Laboratory Animal Coordinator (LAC) Lecture

Presented by the UNC IACUC
Office of Animal Care and Use (OACU)
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Education & Oversight Manager
Associate Director, OACU
Summary

• Overview (IACUC, OACU, protocols)
  – Requesting animal research
  – Protocol review process
• Laboratory Animal Coordinator (LAC) Responsibilities
  – Know/use ACAP
  – Documentation
  – Training & Compliance
• Inspections
  – Types
  – Topics covered, categories of comments
Overview of IACUC, OACU, Protocols

- Institutional Animal Care and Use Committee (IACUC)
- Requesting Animal Research
- Protocol Review Process
• Responsible for oversight, assessment of animal care and use program
• Supported by Office of Animal Care and Use (OACU)
• 5 members minimum (NIH requirement):
  ➢ Veterinarian
  ➢ Practicing scientist
  ➢ Non-scientist member
  ➢ Non-affiliated member
• Monthly meetings to review program, protocols
Protocol Review Process

- **OACU**
  - Personnel Roles and Training
  - IACUC and DCM Orientations
  - Locations
  - Surgical Sections
  - Procedures

- **EHS**
  - Lab Worker Form
  - Lab Safety Plan
  - Animal Handler Form
  - Hazardous Agents and Hazard Forms
  - Recombinant DNA and IBC Forms

- **DCM Veterinarian**
  - Animal welfare
  - Humane Endpoints
  - Drug doses/routes
  - Euthanasia
  - Surgery

- **IACUC Member**
  - Scientific aspects of study
  - Study description
  - Study justification
  - Animal numbers

- *This is not a comprehensive list & there is often overlap between reviewers*
Post-IACUC Meeting Process

IACUC Meeting

Application Reopened

PI Revises & Resubmits

Revisions Reviewed

All Comments Addressed?

New Comments Added

Application Approval

YES

NO
Protocol Review Process – Important Dates

Submit IACUC applications on time!

- Due by 15\textsuperscript{th} of the month \textit{prior} to the expiration date
- Submit \textit{continuation} applications a month early (~ 10 wks prior to expiration)
- Avoid expiration while actively funded or animals in-house
Changes to an approved protocol **must** be approved by the IACUC prior to implementation!

Common amendments

- Personnel and/or techniques
- Locations
- Anesthetics or analgesia
- Euthanasia methods
- Adding animal numbers

Helpful links

- Amendment Guidelines
Laboratory Animal Coordinator (LAC)

- Know/use ACAP
- Documentation
- Training & Compliance
- EHS-related
Laboratory Animal Coordinator (LAC) Program

• Implemented 2004
  • Serve as main contact/manager of lab
  • Ensure animal handlers receive hands-on training

Useful links
✓ Step by step instructions for becoming an LAC
✓ Background information on the LAC Program at UNC
LAC Responsibilities

• Liaison between lab and the IACUC
• Coordinate animal activities
• Ensure lab members properly trained in hands-on procedures
• Assist PI/lab in maintaining compliance with
  ➢ animal welfare rules/regulations
  ➢ approved protocols
• At least one approved LAC required on all active IACUC protocols
  • BEFORE leaving, inform IACUC and add new LAC to protocol
Using ACAP (Animal Care Application) as an LAC

- ACAP outlines proposed research in terms a lay person would understand
- Main sections
  - Research personnel and training
  - Animal housing
  - Animal species and number justification
  - Pain categories of animals
  - Objectives and rationale for study
  - Surgery, tumors, behavior
  - Tissues, fluids collected
  - Humane endpoints, euthanasia
- Read your protocol prior to performing any animal work!

Helpful link
- For more details on the UNC ACAP Online Application
Required Online Training/Orientation

- Protocol approval contingent on completion of orientation and training for all personnel on application
  - Research Profile
  - Lab Worker Registration
  - Animal Handler Profile – annually
  - DCM Orientation – every 3 years (if animals housed in DCM facilities)
  - IACUC Orientation

*Complete through Animal Research Registration*
## Online Requirements

### Protocol Management:
- **Project Title:** Colony Management Core
- **Species:** Mouse
- **IACUC ID:**
- **PI:**

### Personnel Table:

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<th>Researcher</th>
<th>Profile</th>
<th>Lab Worker Form</th>
<th>Animal Handler</th>
<th>IACUC Orientation</th>
<th>DCM Orientation</th>
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Red Check:
Online training item has expired

Yellow Check:
Online training item will expire soon

Needed:
Hands-on training required

Blank:
Online training item has not yet been completed
Training - IACUC/OACU Classes

- **LAC Lecture** (mandatory)
- **Mouse Cage Density Lecture** (mandatory)
  - **Mouse Cage Density Standard**

Helpful links

- To register for classes: [UNC Event Registration System](#)
- For more information on classes: [Training Overview](#)
Training - DCM Classes

- Mouse Handling and Techniques
- Rat Handling and Techniques
- Aseptic Techniques
- Voluntary Mouse Colony Management Lecture
Training - DCM Veterinary Services

• All species other than mice and rats
  – Schedule training and certification with Veterinary Technician Supervisor at 843-3407
• Isoflurane vaporizer training
  – Schedule training – email DCMTraining@unc.edu
Training - LAC Proficiency Assessment

Assessed during hands-on rodent training classes

I. Allowed to train and certify laboratory personnel immediately

II. More experience required before training others

III. Significantly more experience required before proficiency of LAC

**Must use a live animal**
Training/Certifying Lab Members

• LAC may **not** train/certify in the following techniques:
  • Retro-Orbital Bleed
  • Retro-Orbital Injection
  • Cervical Dislocation without Anesthesia
  • Decapitation without Anesthesia
  • USDA-regulated species surgical techniques
IACUC Inspections

• Types of inspections
• Documentation/monitoring
• Noncompliance
IACUC Inspection Types

- Semiannual
- Informational
- PI-maintained Satellite Facility
- *(With/without Procedural Observation)*

Helpful links
Types and Frequency of Inspections and Laboratory Visits Conducted by the IACUC
Procedural Observation

- Procedural Observation required for studies involving:
  - Surgery (survival / non-survival)
  - Behavioral with aversive conditioning
  - Pain category E

Helpful links

- Procedural Observation Description
Inspection Topics & Questions

- General IACUC/OACU updates
- Documents/postings (e.g. Animal Concerns, Emergency Numbers)
- Health & Safety (e.g. eyewash, gas tanks)
- Animal Care (e.g. records, health issues)
- Agents Administered (e.g. controlled substances, anesthesia, analgesia)
- Physical space (e.g. impervious, cleanliness)
- Surgery details (e.g. aseptic techniques, records)

IACUC Semi-annual and Satellite Inspection Checklist
# Inspection Topics & Questions

1. **BRIEF SUMMARY OF WORK CONDUCTED IN THE LABORATORY**
   - Summary Conducted

2. **DOCUMENTATIONS and IACUC POSTINGS**
   - How lab emergency contact information available (in facility, to IACUC)? Last update in animal facility?
   - Verify: Reporting an Animal Concern
   - CO2 Euthanasia, Needle Safety, Emergency Phone Numbers
   - Verify: Hazardous agent warning signs visible upon laboratory entry (i.e., radiation, biohazard, chemicals, BSL), How laboratory personnel trained prior to initial use?
   - How protocols/amendments made available to and reviewed by lab?

3. **HEALTH AND SAFETY**
   - Verify: Gas cylinders secured, eyewash check documents/dust caps, flame hoods, BSL cabinets, laminar hoods certified
   - Verify: Proper sharps disposal, not full (if metal: no rust). How disposed?
   - [Chemical/biological hazards in animals] Describe process for identifying hazards and notifying animal facility
   - [Isolator/animal care facility] Completed online EHS training?
   - If active scavenging (e.g., chemical fume hood, vacuum) skip next question
   - If passive scavenging (viper top) describe procedures for scavenging volatile gases. Vaporizers: Hair canister weight and placement, vaporizer certifications; contact EHS for assessment
   - How dispose of animal carcasses?
   - How dispose of hazardous waste (including animal carcasses)?
   - How when animal handlers update online training? (e.g., Animal Handler form, DCM orientation, etc.) Who verifies?
   - How and for what instances are animal handlers advised to contact the University Employee Occupational Health Clinic? All new animal handlers registered with UCOC?

4. **ANIMAL CARE**
   - Stairs taken if animal health concern discovered (e.g., who contacted, etc.)
   - [USDA-regulated species] Review clinical records for individual animals (if singly housed – cage card)
   - [Euthanasia in lab space] Describe euthanasia method (Verify: same as in approved protocol)
   - [Decapitation] How ensure tools sharp/disseminate (e.g., frequency)? (Cervical dislocation) How is training ensured?
   - How animal usage tracked?
   - [Euthanasia pups prior to weaning] How anesthetized pups accounted for in animal usage table, reported semi-annually?
   - Check experimental monitoring documentation (e.g., weight loss, tumor size, etc.) as described in 60.2
   - [Tie clipping] Used for both genotyping/identification (Standard = max day 7, max 4 toes, 2 toes per foot, not the eviscerate, approved in ACAP)

5. **AGENTS ADMINISTERED**
   - How ensure any pharmaceutical or veterinary grade agents used? (Sigma, USP reference standards cannot be used clinically)
   - [Non-pharmaceutical agents (e.g., trichloroethylene)] Verify: approval in Section 11.3, depict preparation (stable agents; proper storage and maintenance), Provide link to Standard
   - Lot analysis/anesthesia used (ensure agents described in approved protocol)
   - Verify: proper records maintained for agents used for anesthesia, analgesia, euthanasia, and acute intervention
   - [Controlled substances] Verify: documentation (stock and working solutions), double lock
   - How lab personnel ensure drugs and biological agents are within expiration date? (Verify: expired drugs separated or marked appropriately)

6. **PHYSICAL PLANT-Lab Space**
   - Interior surfaces smooth and moisture free to moisture
   - General cleanliness, no unnecessary items and clutter
   - [Behavior studies] Condition of behavioral boxes/secondary enclosures; method and agents used for cleaning, on DCM biological monitoring schedule (provide contact if not)

7. **SURGICAL PROCEDURES: General Considerations**
   - [SS] How is traffic minimized?
   - [SS] Design/separation of functional components according to the Guide (i.e., animal preparation, surgical area, post-op recovery)
Inspection comments

Categories

- N/A
- Acceptable/OK
- No Deficiency (“teachable moment”)
- Minor Deficiency
- Significant Deficiency

Deficiencies

- Respond with corrective action by date specified on inspection report
- Presented anonymously at monthly IACUC meeting
Required Drug Documentation

All uses of anesthetics, analgesics, euthanasiagents must be documented.

- **Common Anesthetics**: Isoflurane, Avertin, Ketamine/Xylazine, Pentobarbital, Lidocaine, Bupivacaine

- **Common Analgesics**: Acetaminophen, Meloxicam, Buprenorphine, Carprofen

- **Common DEA Controlled drugs**: Ketamine, Buprenorphine, Pentobarbital

Helpful links:
- Isoflurane Vaporizer Log
- Isoflurane Drop Method log
- Rodent anesthesia/analgesia procedure record (survival surgeries)
- Anesthesia/analgesia drug log template (controlled substances)
Required Lab Postings

• How to report animal mistreatment or animal use application noncompliance
  • Where? Anywhere animal work is performed

• Emergency telephone numbers
  • Where? Any central location(s) in the lab

• Needle safety (if applicable)
  • Where? Anywhere needles are used in live animals

• CO₂ Euthanasia (if applicable)
  • Where? Anywhere animals are euthanized with CO2
IACUC Standards

• Standard – Minimum acceptable limits or rules used to achieve Policy implementation, **enforceable** by IACUC
  • IACUC creates, reviews, revises Standards monthly
  • Updated on IACUC webpage and policies.unc.edu

Commonly referenced UNC Standards
• ADMINISTERED AGENTS
• RODENT BLOOD WITHDRAWAL AND TAIL BIOPSY
• RAT AND MOUSE EUTHANASIA
• DISPOSAL OF RODENT CARCASSES
• ANIMAL TRANSPORT AND BIOSECURITY
• FOOD AND/OR WATER RESTRICTION AND/OR DEPRIVATION
• WEIGHT LOSS IN RESEARCH ANIMALS
Network of Laboratory Animal Coordinators

- UNC listserv of LACs exchanging ideas, resources and experiences
  - Offer/request extra animals, supplies, equipment
  - Request expertise on procedures

http://research.unc.edu/Offices/NLAC/
Useful Websites

• Office of Laboratory Animal Welfare
  http://grants.nih.gov/grants/olaw/olaw.htm

• Guide for the Care and Use of Lab Animals

• IACUC
  http://research.unc.edu/Offices/iacuc/

• DCM
  http://research.unc.edu/offices/laboratory-animal-medicine/index.htm

• EHS
  http://ehs.unc.edu/
  https://ehs.unc.edu/lab/lsp/ (Laboratory Safety Plan)
Contact Information

The Office of Animal Care and Use

Phone: (919) 966-5569

Email: iacuc@med.unc.edu

Website: UNC IACUC Homepage