

## **AAALAC Site Visitors may ask you about your rodent animal surgery:**

Show them you know about:

- Sterile and tips-only technique
- Anesthesia
- Analgesic Pain Medications
- Surgical Records Documentation
- Your safety with Isoflurane

Below are some common questions and answers:

### **Q: How is your animal anesthetized before surgery?**

A: **(Isoflurane only anesthesia)** I place my mouse in the induction chamber with the oxygen on and then turn on Isoflurane to induce and anesthetize the animal. Once the animal is anesthetized, I flush the chamber with oxygen for –at least 5 seconds before opening the chamber. I transfer the mouse to the surgery prep area and provide isoflurane and oxygen using a mask or nosecone.

A: **(Injectable + isoflurane anesthesia)** I inject the mouse with ketamine combo IP and place it in a new cage by itself until it is anesthetized. After it's anesthetized, I place the mouse on a mask/nosecone to supplement with oxygen and isoflurane.

A: **(Injectable only anesthesia)** I inject the mouse with ketamine combo IP and place it in a new cage by itself until it is anesthetized. After it's anesthetized, I transfer the mouse to the surgery prep area.

### **Q: How do you protect yourself against exposure to isoflurane gas exhaust?**

A: I use charcoal canisters attached to the induction box and the nose cone. The canisters are oriented in upright position without blocking vent holes. I weigh the canisters before initial use, each day of use and note the date and weight on the canister. Then I ensure the amount of gain is within the manufacturers weight limits.

### **Q: Where do you prepare (shave and scrub) your animal for surgery?**

A: I prepare the animal in an area that is physically separated from where I will perform the actual surgery. That way, I avoid getting fur at my prepared surgery station.

### **Q. Do you then move your animal to another location for surgery?**

A: Yes, I move the mouse over to this place, and keep the face in the isoflurane nose cone. Describe how you set the animal up in stereotactic device. Yes, I move the animal to the prepared surgery station. (If you use a stereotaxic device, explain how you set up bite bars, ear bars, etc.)

### **Q: How do you prepare the surgical site?**

A: First, I provide heat, apply sterile eye lubricant, and then remove fur by shaving the area around the planned incision. The skin is disinfected with three alternating swabs of

betadine/chlorhexidine surgical scrub and alcohol/sterile saline. (OPTIONAL, but STRONGLY Recommended: I drape the animal with Press'n Seal).

**Q: Which analgesics do you use and when do you administer them?**

A: I follow the specific commitments in my protocol. In general, I will use a local block either under the skin where I plan to make an incision or dripped over my incision before closure. I give buprenorphine and NSAIDs per protocol.

**Q: How do you know the animal is in a surgical plane of anesthesia prior to beginning surgery?**

A: I perform a paw pad pinch and look for a withdrawal reflex. If the mouse reacts by pulling its foot away, I adjust the anesthesia, wait a few minutes, and test the paw pinch again before beginning surgery.

**Q: How are your instruments sterilized?**

A: Surgery instruments are sterilized by autoclave initially, and, if multiple surgeries are performed, I re-sterilized in between animals using the bead sterilizer. I let the instruments cool before using them again.

**Q: How do you keep instruments sterile during surgery?**

A: (***Sterile tips technique***) I maintain a small sterile field (sterile gauze, sterile drape, inside of packaging of the sterile gloves or autoclaved instrument pouch) and keep all surgical instrument tips, as well as suture and implants, on that sterile field. My clean gloved hands only touch the handle of the instruments and never touch the sterile tips or animal tissue.

OR

A: (***Sterile gloving technique***) I put on sterile gloves and keep all instruments and materials on a large sterile field or inside of sterile packaging. With sterile gloves, I'm able to handle animal tissues, sterile drape, and all instruments on the sterile field. An assistant helps with all my non-sterile duties, like monitoring and adjusting anesthesia and filling out the surgery record.

**Q: What do you monitor during surgery to make sure the animal is anesthetized at a surgical plane?**

A: During surgery I watch the animal's response to painful stimuli, the character of respiration, and the color of the ears, tail, gums, or foot pads, and adjust anesthetic depth whenever needed.

**Q: How are you keeping the animal warm during surgery and recovery?**

A: There is a heat source (chemical heating pad, recirculating warm water blanket, far infrared warming pad) underneath the animal during the entire surgery. During recovery we use a recovery cage and keep half the cage on a heat source to allow the animal to move away from the heat as it recovers.

**Q: How do you monitor your animal in the days after surgery?**

A: I check on my post-surgical mice daily for at least two days after surgery, or longer as indicated in protocol. I check if the animal needs additional support or pain medications. I place a green surgery tag on the front of the cage card, write the date and initial. If the animal has sutures or clips, I'll check back after 7-14 days, remove them, and remove the tag.

**Q: How do you document post-operative monitoring and analgesic delivery?**

A: On the surgical record modified to our protocol, I record each day I monitor and provide analgesic, note any abnormalities or signs of discomfort, and contact the veterinary staff with any concerns. If animals are doing OK, I will note no signs of pain.

**Q: What do you do if animals show signs of pain after surgery?**

A: I will administer analgesics per protocol first and see how they do. If they continue to show signs of pain, I will give additional doses of our approved analgesics. If the animal still does not improve after an extra dose, I will reach out to our vet team and ask for their advice.

**Q: What type of PPE do you wear when performing surgery?**

A: I wear a clean lab coat or gown, gloves, a bonnet (optional), and mask.

If you have additional questions regarding the above topics and do not know the correct answer, please contact us at [TrainerIACUC@ucsf.edu](mailto:TrainerIACUC@ucsf.edu).