

# SURGERY/ANESTHESIA RECOVERY PROTOCOL

'Recovery' includes everything from the time the anesthesia/surgery is ended until the animal is alert, ambulatory and all vitals have returned to normal ranges.

## Recovery Crew

- **Anesthetist** - Responsible for administering anesthesia
  - The anesthetist **MUST** stay with their patient until the endotracheal tube has been removed, at least one TPR has been recorded, the patient is stable and the recovery team has been rounded on the case.
- **Recovery Monitors** - Responsible for care and monitoring of animals until fully recovered and ready for discharge.

## Recovery Responsibilities

### Anesthetist

- Deflate endotracheal tube and assess patient prior to transferring animal to recovery area.
- Transfer to clean recovery bed, untie endotracheal tube and verify that the cuff has been deflated.
- The anesthetist **MUST** stay with their patient until the endotracheal tube has been removed, and at least one TPR has been recorded. The anesthetist should remain in recovery until the patient is cleared by the Recovery Lead.
- Remove endotracheal tube once animal has regained swallow reflex (\*see below).
- Monitor TPR and mm/CRT immediately post-surgery, then every 5-10 minutes as needed until animal is turned over to the recovery team. Address any abnormalities.
- When the animal is stable and has been cleared for transfer by the Recovery Lead, the patient can be turned over to the recovery monitors- Be sure to notify recovery crew of any abnormalities or difficulties encountered during anesthesia, surgery or recovery.

### Recovery Monitors

- Monitor TPR and mm/CRT every 15-20 minutes and address abnormalities as needed.
- If the animal is aroused or the temperature is difficult to take and all other parameters are within normal limits, do not attempt to take the temperature. Over-stimulation can make for a rough recovery period.
- Use caution monitoring mucous membrane color. Animals may bite while coming out of anesthesia. Never put your finger in the mouth, just lift the lip enough to see the gums.
- Monitor incision for any swelling or oozing.
- Kittens and puppies under 4 months of age should be offered a small amount of canned food as soon as they are alert enough to eat. Hypoglycemia can result in delayed recovery times. If young animals are not recovering within 15-20 minutes, rub a small amount of karo syrup or honey on the gums.
- Aggressive animals are recovered in a kennel. A CAUTION sign should be posted on the cage. Cats can be moved to a small wire kennel as soon as they are able to sit up sternal. Keep the kennel in the recovery area until the animal is fully alert. Do not place animals in a cardboard carrier until they are completely recovered as it impossible to monitor an animal you can not see.
- Once the animal is alert/ambulatory and all parameters are within normal range she can be released by the Recovery Lead and returned to a kennel in the receiving area. Before kenneling the animal, examine incision for swelling or oozing and verify that medical record is complete.

### \*Endotracheal Tube Removal:

- Before the animal is transported from the surgery table, the endotracheal tube cuff should be deflated with the animal in lateral recumbency. Saliva can collect in the back of the throat and slide down the trachea if de-cuffed in dorsal recumbency.
- Maintain the endotracheal tube until the animal demonstrates the first sign of gag or rejection reflex (swallow or cough). Hold the tube and apply a constant pulling tension. The tube should come out smoothly and quickly. If a tube is difficult to remove or the animal's respiration is abnormal, notify the supervising RVT or veterinarian immediately.
- The animal may cough for a few seconds after extubation, but should quickly resume normal respirations.

### IV Catheter Removal:

- Unless the animal is marked as feral or caution **the IV catheter should be left in place until the patient is fully recovered** to allow for immediate IV access for analgesic/sedative administration or emergency purposes. If the animal is feral / aggressive the catheter should be removed as soon as the animal begins to arouse. The time the IV catheter was removed should be indicated on the Anesthesia Record.

### Other Recovery Duties:

- Recovery Treatments
  - Check the 'Treat in Recovery' section of the Anesthesia Record for any requested treatments. This section is used by the intake teams to indicate procedures that could not be done in receiving due to patient temperament, etc. Often these are best performed before the animal begins to arouse. All treatments performed in Recovery must be recorded on the Treatment Record page.
- Grooming
  - Clip toenails as needed, flea comb, remove ticks, clean ears.
  - Once an animal begins to recover, it is best to avoid any unnecessary stimulation which may elicit a hyper-arousal response.
- Maintain cleanliness of recovery area
  - Keep recovery area clean of animal waste & garbage
  - Wipe bedding and crates with disinfectant between patients.
  - Plastic coverings on bedding should be changed when they are torn or soiled.
  - Endotracheal tubes are placed in a tub of disinfectant solution and cleaned throughout the day. Inflate cuff, scrub interior and exterior of tube, rinse thoroughly and deflate cuff. Clean tubes should be returned to the induction table. If the cuff is not holding pressure- do NOT return it to the induction table, set it aside and notify the Anesthesia Lead.
- Record keeping
  - Review medical record and verify that all pages are completed.
  - Any drugs administered during recovery must be recorded in the recovery record. The drug, amount, route and time are to be noted.
  - All treatments performed in Recovery must be recorded on the Treatment Record page.
- Monitor any clients who may be in the recovery area with their animal. Keep clients and children away from fractious animals.
- If clients are waiting with their animals, use this opportunity to discuss aftercare and health care topics with them. Be sure to commend them for bringing their animal in.
- Minimize the use of laundry. Doing large amount of laundry is time consuming, expensive and often not even an option. Use newspapers if available or towels/blankets with garbage bags over it. These can be wiped with disinfectant when soiled and replaced when torn.

## RESPONDING TO ADVERSE EVENTS IN RECOVERY

**If at ANY time you are concerned about the status of a patient's recovery or ANY monitoring parameter-consult a supervising veterinarian or technician.**

### **Slow Recovery: Animal not extubated within 15 minutes post op**

- Notify Recovery Lead or anesthesia staff.

### **Hypothermia: Rectal Temp < 98° F**

- Place a heating pad on the LOW setting underneath the animal's bedding and cover the animal with a blanket or towel. 'Snuggle Safe' warming discs can also be placed under bedding. Check the animal's temperature frequently and remove external heat sources when the temperature is between 99-100° F. Continue to monitor the animal to be sure the temperature remains in the normal range.
- Check chart to see if reversal agent has been administered. Check with Recovery Lead to see if agent should be administered.
- It is normal for the post-anesthesia body temperature to be slightly decreased. However, hypothermia is the most common cause of delayed recovery and should be monitored closely.

### **Hyperthermia: Rectal Temp > 103° F**

- Direct a fan on low toward the animal. Exam gloves filled with cold water or ice can be placed around the animal and isopropyl alcohol can be sprayed onto the foot pads. Check the animal's temperature every 5 minutes and remove external cooling sources when the temperature is between 100-102° F. Continue to monitor the animal to be sure the temperature remains in the normal range. If the animal is dysphoric or hyper-aroused, do not struggle to obtain repeated temperature readings. Consult Recovery Lead for recommendations.

### **Bradycardia: K9 HR < 80 bpm ; FL HR < 100 bpm**

- Stimulate activity by gently rubbing the torso and extending limbs.
- If HR < 80 bpm (K9) or < 100 bpm (FL) consult supervising veterinarian or RVT.

### **Vomiting:**

- Immediately lift the rear legs to allow vomit to flow down and out to prevent animal from inhaling it. Place towels under the animal's rear end after vomiting stops to prevent aspiration if the animal vomits again. Make note of consistency of vomit (watery or undigested food). Alert supervising RVT or veterinarian. Place paper towels under animal's head after cleaning up.

### **Hyperactivity/Vocalization:**

- Quietly attempt to calm and comfort the animal. Remove all stimuli possible such as lights or noise. Excessive touching/petting may aggravate the situation.
- If the animal does not calm down within 1-2 minutes or there is danger that the animal may injure herself, consult veterinarian or RVT about sedative or analgesic administration.
- Animals who are particularly sensitive to the noise and activity in the recovery area should be moved to a quieter location if possible.