COMPARATIVE MEDICINE
LABORATORY ANIMAL FACILITIES

STANDARD OPERATING PROCEDURE
FOR
RODENT SURGERY

1.0 Purpose:

Post-operative infections in rodents can and do occur. Such infections which may not be apparent on casual observation may cause numerous changes in physiological parameters and can endanger the results of a study. This procedure provides guidelines to be followed for successful rodent surgeries.

2.0 Scope:

These guidelines apply to all surgical procedures performed on rodents at CMLAF in which the animals are expected to recover from anesthesia.

3.0 Procedure:

3.1 Adequate procedures include the use of sterile instruments, sterile surgical gloves, and aseptic preparation of the surgical site in order to prevent post-operative infection

3.2 Surgical procedures can be divided into:

A. Minor Survival Surgery which is defined as any procedure which does not expose a body cavity and causes little or no physical impairment. Minor procedures are often performed under less stringent conditions than major procedures but still require aseptic technique and instruments and appropriate anesthesia.

B. Major Survival Surgery which includes invasion of the cranial, abdominal or thoracic cavities. Any procedure that might leave the rodent with a permanent handicap, whether physical or physiological, would also be considered major surgery. The use of aseptic technique is mandatory in these surgeries to minimize the possibility of post-surgical infection.

3.3 Procedure Location:

A. A separate facility for rodent surgery is not necessary. Surgery should be conducted in a low traffic, uncluttered area which promotes asepsis during surgery. An area in the lab is acceptable providing that no open shelves are located above the operating table.

B. Surgical tables and equipment must be made of impervious materials that can be disinfected. Cardboard and unsealed wood are unacceptable.

3.4 Animal Preparation:

A. Animal preparation should take place in an area separate from where the surgery is to be conducted.
B. Prepare the animal by removing hair from the surgical site.
C. Prepare the surgical site with a 3 step solution preparation. First scrub with disinfectant soap followed by a 70% alcohol swab and finally the iodine solution painted on the site. Minimize soaking the body of the rodent as this could lead to hypothermia and possible death.
D. It is recommended that a small amount of plain, sterile ophthalmic ointment be instilled in each eye of the anesthetized animal prior to surgery to prevent corneal drying.
E. Surgeons should wash hands with an antiseptic surgical scrub preparation prior to surgery. Sterile gloves and a surgical mask must be worn by the surgeon and any assistants working in the immediate surgical field. Wearing a clean lab coat or clean scrub suit is mandatory.

3.5 Surgery:

A. The animal should be maintained in a surgical plane of anesthesia throughout the procedure. Monitoring of anesthetic depth is critical. Periodic observation of respiration, color of mucous membranes and toe pinch reflex are recommended.
B. For lengthy surgical procedures (30+ minutes), supplemental heat should be provided to the animal to prevent hypothermia. Water - circulating blankets or heat lamps are recommended.
C. Begin surgery with sterile instruments, supplies, and wound closure materials. All instruments and materials used in the surgical procedure must be handled aseptically. Surgical instruments may be used in more than one animal but must be carefully cleaned and disinfected between animals. Alternating two or more sets of instruments is one way to allow time for instruments to sit in a disinfectant or sterilant solution. (Alcohol is not considered a sterilant).
D. Draping the surgical site with sterile drapes to avoid contamination of the incision, instruments and supplies is preferred. Drape should cover all exposed parts of rodent's body (tail, feet). Sterile cloth (tightly woven linen), plastic or paper can be utilized to prevent contamination of the instrument tips and exteriorized tissues.
E. Monitor and evaluate animal's vital signs during surgery every 10 minutes.
F. Close surgical wounds using appropriate techniques and materials. Closure of the skin with non-capillary, non-absorbable material is essential to reduce the risk of post-operative infection.

3.6 Post-Operative

A. Move the animal to a warm, dry area and monitor vital signs during recovery.
B. Give the animal fluids SQ, provide heat during recovery and offer highly palatable and moist foods on floor of cage (apple, pineapple, grapes, wet chow).
C. Record your observations on the post-operative report form.
D. Provide analgesics as approved in your protocol. Record on post-operative report form.
E. Return the animal to its routine housing only after it has recovered from anesthesia and identify cage with blue tag so that the veterinary staff can perform the 2 day post-operative follow up of the animal.
F. Leave Rodent Surgery/Post Operative Report (Rats and Mice Only) in room 204 or with area supervisor.
G. Examine animal at least daily for 3 days. Examine incision site for redness, discharge or swelling, and ensure animal is eating, drinking, urinating and defecating.
H. Reassess for pain and re-administer analgesics if required.
I. Remove skin sutures or staples 10-14 days following surgery.
J. In the event of post-operative complication (infection, lengthy recovery) contact the CMLAF veterinary staff immediately.