Surgery and Anesthesia Recordkeeping (Rodents)

IACUP Policy
Effective Date: November 2022

UCSF Office of Research
Institutional Animal Care and Use Program

I. Purpose

Careful monitoring and timely attention to problems are critical in preserving animal welfare in research animals. Accordingly, ensuring that surgical and anesthesia records are sufficient is critical to both regulatory compliance and animal welfare. This policy has been created to ensure compliance with federal law and the *Guide for the Care and Use of Laboratory Animals*, Eighth Edition.

II. Regulatory or Accreditation Authority

The Guide for the Care and Use of Laboratory Animals, 8th Edition, November 2013. *Veterinary Care,* pp. 115, 119.

9 C.F.R. §2.35 Recordkeeping Requirements

AAALAC, International, FAQ Veterinary Medical Care #4

III. Scope

This policy applies to all laboratory animals at UCSF which undergo surgery or anesthesia as part of an experimental protocol.

IV. Policy

A. Record content

Complete recordkeeping demonstrates both protocol compliance and animal welfare and can aid in detecting surgical or anesthetic trends. The Guide for the Care and Use of Laboratory Animals states “Medical records are a key element of the veterinary care program and are considered critical for documenting animal well-being as well as tracking animal care and use at a facility.” (p. 115)

Records documenting any survival surgery and any non-surgical anesthetic procedure lasting longer than 15 minutes must be retained by the lab. The following information must be included:

1. Principle Investigator (PI) name and IACUC protocol number
2. Title of procedure (e.g., craniotomy, MRI scan)
3. Date of surgery (= Day 0)
4. Names or initials of personnel performing the procedure and providing post-operative care
5. Animal IDs, species, and bodyweight(s)
6. Names and dosages of all agents administered before, during, and after anesthesia and/or surgery.
7. Times of all agent administrations
8. Times of full recovery by animals (i.e., animals are awake, ambulating normally)
9. Any complications (e.g., respiratory distress, bleeding, prolonged recovery, or unanticipated mortality) that occurred.

10. Names of all post-operative analgesia agents and dates/times of administration

Labs may use the IACUC rodent anesthesia or surgery record templates (see below) or create their own so long as the above information is included. Formats should be easy to follow, and templates should be tailored based on protocol commitments and researcher needs.

Well-known medical abbreviations (see chart below) and common abbreviations for anesthetics and analgesics may be used. Abbreviated experimental drug names may lead to confusion unless keys or similar guides are associated with records.

Checkboxes, highlighted text, and similar reminders (see example below) may be included in various sections of the record templates to help streamline documentation requirements.

B. Protocol congruency

Records must be congruent with approved procedures, agents, frequencies & total durations described in the IACUC protocols. Unapproved procedures, agents, and deviations from frequencies & total durations are non-compliances.

The day surgery is performed is Day 0. On Day 0, perform an initial post-operative monitoring upon animal's recovery from anesthesia. Monitor animal again, later in Day 0 (at the interval described in the approved protocol). Monitor animal post-operatively at least once daily for a minimum of 2 days post Day 0 (surgery), including weekends and holidays. Provide flexibility when choosing anesthetics and analgesics whenever possible. List all drugs that may be used; they may occasionally become unavailable, so it is best to include alternatives to prevent non-compliances, impacts to study data, etc.

Provide flexibility in drug administration time intervals, and use time ranges instead of defined time points (e.g., 4-8 hours post-surgery vs. at 6 hours post-surgery).

Submit protocol modifications prior to any changes in procedures, agent administrations, and/or personnel who perform anesthesia or surgery.

C. Storage and retention

Records may be stored either as paper versions or as digital databases. Records should be stored in binders if maintained as paper versions and recommended to be kept in readily accessible areas, such as surgery suites, housing room drawers, and similar non-locked locations for ease of access. Electronic records should be backed up in the event of hardware failure or similar losses.

Records should be neat, organized, legible, and made available for review by IACUC and LARC staff upon request. All non-USDA rodent anesthesia and surgery records must be retained for a minimum of one year. USDA-species records must be retained for at least three years.

Mouse Survival Surgery Record

PI:	Protocol:	Date of surgery (Day 0):
Personnel:	**Procedure:**	

Required actions:

- Administer ophthalmic ointment in eyes of all anesthetized animals.
- Provide heat during surgery and recovery.
- Check pedal reflex prior to surgical incision to evaluate depth of anesthesia.
- Affix green surgery tag to cage card or onto cage.
- Complete post-operative monitoring and fill checkboxes on green surgery tag.

Animal ID					
Body weight (grams)					
Anesthetics	**Time of administration**				
Isoflurane (Inhalation) 1-5% to effect					
Ketamine + Xylazine (IP) 80-100 (K) + 5-10 mg/kg (X)					
Analgesics (All must be used)	**Time of administration**				
Lidocaine/Bupivacaine (Local) < 7 - 8 mg/kg					
Buprenorphine (SC/IP) 0.05 - 0.1 mg/kg					
Meloxicam/Carprofen (SC/IP) 5 - 10 mg/kg					
Other Agents	**Time of administration**				
Anesthesia end time					
Complications? Y/N If Y, explain on back of page.					

POST-OPERATIVE

- Administer analgesics per Section I.4 of your approved IACUC protocol.
- Record dates and times of post-op analgesic administrations. Include researcher initials.
- If additional pain is observed, administer and record analgesic(s) below and continue to evaluate animals per Section I and J.

Animal ID					Example 123456
Date and Time (Day 0)					1/1/21 – 3pm
Analgesic details _____ Initials					BUPX given
Date and Time (Day 1) - AM					1/2/21 – 9am
Analgesic details _____ Initials					CAR + BUPX given
Date and Time (Day 1) - PM					1/2/21 – 3pm
Analgesic details _____ Initials					Animals look good. Sutures are solid.

Rat Survival Surgery Record

PI:	Protocol:	Date of surgery (Day 0):
Personnel:	**Procedure:**	

Required actions:

- Administer ophthalmic ointment in eyes of all anesthetized animals.
- Provide heat during surgery and recovery.
- Check pedal reflex prior to surgical incision to evaluate depth of anesthesia.
- Affix green surgery tag to cage card or onto cage.
- Complete post-operative monitoring and fill checkboxes on green surgery tag.

Animal ID					
Body weight (grams)					
Anesthetics	**Time of administration**				
Isoflurane (Inhalation) 1-5% to effect					
Ketamine + Xylazine (IP) 75-100 (K) + 5-10 mg/kg (X)					
Analgesics (All must be used)	**Time of administration**				
Lidocaine/Bupivacaine (Local) < 7 - 8 mg/kg					
Buprenorphine (SC/IP) 0.01 - 0.05 mg/kg					
Meloxicam/Carprofen (SC/IP) ~2 (M) or ~5 mg/kg (C)					
Other Agents	**Time of administration**				
Anesthesia end time					
Complications? Y/N If Y, explain on back of page.					

POST-OPERATIVE

- Administer analgesics per Section I.4 of your approved IACUC protocol.
- Record dates and times of post-op analgesic administrations. Include researcher initials.
- If additional pain is observed, administer and record analgesic(s) below and continue to evaluate animals per Section I and J.

Animal ID					Example 123456
Date and Time (Day 0)					1/1/21 – 3pm
Analgesic details _____ Initials					BUPX given
Date and Time (Day 1) - AM					1/2/21 – 9am
Analgesic details _____ Initials					CAR + BUPX given
Date and Time (Day 1) - PM					1/2/21 – 3pm
Analgesic details _____ Initials					Animals look good. Sutures are solid.

Mouse Survival Surgery Record

PI: Jane Doe	Protocol: 1234567-01A	Date of surgery (Day 0): 7-1-21
Personnel: JD	Procedure: XYZ Implant	

Required actions:

- Administer ophthalmic ointment in eyes of all anesthetized animals.
- Provide heat during surgery and recovery.
- Check pedal reflex prior to surgical incision to evaluate depth of anesthesia.
- Affix green surgery tag to cage card or onto cage.
- Complete post-operative monitoring and fill checkboxes on green surgery tag.

Animal ID	A1	A2	A3	A4	A5
Body weight (grams)	25	30	27	29	27
Anesthetics	**Time of administration**				
Isoflurane (Inhalation) 1-5% to effect	910	935	1030	1135	1205
Ketamine + Xylazine (IP) 80-100 (K) + 5 - 10 mg/kg (X)	900	930	1025	1130	1220
Analgesics (All must be used)	**Time of administration**				
Bupivacaine (Local) < 7 - 8 mg/kg	905	940	1030	1140	1225
Buprenorphine (SC) 0.05 - 0.1 mg/kg	905	940	1030	1140	1225
Meloxicam (SC) 5 - 10 mg/kg	905	940	1030	1140	1225
Other Agents	**Time of administration**				
0.9% NaCl Bolus	905	940	1030	1140	1225
	930	1015	1105	1215	1300
Anesthesia end time	940	1020	1115	1220	1310
Complications? Y/N If Y, explain on back of page.	N	N	N	N	N

POST-OPERATIVE

- Administer analgesics per Section I.4 of your approved IACUC protocol.
- Record dates and times of post-op analgesic administrations. Include researcher initials.
- If additional pain is observed, administer and record analgesic(s) below and continue to evaluate animals per Section I and J.

Animal ID	A1	A2	A3	A4	A5
Date and Time	7-1 1530	1630	1730	1730	1730
Analgesic details **Day 0: 4-8 hrs. later** JD **Initials**	☑ BUPX	☑ BUPX	☑ BUPX	☑ BUPX	☑ BUPX
Date and Time	7-2 900	→			
Analgesic details **Day 1: Next morning** JD **Initials**	☑ BUPX ☑ Meloxicam	☑ BUPX ☑ Meloxicam	☑ BUPX ☑ Meloxicam	☑ BUPX ☑ Meloxicam	☑ BUPX ☑ Meloxicam
Date and Time	7-2 1500	→			
Analgesic details **Day 1: Next afternoon** JD **Initials**	NSOP	NSOP	+ BUPX	NSOP	NSOP

A3 given more BUPX - slow to move and hunched. OK, NSOP in afternoon.

MEDICAL ABBREVIATION CHART (Updated 2014)

General

WNL	Within Normal Limits
NSF	No significant Findings
Δ	Change
NSOP	No Signs of Pain
TPR	Temperature, Pulse, Respiration
s.i.d.	Once a day
b.i.d.	Twice a day
t.i.d.	Three times a day
q	Every
q4h	Every four hours
PRN	As needed
ad lib	as much as desired
PE	Physical Exam
BW/wt	Body weight
cc	cubic centimeter or mL
tx	Treatment
sx	Surgery
fx	Fracture
dx	Diagnosis
bx	biopsy
NSAID	Non-Steroidal Anti-inflammatory Drug
V	Vomit
D	Diarrhea

Body Parts/Routes of Administration

IV	Intravenous
IP	Intraperitoneal
IM	Intramuscular
SC/SQ	Subcutaneous
ID	Intradermal
IC	Intracardiac (Not intracranial)
IN	Intranasal
PO	*per os*, orally
AD	Right Ear
AS	Left Ear
AU	Both Ears
OD	Right Eye
OS	Left Eye
OU	Both Eyes
G	Gauge (needles)
gtt	drop

Mentation

BAR	Bright, Alert, Responsive
QAR	Quiet, Alert, Responsive
QDR	Quiet, Dull, Responsive
EDUD	Eating, Drinking, Urinating, Defecating, (If "H" after it, Hydrated)

Monitoring

BP	Blood pressure
HR	Heart Rate
SpO_2	Blood Oxygen Saturation
MM	Mucous Membranes
CRT	Capillary refill time