	Washington State University Institutional Animal Care and Use Committee	Standard Operating Procedure #9
	Title: Common Minor Medical Conditions of Rodents and Treatments	
Effective Date: 3/17/20	Page 1 of 7	

Standard Operating Procedures for Common Minor Medical Conditions of Rodents and Treatments

1.0: Purpose:

This SOP authorizes and outlines early assessment and treatment by animal care technicians, faculty or staff for common minor medical injuries and illness in rodents.

2.0: Responsibility:

The Office of the Campus Veterinarian (OCV) Veterinary Services is responsible to ensure adequate medical care for all WSU research and teaching animals. By defining common minor medical conditions of rodents and treatment options, animal care and research personnel can implement early treatment if approved by the PI.

3.0: Materials:

***Ophthalmic medications:**

- a. Triple antibiotic ophthalmic ointment or drops (bacitracin-neomycin-polymyxin)
- b. Tobramycin ophthalmic solution 0.3%
- c. Erythromycin ophthalmic ointment 0.5%
- d. Ophthalmic lube
- e. Oxytetracycline w/ Polymyxin B Sulfate (Terramycin®)
- f. Vetericyn Plus Ophthalmic Gel® (Hypochlorous Acid (0.010%))


***Topical medications:**

- a. Triple antibiotic ointment (bacitracin zinc, neomycin sulfate, polymyxin B sulfate) +/- pramoxine
- b. TriCalm®: Aluminum acetate (0.2%) Hydrogel
- c. Chlorhexidine 2% ointment or solution
- d. Silver Sulfadiazine cream 1%
- e. Vetericyn Plus Ophthalmic Gel® (Hypochlorous Acid (0.010%))
- f. Dilute Povidone-iodine solution (Betadine) 5%
- g. Sterile lube
- h. Sterile Saline 0.9%

Other Materials:

- a. Gauze, or cotton applicator tips
- b. Nail trimmers, or suture scissors
- c. Dark Green WSU OCV Veterinary Service Notification Cards

*When referred to in the SOP any of the listed medications can be used based on veterinary recommendations or PI preferences.

	Washington State University Institutional Animal Care and Use Committee	Standard Operating Procedure #9
	Title: Common Minor Medical Conditions of Rodents and Treatments	
Effective Date: 3/17/20	Page 2 of 7	

4.0: Procedures:

4.1 Identification and Treatment:

Eyes and surrounding tissues

4.1.1: Conjunctivitis:

- a. Symptoms: inflammation of the conjunctiva that presents with swollen, pink tissue exposed from within the eyelids. Ocular discharge may be present. Closed or partially closed eyelid.
- b. Treatment: gentle flushing of the eye with sterile saline if necessary for cleaning, and topical application of an ophthalmic ointment or drops daily for 1-5 days. Cage changing frequency may be increased for neonates (excess shedding in first week of life). Bedding change for nude or hairless mice may be considered, or if in static cage, move to ventilated cage system.

4.1.2: Cataract (Cloudy eye):

- a. Symptoms: a small, circular, circumferential white/opaque appearance of the lens deep within the eye. The eye maintains a normal contour and appearance. C57BL/6 strain mice are susceptible (see Appendix 1).
- b. Treatment: cataracts do not cause animal welfare problems and can be monitored by veterinary staff on rounds.

4.1.3: Microphthalmia or anophthalmia:

- a. Symptoms: a small or missing eye. This can be a congenital condition (see Appendix 1).
- b. Treatment: if the eye has discharge, treat topically as directed for conjunctivitis. Otherwise no treatment is needed and condition can be monitored by veterinary staff on rounds.


Skin Lesions

4.1.4: Fight wounds/Bite wounds

- a. Symptoms: most commonly seen in co-housed male mice. Typical presentation is a cluster of wounds, hair loss, bleeding on the rump, hips, and/or genital region.
- b. Treatment: minor wounds can be treated with topical medications daily for 1-7 days. Co-housed male mice with fight wounds should be separated. Treatment for severe fight wounds should be based on veterinary recommendation.

4.1.5: Ear Dermatitis

- a. Symptoms: often related to ear tags used for identification. Similar lesions to ulcerative dermatitis (see IACUC policy #11) but isolated to the ears.
- b. Treatment: removal of the ear tag followed by topical medications daily for 1-7 days.

	Washington State University Institutional Animal Care and Use Committee	Standard Operating Procedure #9
	Title: Common Minor Medical Conditions of Rodents and Treatments	
Effective Date: 3/17/20	Page 3 of 7	

4.1.6: Alopecia/Barbering

- a. Symptoms: hair loss, especially around the face or in one location on several mice within a group. The skin is not inflamed. If whiskers have been removed, vet services should be notified as soon as possible.
- b. Treatment: no medical treatment is necessary but increased environmental enrichment may decrease the behavior.

4.1.7: Abscesses

- a. Symptoms: can occur in any location, but may be secondary to bite wounds, tumors or blocked ducts to normal exocrine glands such as the preputial glands of male mice or rats.
- b. Treatment: if the lump has opened and is draining, topical medications can be used once daily for 1-7 days.

Congenital deformities

4.1.8: Hydrocephalus:


- a. Symptoms: pups will visibly have a rounded head and shortened muzzle. They will be smaller than littermates.
- b. Treatment: these animals rarely survive to adulthood. Supportive care with special food may be provided until the PI or veterinary staff is contacted for euthanasia permission.

4.1.9: Malocclusion:

- a. Symptoms: misaligned incisor teeth that do not wear down normally and overgrow. The condition can cause teeth to grow into the soft tissue of the mouth and will interfere with food consumption causing weight loss and runting. This is a hereditary condition in some strains and affected rodents should not be used for breeding.
- b. Treatment: Check and trim incisor teeth at least every 2-3 weeks. Animals may require feed on the floor of the cage or soft food. This is a life-long condition requiring continual treatment.

4.1.10: Runt pups:

- a. Symptoms: small, poorly developing pups usually indicate a genetic abnormality or competitive disadvantage.
- b. Treatment: Check the teeth for any malocclusion. If teeth are normal, provide softened food, Hydrogel packs, or other commercially available gel diets on the cage floor.

	Washington State University Institutional Animal Care and Use Committee	Standard Operating Procedure #9
	Title: Common Minor Medical Conditions of Rodents and Treatments	
Effective Date: 3/17/20	Page 4 of 7	

Reproductive/other associated conditions

4.1.11: Dystocia (difficulty in delivery of pups)

- a. Symptoms: signs include presence of a pup in the vaginal canal but not passing, immobility and dehydration, distention of the abdomen with little muscle tone, or labor for an extended period of time (more than a couple hours).
- b. Treatment: call veterinary staff immediately if dystocia is suspected. Treatment should be only at the direction of a veterinarian.

4.1.12: Vaginal or uterine prolapse:

- a. Symptoms: exposed uterine or vaginal tissue. Can be secondary to hyperplasia or excessive abdominal contractions. A uterine prolapse requires emergency intervention and most likely euthanasia. Minor vaginal prolapses can be treated but female breeding mice with vaginal prolapses should not be bred again.
- c. Treatment: call veterinary staff immediately if suspect vaginal or uterine prolapse. Treatment at the direction of a veterinarian.

4.1.13: Rectal Prolapse:

- a. Symptoms: The distal portion of the rectum is prolapsed exterior to the body presenting as a small red mass at the anus. Can be confused with a vaginal or uterine prolapse. The rectal tissue may bleed or become dry & necrotic. Incidence varies with different mouse strain.
- b. Treatment: call veterinary staff if concerned about rodent with rectal prolapse. If the prolapse is minor, it may be treated with application of topical medications once daily for 1-5 days. Affected animals should be separated from cage mates to prevent more trauma. Female breeding mice with prolapses should not be bred again.


4.1.14: Balanoposthitis or paraphimosis (inflammation of the penis or prepuce):

- a. Symptoms: swelling and redness of the prepuce or foreskin (balanoposthitis) and prolapse of the penis exterior to the prepuce or foreskin (paraphimosis). The exteriorized penis will be red and swollen and may bleed or become dry & necrotic.
- b. Treatment: call veterinary staff if concerned about rodent with paraphimosis. If the inflammation is minor, gently cleanse the penis with clean gauze or cotton soaked with warm water and diluted chlorhexidine, saline or other appropriate solution. Examine the area for entrapping fibers or bite wounds. Simple inflammation can often be treated with topical medications once a day for 1-7 days. Breeding males should be separated from females until the condition is resolved.

Mobility Issues:

4.1.15: Foot injuries

- a. Symptoms: lameness, dragging of the limb, dark color to the skin, swelling.

	Washington State University Institutional Animal Care and Use Committee	Standard Operating Procedure #9
	Title: Common Minor Medical Conditions of Rodents and Treatments	
Effective Date: 3/17/20	Page 5 of 7	

b. Treatment: call veterinary staff if lameness or dragging of the limb is noted to last for more than a few minutes or if the limb has any dark discoloration. If lameness is minor, then observation overnight is warranted. Treatment at the direction of a veterinarian.

4.1.16: Neurologic (seizures, head tilt, rolling, circling):

a. Symptoms: seizures or epilepsy can occur intermittently when stimulated (e.g. cage change). The animal may show signs of lack of mentation, chewing, righting difficulty, and muscle contractions. These episodes should only last for a few minutes. Certain strains are more susceptible (see Appendix 1). Head tilt, rolling or circling can be an indication of brain lesion or inner ear disturbance.

b. Treatment: call veterinary staff promptly if you note animals with any of these conditions. Moistened food or commercially available gel packs can be provided.

Debilitated or compromised animals

4.1.17: Dehydration, geriatric, post-operative animals, cage flooding with subsequent hypothermia

a. Symptoms: hunched, hair coat ruffled, lack of spontaneous movement with stimulation.

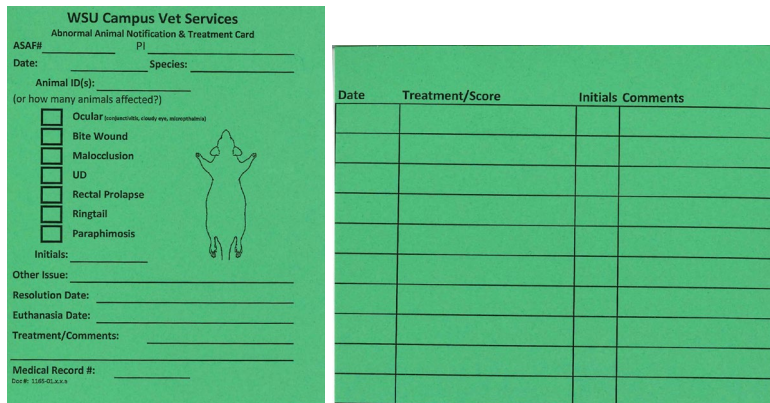
b. Treatment: call veterinary staff and the PI immediately. Provide moistened food or commercially available gel packs can be provided until veterinary staff can assess. If flooded cage, prompt warming (gel packs, heat lamp, recirculating water blankets). Never leave a cage exposed to a heat source unattended.

4.2: Notification

Personnel identifying any of these conditions must notify the principal investigator (or his/her designee) prior to initiating treatment, unless prior approval for treatment has been given. All animals identified with a minor medical condition must be entered on the OCV Animal Health database for case tracking.

4.3: Flagging of Cage:

The cage should be flagged with a WSU OCV Vet Services Card: (picture of sample card) with the ASAF/PI, animal ID, date flagged, mark if the PI has been notified, initials of person setting up the case.



WSU Campus Vet Services
Abnormal Animal Notification & Treatment Card

ASAF# _____ PI _____
Date: _____ Species: _____

Animal ID(s): _____
(or how many animals affected?)

Ocular
 Bite Wound
 Malocclusion
 UD
 Rectal Prolapse
 Ringtail
 Paraphimosis

Initials: _____
Other Issue: _____
Resolution Date: _____
Euthanasia Date: _____
Treatment/Comments: _____
Medical Record #: _____

Date	Treatment/Score	Initials	Comments

(Example of card)

4.4: Documentation:


To initiate treatment documentation, use the back side of the green card. The card provides enough space to document 1 week of daily treatment. Once the case exceeds one week, the veterinary staff will assess treatment efficacy and develop a follow up care plan if needed or will resolve the case. If further treatment is necessary, the documentation will move to a paper medical record. When the case has resolved (returned to normal limits, euthanasia) or transferred to long term care, write the date on the front of the card.

4.5: Resolution of Case

Affected animals that have been assessed and treated and have improvement of clinical signs where there are no active clinical signs (described above) can be resolved and treatment stopped. Resolution of a case can be initiated by trained research staff, animal care staff or the veterinary staff. Resolution date should be noted on the Vet Treatment Card or paper record. The green card should be placed behind the cage card for the life of the animal to indicate prior history and possible recurrence of the condition. If the animal is euthanized place the date of euthanasia on the card and place the card in the index card holder in the room marked “Cases”.

5.0: Campus Veterinary Services Care

- 5.1: All affected animals will be reviewed by Vet Services staff within 4 days of notification of the issue, unless the case requires same day attention, or is resolved before the indicated time period.
- 5.2: Vet Services staff will make a clinical plan for each case if there is no resolution after 7 days of treatment.
- 5.3: Vet Services staff will be in communication with animal care staff and research personnel to ensure medical care and meet the needs of the research project.

	Washington State University Institutional Animal Care and Use Committee	Standard Operating Procedure #9
	Title: Common Minor Medical Conditions of Rodents and Treatments	
Effective Date: 3/17/20		Page 7 of 7

5.4: All treatment medications listed above are available through Vet Services at no cost to the investigator.

5.5: Emergency and after-hours veterinary care:

- For Pullman, Vancouver & Puyallup Campuses call or email: 509-330-1871 or or.ocv.alert@wsu.edu
- For Spokane Campus call: 509-592-6884 or ocv.spokane.vet@wsu.edu

Appendix 1. Clinical Presentations Associated with Strains or Backgrounds in mice¹

Strain or stock	Predisposed to conditions
C57BL/6	Hydrocephalus, Cataract, Microphthalmia, Anophthalmia, Age related hearing loss, Malocclusion, Barbering, Ulcerative dermatitis
BALB/c	Male aggression, Heart ventricular mineralization, Corneal opacities, Conjunctivitis, Blepharitis, Periorbital abscesses, Age related hearing loss.
C3H/He	Blindness, Corneal opacities, Age related hearing loss, Mammary tumors
FVB/N	Blindness, Seizures, Mammary hyperplasia (tumors rare), Hyperactivity, Male aggression
129	Blepharitis, Conjunctivitis, Megaesophagus
Swiss	Retinal degeneration, Amyloidosis: Male aggression
SJL/J	Blindness
A/J	Early hearing loss
DBA/2J	Audiogenic seizures, Early hearing loss

References:

1. **Burkhold, T, Folt, C, Smith, J.M**, 2012. Health Evaluation of Experimental Mice. *Curr Protoc Mouse Biol.* 2012 June ; 2: 145–165
2. **Hankenson, C.F**, Critical Care Management for Laboratory Mice and Rats. 2014. *CRC Press*.

Revisions History:

Version	Change	Date Replaced
1	Added Vetericyn, Tobramycin, Erythromycin, Oxytet; replacement of topical and ophthalmic medication wording, added additional campus contact information.	8.29.18