



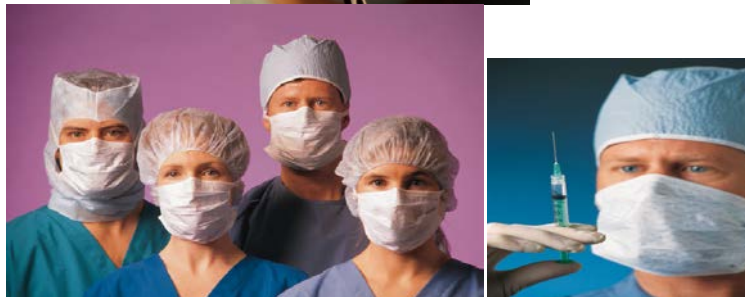
UNIVERSITY OF MELBOURNE

FACULTY OF VETERINARY & AGRICULTURAL SCIENCES

Preparation of the Surgical Patient, Surgeon's Scrub, & Aseptic Technique

Carol Bradley

Associate Fellow of The Higher Education Academy (RVC)



University of Melbourne
School of Veterinary Science
Title: Aseptic Technique/Operating Room Etiquette
Author's name: Carol Bradley

BACKGROUND

Successful surgical outcomes are influenced by the application of aseptic technique by all involved in the surgical care of the patient; therefore all personnel within the surgical section must maintain asepsis to reduce the risk of contamination^[1].

Aseptic technique applies to; cleaning, packaging and sterilization, scrubbing, gowning and gloving, skin preparation of the patient and standard precautions when handling all surgical patients.

TASK OR PROCEDURE

Personnel within a sterile field must wear gowns and gloves

- The sterile field includes the area immediately surrounding the draped patient, the sterile surgical personnel, sterile trolleys and associated equipment on the instrument table.
- Sterile surgical personnel only make contact with sterile areas, whilst non-sterile surgical personnel only contact non-sterile areas.
- Gowns are considered sterile from mid chest level to waist level and from the hands to just above the elbows.
- The Circulating Nurse is responsible for constantly monitoring and maintaining the sterile field integrity. All breaks in aseptic technique or incidents of contamination must be reported and corrective action taken immediately.

Articles used within a sterile field must be sterile

- Cleaning, packaging, sterilization, handling and storage of sterile items are in accordance with the AS4187, Code of Practice for Cleaning, Disinfecting and Sterilizing Reusable Medical and Surgical Instruments and Equipment and Maintenance of Associated Environments in Health Care Facilities, Standards Australia, Sydney, 1994.
- Any items of doubtful sterility are considered non-sterile.
- The horizontal surface of the draped patient or trolley is part of the sterile field. Any items that fall below this level are considered non-sterile.

Transfer of items onto the sterile field must be transferred in such a way as to maintain the integrity of the sterile field

- The edges of sterile containers are no longer considered sterile once the package is opened.
- When opening wrapped sterile supplies, stand behind the trolley not on the side where the surgeon will stand.
- Open the side folds, followed by the fold nearest you, then the fold nearest the surgeon.
- When delivering additional wrapped instruments the wrapper edges must be secured backward then presented to the surgical team to avoid contamination.
- A member of the scrubbed surgical team should take sterile items rather than dropping items onto the instrument trolley.
- Sterile instrument sets should not be opened and left unattended.
- Sterile instrument sets should be opened up as close to the commencement of the procedure as possible.

All personnel observing the surgical procedure must maintain the integrity of the sterile field

- Non sterile personnel must not lean over the sterile field.
- Non sterile personnel do not move between two sterile fields.
- Non sterile personnel do not move in front of an opened sterile trolley.
- Sterile personnel should move within the sterile field either back to back or front to front with another scrubbed team member.
- The anaesthetic bar holding up the drapes, is used by the anaesthetist for access to the patients head.

Sterile drapes are used to create a sterile field

- Drapes are a barrier, which minimize the passage of microorganisms between sterile and non-sterile areas.
- Drapes are folded to enable ease of application and avoid contamination.
- Movement and handling of drapes is kept to a minimum.
- Once a sterile drape is clipped in place with a towel clamp, neither must be removed and re-positioned. If movement of the drape is required, they should be discarded and a new set applied.
- Moisture resistant drapes or barriers are used to prevent contamination, as material drapes are only considered sterile whilst dry.

University of Melbourne
Faculty of Veterinary & Agricultural Sciences
Title: Surgical Skin Preparation Protocol
Author: Carol Bradley – Small Animal Surgery Tutor/Clinical Skills Centre Manager

BACKGROUND

Whilst it isn't physically possible to sterilize the skin of the patient, the intention should be to remove organic material and reduce bacterial contamination to as close to zero as possible.

The most common antiseptics used for surgical site preparation are Chlorhexidine Gluconate, Povidone-Iodine or alcohol combined with CHG or PVP.

Preoperative preparation of the patient's skin with Chlorhexidine-Alcohol is superior to preparation with Povidone-Iodine for preventing surgical-site infection after clean-contaminated surgery. [2]

Before surgical skin preparation can take place, the skin must be thoroughly cleansed to remove dirt and debris, followed by an alcohol application to remove all detergent, after which Chlorhexidine/Alcohol is used as the skin antiseptic.

Note: Chlorhexidine and Povidone-Iodine in combination are incompatible because of the cationic nature of Chlorhexidine and the anionic nature of Povidone, thus providing limited or no skin antiseptics. [3]

Materials required:

1. 0.015% Chlorhexidine/0.15% Cetrimide (*Savlon*)
2. Clean kidney dish (**to put dirty swabs and gloves in**)
3. Non sterile non-woven swabs or cotton wool for large animals
4. 2 pairs of clean exam gloves
5. 70% Alcohol Spray
6. 1 packet of **sterile** swabs
7. 0.5% Chlorhexidine/70% Alcohol Spray

Method:

1. Put on clean exam gloves.
2. Pour Chlorhexidine/Cetrimide solution onto two or three non-sterile non-woven swabs or on a portion of cotton wool.
3. Wash patient in concentric circles from the presumed incision site, outwards towards the hair line (dirty area).
4. Visually inspect the swabs or cotton wool for evidence of dirt or debris.
5. Discard the dirty swab/s into the kidney dish.
6. Use fresh swabs and repeat until the skin is visually clean.
7. Remove dirty exam gloves
8. Using the 70% alcohol spray, spray from the presumed incision site, moving outwards towards the periphery.
9. Peel open sterile swabs pack and lay plastic side down.
10. Spray sterile swabs with 70% alcohol.
11. Put on clean exam gloves.
12. Use one or two swabs to wipe with the grain of the hair, down the presumed incision site and then continue wiping outwards to the periphery.
13. If organic material is still visible on the swab, return to the cleaning step.
14. If the site is clean, remove gloves, and then spray with 0.5% Chlorhexidine/Alcohol solution.
15. Transfer the patient onto the operating table and position appropriately.
16. Repeat the 0.5% Chlorhexidine/70% Alcohol spray.

1. Darouiche RO, W.M.J., Itani KM, Otterson MF, Webb AL, Carrick MM, Miller HJ, Awad SS, Crosby CT, Mosier MC, Alsahrif A, Berger DH, *Chlorhexidine-Alcohol versus Povidone-Iodine for Surgical-Site Antisepsis*. N Engl J Med, 2010; p. 362.
2. Evans, L.K.M., et al., *The efficacy of chlorhexidine gluconate in canine skin preparation - practice survey and clinical trials*. The Journal Of Small Animal Practice, 2009. **50**(9): p. 458-465.
3. Bexfield, N. and K. Lee, *BSAVA guide to procedures in small animal practice / editors: Nick Bexfield and Karla Lee*. 2010: Quedgeley, Gloucs : British Small Animal Veterinary Association, c2010.

UNIVERSITY OF MELBOURNE
Faculty of Veterinary & Agricultural Sciences
Title: Operating Room Attire ^[1]
Author's name: Carol Bradley

BACKGROUND

The creation and maintenance of an aseptic environment contributes to our patient's successful surgical outcome.

We minimize the transfer of bio-burden into the operating theatres by paying attention to personal hygiene and the wearing of operating suite attire correctly.

We also project an image of professional conduct when a standard dress code applies.

DRESS STANDARD

The surgical scrub suit replaces all outer garments and is worn correctly at all times.

Access to the operating suite is limited to personnel wearing correct operating suite attire.

Operating suite attire is changed daily or when wet or soiled.

- Scrub suits must be worn.
- Scrub tops must be tucked into your trousers, unless you are wearing something else underneath the scrub top, i.e. a T-shirt or a singlet.
- Woolen clothing and baseball caps/hats are not permitted.
- Closed shoes must be worn; no sandals or crocs are permitted.
- Closed white coats must be worn over scrubs suits whilst preparing a patient for surgery.

CAPS

Hair must be completely covered at all times.

- Facial hair is to be covered by balaclava hoods.

MASKS

High filtration masks must be worn at entry to the scrub rooms.

- Masks are to be tied and completely cover the nose and mouth.

JEWELLERY, ARTIFICIAL NAILS AND NAIL POLISH

Jewelry should be removed when entering the surgical preparation room.

- Rings and watches should be removed when preparing to scrub for surgery.
- Fingernails are to be clean, short and free of artificial nails and nail polish.

BACKGROUND

The aim of an effective surgical scrub is to reduce the number of microorganisms (residential & transient) on the skin by mechanical washing with an appropriate anti-microbial agent.

The scrub sponge is packaged together with a nail pick.

The aim of the scrub is to

- Remove dirt, flaking skin, oil and microorganisms from the hands and the lower arms
- To reduce the microbial count to close to zero as possible.
- To leave an antimicrobial residue on the skin to prevent growth of microorganisms for several hours.

Scrub solution

- Antimicrobial must be broad spectrum and have the ability to reduce growth on transient and resident microorganisms.
- It must have a rapid and a cumulative action.
- It should not create skin irritation.

Pre-scrub procedure

- Correct operating suite attire is to be worn.
- Rings, watches and bracelets are removed.
- Fingernails are short, clean and free of nail polish and artificial nails.
- Cap and mask are worn.
- Ensure sleeves are rolled up beyond the elbows.
- Scrub sponge is available.
- Water is adjusted for comfort.

Scrub procedure

- The hands are kept above the elbows at all times during the scrub to allow water flow run off.
- A timed or anatomical scrub should be performed of no less than 3 minutes [4] duration.
- Open scrub sponge without contamination and leave on a safe surface.
- Wet hands and arms, then perform a general wash on the hands and lower arms using an antimicrobial agent.
- Whilst hands are wet, use the nail pick to clean under finger nails. Drop nail pick into the sink when completed.
- Rinse hands and arms under running water, keeping the hands above the elbows.
- Apply copious amounts of fresh antimicrobial solution to hands and arms and lather up.
- Pick up the scrub sponge.
- Use the bristles for cleaning under the finger nails, then turn over to the sponge side for hands and arms. Pay particular attention to the webbing in between the fingers.
- Using a circular motion, scrub hands, then towards the elbow.
- Finish just beyond the elbow.
- Rinse the sponge under running water **before** transferring to the other hand.
- Scrubbing commences on the opposite hand, repeating the process as described above.
- The sponge is discarded without contamination (drop into the sink).
- Rinse the hands and arms, starting with the first hand scrubbed.
- Tap is turned off using the elbow or sensor.
- A sterile towel is used to dry hands and arms in an aseptic manner by using one end of the towel for one hand and arm and the other half of the towel for the other hand and arm.
- Do not drop the towel onto the floor! Hand it to a non-sterile assistant or find a non-sterile surface to place it on.

Alcohol Based Hand Rub Method (ABHR)

Alcohol hand rub must be applied to clean, dry hands.

If hands are visibly dirty, wash hands and arms with a non-medicated soap, then dry the hands and arms with clean paper towel.

For the first surgical scrub of the day clean under nails with a nail pick.

Dispense a pump (2ml) of hand prep onto one palm. Dip fingertips of the opposite hand into the hand prep and work under finger nails.

Spread hand rub over all aspects of your hands moving upwards to just above the elbows.

Repeat the above process for the second hand.

Dispense a final pump of hand prep into either hand and reapply to all aspects of both hands up to the wrists.

Allow the hands and arms to air dry. Do not use a towel.

Once hand rub has completely dried, pick up the sterile gown and commence gowning and gloving.



The aim is to put on a sterile gown and don gloves without contamination.

Once the gown and gloves are on, only the front of the gown is considered sterile; from mid chest level to waist level (in line with the operating table) and from gloved hands to just above elbow.

Gowning Method for disposable gowns

- The gown is folded to enable the gown to be picked up with a hand on either side, just within the opening of each arm hole.
- Step back and ensure you have clear space to put the gown on without contamination.
- Both hands are pushed through the sleeves, allowing the gown to unfold gently. The same process for re-usable gowns.
- Keep the hands within the sleeves for closed gloving.
- The circulating nurse will tie up the top and inside middle ties.
- Gloves (closed gloving) are put on before the front tie is completed.
- Once gloves are on, hold the left tie in the left hand.
- Use the right hand to hold the card and disengage and hold the left tie.
- Pass the card to the right towards the circulating nurse.
- The circulating nurse will then bring the right tie around your back to your left side.
- Take the right tie from card and tie left and right together.



CLOSED GLOVING

Gloves are only considered sterile while they remain intact or uncontaminated.

Some people may have a mild reaction to rubber gloves or the powder within in them. In rare cases a severe reaction may occur. Latex free and powder free gloves are available.

- As described above, the hands are not pushed through the cuff of the gown.
- The hands must remain inside the sleeves during the whole gloving process.
- Using the right hand, pick up the left glove (the left hand is inside the sleeve in the open palm position).
- Place the glove on the left palm by inverting it towards yourself. The fingers of the glove should be pointing towards your elbow and the thumb of the glove is lying downwards.
- The glove opening is turned over onto the knuckles of the left hand.
- The cuffing of the glove is turned back onto the wrist.
- Using both the gown and sleeve, pull the glove onto the hand.
- Adjust glove for comfort.
- Repeat the process for the other hand.
- Once gloved, hands do not drop below waist level.
- Arms are not folded.
- If contamination occurs, one or both gloves must be changed immediately.

OPEN GLOVING

The *closed* glove technique should **not** be used when changing one or both gloves because once the hand has been passed through the cuffs, they are contaminated. When a glove must be changed intra-operatively, a new sterile glove or gloves are placed over the contaminated ones using an open-glove technique.

The open glove technique is also utilised for minor procedures when a surgical gown isn't required.

- At the gowning stage, the hands are push through the end of the cuff of the gown, so that the hands are exposed.
- The outer packaging of the gloves are opened by a non-scrubbed team member.
- The first glove should be picked up by the turned back cuffing (the bare hand must not touch the outside of the sterile glove).
- Use the left hand to pick up the right hand glove.
- Insert the hand straight into the glove, without turning the glove cuff back.
- Now insert the right hand under the cuff of the left glove.
- Pull the left glove on and extend the cuffing over the gown sleeve.
- Go back to the right hand and extend the cuffing over the gown sleeve.

LAY OUT INSTRUMENTS BEFORE YOU COMMENCE DRAPING OF THE PATIENT



Image – C. Bradley

University of Melbourne
Faculty of Veterinary & Agricultural Sciences
Title: Draping of a patient
Author's name: Carol Bradley

BACKGROUND

Sterile drapes are used to create a sterile field. The sterile field includes the area immediately surrounding the sterile surgical team, the sterile trolley, equipment and the draped patient. Only the horizontal surfaces of the sterile draped tables are considered sterile.

GENERAL GUIDELINES FOR DRAPING

- Drapes are folded to enable ease in application and to avoid contamination.
- Sterile instrument trolleys are set up as close to the commencement of the procedure.
- Draping is only to be carried out by a sterile member of the team.
- Movement and handling of sterile drapes should be kept to a minimum.
- Drapes are held and unfolded high enough to avoid touching non sterile surfaces.
- Sterile drapes are passed from the surgical assistant to the surgeon for placement.
- When placing drapes into position, the edge of the material should be cuffed to protect the gloved hand from contamination.
- Once a drape is positioned it must not be moved forward into the sterile field. However, it may be moved marginally away from the sterile field. If contamination occurs, the drape must be discarded.
- The horizontal surface level of the draped patient and instrument trolley is part of the sterile field. Any part of drape falling below this level is considered non-sterile.
- Poly/cotton materials are only sterile whilst they remain dry; any moisture contact creates a wicking effect that may allow the passage of bacteria from the patient and into the sterile field.
- *LINEN MATERIALS ARE NOT USED IN SURGICAL PRACTICALS*
- Wet sterile sponges/swabs are to be discarded immediately into the kick bucket or contained in a sterile bowl or kidney dish.

METHOD FOR DRAPING IN SURGERY TEACHING PRACTICALS.

Drapes are contained within the sterile instrument pack. The drape set includes 4 field (utility) drapes with an adhesive strip along one edge and 1 large folded polypropylene sheet, without a fenestration (this will need to be cut by the surgeon).

The field drapes are placed sequentially, starting with the lateral nearest the surgeon, following by top or tail, then one opposite the surgeon.

Peel off the adhesive strip before placement.

Leave the large laparotomy sheet **folded** and place it onto the patient, then carefully unfold the drape to cover the patient and operating table completely.

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4. Caple, C., *Hand Hygiene: Surgical Scrub -- Performing*, D. Pravikoff, Editor. 2012, Cinahl Information Systems: Glendale, California. p. 2p.