

**UNIVERSITY OF WESTERN ONTARIO  
ANIMAL CARE AND VETERINARY SERVICES**

Standard Operating Procedure # 334-03

**POST-OPERATIVE/POST ANAESTHETIC CARE**

**LEVEL FOUR**

**EXAMPLES:** liver, heart or lung transplant, thoracotomy (major manipulations), more than one procedure from level three

**1 INTRODUCTION**

Standard Operating Procedures (SOP's) provide a detailed description of procedures to be followed unless alternate procedures have been outlined in an Application to Use Animals. If an investigator wishes to proceed differently from an approved SOP, the changes must be itemized in the application. To assist the Animal Use Subcommittee in protocol review, the reasons for deviating from the standard procedure should also be included.

Approval of the protocol indicates approval of the deviation from the SOP for that project only.

**It is the researcher's responsibility to ensure that adequate post-operative / post-anaesthetic care is provided. The individual providing post-operative care MUST be familiar with the approved 'Application to Use Animals in Teaching and Research', have the skills and abilities to perform the assessments as indicated below and be able to provide support in case of complications. A qualified Animal Health Technician may be hired, at an hourly rate, to perform these tasks. It is important to note that these guidelines are MINIMUM STANDARDS ONLY.**

An uneventful recovery and a healthy animal are desirable both from the researcher's perspective (more reliable data and decreased costs) and from the standpoint of animal welfare.

The type of care required during the recovery period depends on two major factors. The first is the stage of recovery. More intensive care is required until the animal regains full consciousness. The second is the degree of invasiveness of the surgical procedure and the probability of complications or post recovery deficits. Both of these factors must be taken into consideration when formulating a plan for an animal recovering from anaesthetic.

1.1 AIMS

- 1.1.1 to provide for a rapid, smooth and painless recovery
- 1.1.2 to reduce the chances of complications
- 1.1.3 to identify and correct, as quickly as possible, any complications which occur

**2 PROCEDURES**

2.1 IMMEDIATE: cessation on anaesthetic to extubation OR return of swallowing and blinking reflexes.

- 2.1.1 Chart on the progress of the animal (see appendix 1). Records must be maintained in close proximity to the animal.
- 2.1.2 Animal under close supervision ie every 5 minutes. Under no circumstances is the animal to be left unattended.
- 2.1.3 It is strongly recommended that intravenous fluids are continued until the activity of the animal precludes maintaining an intravenous line.
- 2.1.4 Visually monitor rate and depth of respiration. Ensure an unobstructed airway.
- 2.1.5 Note colour of mucous membranes. Check capillary refill.
- 2.1.6 Take pulse.
- 2.1.7 Take rectal temperature and provide supplemental heat if necessary.
- 2.1.8 Check reflexes ie pedal, palpebral and eye position to assess depth of anaesthesia.
- 2.1.9 Administer analgesics according to the approved animal use protocol. Analgesics may be administered prior to surgery or in the immediate post-operative period. Knowledge of the approved procedure is essential.
- 2.1.10 If recovery is protracted turn animal every 15 minutes to improve respirations and decrease recovery time.
- 2.1.11 Monitor surgical site for evidence of hemorrhage.
- 2.1.12 Check animal for evidence of post surgical complications.
- 2.1.13 As the animal lightens deflate cuff and loosen tie so that the tube can be removed quickly if animal

- 2.1.14 begins to chew. Extubate once laryngeal reflexes return.  
**Take whatever action necessary to correct any abnormalities. Contact an ACVS veterinarian if necessary.**
- 2.2 INTERMEDIATE: from extubation until sternal recumbency
- 2.2.1 If no complications monitor as above every 30-60 minutes
- 2.2.2 Administer analgesics in accordance with approved animal use protocol. Unless cleared by ACVS all animals must receive full analgesic coverage for at least 24 hours.
- 2.2.3 If recovery is protracted, change the animal's position at least every 4 hours to reduce the incidence of hypostatic pneumonia and to prevent ischemic muscle necrosis (ruminants).
- 2.2.4 Chart on animal's progress (see appendix 1). Be sure to chart the administration of analgesics or other medications.
- 2.3 LONG TERM: until animal returned to normal activity
- 2.3.1 It will be necessary to monitor the animal on a routine basis during the first 24 hours post-op. The frequency will depend on the degree of invasiveness. In some cases constant care will be necessary. As the animal improves monitoring may be reduced to once a day.
- 2.3.2 **A competent individual** must assess analgesic requirement and administer according to the approved animal use protocol.
- 2.3.3 Check, at least daily, until sutures or clips are removed (7-10 days)
- 2.3.4 Check the surgical site, drains, catheters etc..
- 2.3.5 Check for evidence of surgical complications.
- 2.3.6 Assess re appetite, hydration, elimination, locomotion.
- 2.3.7 Provide nutritional support if necessary. Over the long term, adequate caloric intake (balanced diet) is essential.
- 2.3.8 Provide parenteral fluids as necessary to maintain hydration.
- 2.3.9 Any abnormalities require continued frequent monitoring and whatever treatment is necessary.
- 2.3.10 **Dehydration and continued weight loss are unacceptable.** Refer to SOP 322 for Criteria for Early Euthanasia.
- 2.3.11 **CONTACT AN ACVS VETERINARIAN TO ASSESS THE ANIMAL IF THERE ARE ANY CONCERNS.**
- 2.3.12 Check, at least daily, until sutures or clips are removed (7-10 days).
- 2.3.13 If necessary, hand feed or force feed high quality, high protein diet to aid in healing. If necessary to encourage drinking, add electrolytes to water.
- 2.3.14 Chart on animal's progress (see appendix 1). Records must be readily accessible.

### 3 SUMMARY

The above represents minimum standards. Animals experiencing complications require more frequent monitoring and care.

### 4 REFERENCES

- 4.1 Canadian Council on Animal Care. **Guide to the Care and Use of Experimental Animals.** Volumes 1 and 2, 1984.
- 4.2 Faler K, Faler K: **Supportive Care.** In Pratt, PW (ed.): Medical Nursing for Animal Health Technicians. Santa Barbara, American Veterinary Publications, 1985, pp199-204
- 4.3 Government of Ontario, **Animals for Research Act.** Revised Statutes of Ontario, Regulation 18, Section 26: 1-2
- 4.4 Trim CY: **Postanaesthesia Care and Complications.** In Paddleford, RR (ed): Manual of Small Animal Anesthesia. New York, Churchill Livingstone, 1988, pp 199-229
- 4.5 Warren RG: **Recovery from General Anaesthesia.** Small Animal Anesthesia. St. Louis, CV Mosby, 1983, pp. 98-102

### 5 REFEREES

- 5.1 Bailey, M: Director, Animal Care & Veterinary Services, University of Western Ontario, London, Ontario.
- 5.2 Benn, D: Director, Animal Research Facility, Ontario Veterinary College, University of Guelph, Guelph, Ontario.
- 5.3 Cross, B: Assistant Director, Animal Resources Centre, University of Saskatchewan, Saskatoon, Saskatchewan.
- 5.4 Dyson, D: Anaesthesiologist, Department of Clinical Studies, Ontario Veterinary College, University of Guelph.
- 5.5 Pettifer, P: Anaesthesiologist, Department of Clinical Studies, Ontario Veterinary College, University of Guelph.