Surgical skin prep decision tool

Preventing harm caused by incorrect selection of surgical skin preparation solution
How to use this surgical skin prep tool

1. Check where the product will be used
   - No
   - Yes
   - Can cause corneal damage. Can cause deafness if in contact with inner ear.

2. Check for known hypersensitivity
   - No
   - Yes
   - Known hypersensitivity to drug or any other ingredient.

3. Will it be used on mucous membrane?
   - No
   - Yes
   - Lumbar puncture and use on meninges.

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

5. When you have finished your path, click 'home' to start again

First choice: alcohol-based solution of chlorhexidine

Warnings and precautions
- Click more information button to read warnings and precautions, and instructions for use information.
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline¹

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

Surgical fire risk

Will it be used on eyes or ears?

☑️ No

☐ Yes

Can cause corneal damage. Can cause deafness if in contact with inner ear.

Warnings and precautions

☑️ No ☐ Yes

Known hypersensitivity to drug or any other ingredient.

Lumbar puncture and use on meninges.

☑️ No ☐ Yes

For spinal procedures refer to RCOA guidelines

Prevent pooling of prep fluid

More information
**Choice of antiseptic skin preparation**

Surgical Site Infections NICE Guideline¹

**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.

**Prevent pooling of prep fluid**

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**

**Surgical fire risk**

**Will it be used on eyes or ears?**

- **No**
- **Yes**

- **Can cause corneal damage. Can cause deafness if in contact with inner ear.**

**Warnings and precautions**

Click more information button to read warnings and precautions, and instructions for use information.

- **No**
- **Yes**

**For spinal procedures refer to RCOA guidelines**

**First choice:**
alcohol-based solution of chlorhexidine

Lumbar puncture and use on meninges.

- **No**
- **Yes**

**More information**
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline¹

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.

*If using off label solution, local policy will be required.

Second choice: Aqueous solution of chlorhexidine

Will it be used on eyes or ears?

- No
- Yes

Can cause corneal damage. Can cause deafness if in contact with inner ear.

Will it be used on mucous membrane?

- No
- Yes

Prevent pooling of prep fluid

Leeds pathway

Warnings and precautions

- No
- Yes

Click more information button to read warnings and precautions, and instructions for use information.

Lumbar puncture and use on meninges.

For spinal procedures refer to RCOA guidelines
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline¹

**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.

*If using off label solution, local policy will be required.

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**Second choice: Aqueous solution of chlorhexidine**

Will it be used on eyes or ears?
- [ ] No
- [ ] Yes

- Can cause corneal damage. Can cause deafness if in contact with inner ear.

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**Warnings and precautions**

- [ ] No
- [ ] Yes

Click more information button to read warnings and precautions, and instructions for use information.

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For spinal procedures refer to RCOA guidelines

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Leeds pathway

Prevent pooling of prep fluid

Back
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline¹

**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.

*If using off label solution, local policy will be required.

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**Second choice:**
Aqueous solution of chlorhexidine

**Will it be used on eyes or ears?**

- Yes
- No

**Can cause corneal damage. Can cause deafness if in contact with inner ear.**

**Will it be used on mucous membrane?**

- Yes
- No

**Lumbar puncture and use on meninges.**

**Known hypersensitivity to drug or any other ingredient.**

**For spinal procedures refer to RCOA guidelines**

**Warnings and precautions**

Click more information button to read warnings and precautions, and instructions for use information.

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Leeds pathway

Prevent pooling of prep fluid

Back
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline¹

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’.

Will it be used on eyes or ears?
- No
- Yes
  - Can cause corneal damage.
  - Can cause deafness if in contact with inner ear.

Will it be used on mucous membrane?
- No
- Yes

Third choice: Alcohol-based solution of povidone-iodine

Known hypersensitivity to drug or any other ingredient.
- No
- Yes

Warnings and precautions
- No
- Yes
  - Click more information button to read warnings and precautions, and instructions for use information.

Prevent pooling of prep fluid

Leeds pathway

Surgical fire risk

Back
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline¹

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'.

---

Third choice: Alcohol-based solution of povidone-iodine

Will it be used on eyes or ears?

- No
- Yes
  - Can cause corneal damage. Can cause deafness if in contact with inner ear.

Will it be used on mucous membrane?

- No
- Yes

Known hypersensitivity to drug or any other ingredient.

- No
- Yes

Warnings and precautions

- No
- Yes

Click more information button to read warnings and precautions, and instructions for use information.

Prevent pooling of prep fluid

Leeds pathway

Surgical fire risk

Back
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline¹

**Third choice:**
algohol-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'.

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**Known hypersensitivity to drug or any other ingredient:**

- No
- Yes

**Lumbar puncture and use on meninges:**

- No
- Yes

**Can cause corneal damage. Can cause deafness if in contact with inner ear.**

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**Will it be used on eyes or ears?**

- No
- Yes

**Will it be used on mucous membrane?**

- No
- Yes

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**Warnings and precautions:**

Click more information button to read warnings and precautions, and instructions for use information.

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**Prevent pooling of prep fluid:**

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**Leeds pathway**

**Surgical fire risk**

**Back**
Lumbar puncture and use on meninges.

Can cause corneal damage. Can cause deafness if in contact with inner ear.

**Fourth choice:**
Aqueous solution of povidone-iodine

At the time of publication (April 2019), 7.5% povidone-iodine surgical scrub solution was licensed for disinfecting the site of incision prior to elective surgery and 7.5% povidone-iodine was licensed for ‘preoperative preparation of patients’ skin’. 10% iodine antiseptic solution was licensed for ‘disinfection of intact external skin or as a mucosal antiseptic’ and 10% povidone-iodine solution was licensed for ‘preoperative and postoperative antiseptic skin cleanser for major and minor surgical procedures’.

If there is a known sensitivity to all of the products a risk assessment will need to be done for the patient.

**Will it be used on eyes or ears?**
- No
- Yes (Can cause corneal damage. Can cause deafness if in contact with inner ear.)

**Will it be used on mucous membrane?**
- No
- Yes

**Warnings and precautions**

Click more information button to read warnings and precautions, and instructions for use information.

**Prevent pooling of prep fluid**

Leeds pathway

Lumbar puncture and use on meninges.

More information
Choice of antiseptic skin preparation –

Surgical Site Infections NICE Guideline¹

Fourth choice: aqueous solution of povidone-iodine

At the time of publication (April 2019), 7.5% povidone-iodine surgical scrub solution was licensed for disinfecting the site of incision prior to elective surgery and 7.5% povidone-iodine was licensed for ‘preoperative preparation of patients’ skin’. 10% iodine antiseptic solution was licensed for ‘disinfection of intact external skin or as a mucosal antiseptic’ and 10% povidone-iodine solution was licensed for ‘preoperative and postoperative antiseptic skin cleanser for major and minor surgical procedures’.

Will it be used on eyes or ears?
- [ ] No
- [X] Yes
  - Can cause corneal damage. Can cause deafness if in contact with inner ear.

Will it be used on mucous membrane?
- [ ] No
- [X] Yes

Aqueous solution of povidone-iodine

More information

Warnings and precautions

Click more information button to read warnings and precautions, and instructions for use information.

Lumbar puncture and use on meninges.

Prevent pooling of prep fluid

Leeds pathway

Back
**Choice of antiseptic skin preparation –**

Surgical Site Infections NICE Guideline¹

**Fourth choice:** aqueous solution of povidone-iodine

At the time of publication (April 2019), 7.5% povidone-iodine surgical scrub solution was licensed for disinfecting the site of incision prior to elective surgery and 7.5% povidone-iodine was licensed for 'preoperative preparation of patients' skin'. 10% iodine antiseptic solution was licensed for 'disinfection of intact external skin or as a mucosal antiseptic' and 10% povidone-iodine solution was licensed for 'preoperative and postoperative antiseptic skin cleanser for major and minor surgical procedures'.

Will it be used on eyes or ears?
- No
- Yes

If there is a known sensitivity to all of the products a risk assessment will need to be done for the patient.

Will it be used on mucous membrane?
- No
- Yes

Lumbar puncture and use on meninges.

Click more information button to read warnings and precautions, and instructions for use information.

Prevent pooling of prep fluid
Alcohol-based solution of chlorhexidine

At the time of publication (April 2021), **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’.}

**Applicator sizes and coverage area**

- **10.5ml** (25cmx30cm)
- **26ml** (50cmx50cm)
  - One 26ml applicator should be sufficient per limb, chest/abdomen
  - Assess the size of the area to 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**

The back-and-forth technique is proven to be superior to traditional concentric prepping techniques,\(^1\) 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.

**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.\(^3\)

**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.
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.

Applicator sizes and coverage area

- Disposable considerations.
- Recommended that waste minimisation be practiced. The best available technologies should be used to prevent environmental releases.
- If using off label solution, local policy will be required.

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 within the first 2 weeks of life.6

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.

Back and forth motion proven to be superior to other traditional methods1

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.

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.

Watch video
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:
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.

Age of patient
Use with care in neonates, especially those born before 32 weeks of gestation and within the first 2 weeks of life.

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

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.

Back and forth motion proven to be superior to other traditional methods

The back-and-forth technique is proven to be superior to traditional concentric prepping techniques, 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.

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.

Watch video

Leeds pathway

Warnings and Precautions
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.**
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.

**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’**
Ophthalmology 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.

**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,¹¹ 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.

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.

**Watch video**
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]
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
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]
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
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

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

To access the full Leeds Pathway clinical guidelines for Surgical Site Skin Preparation within the Perioperative Environment
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
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).
Ankle/foot
Clean under the toe nails prior to skin prep. Elevate the limb. Prep to mid-calf not forgetting between the toes.
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

Knee

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

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

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

click here
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.

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

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 neuroaxial blockade

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

References:
1. Surgical site infections: prevention and treatment. NICE guideline Published: 11 April 2019 www.nice.org.uk/guidance/hsq125
5. https://www.hsreap.org.uk/fireandexplosion/storageflammableliquids.html?text=12%20%20Recommends%20that%20he%20for%20Other%20flammable%20liquids%20with
9. https://www.anaesthesia.org.uk/standards/guidance/member-resources