WELCOME
to the
ANIMAL SURGERY OPERATING ROOMS!

By Gail Rising LVT, LATG
ASOR Supervisor

The Animal Surgery Operating Rooms (or ASOR, as they are more commonly known) have been in operation for over 30 years. The function of the ASOR is to serve the research community by providing top-notch surgical suites, equipment, monitoring, and care. This service is an essential part of laboratory animal research. As many of you know, there are challenges to doing successful surgeries. You need space and a lot of start-up equipment, and there are a lot of details involved. Allowing research staff to use our surgical suite and equipment relieves many of those stresses on each individual laboratory.

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inside…

More about Rodent Survival Surgery!
UCUCA Application Tips!
What’s New from the UCUCA Office!

The Backbone is a quarterly publication of the University Committee on Use and Care of Animals (UCUCA)
A BIT OF HISTORY ABOUT THE ASOR

Dr. C. Gardner Childs was the first chair of the Department of Surgery, 1959-1974. He realized the need for surgical research and initiated the beginning of the ASOR. Mr. Calhoun was the first deaner (this was the term used for the person who assisted with procedures and handling of the animals). Dr. Faulette Szadaly, DVM was the first ASOR supervisor; she was hired by Dr. Childs in the late 1960s and was appointed supervisor in the early 1970s.

ASOR was first located on the fifth floor of the Kresge building. A second, or joint, ASOR began many years later in the Medical Science Research Building I (MSRB I). When the Kresge and MSRB I space was later converted to laboratory space, ASOR moved to its current location in MSRB II.

Up until September of 2002 the ASOR facility was overseen by the Department of Surgery. About six months ago, the Unit for Laboratory Animal Medicine (ULAM) took over control of the facility. We are very excited about this transition, for it will allow the ASOR to spread its wings a bit and give the University’s largest staff of veterinarians access to the facility for clinical cases as well as research projects.

The ASOR is comprised of a large sterile surgical suite (B574), patient preparation area (B583A), patient recovery area (B583), pack and surgeon’s preparation area (B581), acute and minimally invasive procedure room, which is also used for fluoroscopy studies (B589), and the supervisor’s office (B580).

Services provided by the ASOR include: anesthesia, surgical preparation, intra-operative monitoring, animal recovery, sterile and acute procedures, fluoroscopy use, and medical training wet laboratories. An extensive set of surgical supplies and equipment are available for the researchers’ use. Various species, including ovine, swine, non-human primates, canines, felines, rabbits, and rats, are utilized in procedures performed in the ASOR.

Gail Rising, LVT, LATG is the ASOR Supervisor. She has been with the ASOR since August 1998 and has been ASOR supervisor since June 2001. Gail is in charge of scheduling all events in the ASOR, as well as handling all of the technical aspects of anesthesia, monitoring, and recovery. Dr. Jean Nemzek, DVM, ULAM Staff Veterinarian, is Gail’s immediate supervisor.

Please feel free to call us at (734) 764-0224 or stop by if you have any questions or would like to tour the facility. Normal business hours are Monday-Friday from 7:00 am to 3:00 pm.
UCUCA APPLICATION TIPS: HOW TO GET APPROVED...FASTER!

By Jessica Kanitz
Regulatory Compliance Associate, UCUCA

Everyone is always looking for the fastest way to get an animal use application approved. One way is to reduce the amount of “back and forth” with questions from the Committee members. By including all appropriate information in the application right from the start, there will be fewer questions raised and a faster turnaround time for your approval.

THAT PESKY QUESTION 8

One area that frequently results in questions during the review process is surgical procedures as described in Question 8. The UCUCA reviewers need to know exactly what procedures you are planning to perform and how you will be conducting them. The UCUCA Office staff frequently tell investigators who ask about describing surgical procedures to explain them like a cookbook recipe. The description should be written so that someone with surgical experience could read your protocol and conduct that same surgical procedure.

The following is a list of the general information regarding surgical procedures that you should include in your response to Question 8:

THE PREPARATION

☐ How will the animal be prepped for surgery?
☐ How will the hair be removed?
☐ How will the surgical site be disinfected?
☐ Will ophthalmic ointment be used to protect the eye?
☐ How will the body temperature be maintained?

THE PROCEDURE

☐ What is the size and location of the surgical site?
☐ What procedures will be conducted while the animal is under anesthesia?
☐ What suture pattern and material will be used to close each layer?

THE POST-OPERATIVE CARE

☐ How often will the animals be monitored following the surgical procedure?
☐ Will any analgesics be provided? If so, how often?
☐ Will the animals recover under a warming lamp?
☐ When will the animals be returned to their cages?

Addressing these issues in your original application will reduce the number of questions generated during the review process and will reduce the amount of time that it takes to be granted approval.
**ARE YOU IN COMPLIANCE?**  
**RODENT SURVIVAL SURGERY: MYTH vs. FACT**

*By Dawn O’Connor, LVT*  
Assistant Coordinator, Research Animal Standards and Staff Development, UCUCA

Many researchers who are conducting survival surgery on rodents may be unaware of the ULAM document, “Guidelines for the Performance of Survival Surgery on Rodents.” These Guidelines are based on the Public Health Service Policy and the Animal Welfare Act. Principal investigators conducting survival surgery on rodents receive this document in the final approval packet for their UCUCA Application to Use Vertebrate Animals in Research (form 8225). The Guidelines, established by ULAM in 1991, still stand today; however the ULAM veterinary staff is currently planning some revisions, so look for updates in the future.

<table>
<thead>
<tr>
<th>MYTH</th>
<th>FACT</th>
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<tr>
<td>Rodents don’t get infections.</td>
<td>Even if rodents do not show physical signs of illness, they could still be harboring an infection that could alter their immune system and, therefore, your experimental data. Observing appropriate aseptic procedures during survival surgery will help ensure healthy animals and sound research results.</td>
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<td>A three-room surgical suite is needed to conduct survival surgery on rodents.</td>
<td>All that is required is one area of a room that is easily sanitized and not used for any other purpose during the time of the surgery.</td>
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<tr>
<td>Alcohol sterilizes surgical instruments.</td>
<td>Alcohol is not recommended for disinfecting instruments because it does not kill many bacterial spores or viruses.</td>
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<td>If you start off with sterilized instruments and conduct multiple surgeries in a single sitting, you don’t need to re-sterilize the instruments between surgeries.</td>
<td>Although it may seem impractical, using sterilized instruments for each animal decreases the chance of cross-contamination and increases the validity of your experimental data. The use of hot bead sterilizers is highly recommended for surgical procedures; it only takes a few seconds to sterilize clean instruments.</td>
</tr>
<tr>
<td>If a procedure doesn’t take long, you do not need to keep animals warm.</td>
<td>The use of a gas anesthetic like isoflurane is the only time a heating source may not be warranted, but it is still highly recommended. Gas anesthesia provides quick anesthetic induction with rapid recovery. Administering an injectable anesthetic will cause an animal’s body temperature to drop fairly quickly. For instance, if the surgical procedure takes 5-10 minutes, and the anesthesia and recovery period lasts for 20-30 minutes, that is enough time for an animal to become hypothermic. Hypothermia is a significant cause of perisurgical mortality in rodents, so keep those little guys warm pre- and post-operatively, until they are ambulatory.</td>
</tr>
<tr>
<td>It is OK to place anesthetized rodents together in one cage to keep each other warm during recovery.</td>
<td>Placing anesthetized animals together for warmth will not generate body heat since anesthesia decreases body temperature. According to the Guidelines, rodents should be individually housed during recovery to avoid being cannibalized. Even if they all were anesthetized at the same time, individual animals metabolize anesthetics differently. Animals that recover more quickly could injure cage mates that are less responsive.</td>
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CORRECTION TO PREVIOUS ISSUE OF THE BACKBONE

Nice job on The Backbone [December 2002]! I liked the "get to know the husbandry team" theme. However, I found [an error] in Glenn’s article on the rat transfer program. He says it was started by UCUCA in 1997. I was the one who started it, when I was the Cancer Center’s Animal Core Training Technician. I saw a need for it, talked it over with Dr. Ringler (my supervisor at the time), and he encouraged me to pursue it. I obtained a list of names [of rat users] from Judy, created an e-mail group, e-mailed everyone in the group to let them know they had been put on a list, then started transferring rats. I transferred hundreds of rats (I think there were 300 in the first year).

Janet Hoff LVT, LATG
Coordinator Center for Integrative Genomics, Department of Physiology
(Via Email)

ANIMAL CONCERN HOTLINE: (734) 763-8028

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**MYTH:** You do not need to shave the fur prior to surgery; you can just use alcohol to part the hairs.

**FACT:** The ULAM veterinary staff does not require hair removal for surgical incisions of one centimeter or less. Larger incisions on rodents require the hair to be removed prior to surgery. Animals should not be shaved in the same location where surgery is performed.

**MYTH:** Alcohol is an effective agent to use as a scrub to disinfect the surgical site.

**FACT:** Alcohol alone is not recommended because it takes at least a 15-minute contact time to disinfect the site. An alternating scrub of iodophors and alcohol is more effective. To minimize irritation, it is recommended to perform a final rinse with alcohol or warm sterile saline. Sterile water is preferred over alcohol especially with mice because the cool temperature of alcohol contributes to hypothermia. Chlorhexidine is also recommended for surgical scrubs.

**MYTH:** Lubricating the rodent’s eyes is not necessary when using gas anesthesia.

**FACT:** Whether using injectable agents or gas for anesthesia, eye lubrication is a good precautionary measure for any anesthetized animal. A normal blink reflex will lubricate the eyes, but when animals are anesthetized that reflex is generally lost. Without lubrication a corneal ulcer can form. So, lubricate those little eyes!

Keep in mind that the Guidelines were written in a broad sense, and it is difficult to tailor a policy to fit the needs of every individual situation. There are many different types of rodent surgeries being conducted here at the University of Michigan and some latitude is given for individual circumstances. If you have a question about the way in which your laboratory conducts rodent surgeries, please contact Dawn O’Connor at (734) 936-9329 or oconnord@umich.edu.
ANIMAL CARE TIPS: RODENT ANESTHETIC RECOVERY 101

By Damon Duquaine
Regulatory Compliance Associate, UCUCA

Just as rodents must be monitored while anesthetized for surgical procedures, they must, in turn, be monitored after the surgery until their subsequent recovery. We must not forget that proper care of rodents during anesthetic recovery will ensure healthy animals and minimize unwanted experimental variables.

Below are some tips for proper recovery from the ULAM document, “Medical Care for Rodents Following Anesthesia and/or Surgery:”

IMMEDIATELY AFTER SURGERY

- Place animals in clean and dry caging after surgery to avoid hypothermia
- Place animals on blue surgical pads to avoid accidental aspiration of bedding material
- 1-2 cc of sterile, 37°C saline per 100 gm body weight may be given to prevent dehydration (i.e., 20 g mouse = 200 μL; 300 g rat = 3 cc)

WHEN USING INJECTABLE ANESTHETICS (KETAMINE, XYLAZINE)

- Rodents must be housed individually and monitored every 30 minutes until fully ambulatory
  OR
- Rodents may be housed together during recovery if they are monitored continuously until fully ambulatory

WHEN USING INHALANT ANESTHETICS (ISOFLURANE)

- Rodents may be housed together due to the short anesthetic recovery time

THINGS TO LOOK FOR DURING ANESTHETIC RECOVERY

- Good mucous membrane color
- Abnormal inflammation, swelling, and/or discharge
- Normal urination and defecation
- Activity
- Normal grooming behavior

When animals are monitored appropriately, we can assure their health and well-being, and minimize unwanted experimental variables.

Please refer to http://www.ulam.umich.edu/UCUCA/Medical_Care_for_Rodents.doc for the document, “Medical Care for Rodents Following Anesthesia and/or Surgery.”
NEW AND NOTEWORTHY FROM THE UCUCA OFFICE

POST-APPROVAL MONITORING

By Jessica Kanitz
Regulatory Compliance Associate, UCUCA

The UCUCA Office staff has implemented a new program for visiting investigator’s laboratories. The Post-Approval Monitoring program started in January 2003 as a way to foster a collaborative relationship between the UCUCA and the research community, and also to further ensure compliance with regulations, policies, and standards.

A member of the UCUCA Office staff randomly selects a recently approved protocol and schedules a date for a laboratory visit with either the principal investigator or a qualified member of his or her lab. The meetings are informal and serve as an opportunity for the researcher to ask any questions regarding regulations and compliance at the University. The Post-Approval Monitoring program will facilitate problem solving with laboratories and intercept any potential issues before they become problematic situations.

THE FUTURE OF ANIMAL CARE AND USE TRAINING

By Damon Duquaine
Regulatory Compliance Associate, UCUCA

In continuing with the University of Michigan’s proud tradition of excellence in the area of training personnel involved in biomedical research, the University Committee on the Use and Care of Animals (UCUCA) has put forth an initiative to enhance the current animal care and use program. This program will complement the Program for Education and Evaluation in Responsible Research and Scholarship (PEERRS) instituted by the Office of the Vice President of Research (OVPR).

The UCUCA enhanced training program will require that all personnel new to animal research at the University attend species- and technique-specific training according to the protocols under which they will be working.

Enhanced training will accomplish several goals central to the mission of the UCUCA and the University at large. First, training will promote the humane care and use of animals and second, by assuming the time commitment investigators must invest to instruct their staff, this proposal will foster a cooperative environment between the Committee and researchers.

As the research community continues to grow, the need for training in humane animal care and use increases as well. In order to accommodate the schedules of researchers, the UCUCA will increase the frequency with which training classes are offered and can make arrangements for in-house laboratory training when necessary. For more information about UCUCA animal care and use training, please contact Damon Duquaine at (734) 936-4983 or duquaine@umich.edu.
Name ______________________________

Department ______________________________

Telephone ______________________________ Fax ______________________________ Address ______________________________

Principal Investigator ______________________________

E-mail Address ______________________________

Topics/areas of interest you would like to see explored in future issues: ______________________________

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