

# Laboratory Animal Coordinator (LAC) Lecture

*Presented by the UNC IACUC  
Office of Animal Care and Use (OACU)*  
Michael Chi, PhD, CPIA  
Education & Oversight Manager  
Associate Director, OACU



THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL



# Summary

- Overview of IACUC, OACU, protocols
- LAC Roles & Responsibilities
- Inspections, Monitoring & Documentation

# Overview of IACUC, OACU, Protocols

- Institutional Animal Care and Use Committee (IACUC)
- Requesting Animal Research
- Protocol Review Process



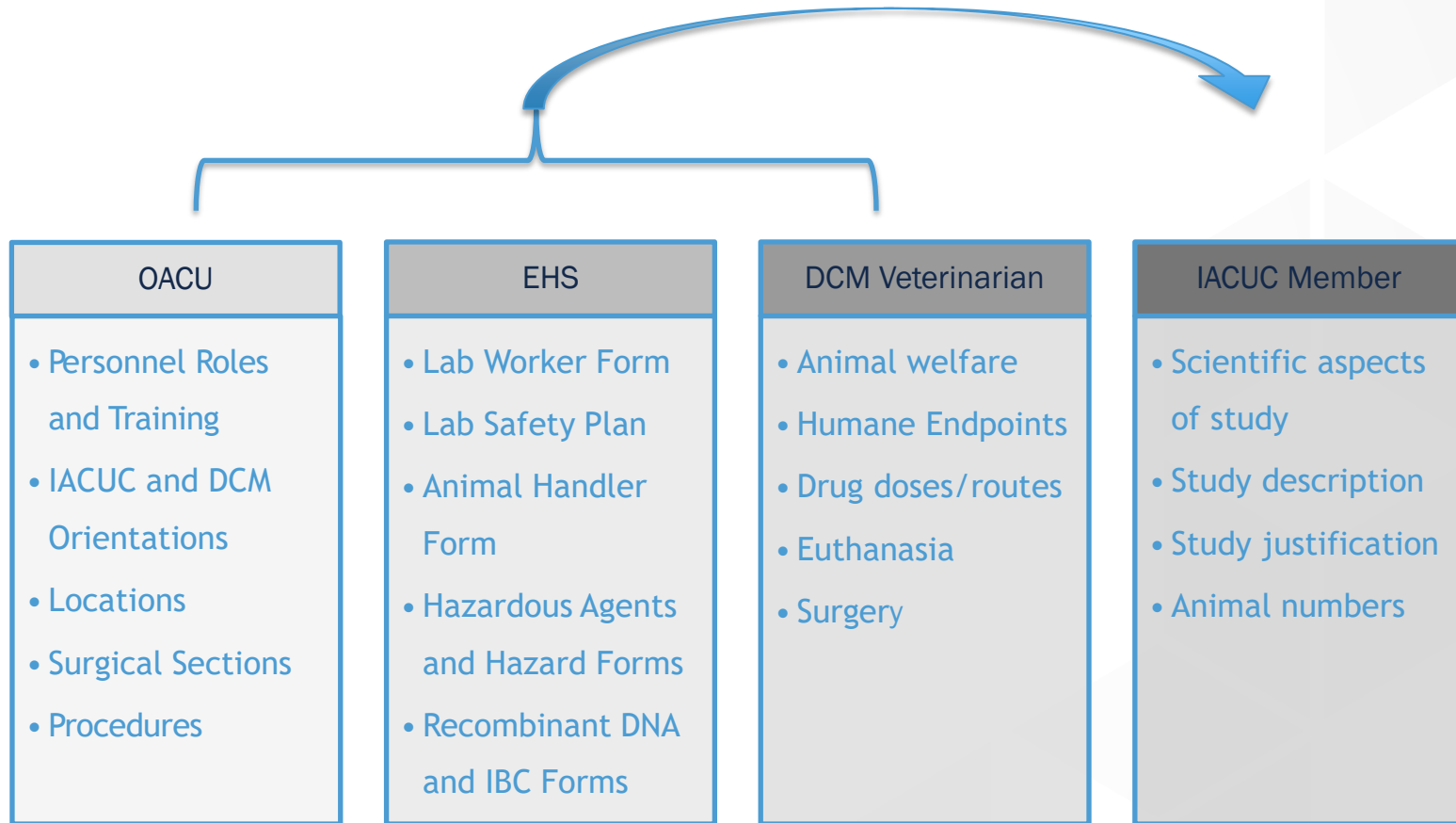
# UNC IACUC

- 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**





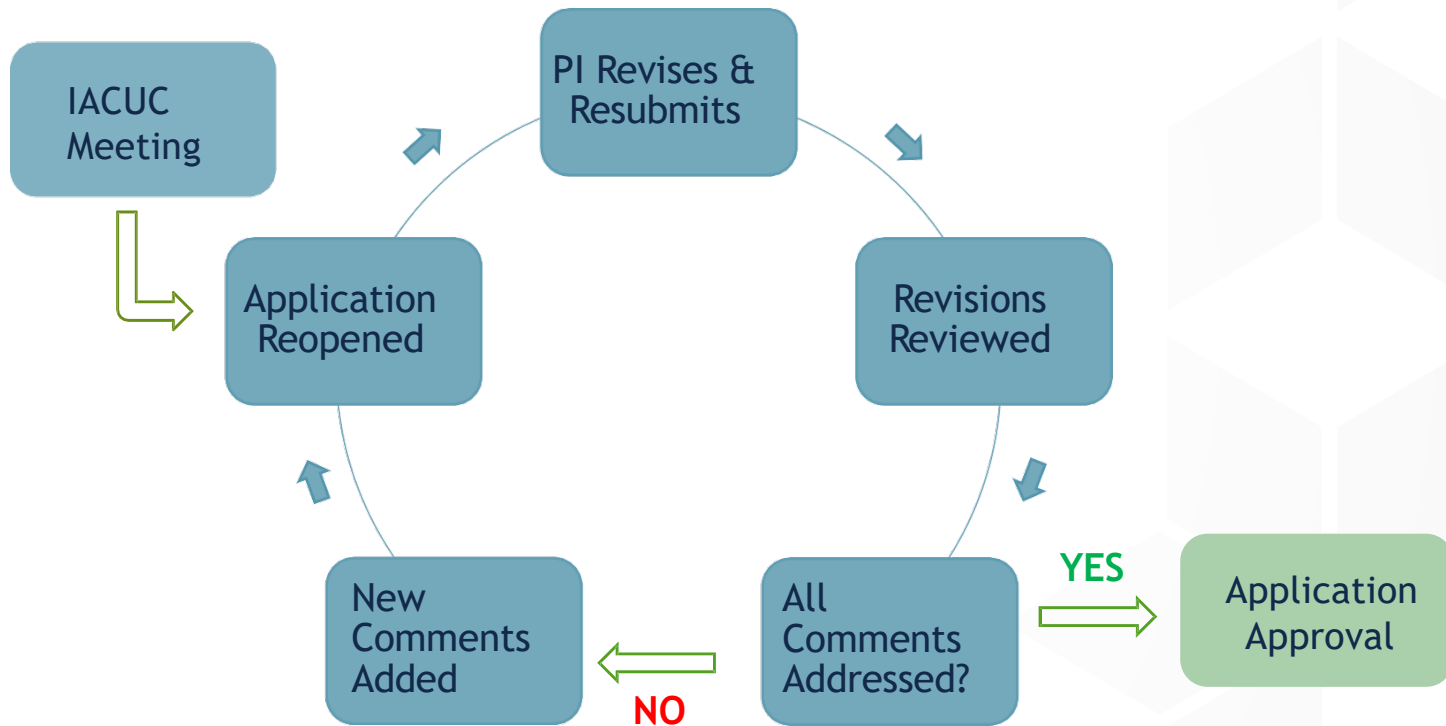
# Protocol Review Process



- *This is not a comprehensive list & there is often overlap between reviewers*



# Post-IACUC Meeting Process

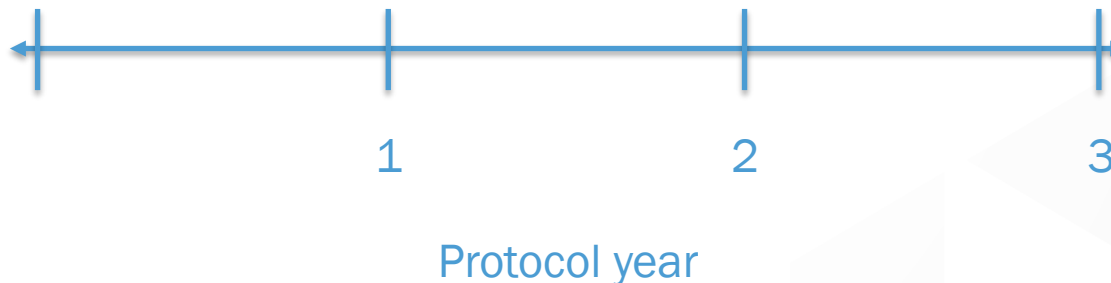




# Protocol Review Process – Important Dates

Submit IACUC applications on time!

- Due by 15<sup>th</sup> of the month *prior* to the meeting date
- Submit **continuation** applications a month early
- Avoid expiration while actively funded or animals in-house





# Amendments (Post-approval)

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



# 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](#)



# 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
  - \*\*monitoring and unexpected outcomes
- 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 of protocols
  - 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:



[View Current Application](#)  
(including approved amendments)



[Print IACUC Signature Page](#)

## >> PERSONNEL

	Research Profile	Lab Worker Form	Animal Handler	IACUC Orientation	DCM Orientation	Training
Researcher ( PI )	✓	✓ N/A	✓ N/A	✓	✓ Exempt	✓
Researcher * ( Co-PI LAC )	✓	✓	✓ Last Reviewed: 10/15/2018	✓	✓ Expires: 3/21/2022	✓
Researcher	✓	✓	✓ Last Reviewed: 11/20/2018	✓	✓ Expires: 3/21/2022	✓
Researcher	✓	✓	✓ Last Reviewed: 12/04/2018	✓	✓ Expires: 3/21/2022	✓
Researcher	✓	✓	✓ Last Reviewed: 01/22/2019	✓	✓ Expires: 3/21/2022	✓
Researcher	✓	✓	✓ Last Reviewed: 03/22/2019	✓	✓ Expires: 3/21/2022	✓



# When training is needed.....

Research Profile	Lab Worker Form	Animal Handler	IACUC Orientation	DCM Orientation	Training
✓	✓	✓ Expires: 11/12/2019	✓	✓ Expires: 2/14/2020	✓
✓	✓		✓	✓ Exempt	<u>Needed</u>
✓	✓	✓ Expires: 04/23/2020	✓	✓ Expires: 10/07/2022	✓
✓	✓	Expired: 09/13/2022 AHF Submitted: 09/02/2021 EHS Processed: 09/13/2021	✓	✓ Expires: 3/31/2020	✓
✓	✓	✓ Expires: 07/29/2020	✓	✓ Expires: 11/11/2019	✓

**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 - 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

## Helpful links

[Types and Frequency of Inspections and Laboratory Visits Conducted by the IACUC](#)





# 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

[Previous deficiencies] How corrected?

## 2. DOCUMENTATIONS and IACUC POSTINGS

Describe availability of emergency contact information (in facility, to OACU). Last update in animal facility?

Verify: Hazardous agent warning signs (i.e., radiation, biohazard, chemicals, ABSL)

Verify: Postings (Reporting an Animal Concern, CO2 Euthanasia, Needle Safety, Emergency Phone Numbers)

Other

## 3. HEALTH AND SAFETY

Describe handling/storage of gas cylinders; eyewash checks; Verify: certification of hoods/cabinets

Describe storage, disposal of sharps containers

[Chem/Bio hazards in animals] Describe process for identifying hazards, notifying handlers in lab and facility; Describe training of laboratory personnel prior to initial use

[Iso, acrylic, fumes] If active scavenging: describe

If passive scavenging/bench top/induction chamber: describe scavenging volatile fumes. Vaporizers: F/air canister weight and placement, vaporizer certifications; EHS assessment/documentation?

Describe disposal of animal carcasses

Describe disposal of hazardous waste

Describe labeling/identification of secondary containers in lab and DCM facilities

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 UEOHC?

Other

## 4. ANIMAL CARE

Describe monitoring and animal care

Describe interpretation of unexpected/adverse outcomes, response based on protocol(s)

Describe steps taken if animal health concern discovered

Describe how animals are transported to/from lab? (disposal/return of transport boxes/cages?)

Describe all euthanasia methods

[Cervical dislocation/decapitation] How is training ensured? [Sharps] How ensure tools sharp/adequate (e.g., frequency)?

[Breeding] Describe monitoring of breeders/pups; [Euthanizing pups prior to weaning] How unweaned pups accounted for in animal usage table, reported semi-annually?

[Toe clipping] Justification? Describe Standard

Check monitoring documentation/humane endpoints as described in protocol

[USDA-regulated species] Review clinical records for individual animals (if singly housed = cage card)

Other

## 5. AGENTS ADMINISTERED

How ensure only pharmaceutical or veterinary grade agents used? (Sigma, USP reference standards cannot be used clinically)

[Non-pharmaceutical agents (e.g., TBE/avertin)] Describe justification for use; Describe preparation; Verify: approval in Section 11.3

Describe analgesia/anesthesia used

How ensure drugs and biological agents are within expiration date? How distinguish expired drugs?

[Controlled substances] Verify: documentation (stock and working solutions; disposal); locked

Verify: proper records maintained for agents used for anesthesia, analgesia, euthanasia, and acute intervention

Other

## 6. PHYSICAL PLANT- Lab Space

Interior surfaces smooth and impervious to moisture (no tape, cardboard)

[Behavior studies] Describe sanitization of equipment (in lab and facility) and verification of efficacy of sanitization

Other

## 7. SURGICAL PROCEDURES: General Considerations

[all] Describe process of minimizing traffic, visibility to non-researchers

[all] Describe sanitization between surgeries; Fixed equipment is sanitizable

[SS] Describe design/separation of functional components (i.e., animal preparation, surgical area, post-op recovery)

[SS] Surgical area clean and uncluttered; not used for anything else during procedure

[non-rodent USDA SS] Physically separate prep vs surgical room; Positive air pressure in surgical room

Other



# 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





# 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](https://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](#)



# Required Drug Documentation

All uses of anesthetics, analgesics, euthanasia agents **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)



# Monitoring, Documentation, Humane Endpoints

“I looked at them daily”

“Their BCS was fine so I didn’t weigh them”

- Monitor/Document according to approved protocol
- \*\*Do NOT rely on DCM’s daily monitoring during husbandry duties
- Reaching endpoint + euthanasia = compliant
- Any continuation *after* reaching endpoint = noncompliant
- 6.0.2 – Animal Monitoring
- 6.0.7 – Humane Endpoints



# Useful Websites

- Office of Laboratory Animal Welfare  
[http:// http://grants.nih.gov/grants/olaw/olaw.htm](http://grants.nih.gov/grants/olaw/olaw.htm)
- *Guide for the Care and Use of Lab Animals*  
<http://grants.nih.gov/grants/olaw/Guide-for-the-Care-and-Use-of-Laboratory-Animals.pdf>
- IACUC  
<https://research.unc.edu/iacuc/>
- DCM  
<https://research.unc.edu/comparative-medicine/>
- 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](mailto:iacuc@med.unc.edu)

Website: [UNC IACUC Homepage](#)