



Aseptic Technique

Division of Laboratory Animal
Medicine



Goals

- How to prepare the patient for surgery
- How to monitor the patient under anesthesia
- How to recognize and prevent contamination: before, during and after surgery
- How to perform surgery aseptically and prevent post-op complications

Surgical definitions



- Major surgery: invading a body cavity (thorax or abdomen), loss of a limb, causing a stroke, bone fractures
- Minor surgery: subcutaneous incision, castration, subcuticular pump implant
- Survival surgery: animal will regain consciousness, must be performed aseptically
- Non- survival surgery: animal will be euthanized on the table
- Multiple survival surgeries: defined as more than one operative procedure from which the animal is allowed to recover

Before surgery: ARC requirements:

- Name is on active protocol
- Read protocol
- Aseptic technique class completed (in addition to species-specific training)
- Pre operative weight
- Medical health questionnaire is valid
- ARC certification - called CITI training, needs to be updated every 3 years
- Surgery records need to be kept by lab
 - Must be available for ARC to review

Surgery preparation

- Have all supplies ready before you pick up the animals
- Items supplied by DLAM in 2V Surgery Suite
 - Anesthetic vaporizer, oxygen, patient and surgeon surgical scrub, hot bead sterilizer and circulating water pump (**only**).
- Items supplied by the lab
 - Artificial tears, pain relief, sterile gloves, sterile instruments, sutures, wound clips or tissue glue, external heat source (**pad**), anesthetic drugs, mouse or rat induction chamber, F-air canister, sterile drape, clippers and nose cone set up.

Preparing the animal for surgery

- Evaluate animal's health:
 - A healthy animal will recover well from surgery.
 - A sick animal will be immuno-compromised and will not recover well from surgery.
- Be prepared:
 - You will need a clean cage for after surgery, medication for the water bottle (if applicable), and pain relief administered before surgery starts.

Personal protective attire for surgery

- Gown
- Hat
- Gloves: sterile for surgery
- Mask
- Booties (shoe covers)
- Do not wear these items outside of surgery area or room



Anesthetized animals

- Once an animal has been anesthetized, do not leave it unattended.
- Once the animal has regained consciousness, you can return it to the cage.
- If you anesthetize by injection, recovery time will be longer than inhalation anesthesia.
- Animal should be housed alone after surgery.





Analgesics

- Must be given in accordance with the protocol
- Must be started **pre-operatively**
- Must be continued post-operatively – 48 hrs for major surgery, 24 hr for minor surgery
- Exceptions must be justified and approved by the ARC

Benefits of Alleviating Pain

- Humane Animal Care
- Shorter recovery period
- Minimization of variables that could confound the interpretation of data

Preventing Dry Eyes

- Eye lubrication for the patient
 - Eyes stop producing tears when anesthetized
 - No blink reflex while unconscious
 - Artificial tears must be applied



Preventing Dehydration

- Fluids need to be warmed
- If you use a microwave, make sure fluids are not too warm.
- Fluids can be given IP or SC



Surgery Preparation

- Clean, sharp clippers size: 40 blade or pocket pro trimmer, small enough for mice
- Shave- at least 1 cm from the incision in all directions for rodents, larger area needed for covered species
- Surgical preparation should always take place away from the intended surgical field



Surgery Preparation

- Surgical scrub:
 - Betadine and alcohol 70%
 - Chlorhexidine
- 3 alternating scrubs
 - Start from the center and work your way out
 - Move the animal to the surgical area before draping



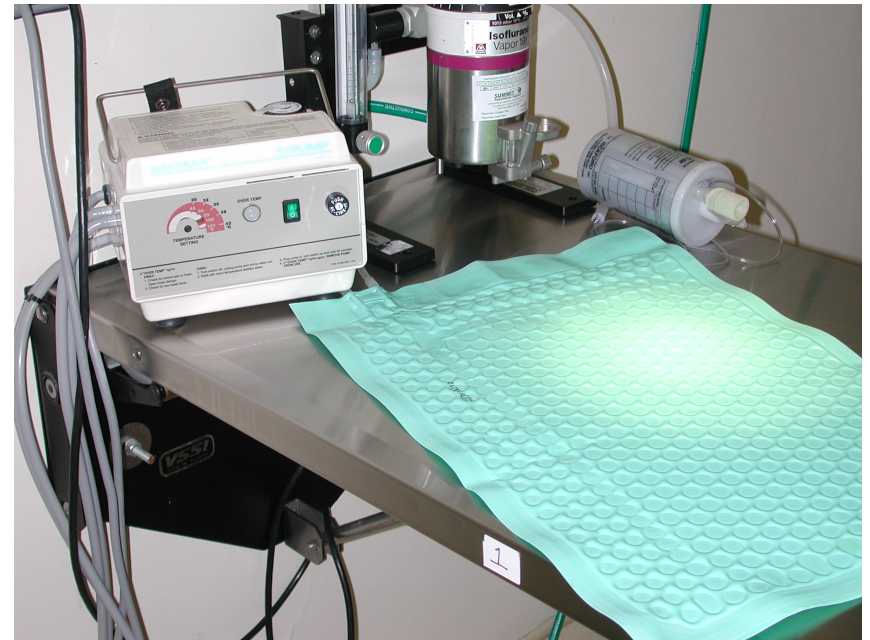
Surgery Preparation

- Sterile drape must cover entire animal



Surgery

- Dedicated surgery area:
 - Disinfect surgical room & surgical area
 - Proper preparation surgical site & draping
 - Aseptic Preparation of Surgical Team
 - Sterilization of all instruments & materials to be used
- Dedicated preparation area:
 - Animal should be shaved in an area away from the surgical area.
 - This will help reduce potential sources of contamination



Surgery in your lab



- Only allowed if approved by ARC
- Lab room number needs to be listed on your protocol as the surgical suite
- Low traffic area
- Must follow all survival surgery guidelines set up by the ARC

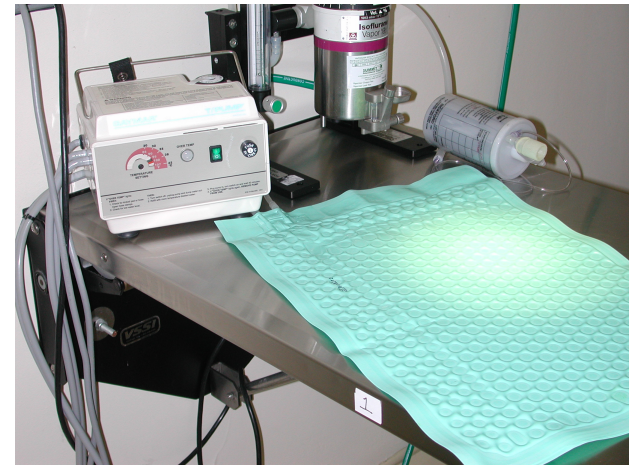
Instruments

- Autoclaved- required
- Glass bead sterilizer used on instruments between surgeries or Cold trays
- Clean instruments of debris before placing them in the sterilizer



Preventing Hypothermia

- Body temperature
 - Mouse range: 97.7-100.4° F
 - Rat range: 96.9-99.5° F
- Recommended external heat source: circulating water pump and pad
 - (DLAM provides only the pump)



The Closing Act: Suturing

DLAM offers suture training for beginners:

<https://portal.dlam2.ucla.edu/EducationTraining/DLAMTraining/Pages/default.aspx>

- Tissue very delicate
- Wound closure: one or two separate layers of closure needed depending on depth of wound.
- Internal: absorbable suture
Note: if sutures are subcuticular, absorbable suture is used
- External: non absorbable suture
 - Alternatives- tissue glue and wound clips





Animal return rooms

- Return Rooms

- Mouse Return rooms: BRI 53-399B and 53-399C
- Rat return rooms: CHS 2V-507, 2V-515, 2V-527
- Contact the supervisor of your area for additional rooms

- Reminder:

- If an animal has been removed from a barrier, it can NOT go back.
- If you enter the return room, you can NOT go back to any clean room or facility
- Animals can not be housed in labs for more than 24 hours or in an unapproved facility

Post-Op Cards for Rats and Mice

- The use of post-op treatment cards for rats and mice that have undergone surgical procedures is **mandatory**.
- Treatments (such as analgesics and antibiotics) following procedures must be indicated on this form until these treatments are discontinued (for example, until the drinking water containing antibiotics is changed out for fresh water).

POST-OP CARD						
Date of procedure _____		Procedure _____				
Medication: _____ (Please initial when given)						
DATE						
TIME						
INITIALS						
TIME						
INITIALS						
Medication: _____						
DATE						
TIME						
INITIALS						
TIME						
INITIALS						
Emergency contact:			Phone number:			

The labels (shown above) can either be obtained from our Pharmacy (for a fee of a few cents each) or you can download the form from our website to print on your own Avery® 5163 or other labels:

[https://portal.dlam2.ucla.edu/VeterinaryServices/Documents/TimedPost-Op Labels.pdf](https://portal.dlam2.ucla.edu/VeterinaryServices/Documents/TimedPost-Op%20Labels.pdf)

Post-Op Cards for Rats and Mice

- When using the labels, please do **NOT** apply them directly to the cage or cage card holder, but to the back of the existing cage card, or onto another card to be placed in the cage card holder.
- If you have any questions, please contact a DLAM veterinarian to discuss.

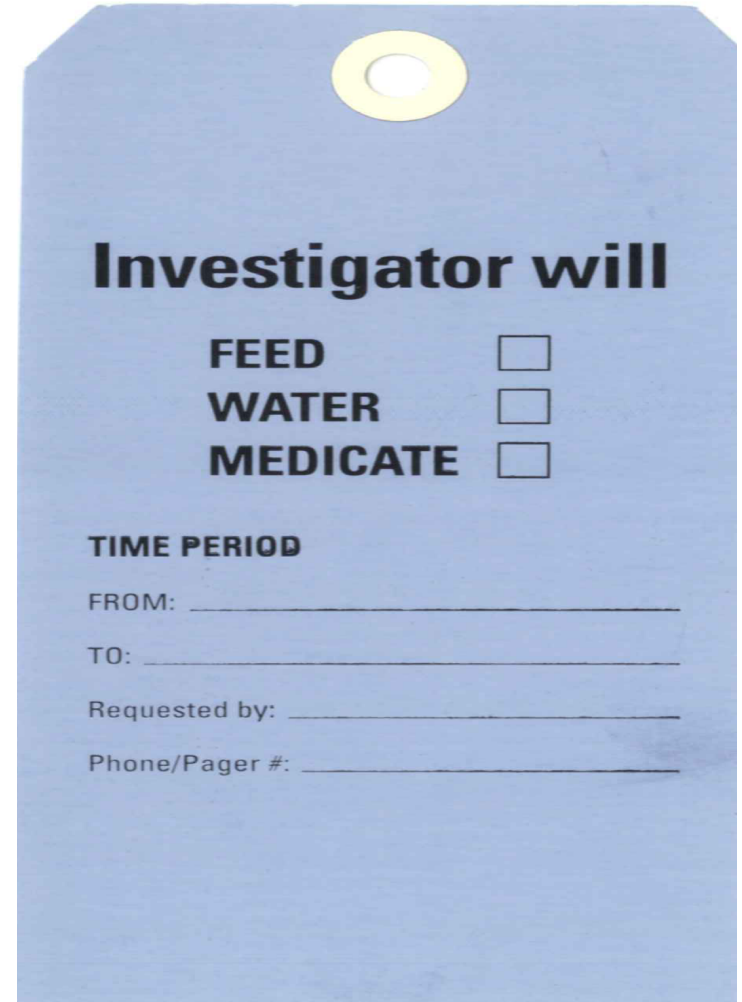
POST-OP CARD					
Date of procedure _____			Procedure _____		
Medication: _____ (Please initial when given)					
DATE					
TIME					
INITIALS					
DATE					
TIME					
INITIALS					
Medication: _____					
DATE					
TIME					
INITIALS					
DATE					
TIME					
INITIALS					
Emergency contact: _____			Phone number: _____		

Affix post-op labels (shown above) to the back of your cage cards and fill out as indicated. Pick up labels from the DLAM Pharmacy, 1V-211, or download the form from our website to print on your own Avery® 5163 or other labels:

<https://portal.dlam2.ucla.edu/VeterinaryServices/Documents/Timed Post-Op Labels.pdf>

Post operative Medications

- Post-op antibiotics: generally antibiotics will be given in the water following surgery
- Post –op analgesia:
 - Major surgery- 48 hours of pain relief required
 - Minor surgery - 24 hours of pain relief required
- Use the “investigator Will Feed, Water, & Medicate” Blue tag. Pick up tags in 1V-203.
- Affix post-op labels to the back of your cage cards and fill out as indicated. Pick up labels from the DLAM Pharmacy, 1V-211, or print your own:
[https://portal.dlam2.ucla.edu/VeterinaryServices/Documents/TimedPost-Op Labels.pdf](https://portal.dlam2.ucla.edu/VeterinaryServices/Documents/TimedPost-Op%20Labels.pdf)



Investigator will

FEED ☐

WATER ☐

MEDICATE ☐

TIME PERIOD

FROM: _____

TO: _____

Requested by: _____

Phone/Pager #: _____

Note: Check your protocol

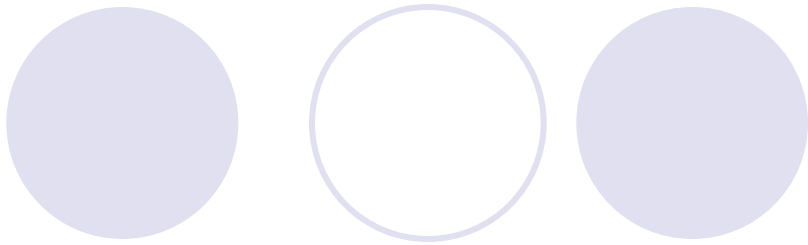
Post Op Monitoring

- Wound dehiscence:
 - Animals may chew or pull out the sutures following the surgery
- Pain:
 - Monitor for signs of pain (see next slide)
 - Administer analgesic for at least the minimum required time
- Water level:
 - Check daily
- Suture removal:
 - Between 7 - 14 days after surgery
- Activity level, Food intake and Hydration status

Signs of Pain



- Vocalization
- Licking of area affected
- Biting
- Restlessness
- Increased rate of respiration

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- Reluctance to move
 - Loss of appetite
 - Unkempt fur
 - Hunched
 - Weight loss

Potential Sources of Contamination

- The truth about infections:
 - Rats and mice are susceptible to the same types of infections as humans are.
 - That is why we study them post operatively. We study their responses to infections and treat them with antibiotics.
 - **Bacterial infections are the most common following surgery**
- Bacteria!
 - It is all over- shoes, mouth, hair, clothes, floors, walls, animals cages, fur...
 - Surgical Team/ Surgeon
 - Environmental/Operating Room
 - Instruments/ Materials
 - Patient

Surgery contact information

- 2nd floor surgery room - rats, mice and covered species
 - Sonia Watt is the contact
swatt@mednet.ucla.edu
The phone number is 794-7392
- Rigler Center-Imaging of covered species
 - Contact the Rigler center at x56561
Located on the B floor
- Mouse procedure rooms in Barrier facilities
 - Reserve room/hood by putting name on sign up sheet posted on the door of the procedure room