



one**TOGETHER** UK
the power of small actions

Maintaining Asepsis

Quality Improvement Resource
2019 Version 1



Version 1



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1 Introduction to OneTogether

OneTogether is a partnership between leading professional organisations with an interest in the prevention of surgical site infection (SSI). The founding partners are:

- Association for Perioperative Practice (AfPP)
- Infection Prevention Society (IPS)
- College of Operating Department Practitioners (CODP)
- Royal College of Nursing (RCN)
- 3M Company
- 2019 partner: Central Sterilising Club (CSC)

The partnership is a quality improvement collaborative which aims to promote and support the adoption of best practice to prevent SSI throughout the patient's surgical journey. We seek to provide resources that make the evidence for practice to prevent SSI accessible to those involved in caring for surgical patients.

Resources created by the OneTogether partnership can be freely downloaded from our website: www.onetogether.org.uk

OneTogether Resource Development Group and Acknowledgments

OneTogether Resource Development Group

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Acknowledgements

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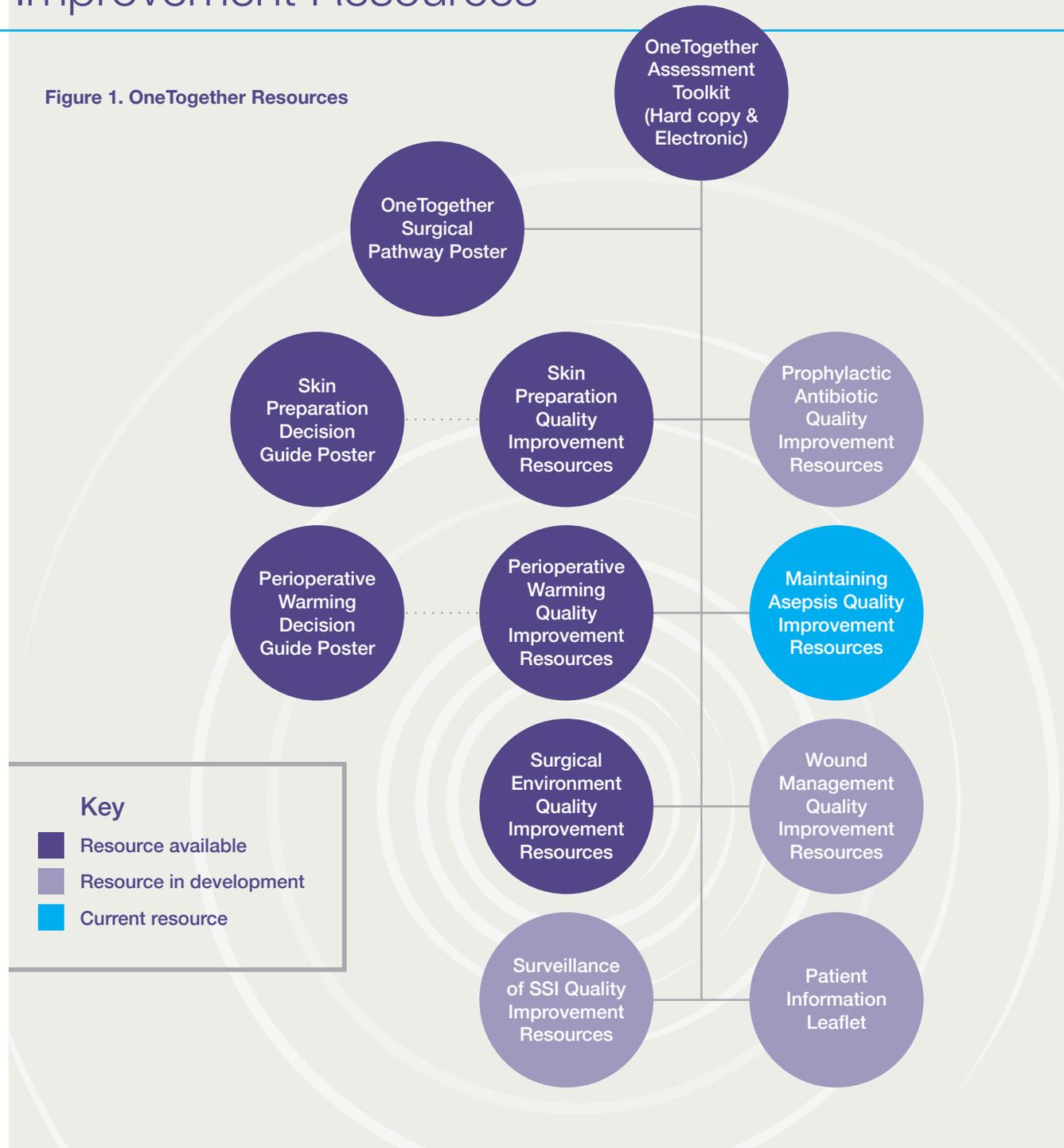
2 Overview of the Quality Improvement Resources

The OneTogether Quality Improvement Resources are intended to provide practical information for implementing best practice for each of the elements of care across the surgical pathway. These resources can be used as stand-alone documents, but we recommend they are used in conjunction with the OneTogether Assessment Toolkit.

The OneTogether Assessment Toolkit is designed to measure adherence to best practice to prevent surgical site infection (SSI). Following completion of the OneTogether Assessment, healthcare professionals will be able to identify areas of low compliance and develop a prioritised action plan for improvement.

Quality Improvement Resources summarise the evidence underpinning recommended practice and provide a competency assessment checklist. The information they contain is drawn from evidence-based guidelines or expert recommendations from professional bodies.

Figure 1. OneTogether Resources



3 Preventing Surgical Site Infection

Surgical site infection (SSI) accounts for more than 15% of all healthcare associated infections and affects at least 5% of patients who have surgery.^{1,2}

Impact of SSIs

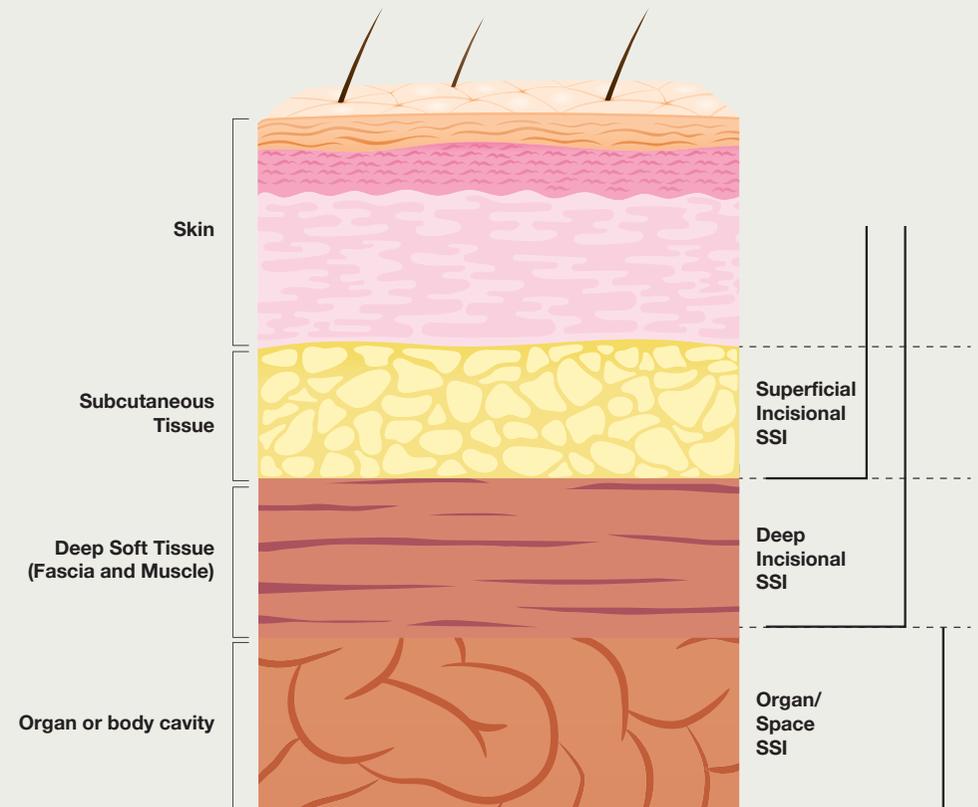
Surgical Site Infections are associated with an increase in:^{3,4}



How does SSI occur?

SSI occurs when microorganisms introduced into the incision site during the surgical procedure multiply in the wound and cause signs and symptoms such as inflammation or pus, wound breakdown or fever. Symptoms of SSI may take several days to develop and may not become apparent until after the patient has been discharged from hospital. Most SSIs affect only the superficial tissues, but some affect the deeper tissues or other parts of the body handled during the procedure.¹ (Figure 2)

Figure 2. Types of surgical site infection



3 Preventing Surgical Site Infection

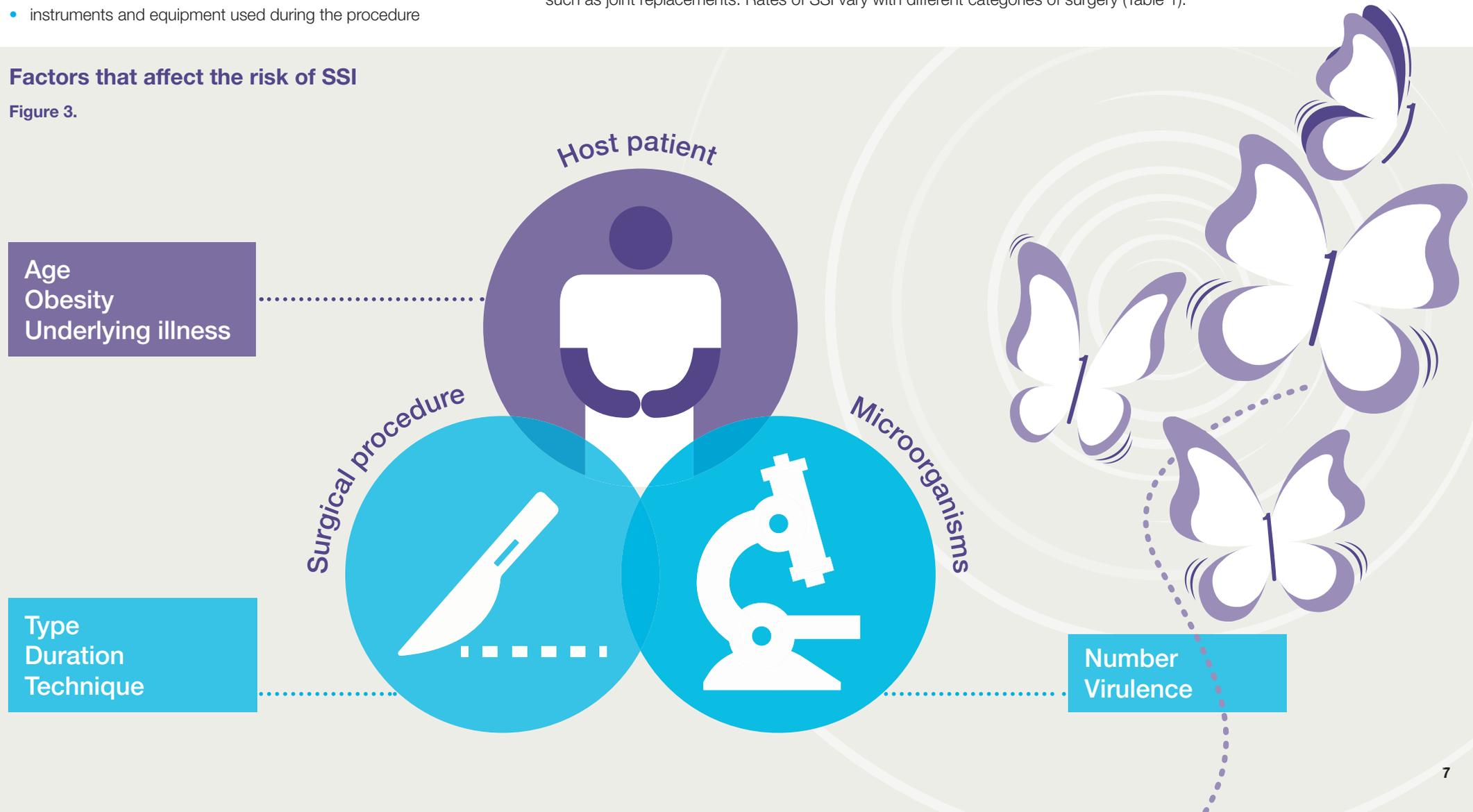
Pathogens that cause SSI may originate from:

- the patient's own microbial flora present on skin and in the body
- the skin or mucous membranes of operating personnel
- the operating room environment
- instruments and equipment used during the procedure

There are several factors which increase the risk that an SSI develops (see Figure 3). The most important is the presence of microorganisms at the site involved in the surgery. Procedures that involve parts of the body with a high concentration of normal flora, such as the bowel, are therefore associated with a higher risk of SSI than those involving sterile tissues, such as joint replacements. Rates of SSI vary with different categories of surgery (Table 1).

Factors that affect the risk of SSI

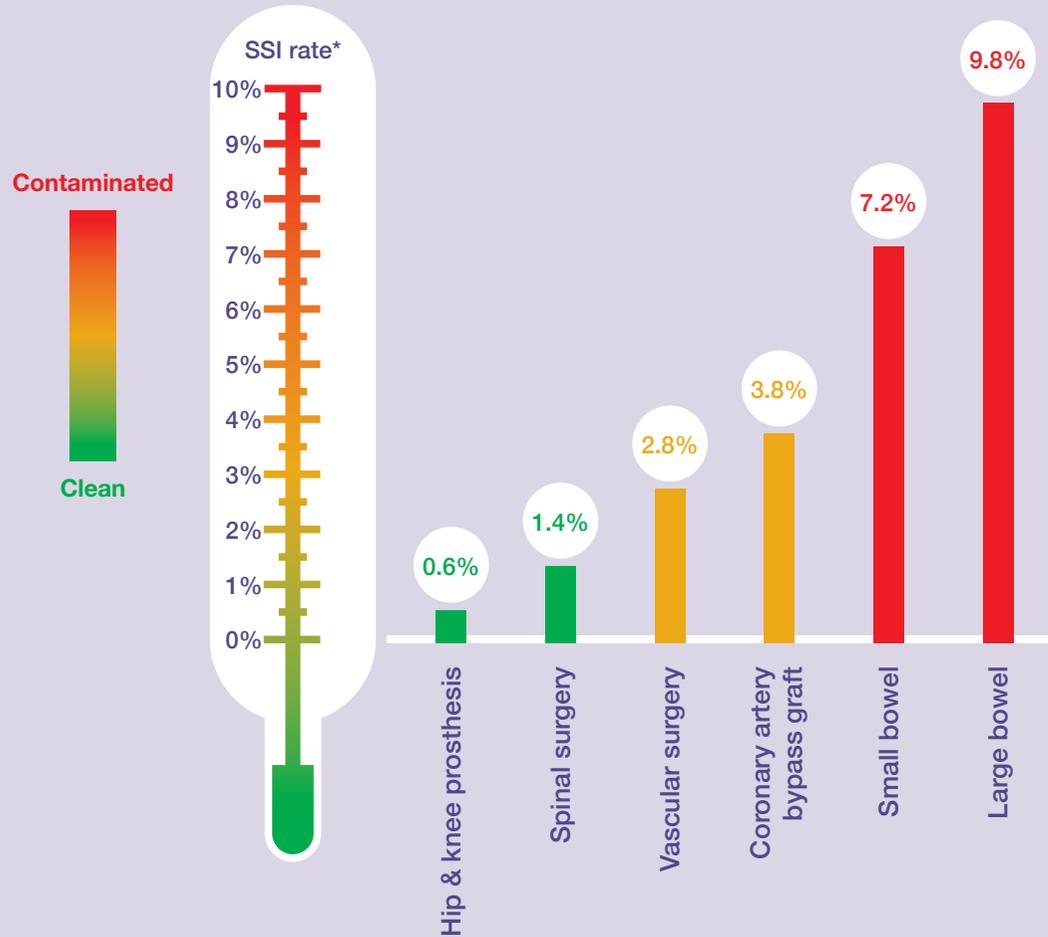
Figure 3.



3 Preventing Surgical Site Infection

Rates of SSI vary with different categories of surgery

Table 1.



Microorganisms can be introduced into the incision site during the procedure. They may be directly introduced from the personnel involved in the operation but also indirectly on airborne particles that settle into the open tissues or on to instruments used in the procedure. The longer the procedure the greater the length of time that tissues are exposed to contamination.

The efficacy of the patients' immune response is also an important factor in determining whether microorganisms in the incision site are able to multiply to cause infection.

The risk of SSI increases with:

- The age of the patient.
- A diminished immune response due to an underlying illness (e.g. diabetes) or immunosuppressive therapy.
- Where local conditions impair healing e.g. obesity.⁵

A surgical technique that minimises damage to tissues and prevents haematoma formation reduces the risk of SSI.

*Based on SSI detected in inpatients and readmissions after surgery
Source: Surveillance of Surgical site infection in NHS hospitals in England, 2015/16

3 Preventing Surgical Site Infection

Practices designed to prevent SSI are an essential part of perioperative care and must be applied consistently to ensure the risk of SSI is minimised.

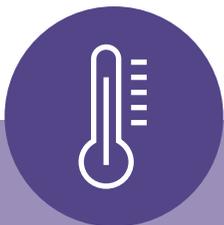
Procedures to prevent SSI are aimed at:



Minimising the number of microorganisms introduced into the incision site, for example removing microorganisms that normally colonise the skin of patient, maintaining asepsis and managing air quality.



Preventing the multiplication of microorganisms at the incision site, for example using prophylactic antibiotics.



Enhancing the patients' defences against infection, for example by minimising tissue damage and maintaining normal body temperature during the procedure.



Preventing access of microorganisms into the incision site, for example postoperatively by use of a wound dressing.

Source of guidance on preventing SSI

The most authoritative guidance on the prevention of SSI can be obtained from high quality systematic reviews of research on the efficacy of interventions. In the main these studies are referenced in the following major guidelines:

- National Institute for Health and Care Excellence (NICE) guideline [NG125] Surgical site infections: prevention and treatment (2019).
- World Health Organisation (WHO) Guideline (2016)
- Centers for Disease Prevention and Control (CDC)/ Healthcare Infection Control Practices Advisory Committee (HICPAC) guidelines (2017)

Advice contained in the OneTogether Improvement Resources have been drawn from the above guidelines and also from AfPP Standards (The Association for perioperative practice (2016) Standards and recommendations for safe perioperative practice).

Other references are listed on page 25.



4 Asepsis: surgical practice

NICE recommendation:

The principles of aseptic technique must be adhered to by staff involved in the surgical procedure.

A surgical procedure compromises a patient's normal defences against infection and the principles of asepsis are therefore important to minimise the risk of microorganisms being introduced to the operative site.

What is an aseptic technique?

Asepsis means the exclusion of bacteria and other microorganisms

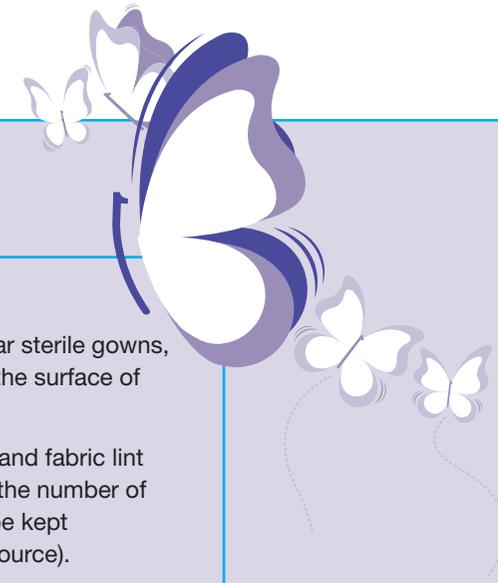
An aseptic technique is the application of practices and procedures to prevent microorganisms being introduced to anything that has direct or indirect contact with the surgical incision. It means ensuring that sterile items are not brought into contact with any unsterile surfaces or items.

The concept of asepsis is applied to:

- **Preparation of hands** to remove the transient acquired microorganism located on the surface of the skin and reduce the resident skin microorganisms
- **Preparation and maintenance of a sterile area** (a sterile field) to work within during the operative procedure. This includes the wearing of sterile gloves and gowns
- **Preparation and handling of instruments** to ensure that they are sterile when introduced into the incision



4 Asepsis: surgical practice



When and where to apply aseptic technique

The incision site

The most critical area because there is a high probability that any microorganisms introduced to the site will cause infection. Instruments and other equipment which have direct contact with the surgical incision present a risk as they enable the direct transfer of microorganisms to the underlying tissues.

The rest of the patient and operating table

Personnel working close to the incision site and handling instruments must wear sterile gowns, gloves and hats to prevent microorganisms being released and contaminating the surface of instruments or entering the incision.

People in the operating room generate contaminated airborne particles of skin and fabric lint which can settle into the incision or onto the instruments. To minimise this risk the number of people in the operating room and the amount of movement in and out should be kept to a minimum during the surgical procedure (see OneTogether Environment resource).

The patient, operation table, lights and instrument trolley stands are not sterile and can act as a source of contamination if they come into contact with sterile items which are subsequently transferred into the incision.



4.1 Asepsis: surgical hand antisepsis

How to achieve hand antisepsis

NICE (2019) recommends that prior to the first procedure of the list, hands are decontaminated by hand scrub using an aqueous based antiseptic solution, this is based on providing assurance that all organic matter is removed. Between subsequent procedures, hand rub using alcohol-based solution licenced for hand antisepsis is advised, unless hands are soiled with blood or bodily fluid, when a second hand scrub should be undertaken.



The evidence between povidone iodine, chlorhexidine and soap traditional hand scrub and hand rub with alcohol solution

A recent systematic review and meta analysis comparing the antiseptic efficacies of waterless hand rub (WHR), traditional hand scrub with chlorhexidine (CHG) or povidone iodine (PIs), in surgical settings, found that WHRs and CHGs exhibited higher antiseptic efficacy than PIs. No significant differences were observed in the SSI rates between the WHR and CHG groups. However, WHRs were considered most favourable in reducing microorganisms present on the skin and were associated with higher compliance rates.⁵

WHO (2016) do not indicate a preference between hand scrub and hand rub, prior to the first procedure and throughout the day.

Definition

Surgical handrub(bing) refers to surgical hand preparation with a waterless alcohol-based handrub.

WHO (2016)

Definition

Surgical handscrub(bing)/ presurgical scrub refers to surgical hand preparation with antimicrobial soap and water.

WHO (2016)

4.1 Asepsis: surgical hand antisepsis

Hand preparation

This is the first step in sterile technique and refers to hand hygiene that is carried out immediately prior to surgery by the surgical team.

The aim of surgical hand antisepsis is to remove debris and transient micro-organisms, to reduce resident micro-organisms to a minimum and to inhibit rapid rebound growth on the hands, nails and forearms of surgical personnel. It also reduces contamination of the surgical field, in the event of sterile glove puncture during the procedure.

There is no definitive study that informs the optimum technique for surgical scrub, however to be assured of optimum asepsis there is a consensus that a set methodology should be taught and adhered to.



4.1 Asepsis: face protection, gowns and gloves

Masks

Masks are not relevant for protecting the incision from contamination but do reduce the risk of splashing onto mucous membranes or expelling respiratory secretions into the wound by coughing/sneezing.

Eye protection

Specific eye protection may be required in certain procedures. All face protection must be applied prior to hand antisepsis.

Gowns and gloves

Sterile surgical gowns and gloves are donned before surgical procedures to help in the maintenance of a sterile field and reduce the risk of transmission of pathogens to both patients and staff. They are classed as medical devices and must meet the requirements of the relevant EN standard (see box 1).

Sterile surgical gowns and gloves are used to reduce the risk of pathogens contaminating the incision and sterile field and protect staff from exposure to blood and body fluids. Gowns must be resistant to both microbial and liquid penetration since micro-organisms pass through the material more easily if it becomes wet.

Box 1: Medical devices

A medical device is any device intended to be used for medical purposes. As such all medical devices are subject to relevant standards.

Gowns and drapes for surgical use must comply with the BSI standard: Surgical clothing and drapes: Requirements and test methods. BS EN 13795-1:2019.



4.1 Asepsis: gowning



Surgical gowns are folded with the inside facing the scrub person. This method of folding facilitates picking up and donning the gown without touching the outside surface. If the scrub person touches the outside of the gown whilst donning it, the gown must be considered to be contaminated. If this occurs discard the gown.

The scrub person's hands and arms are considered contaminated if they are allowed to fall below waist level or to touch the body therefore hands and arms should be kept above the waist away from the body at an angle of about 20 to 30 degrees above the elbows.

After donning the surgical gown, the only parts of the gown that are considered sterile are the sleeves (except for the axillary area) and the front from the waist level to a few inches below the neck opening. If the gown is touched or brushed by an un-sterile object the gown is then considered contaminated. The contaminated gown must be removed using the proper technique and then a new sterile gown should be donned.



Key Principles
Gown before you glove



Key Principles
Do not shake the gowns out

4.1 Asepsis: gloving



Double gloving: preventing blood borne viruses.

Although there is no definitive evidence available NICE recommend to consider wearing two pairs of sterile gloves when there is a high risk of glove perforation and the consequences of contamination may be serious.



Key Principles

**Use closed
gloving
technique**



Changing gloves during surgery

Sterile gloves that become contaminated are usually changed using an assisted gloving or plunge technique (one person with sterile hands assists another). If this is not possible a new sterile glove may be donned over the contaminated glove until it can be changed.

Removing the gown and gloves

On completion of a surgical case the outer part of the gown and gloves are considered to be contaminated by bacteria from the procedure and the scrub person must remove them very carefully to avoid contamination to their forearms and hands. The gloves should be removed after the gown.

4.1 Asepsis: draping

Sterile surgical drapes are used during surgery to create a barrier and isolate the surgical site from unsterile surroundings.

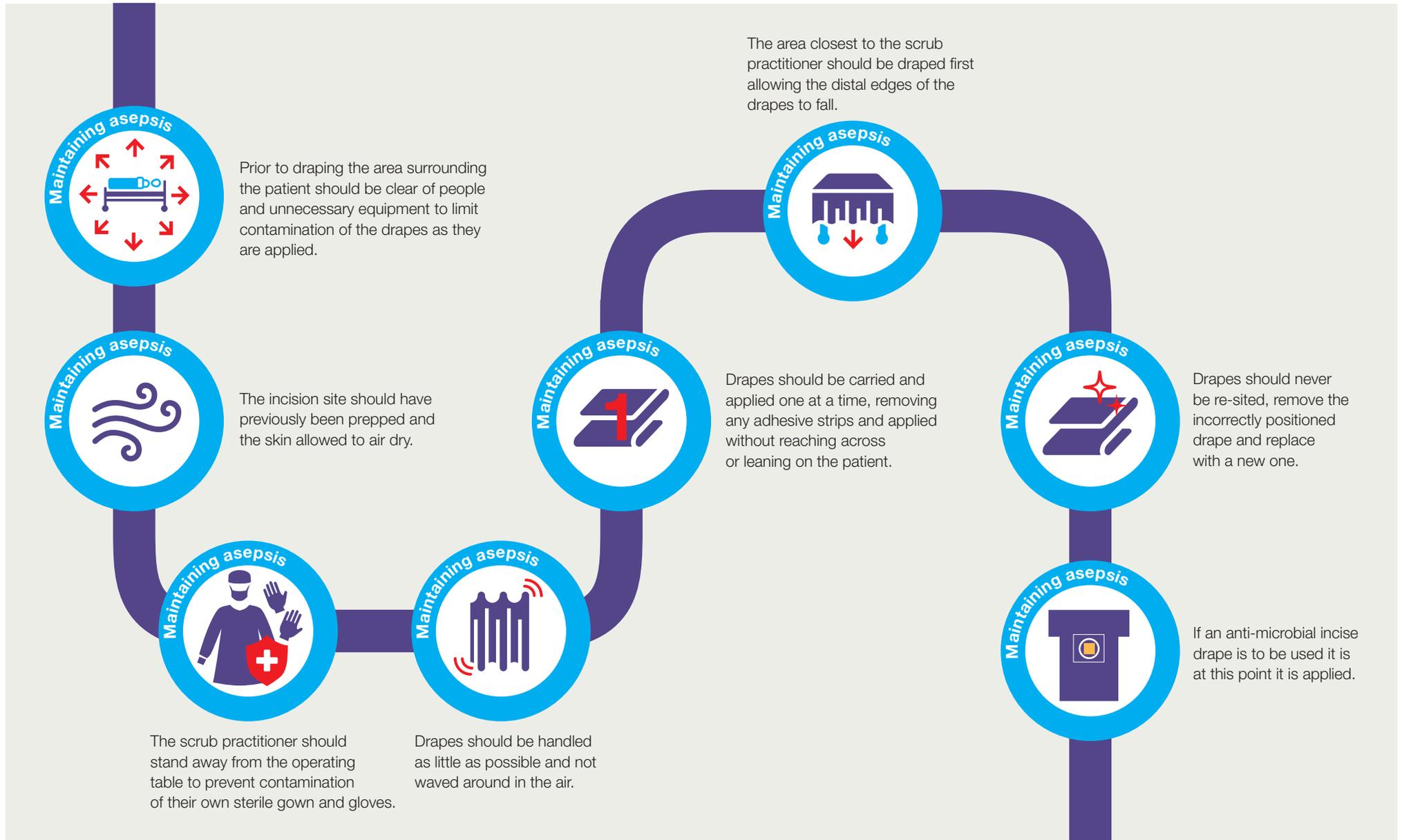
They maintain sterility of the surgical site during the procedure and provide protection from both endogenous and exogenous contamination.

Reusable drapes should be decontaminated and sterilised in a recognised facility. They must be lint free as lint is a vector for SSI and can contaminate the wound delaying healing.

All drapes should be fire resistant to prevent ignition from equipment used during surgery such as diathermy, lasers and fibreoptic light sources.



4.1 Principles of draping



4.2 Asepsis: instrument management

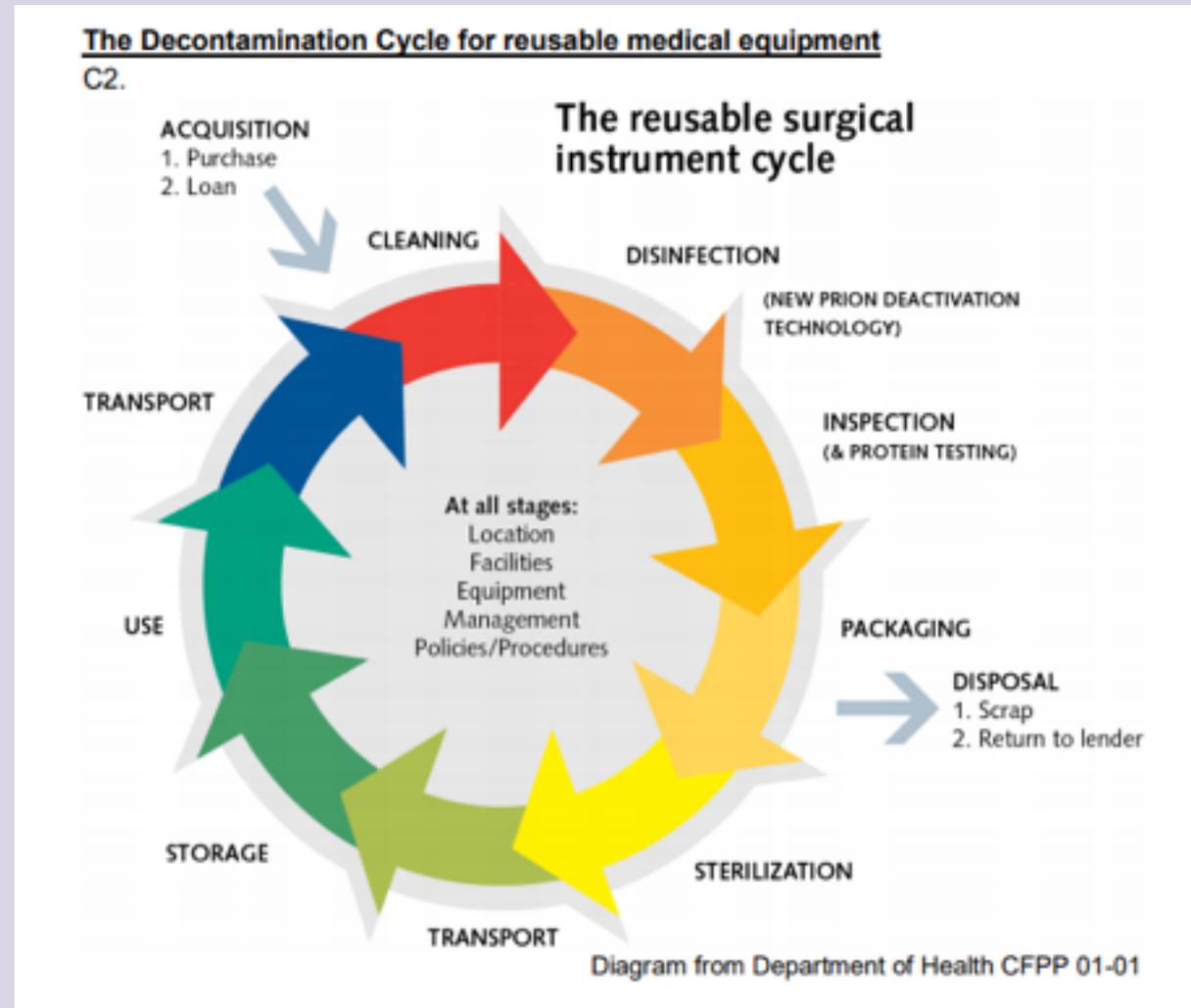
Management and decontamination of surgical instruments used in acute care

Breaks in sterile technique in the management of instruments may introduce micro-organisms into the surgical incision and lead to surgical site infection. Effective decontamination of reusable medical devices is an essential part of instrument management. Decontamination involves a combination of processes which include cleaning, disinfection and sterilisation. The combination of processes depends on the type and intended use of the device

Instruments must be decontaminated and sterilised in an accredited Sterile Services Department (SSD) which is compliant with quality management systems (QMS): BS EN ISO 13485:2016.

Surgical instruments are defined as reusable medical devices.

The EU Directive relating to the manufacture and supply of sterile instruments is MDD 93/42/EEC currently being replaced by Medical Devices Regulation 2017/745. It is supported by Health Technical Memorandum (HTM) 01-01 which provides guidance on the management and decontamination of surgical instruments (medical devices) used in acute care.



4.2 Asepsis: instrument management

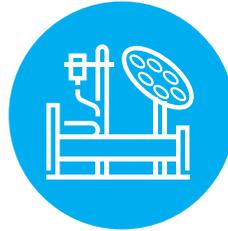
The EU Directives relating to the manufacture and supply of medical devices is:

The EU Directive relating to the manufacture and supply of sterile instruments is MDD 93/42/EEC currently being replaced by Medical Devices Regulation 2017/745. It is supported by Health Technical Memorandum (HTM) 01-01 which provides guidance on the management and decontamination of surgical instruments (medical devices) used in acute care.

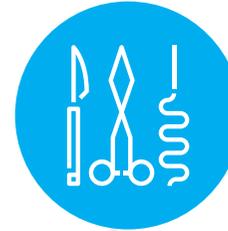
Regulatory bodies for each country

- Care Quality Commission England
- Healthcare Improvement Scotland
- Healthcare Inspectorate Wales
- The Regulation and quality Improvement authority Northern Ireland

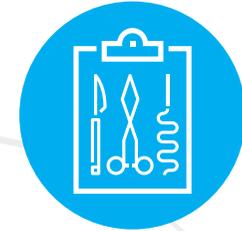
Key principles for best practice



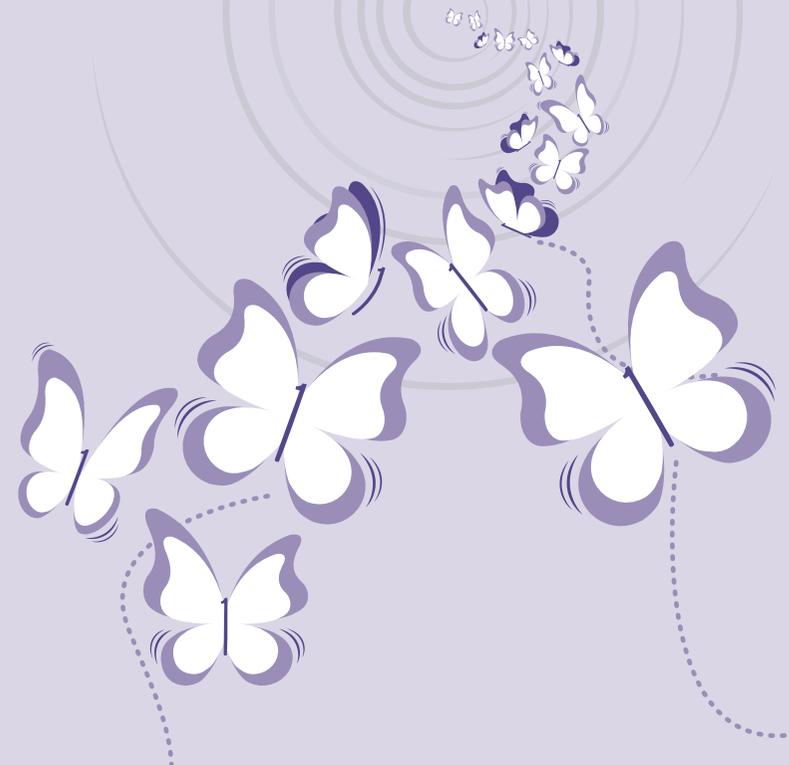
Theatre and decontamination protocols



Management of services and clinical instruments



Audit trail of instruments



4.2 Asepsis: instrument management

Important elements of managing surgical instruments

Tracing instruments following use: Traceability

For infection prevention and control tracking instruments it is important to manage cases of disease transmitted by certain organisms for example hepatitis B, C. Traceability is mostly applied to sets rather than individual instruments although the ability to identify single instruments is best practice.

Prior to decontamination, at the end of the procedure, a post operative check should be carried out to ensure all instruments have been returned to the instrument tray. All used instruments should have gross soiling removed. For example: cement, body tissue and blood. Used instruments should be kept moist using acceptable methods, prior to decontamination. Further study about maintaining moistness has been published and this is an area of current examination.⁶

Creutzfeldt-Jakob disease (CJD)

Special arrangements should be in place to manage instruments that may come into contact with certain tissues that have a high risk of containing prions for example in Creutzfeldt-Jakob disease (CJD) Tissues with high infectivity variant CJD prions are brain, spinal cord and posterior eye. Other tissues may contain prions e.g. olfactory epithelium and lymphoid tissues such as tonsil, spleen, thymus and appendix.⁶

This disease is caused by abnormal prion proteins that accumulate in the brain causing a neurodegenerative disease. In the UK a variant of CJD (vCJD) was discovered in the 1980s, transmitted from cattle affected by the prion disease, bovine spongiform encephalopathy (BSE). The disease takes between 2 and 40 years to develop. The first human case was reported in 1996 but, as a result of BSE control measures, new cases are now extremely rare. The vCJD prion accumulates in brain and lymphoid tissues (e.g. lymph nodes, tonsils, spleen). Prion proteins are highly resistant to conventional methods of decontamination by heat or chemicals, including the standard autoclave cycle. Instruments used on high risk tissues in patients who have vCJD cannot be reliably decontaminated and therefore present a risk of transmission of vCJD if they are used on other patients. Local policy should have arrangements to identify these patients and safe management of instruments to prevent reuse.⁸

Traceability records should identify:

- The cleaning and sterilisation method used
- A record of the decontamination equipment and cycle
- The identity of the person(s) undertaking decontamination at each stage of the cycle
- The patients on whom they have been used and details of the procedures involved

Checking sterile integrity of instrumentation

Sterile service departments have policies and procedures in place to ensure that the processes to achieve sterilisation are in working order. Once the instruments leave the SSD this responsibility is passed to the user. The integrity of the packaging of any sterile product should be checked before opening to ensure that it has not been damaged in transport or during storage. There are indicators on packs to show they have been subjected to a sterilisation process – they do not indicate the pack is sterile. Once open instruments should be checked for cleanliness and finally before use ensure all instruments are present according to the tray content list. Once open the final check, by theatre staff, is for organic material e.g. blood, bone, tissue and rust or other debris. If found on instruments or within the tray on opening, the entire set should be considered contaminated.



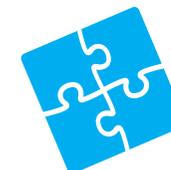
Within expiry date?



Are tamperproof locks on containers intact?



Not damp?



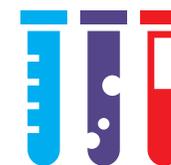
Visibly intact?



Free from visible contamination



Where used, has the autoclave tape shown a colour change?



Where used, has the chemical indicator shown a colour change?

4.2 Asepsis: instrument management

Storing sterile instruments

Sterile packs should be stored carefully to ensure the internal sterility is not compromised by the packaging becoming wet or damaged.

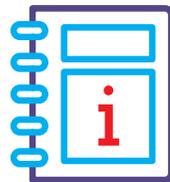
The storage area should be:

- Out of direct sunlight
- A temperature of 16°C and 21°C with a relative humidity of 30–60% (Health Building Note 13)
- Clean, dry and free of dust
- In a secure location away from public access and above floor level
- On smooth, non porous shelving or racks that are capable of being easily cleaned

Stock should be rotated as new sterile items are placed in storage, ensuring that all stock is used in date order.

Instructions for use

All instruments purchased or loaned should have instructions for use and how to process.



A shelf life

The length of time an item is considered sterile is referred to as the shelf life.

The sterility of packaged devices is event related however providers may put a shelf life on devices based on the properties of the packaging material.

If the packaging becomes wet or the seal is broken the product should no longer be considered as sterile and returned to SSD as damaged.

Perioperative staff competency

Staff should receive training on the use, handling and storage of surgical instruments and be competent with the use and handling of instrumentation in accordance with the procedure prior to undertaking the role of scrub practitioner. See competency document at page 24.

Handling includes the management and transport of dirty instruments. All staff should receive medical device training for all instrumentation is introduced to the operating department.



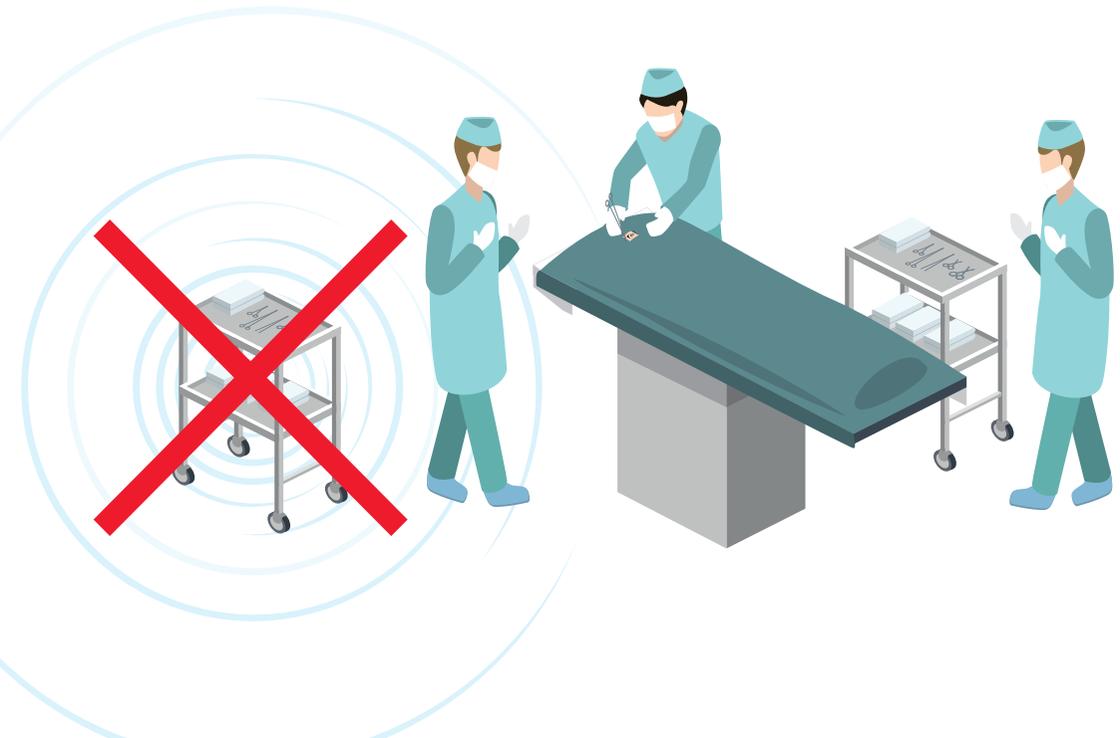
4.2 Asepsis: instrument management

Preparing for surgery and maintaining sterility of instruments

Instruments that are going to be used in a sterile field should be prepared as close as possible to the time of use in a designated preparation room with a minimum air change of 25 an hour and a nominal room pressure of 35 pa (HBN 26). In the absence of a preparation room the sterile field should ideally be laid up in the operating theatre beneath an ultra-clean air canopy.

Once the instruments have been laid out, they are vulnerable to contamination by micro-organisms that settle on to them in dust and other particles present in the ambient environment. The collective evidence suggests that contamination of the sterile field increases over time. Sterile fields should be prepared as close as possible to the time of use. Preparation of sterile trolleys in advance is not recommended.⁹

Once prepared, the trolley must always be attended. Especially if the period between lay-up and use is unexpectedly prolonged then instruments should be protected by a sterile drape to avoid contamination by settling airborne particles.¹⁰ Sterile coverings must be removed with extreme care to avoid contamination of the instruments.



Contamination of instruments

The perioperative team should ensure that they look for, recognise and immediately correct breaks in sterile technique when preparing, performing, or assisting with the operative or other invasive procedures and should implement measures to prevent future occurrences.

Reporting back to SSD is a vital element of the QMS to ensure corrective action is taken. This should include removing the entire set and any other instruments which may have come in contact with the contaminated area or instrument.

Re-gloving and re-draping may be required in the event of contamination.



5 Competency Assessment Checklist

Maintain asepsis and the sterile field	Demonstrated to preceptee	Assessment of competence by preceptor		
		6 weeks	3 months	6 months
Criteria	Signature/date	Signature/date	Signature/date	Signature/date
Demonstrate posture, position and movements that do not compromise the sterile field				
Ensure the integrity and sterility of instruments and items for use in the surgical field are checked and maintained and the appropriate corrective action is taken when necessary				
Demonstrate the appropriate isolation of contaminated instruments and equipment from the sterile field				
Demonstrate the correct procedure for checking date controlled items				
Demonstrate the correct receipt of items across the sterile field in an aseptic manner				
Ensure the materials, instruments and equipment are positioned in such a way which facilitates their access and use				
Demonstrate the safe and correct handling of materials and equipment				
Demonstrate the correct procedure for discarding and replacing contaminated gloves				
Demonstrate the correct disposal of waste packaging				

Underpinning Knowledge	Discussed with preceptee Signature/date	Knowledge achieved Signature/date	Assessment method
Define socially clean and sterile and the principles of aseptic technique			
Discuss the nature and purpose of sterile fields and the nurse / ODP's individual responsibility for maintaining the sterile field			
Define the criteria and method used to judge the sterility of equipment and instruments			
Identify ways in which the sterile field may be compromised and techniques to avoid it			
Identify what action to take if the sterile field is compromised			

6 Reference list

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Standards and Guidance

Reducing the risk of Surgical Site Infection (SSI)



1. Skin Preparation

1.1 Washing

Recommendation

NICE recommends that patients should shower or have a bath (or be assisted to shower, bath or bed bath) using soap, either the day before, or on the day of surgery.¹



1.2 Hair Removal

Recommendation

NICE recommends that razors should not be used for hair removal because they increase the risk of SSI. If hair must be removed, then clippers with disposable heads are recommended.¹



1.3 Skin Antisepsis

Recommendation

Prepare the skin at the surgical site immediately before incision using an antiseptic preparation. Unless contra indicated alcohol-based solution of chlorhexidine is first choice.¹



1.4 Reducing Skin Recolonisation

Recommendation

NICE recommends that if an incise drape is used, this should be iodophor impregnated unless the patient has an iodine allergy.¹



1.5 Reducing Nasal Colonisation

Recommendation

NICE recommends to consider applying nasal mupirocin in combination with a chlorhexidine body wash before procedures which are locally determined.



4. Maintaining Asepsis

Recommendation

All pre-sterilised instruments must be checked for evidence that they have been sterilised and that the packs are intact.

Instruments should be set up in a clean area, as close to the procedure time as possible. All prepared instruments must be closely observed at all times.

Staff who undertake procedures which require skills such as aseptic technique, must be trained and demonstrate proficiency before being allowed to undertake these procedures independently.^{5,6}



3. Perioperative Warming

Recommendation

NICE recommends that all patients should be assessed within the hour prior to surgery for their risk of perioperative hypothermia and their temperature measured using a site that produces a direct measure or direct estimate of core temperature.

Active warming should commence on the ward/emergency department at least 30 minutes prior to induction of anaesthesia for all patients (and immediately if their temperature is below 36°C).

The patient's core temperature should be 36°C or above before they are transferred to theatre, unless there is a need to expedite surgery.

Patients having anaesthesia for longer than 30 minutes, or at a higher risk of perioperative hypothermia are warmed from induction of anaesthesia using forced-air warming.

The patient's temperature should be measured and documented before induction of anaesthesia and then every 30 minutes until the end of surgery.

Induction of anaesthesia should not begin unless the patient's temperature is 36.0°C or above.

Intravenous fluids (500 ml or more) and blood products should be warmed to 37°C using a fluid warming device.

Irrigation fluids should be warmed in a thermostatically controlled cabinet to a temperature of 38°C to 40°C.

The patient's temperature should be monitored and documented every 15 minutes in recovery.

The patient should not be transferred to the ward, until their temperature is 36°C or above.⁴

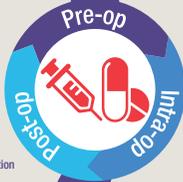
2. Prophylactic Antibiotics

Recommendation

NICE recommends that there must be a local guide to antibiotic prescribing including advice on appropriate surgical prophylaxis.¹

Surgical prophylaxis should be given intravenously on induction of anaesthesia or within 60 mins before the incision is made.²

In most circumstances a single dose of antibiotic with a long enough half-life to achieve activity throughout the operation is sufficient.²



7. Surveillance

Recommendation

The risk of SSI should be monitored using a standardised surveillance methodology to provide feedback to surgeons and the surgical team about the quality of infection prevention in the operating theatre.

Monitoring of infection rates is essential to provide patients with accurate information about the risk of SSI associated with the operation.^{7,8}



5. Surgical Environment

Recommendation

An effective air changing ventilation system should be in operation and regularly monitored.

The doors to the operating theatre should remain closed and traffic in and out of theatre restricted to a minimum to ensure efficiency of the ventilation.

The number of personnel present in theatre should be kept to a minimum.⁵

There is a process to ensure equipment is cleaned prior to admission into the operating theatre.



6. Incision and Wound Management

Recommendation

6.1. Only apply an antiseptic or antibiotic to the wound before closure as part of a clinical research trial.

6.2. NICE recommends that when using sutures, consider using antimicrobial triclosan-coated sutures, especially for paediatric surgery.

6.3. NICE recommends consider using sutures rather than staples to close the skin after caesarean section to reduce the risk of superficial wound dehiscence.

6.4. NICE recommends that surgical incisions should be covered with an appropriate interactive dressing at the end of the operation.¹



REFERENCES

- 1 NICE (2014) NICE guideline 125 Surgical site infections: prevention and treatment <http://www.nice.org.uk/guidance/125>
- 2 Brattler et al (2013) Clinical practice guidelines for antimicrobial prophylaxis in surgery. *British Medical Journal* 347: f1530
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- 5 Association for Perioperative Practice (2016) Standards and Recommendations for Safe Perioperative Practice. 3rd Ed.
- 6 DH (2010) The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance.
- 7 Public Health England (June 2015). Protocol for the Surveillance of Surgical Site Infection, Surgical Site Infection Surveillance Service Version 6.

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