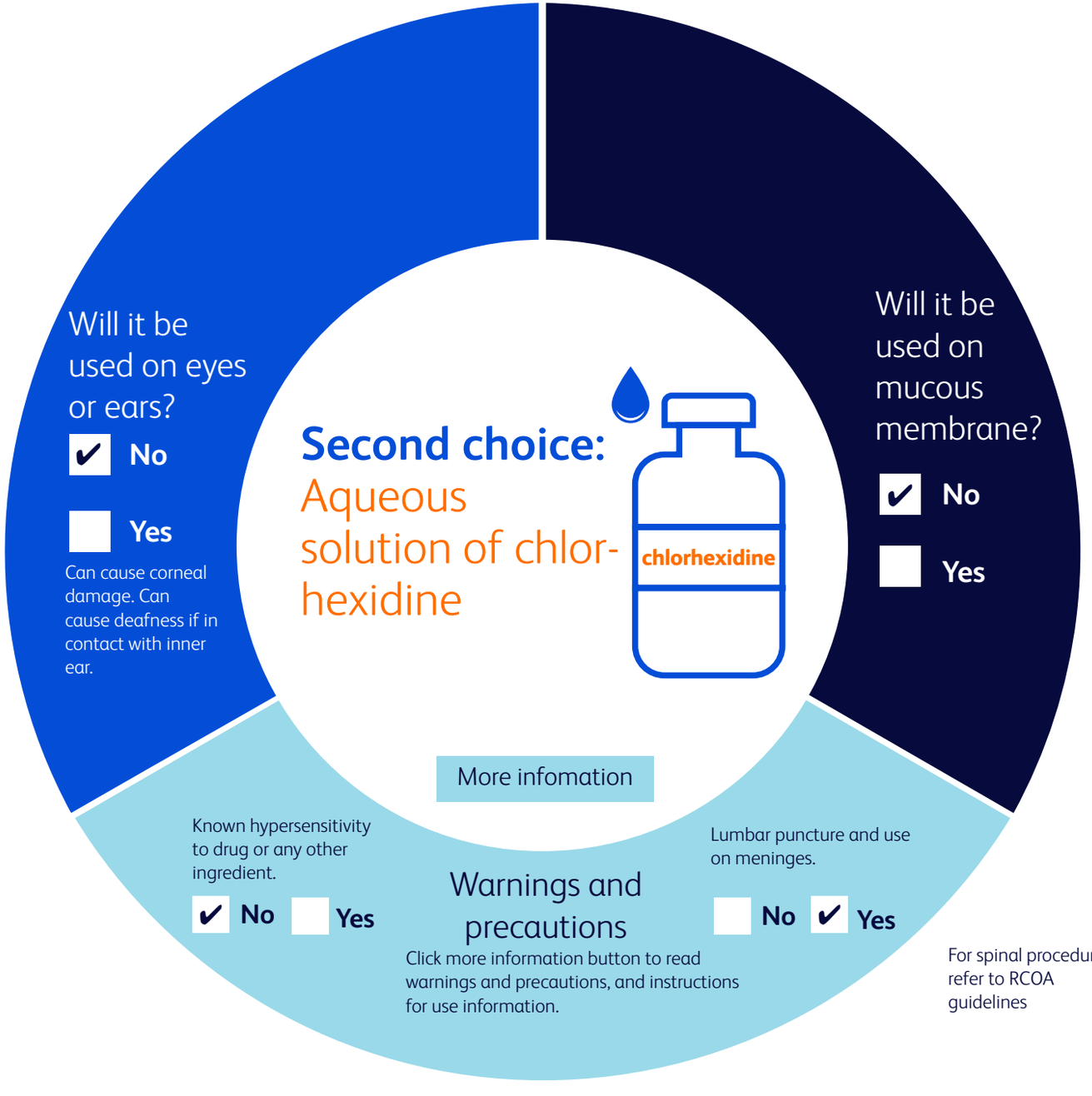
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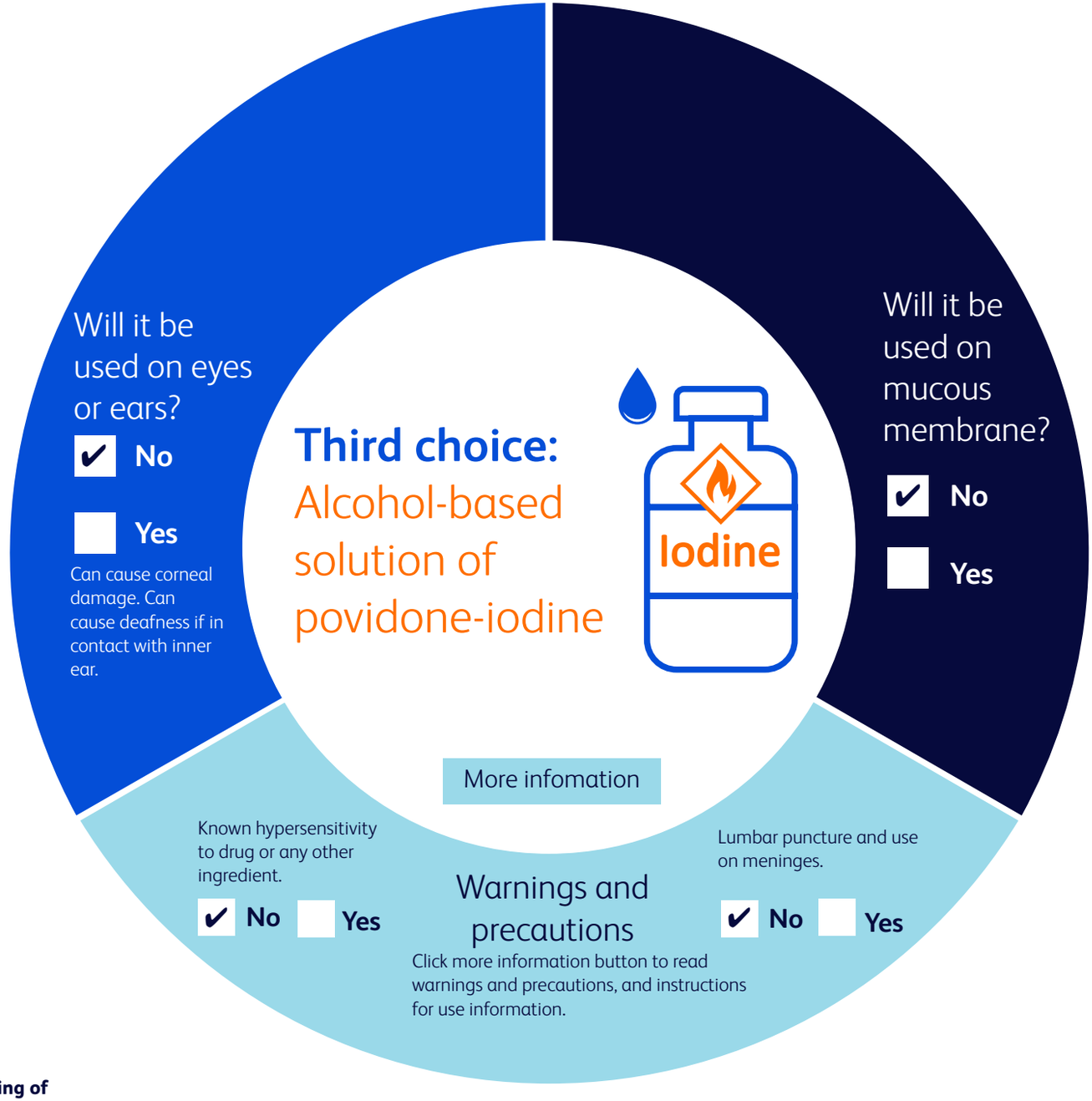
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Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline[1]

Third choice:
alcohol-based solution of povidone-iodine

At the time of publication (April 2019), **10% povidone-iodine alcoholic solution** was licensed for 'topical application'. **10% povidone-iodine** was licensed for 'antiseptic skin cleanser for major and minor surgical procedures'.



Prevent pooling of prep fluid

Leeds pathway

Surgical fire risk

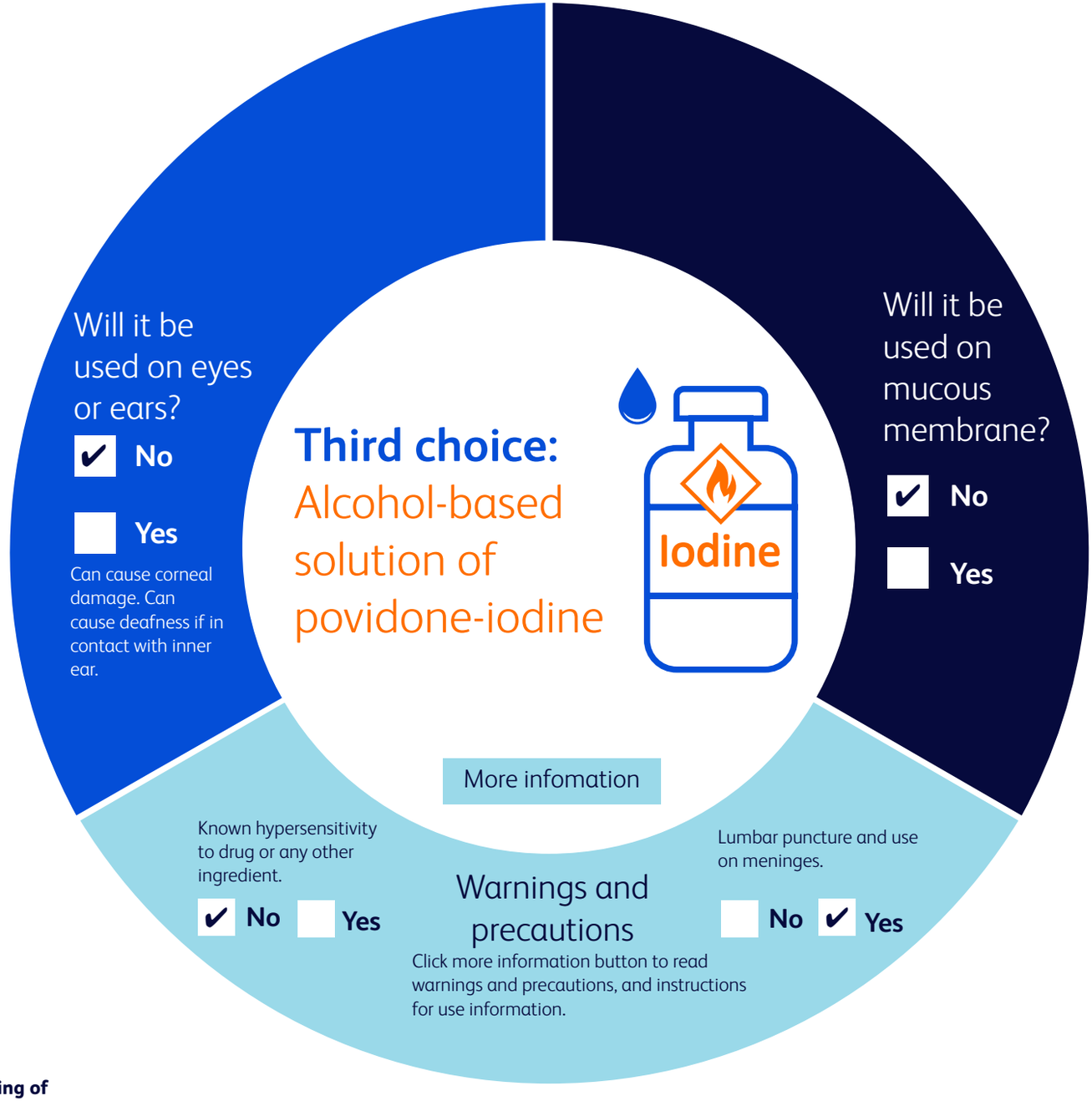
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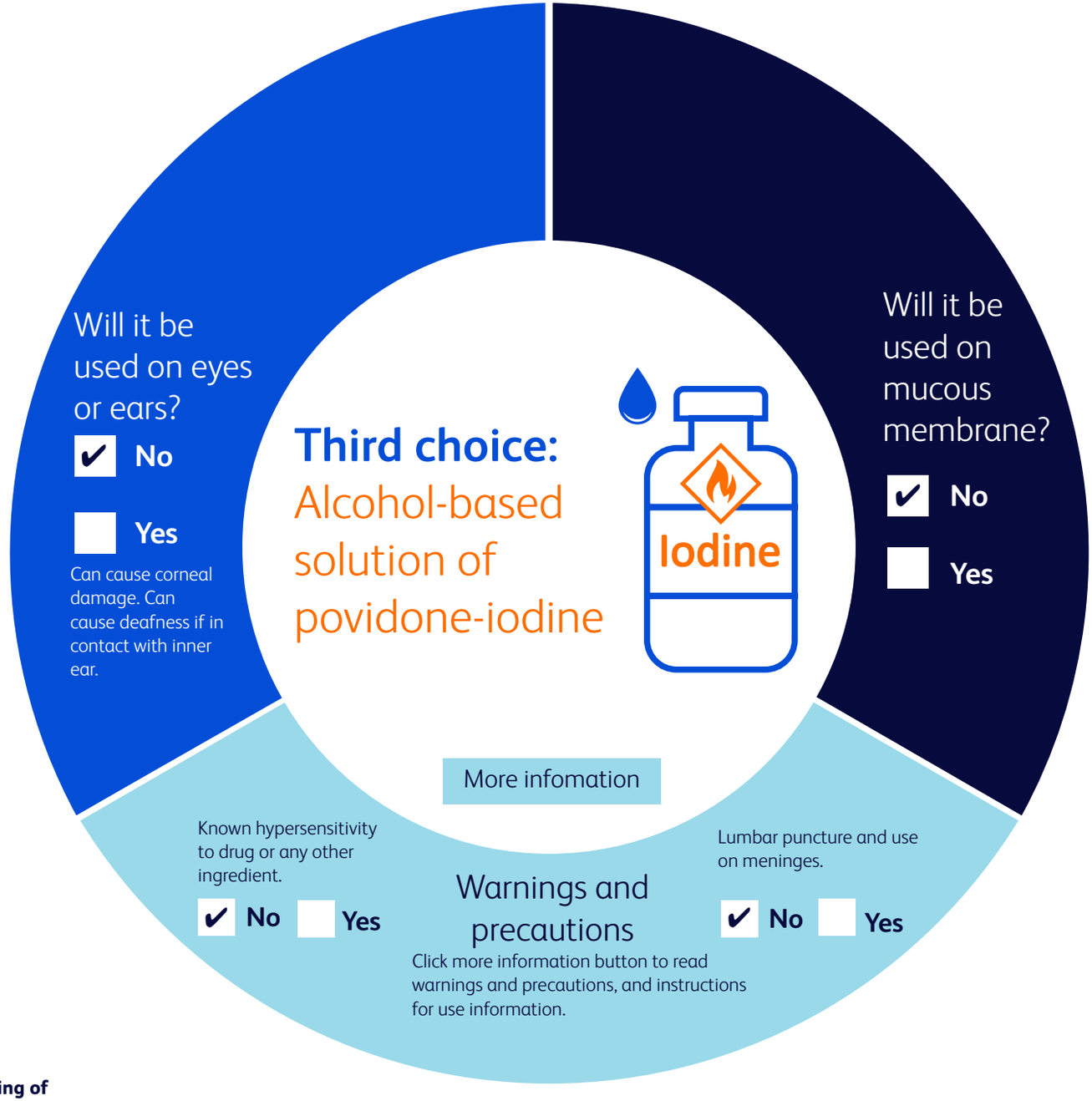
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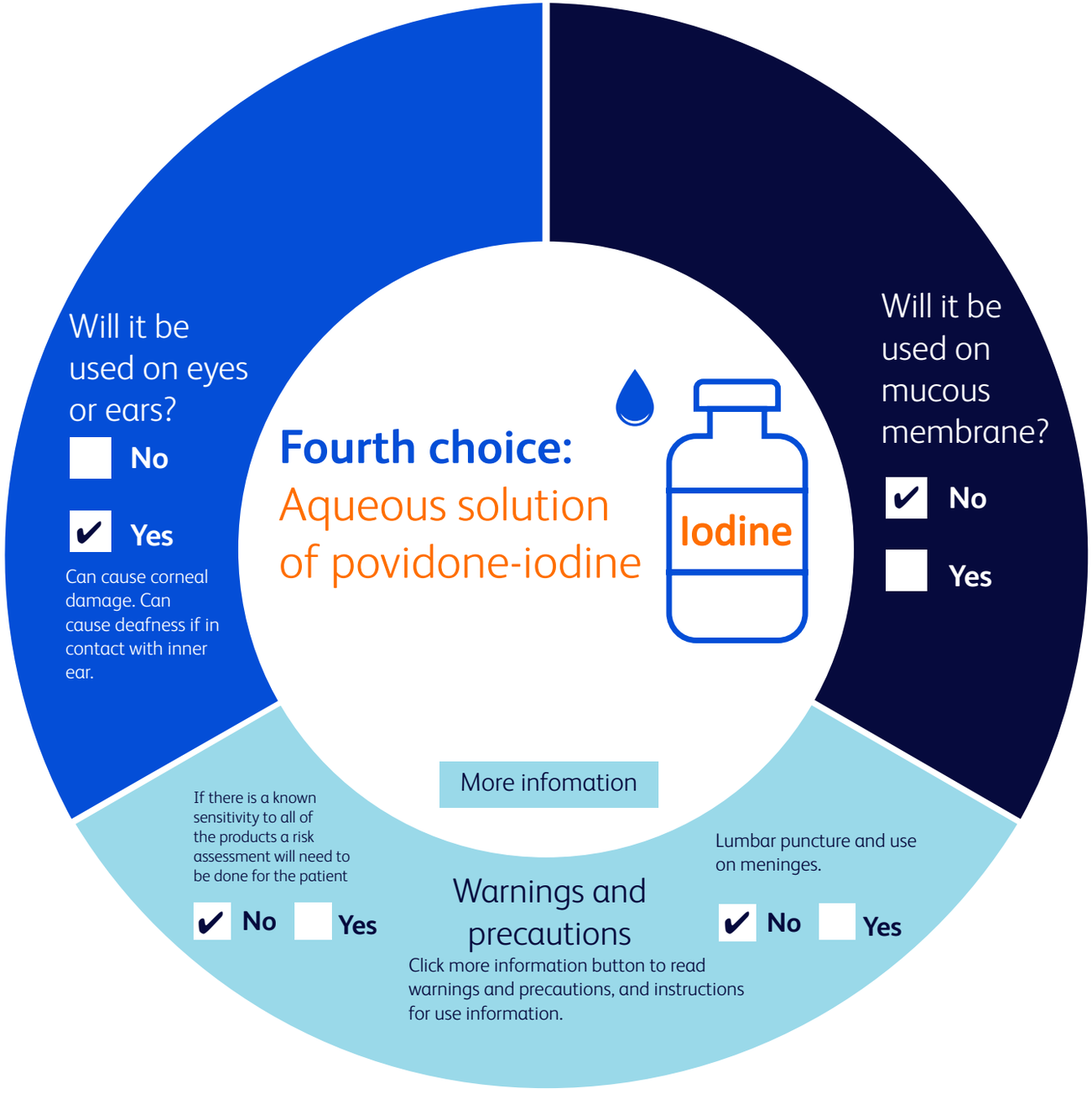
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Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline[1]

Fourth choice:
aqueous solution of povidone-iodine

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Leeds pathway

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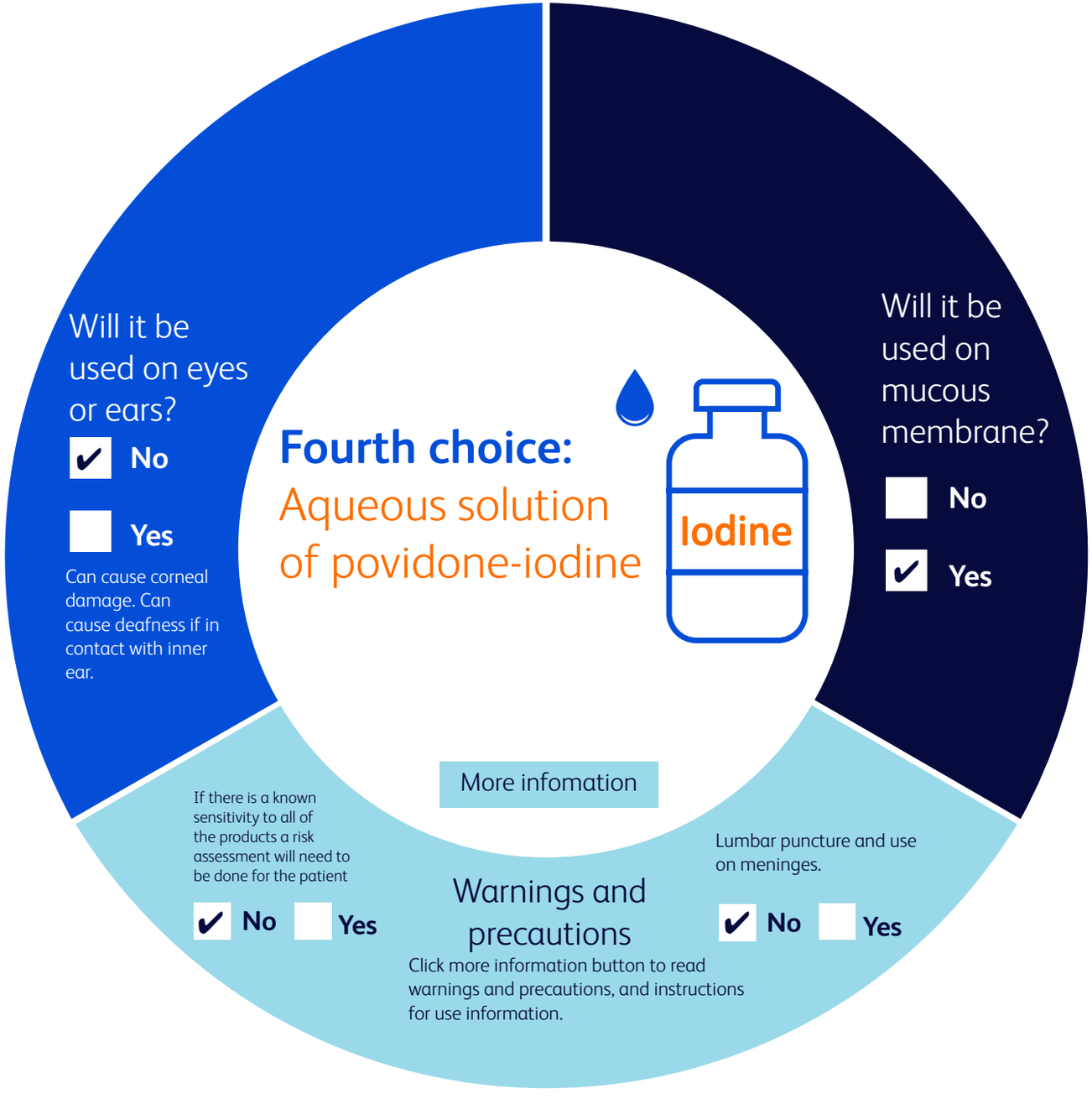
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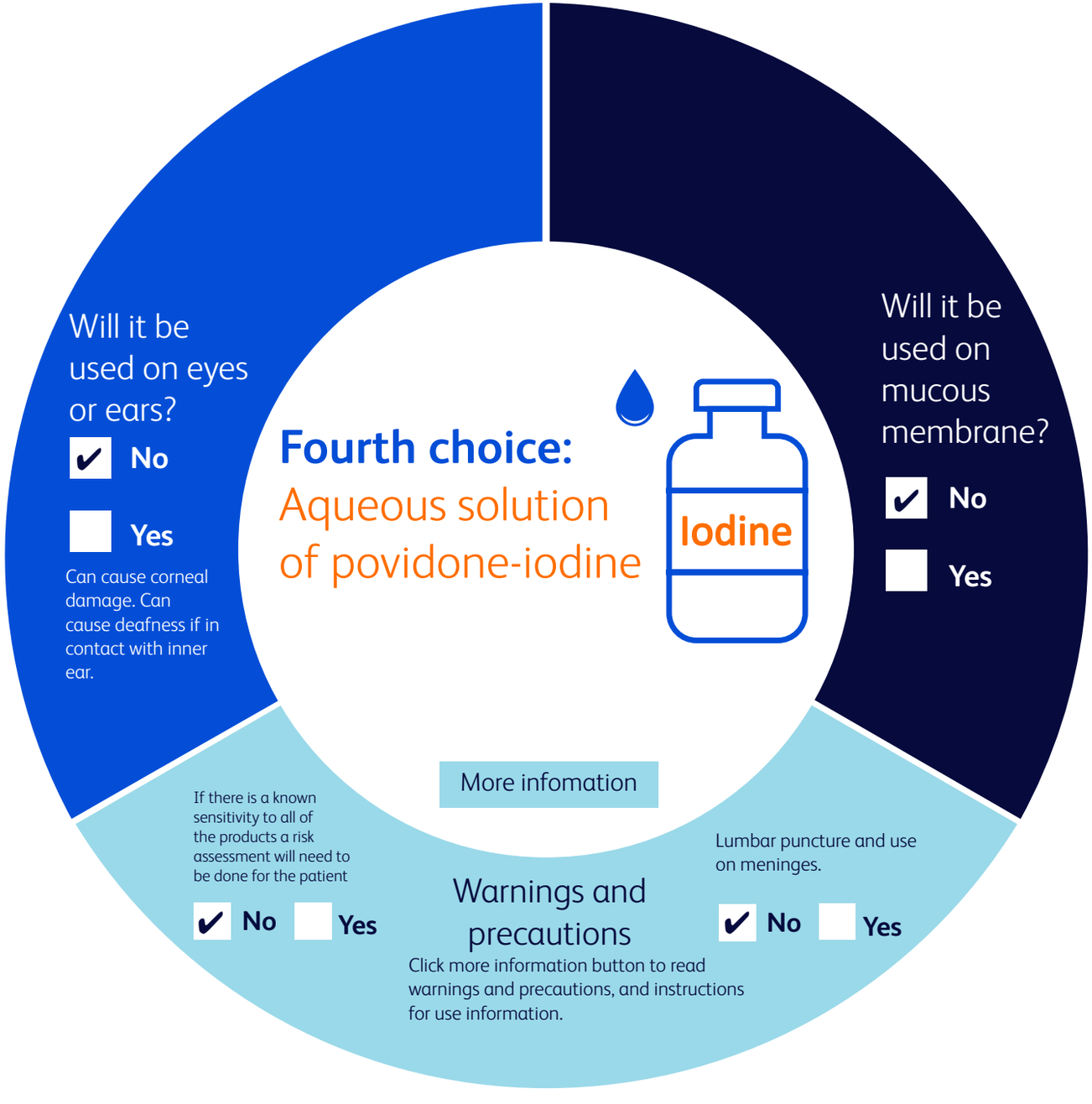
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Alcohol-based solution of chlorhexidine

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Applicator sizes and coverage area





- One 26ml applicator should be sufficient per limb, chest/abdomen
- Assess the size of the area ro be prepped

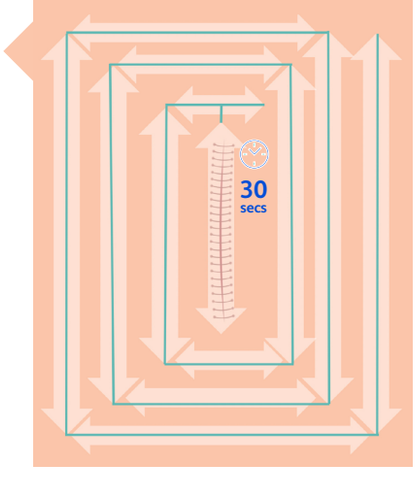


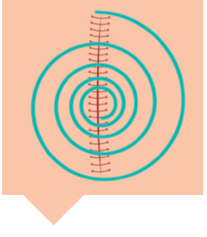
- Disposal. Any unused product or waste material should be discarded in accordance with local requirements.
- If using a bottled solution use a suitable volume of solution for the area to be prepped.

Back and forth motion proven to be superior to other traditional methods[1]

The back-and-forth technique is proven to be superior to traditional concentric prepping techniques,[2 3] concentrating first on the wound line for 30 seconds and then moving away from it, ensures that bacteria is not being inadvertently spread back across the wound line. By moving around and away from the wound line, optimal protection can be achieved.

Watch video





A traditional prepping technique uses a concentric pattern, with the applicator constantly crossing the wound or incision line. But this means that any bacteria on the skin at the outside of the wound could be transferred back across the wound line.

Age of patient

The use of chlorhexidine solutions, both alcohol based and aqueous, for skin antisepsis prior to invasive procedures has been associated with chemical burns in neonates. Based on available case reports and the published literature, this risk appears to be higher in preterm infants, especially those born before 32 weeks of gestation and with less than 2 weeks of life.[4]

Anatomical area

Do not use on open skin wounds. Do not use on broken or damaged skin. In addition, direct contact with neural tissue or the middle ear must be avoided. Prolonged skin contact with alcohol containing solutions should be avoided.

Storage – COSHH recommendations

Flammable. This medicinal product does not require any special temperature storage conditions. Store in the original packaging; applicator is sterile unless seal is broken. Avoid exposure of the container and contents to naked flames during use, storage and disposal.[5]

Recommendation on re-use of alcoholic skin preparation

This product is for single use only. Any unused product or waste material should be discarded in accordance with local requirements. No additional environmental precautions for disposal are necessary.

Leeds pathway

Warnings and Precautions

Back

Aqueous solution of chlorhexidine

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Applicator sizes and coverage area

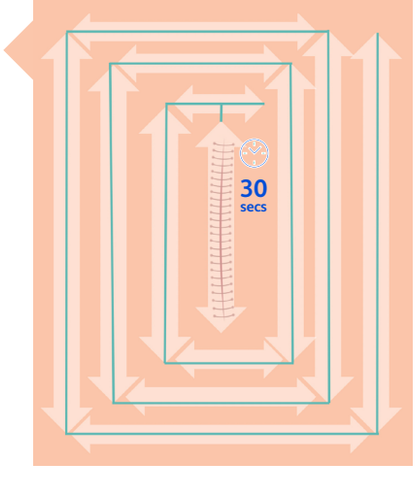


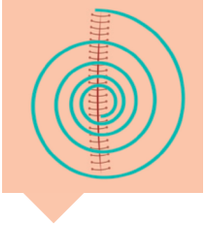
- Disposable considerations.
- Recommended that waste minimisation be practiced. The best available technologies should be used to prevent environmental releases.

Back and forth motion proven to be superior to other traditional methods[1]

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Anatomical area

Do not use on open skin wounds. Do not use on broken or damaged skin. In addition, direct contact with neural tissue or the middle ear must be avoided. Prolonged skin contact with alcohol containing solutions should be avoided.

Storage – COSHH recommendations

Store as directed by product packaging.

Recommendation on re-use of aqueous skin preparation

This product is for single use only. Any unused product or waste material should be discarded in accordance with local requirements. No additional environmental precautions for disposal are necessary.

Leeds pathway

Warnings and Precautions

Back

Alcohol-based solution of povidone-iodine

At the time of publication (April 2021), **10% povidone-iodine alcoholic solution** was licensed for 'topical application'.

Applicator device sizes and coverage area



Indications for use:

Alcoholic povidone iodine – Should be used topically as a pre-operative skin disinfectant, must not be used on broken skin. It is a quick drying solution often used in orthopaedic surgery.

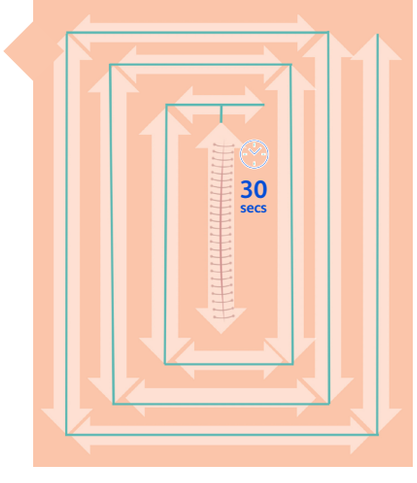
Disposal of Povidone iodine[7]

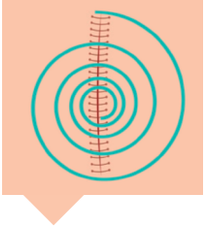
Dispose of in accordance with the European Directives on waste and hazardous waste. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities

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Age of patient

Use with care in neonates, especially those born before 32 weeks of gestation and within the first 2 weeks of life.[8 9]

Anatomical area

Must never be used on mucous membranes such as the mouth or inner lip. Should never be used above the neck, middle ear, or external ear with perforated tympanic membrane as it is ototoxic and can cause sensorineural deafness if it comes into contact with the inner ear. Alcohol based preps should never be used on the scalp as there is a high risk of combustion. Never use alcohol-based preps above the neck.

Storage – COSHH recommendations

Keep away from heat and sources of ignition. Keep in a cool, well-ventilated place. Keep away from oxidizing agents. Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers. Storage temperature: 5 °C to 25 °C. See Safety Data Sheet and formulate local COSHH risk assessment.

Individual risk assessment (organisation) for 'non-compliance'

Risk assessment, local policy, and competences

Method of use - technique

The solution should be allowed to dry. If electrosurgical devices are used following application, do not allow pooling of the fluid to occur, ensuring that the skin and surrounding drapes are dry.

Leeds pathway

Warnings and Precautions

Back

Aqueous solution of povidone-iodine

At the time of publication (June 2021) **10% povidone-iodine antiseptic solution** was licensed for preoperative and postoperative antiseptic skin cleanser for major and minor surgical procedures. **10% povidone-iodine** was licensed for 'antiseptic skin cleanser for major and minor surgical procedures.

Applicator device sizes and coverage area



Indications for use:

Antiseptic povidone iodine Solution (Videne®) – should be used as pre-operative skin disinfectant, mucosa or for wound treatment. It is suitable for surgical use with diathermy.

Warning for use near eyes

Povidone iodine can cause patient discomfort when used in higher concentration.10% Povidone-iodine is routinely diluted (50;50). AAO and ESCRS recommends Povidone-iodine 5-10% to be applied at least 3 minutes before surgery. There is limited guidance available regarding an exact regime, therefore a local protocol and policy should reflect evidence based practice

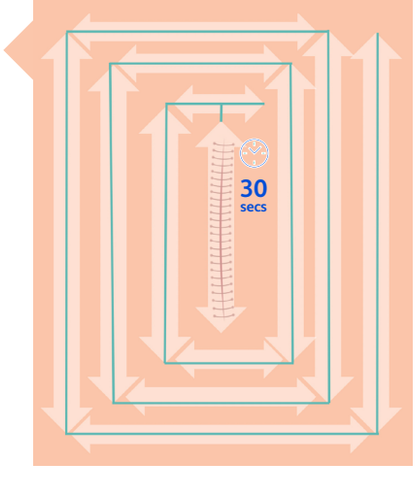
Disposal of povidone-iodine.

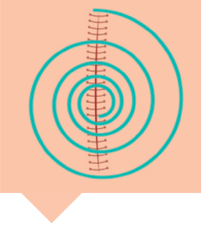
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Age of patient

Should be used with care in neonates and nursing infants up to the age of 6. If used in children thyroid functions must be monitored.

During pregnancy and lactation antiseptic povidone iodine must be used following a very careful assessment and in extremely limited amounts due to marked absorption of iodine, and levels being present in the mother's milk.[10]

Anatomical area

must not be used as skin prep in the ear canal as it can be ototoxic causing sensorineural deafness if it enters the inner ear.

Storage – COSHH recommendations

Povidone (videne®) Antiseptic solution 5-10% is non-flammable. It should be stored between the following temperatures: 5 to 30°C (SDS ECOLAB). Store in accordance with SDS, and local COSHH risk assessment.

Individual risk assessment (organisation) for 'non-compliance'

Opthalmology and ENT See NICE NG125 guidelines. Protocol should be in place if any deviance from NICE guidelines.

Method of use - technique

The solution should be allowed to dry. Do not allow pooling of the fluid to occur, ensuring that the skin and surrounding drapes are dry.

Leeds pathway

Warnings and Precautions

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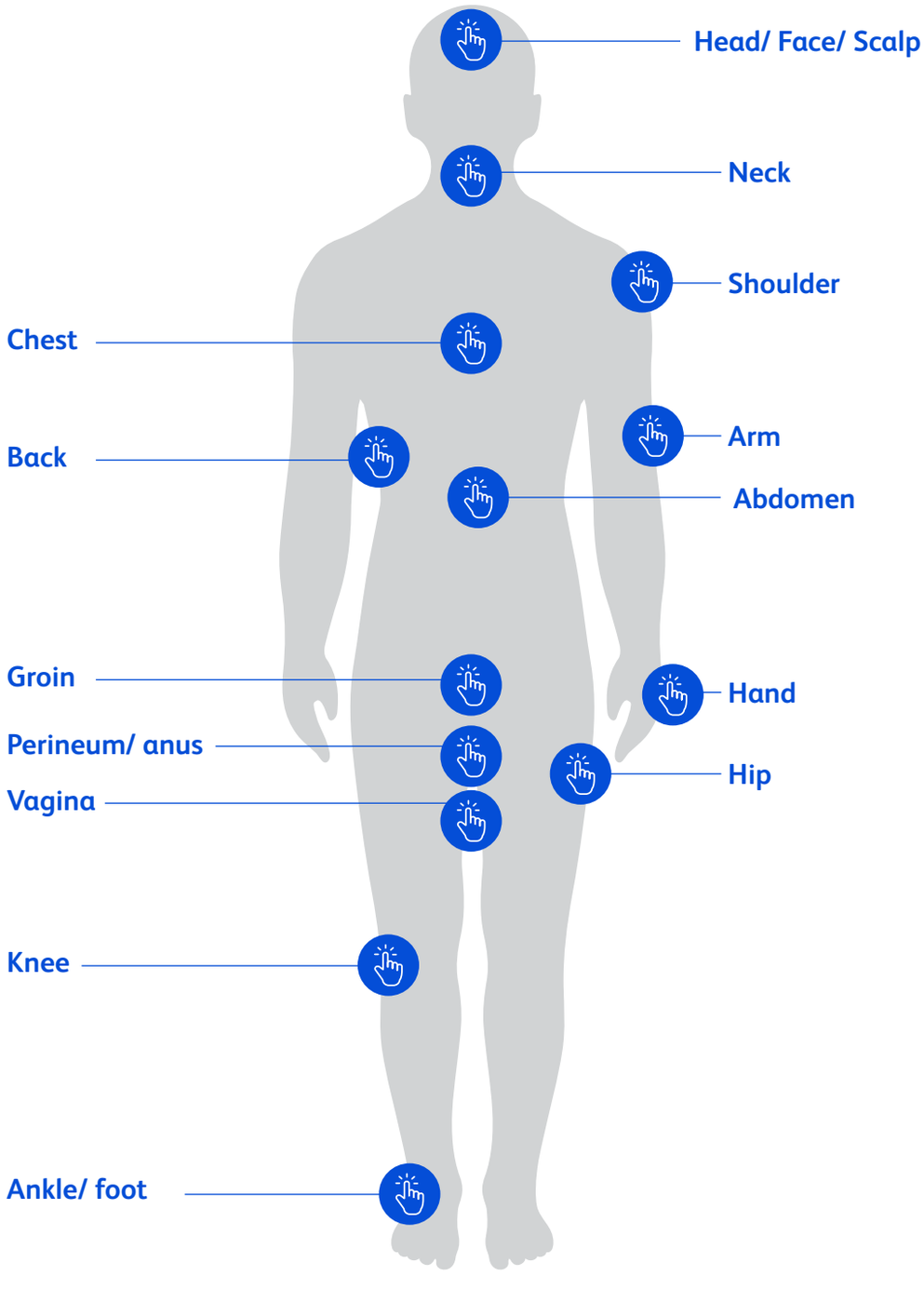
Leeds pathway

Appendix 2 SURGICAL SITE – skin prep area dependent on surgical/ invasive procedure

Always follow manufacturer's instructions for skin prepping solutions and evidence based guidance and recommendations

To access the full Leeds Pathway clinical guidelines for Surgical Site Skin Preparation within the Perioperative Environment

click here



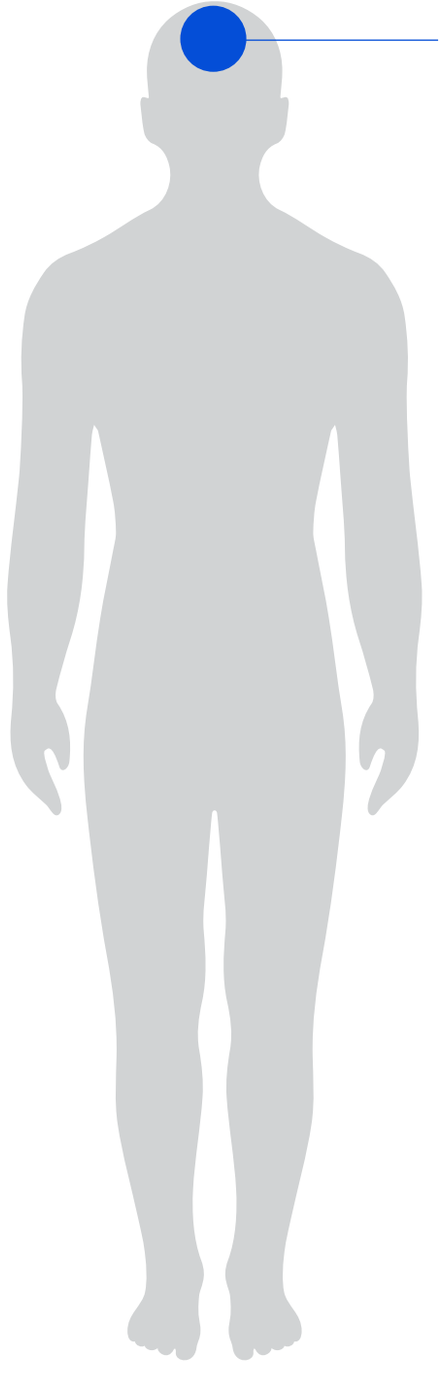
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Head/ Face/ Scalp

- Do not use chlorhexidine gluconate or alcohol skin prep near or on/in the eyes – it may cause corneal damage
- Eyes must be protected by prepping the surrounding area (this can be using a simple ophthalmic ointment and a film shield). If it is necessary to prep the eyelids do so from medial to lateral then working out in half circles to bridge of nose, cheek and forehead with gentle strokes. povidone- iodine antiseptic solution 5% i.e. Evidence required povidone- iodine 10% mixed with the same volume of 0.9% saline solution may be used. For intraocular use povidone-iodine 5% may be used
- On the scalp ensure the prep solution penetrates the hair and reaches the skin. There is a high risk of combustion with alcohol based preps as prep can take considerably longer to dry on hairy surfaces
- Do not use chlorhexidine gluconate or alcohol skin prep on the middle ear or external ear with perforated tympanic membrane as they are ototoxic and can cause sensorineural deafness if it comes into contact with the inner ear
- Do not use povidone-iodine as skin prep in the ear canal as povidone-iodine can also be ototoxic if it enters the inner ear
- Place cotton wool ball in the external ear canal prior to skin prep. Start with external ear then extend to edge of hairline, cheek and jaw. Remove cotton wool ball if operating through the canal and document
- Do not use chlorhexidine gluconate or alcoholic skin prep on mucous membranes e.g. mouth/ inner lip

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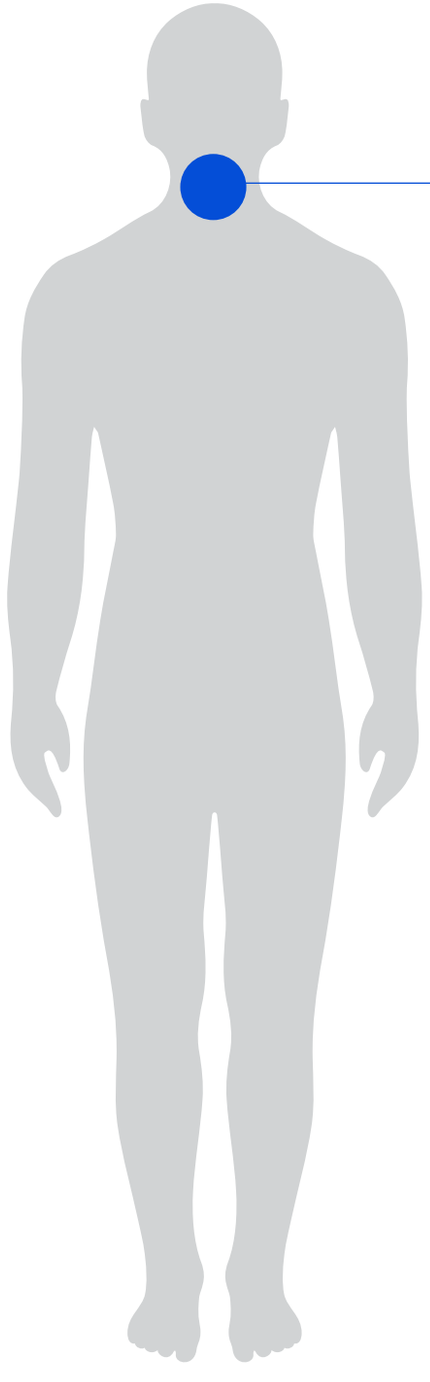
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Neck

Prep from incision site and out in concentric circles

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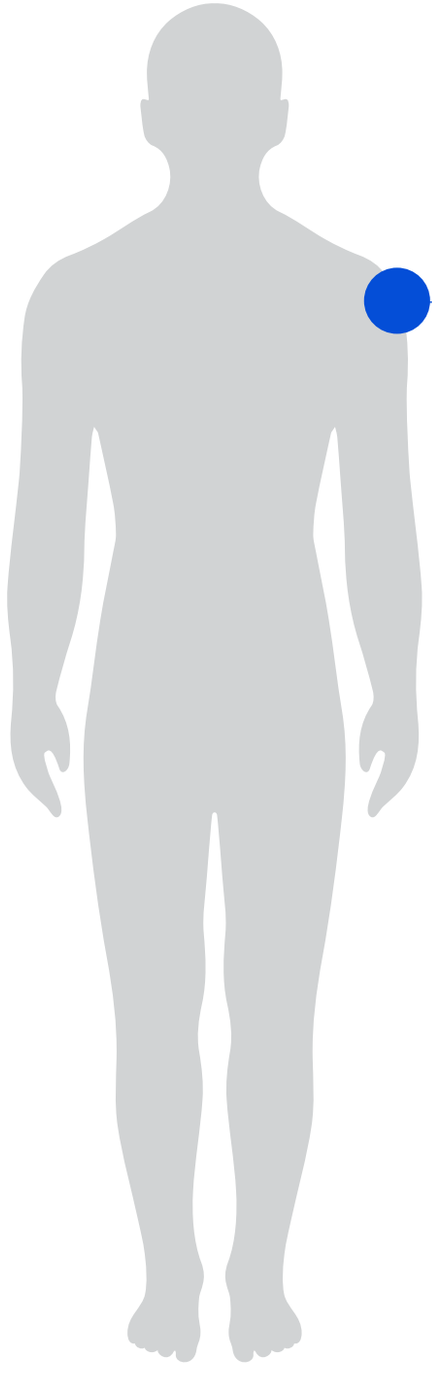
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Shoulder

Prep chest, neck, shoulder, upper arm, scapula, axilla - prepping the axilla last

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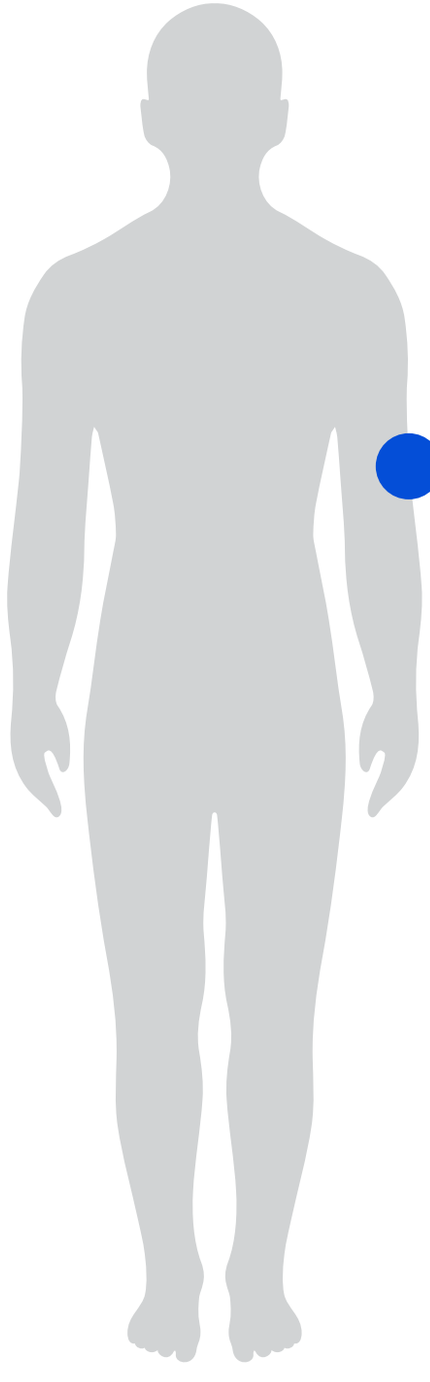
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Arm

For upper arm prep from mid forearm to shoulder including axilla, commencing at incision site - prepping the axilla last

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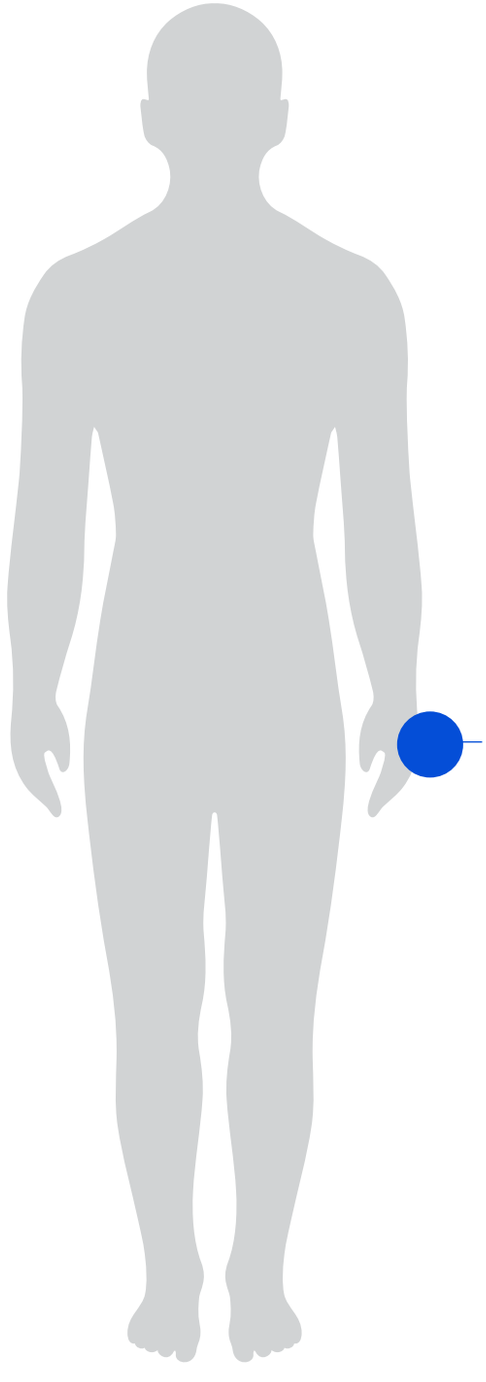
Leeds pathway

Appendix 2 SURGICAL SITE – skin prep area dependent on surgical/ invasive procedure

Always follow manufacturer's instructions for skin prepping solutions and evidence based guidance and recommendations

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Hand

Clean under fingernails prior to prep. Prep hand to mid forearm commencing with incision site. Complete one side of the hand prior to turning the hand then prep up the forearm in circular motions

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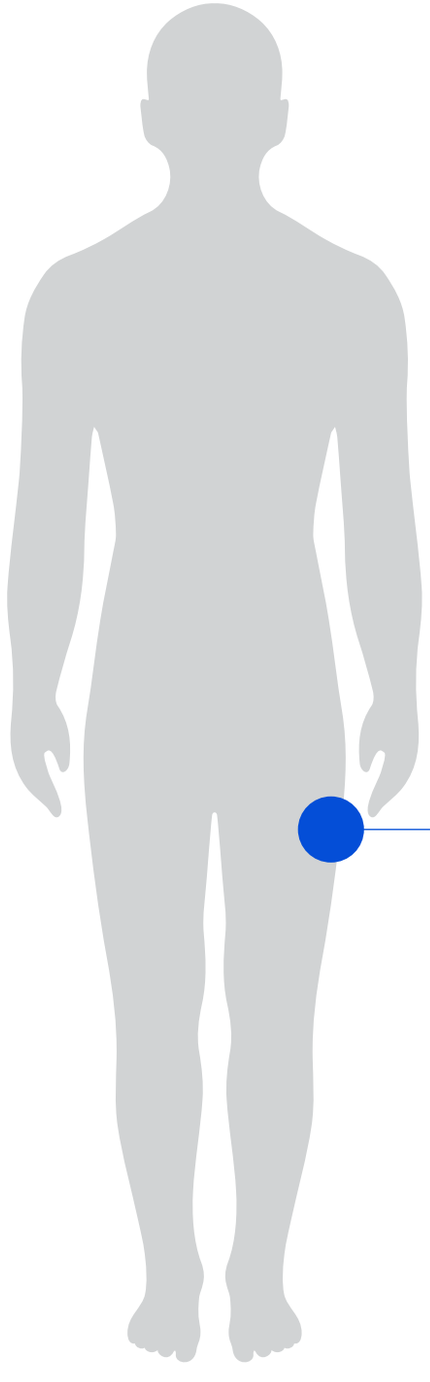
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Hip

Start at incision site, working out in concentric circles to midline abdomen, to lateral costal margin, to buttock on affected side. Prep down the leg to knee, then prep groin and perineal area last (may require the leg raised during skin prep)

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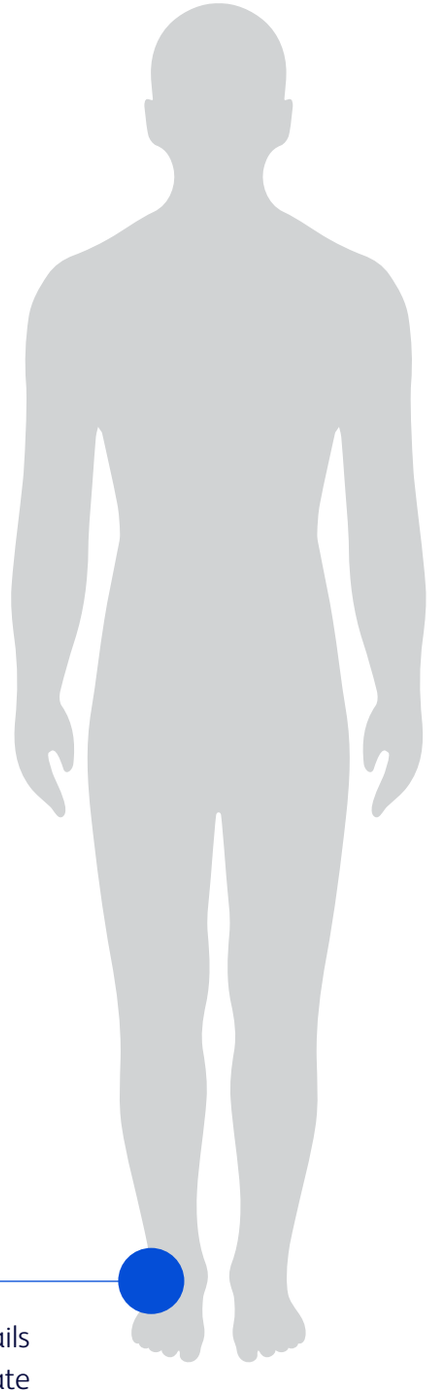
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Ankle/ foot

Clean under the toe nails prior to skin prep. Elevate the limb. Prep to mid-calf not forgetting between the toes

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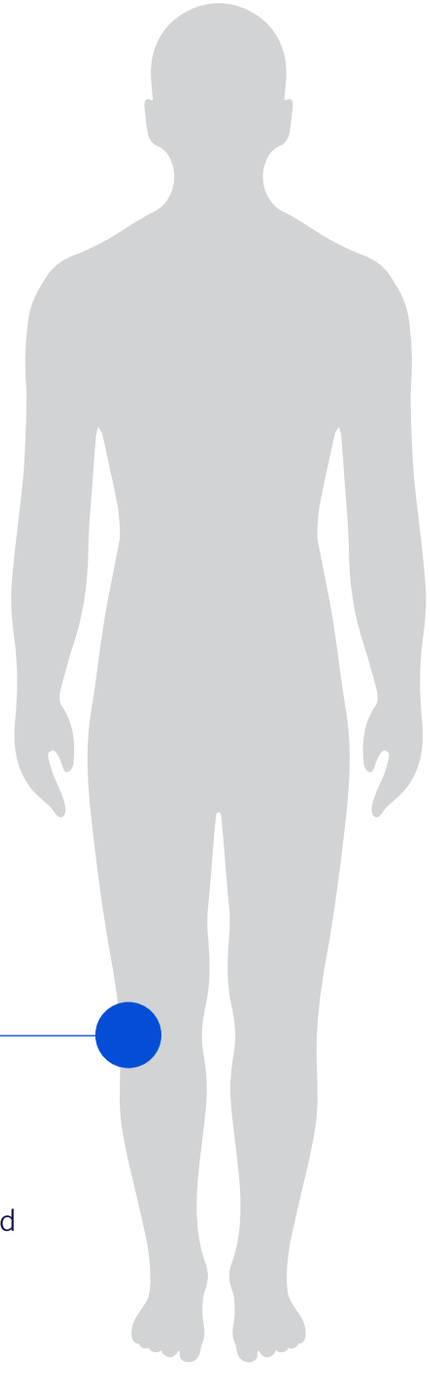
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Knee

Elevate the leg. Prep circumferentially from incision site up to tourniquet (if used) and down to ankle.

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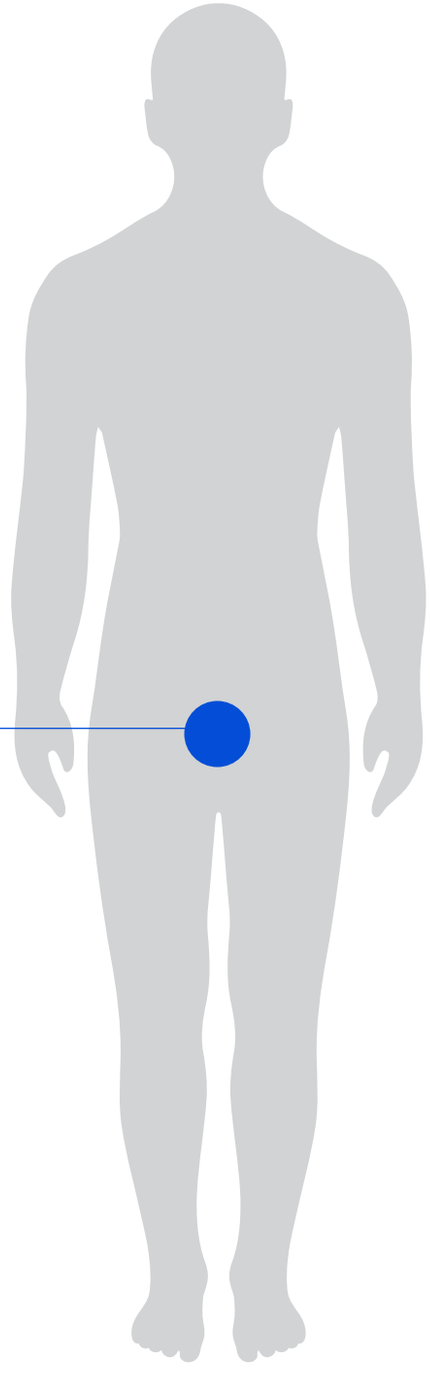
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Groin

Incision site then out in concentric circles to level of umbilicus down abdominal side, upper thigh and pubic region/ scrotum

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Appendix 2 SURGICAL SITE – skin prep area dependent on surgical/ invasive procedure

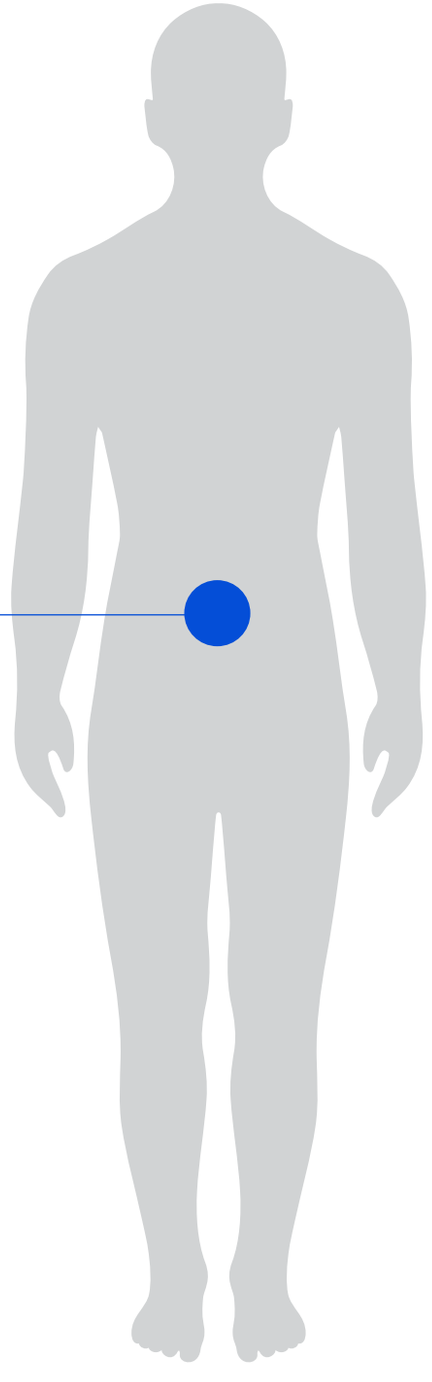
Always follow manufacturer's instructions for skin prepping solutions and evidence based guidance and recommendations

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Perineum/ anus

Prevent pooling of skin prep fluid under sacrum. Prep pubic region, then labia/scrotum to inner thighs. Prep anus last. Do not penetrate the anus with skin prep swab



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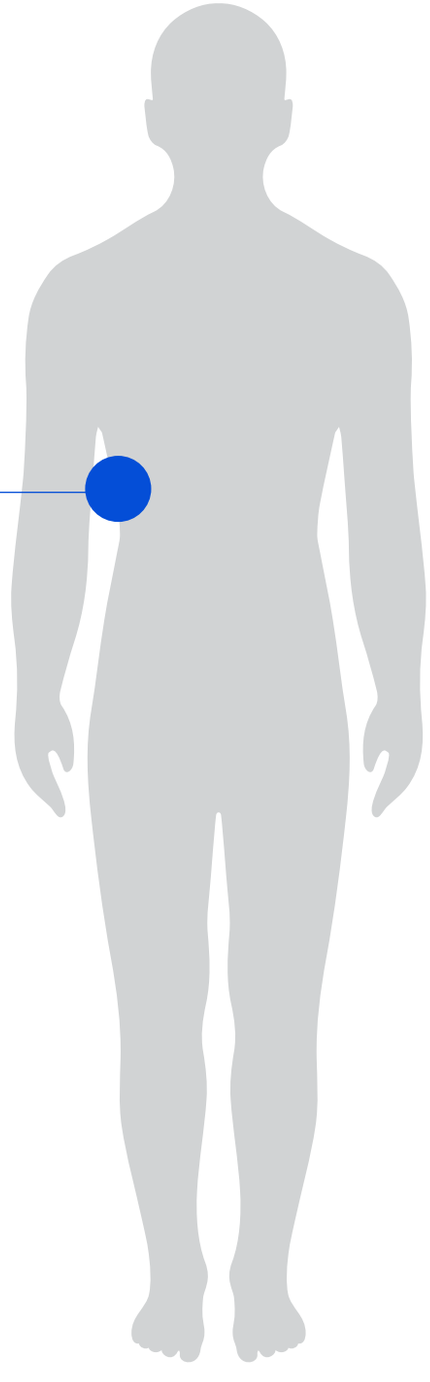
Appendix 2 SURGICAL SITE – skin prep area dependent on surgical/ invasive procedure

Always follow manufacturer's instructions for skin prepping solutions and evidence based guidance and recommendations

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If prone neck to sacrum and down sides dependent on surgery

Do not use chlorhexidine gluconate or alcohol skin prep on brain/ meninges/ spinal cord



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Appendix 2 SURGICAL SITE – skin prep area dependent on surgical/ invasive procedure

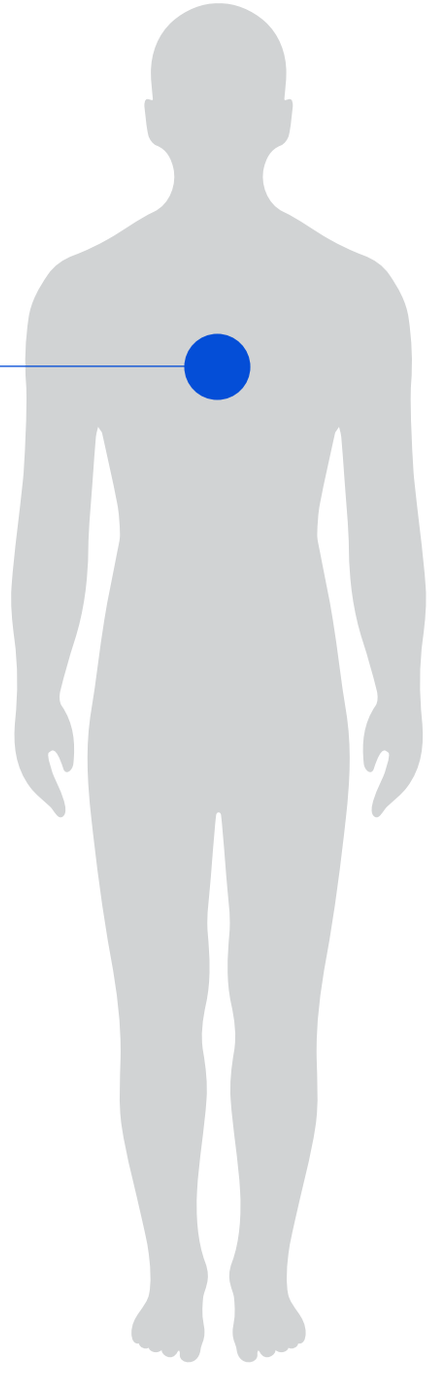
Always follow manufacturer's instructions for skin prepping solutions and evidence based guidance and recommendations

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Chest

From neck to below diaphragm, to include upper arm, axilla and across sternum/ spine of opposite side to incision if unilateral, dependent on surgery. If bilateral or midline, include both sides



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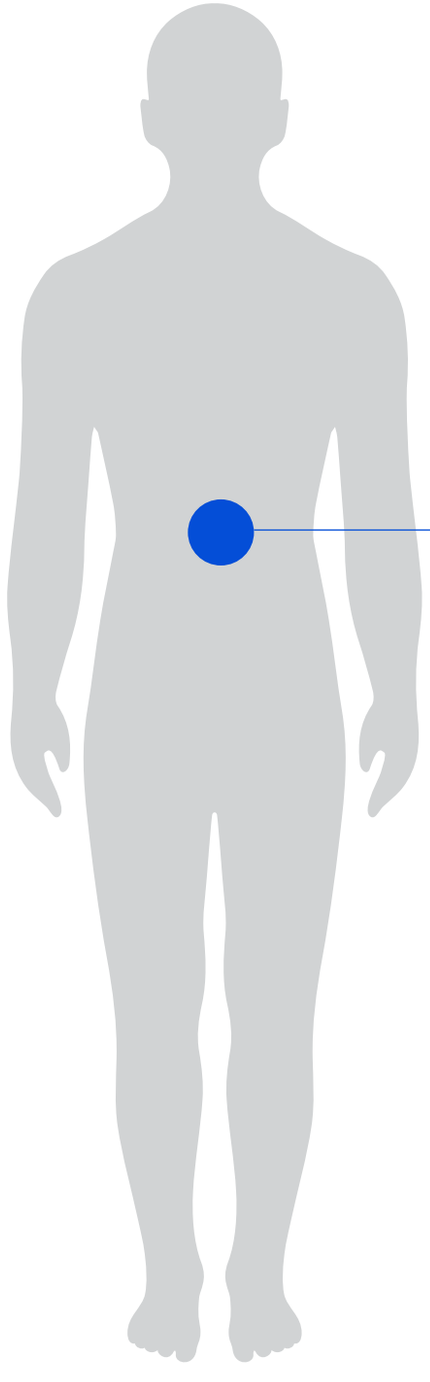
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Abdomen

Start at umbilicus then discard this applicator/ swab/sponge - work out in concentric circles. Cover up to nipple line and down to upper thighs and down abdominal sides dependent on procedure

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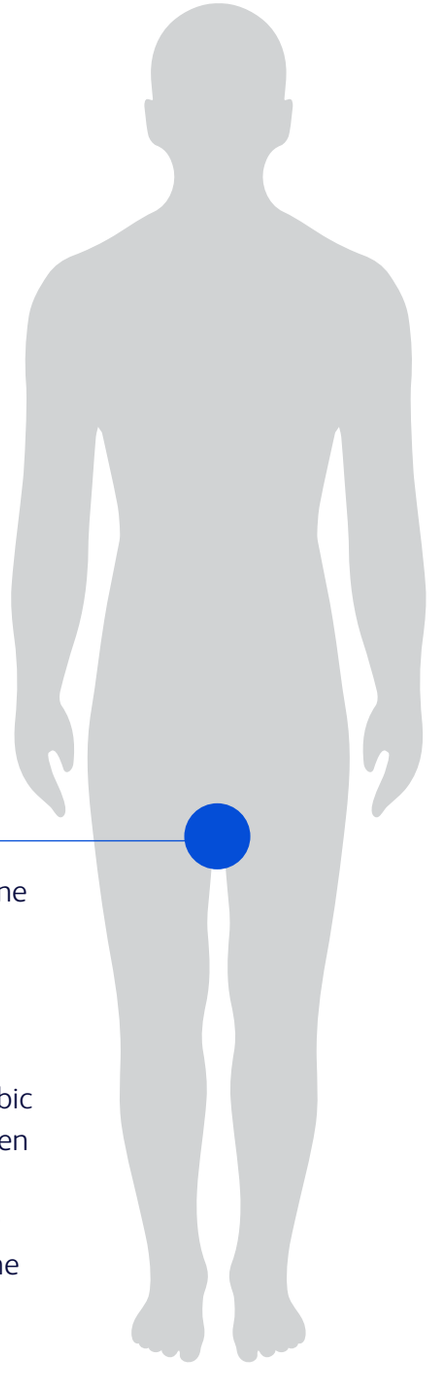
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Vagina

Do not use chlorhexidine gluconate or alcohol skin prep on mucous membranes. Prevent pooling of prep fluid under sacrum. Prep pubic region to iliac crests then labia to inner thighs, prep vagina with clean skin prep swab, then the anus last

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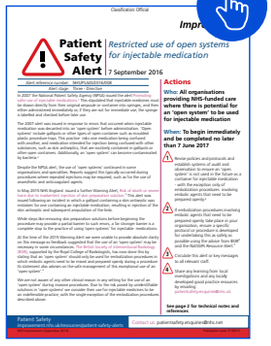
Comparison of 5% povidone-iodine solution against 1%povidone-iodine solution in preoperative cataract surgery antisepsis: a prospective randomised double blind study



Preoperative povidone iodine: weighing the risks



Joint RCS/MHRA statement on use of topical chlorhexidine for skin preparation prior to surgery



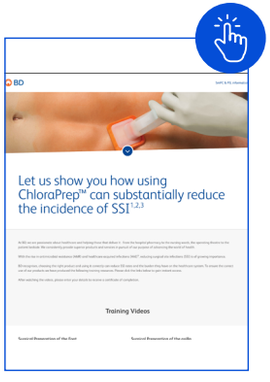
Patient Safety Alert. Restricted use of open systems for injectable medication



Patient Safety Alert. Stage One: Warning. Risk of death or severe harm due to inadvertent injection of skin preparation solution



Global guidelines for the prevention of surgical site infection



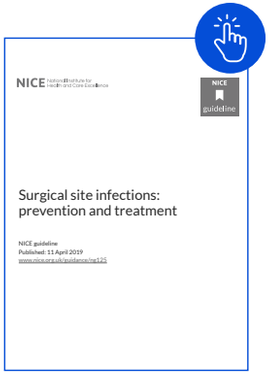
How using ChloraPrep™ can substantially reduce the incidence of SSI[1] [2] [3]



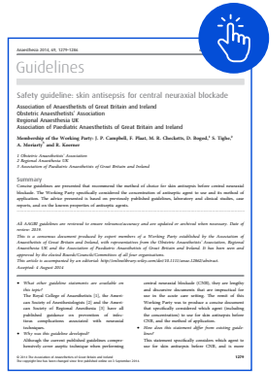
Surgical Fires: raising awareness, avoiding preventable harm



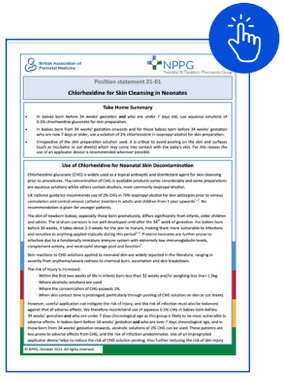
The Association for Perioperative Practice Infection control. Patient skin preparation.



NICE NG125



Safety guideline: skin antisepsis for central neuraxial blockade



Position statement 21-01: Chlorhexidine for Skin Cleansing in Neonates

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