



## Curtin University Standard Operating Procedure

### PRINCIPLES OF ASEPSIS FOR RECOVERY RODENT SURGERY

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**Aim/Purpose:** To describe the procedures for achieving asepsis in rodent surgery.

There is a commonly believed misconception that rodents are not susceptible to infections in the post-operative period and therefore that there is no need for aseptic techniques during surgery. This is false and not only does infection have animal welfare implications but it causes poor scientific results and animal loss leading to greater animal usage.

**Tip:** *It is virtually impossible to maintain asepsis as a lone surgeon- if aseptic technique is required for recovery surgery, an assistant is highly recommended.*

#### Considerations for Asepsis during Surgery:

- 1) Animal preparation
- 2) Surgeon preparation
- 3) Instrument preparation

#### Animal Preparation

1. Procedures to prepare the animal can be done in the same room as the surgery but should be at a safe distance from the surgical environment to avoid contamination with hair.
2. Administer analgesics and anaesthetics as per protocol submitted to the AEC.
3. Once anaesthetised apply ophthalmic ointment to both eyes to prevent desiccation or gently tape eyelids closed.
4. Use electric clippers to shave the surgical site and remove hair from the site. Ensure a margin between the area of surgery and the remaining hair.
5. Scrub the skin with antiseptic and gauze swabs. Hibiscrub is a commonly used antiseptic for this purpose or betadine. It should then be wiped with ethanol, ensuring that the area the swab initially starts is in the middle of the shaved area, radiating outwards towards the non-clipped area. 3 separate scrub applications should be carried out.



6. Move the animal into the surgical area. If the surgical site has been contaminated during the move then wash again with the antiseptic solution. For the final wash, scrub in a pattern radiating outwards from the centre of the surgical site.
7. Apply 70% alcohol with gauze, swabs or spray. DO NOT soak the animal as this causes evaporative heat loss.
8. A final povidone-iodine application may be used at this point as a third scrub. This will be applied by gauze swabs or spray.
9. The animal should be covered with a sterile drape.
10. For batch surgeries in rodents it is acceptable to reuse the drape (provided not soiled and the top surface has not come into contact with non-sterile areas). It may also be possible to reuse the same set of gloves/instruments for up to 5 animals (not true aseptic technique).

### **Surgeon's Preparation:**

1. Wear full PPE (personal protective equipment) – hair cover, face mask, shoe covers.
2. Wear a clean gown- depending on the procedure, it may be autoclaved prior to use and put on once hands are scrubbed, but prior to gloves.
3. Scrub hands – a 10 minute scrub is recommended using a sterile scrubbing brush embedded with chlorhexidine or betadine. Initially, the hands are washed in the antiseptic, then rinsed. Take the scrubbing brush and start with the tips of the fingers. Each finger should be scrubbed individually, remember that each finger has 4 sides. Ensure the area between fingers are also scrubbed. Work down from the fingers to the palm and the wrist region. Then scrub the other hand in a similar manner. Rinse both hands, keeping the fingers pointing upwards towards the roof, allowing water to run down towards the elbow. Do not shake the dry.
4. Wear sterile gloves – individually sterilized gloves are available and should be put on in a sterile manner.
5. The surgeon must avoid touching non-sterile surfaces once the gown and gloves have been put on.

### **Instrument Preparation**

1. All instruments should be sterilized in an autoclave in the appropriate manner prior to surgery.



2. Ideally there should be an individual autoclaved set of instruments for each animal.
3. For rodent batch surgeries it is often impractical to sterilise instruments between each surgery. If a bead steriliser is available this can be used by dipping the tips of instruments in for 5-10 seconds. Otherwise instruments can be dipped in 70% ethanol between animals. It is useful to have two sets of instruments and start with a new set of sterile instruments between each set of 5 animals. If not changing gloves between each animal they should also be sprayed with ethanol.

## Surgical principles

1. Prior to surgery ensure that all materials needed are to hand. Ensure everything that is required to be handled by the surgeon has been autoclaved or opened in a sterile manner and handed to the surgeon in a sterile manner.
2. Begin surgery with clean, sterile instruments (normally autoclaved).
3. Designate a sterile area on the working surface for the sterile material (instruments, suture material, drapes, gauze etc.)
4. Avoid contact of tissues with fingers by using the instrument tips.
5. Do not touch anything that is not sterile once the sterile gloves are on (e.g. the anaesthetic machine, the table, the rest of the animal).
6. Avoid allowing the instruments to touch anything outside the sterile area or animal.

**If in any doubt about methods for achieving asepsis then please consult a veterinary surgeon for advice.**

**Author:** Dr Tara Pike

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REVIEWER	Reviewed Annually by Dr Beng Chua	Dr Tara Pike	Dr Tara Pike		