



Guidelines for the Care and Use of Laboratory Animals

1. Ethical Principles and Responsibilities

- The use of laboratory animals is a **privilege** that requires strong scientific justification and humane consideration.
- Institutions and investigators must apply the Three Rs:
 - Replacement: Use non-animal alternatives when feasible.
 - Reduction: Use the minimum number of animals necessary for valid results.
 - Refinement: Modify procedures to minimize pain, distress, and suffering.
- Animal use must be justified by potential benefits to science, human or animal health, or society.

2. Institutional Animal Care and Use Program (Program)

Each institution must establish a comprehensive Animal Care and Use Program that includes:

2.1 Oversight and Governance

- **Institutional Official (IO)**
 - Holds ultimate responsibility for compliance and resource allocation.
- **Attending Veterinarian (AV)**
 - Responsible for the health and well-being of all animals.
 - Must have authority and access to animals, facilities, and records.
- **Institutional Animal Care and Use Committee (IACUC)**
 - Reviews and approves animal use protocols.
 - Inspects facilities and evaluates the Program at least annually.
 - Investigates animal welfare concerns.

2.2 Protocol Review

Protocols must include:

- Scientific rationale and objectives.
- Justification of species and number of animals.
- Description of procedures and potential impacts on animal welfare.



- Pain and distress management (anesthesia, analgesia).
- Humane endpoints and euthanasia methods.
- Personnel qualifications and training.
- Use of hazardous agents and safety measures.

3. Animal Environment, Housing, and Management

3.1 General Principles

- Housing and care must support species-specific physical, physiological, and behavioral needs.
- Social species should be **socially housed by default**, unless scientifically or medically justified.
- Environmental conditions must support animal well-being and scientific validity.

3.2 Terrestrial Animals

- Temperature & Humidity: Maintain species-appropriate thermoneutral zones.
- Ventilation: Ensure adequate air quality and odor control.
- Lighting: Provide appropriate light cycles (photoperiod).
- Noise & Vibration: Minimize exposure to stress-inducing levels.
- Space: Meet or exceed recommended minimum space requirements.
- Environmental Enrichment:
 - Provide nesting material, shelters, perches, or manipulanda as appropriate.
 - Regularly evaluate enrichment effectiveness.

3.3 Aquatic Animals

- Maintain appropriate water quality (pH, oxygen, nitrogenous waste).
- Control temperature, lighting, and stocking density.
- Provide species-appropriate environmental enrichment and social housing.

4. Veterinary Care

4.1 Animal Procurement and Transportation

- Animals must be acquired legally from approved sources.
- Transportation must minimize stress, injury, and exposure to disease.



4.2 Preventive Medicine and Biosecurity

- Quarantine and health assessment upon arrival.
- Disease surveillance and separation by species and health status.
- Biosecurity measures to protect animals, personnel, and research integrity.

4.3 Clinical Care

- Prompt diagnosis and treatment of illness or injury.
- Emergency veterinary care must be available.
- Accurate and complete medical records must be maintained.

4.4 Surgery and Procedures

- Use aseptic techniques for survival surgeries.
- Provide appropriate anesthesia, analgesia, and perioperative monitoring.
- Postoperative care must minimize pain and promote recovery.

4.5 Pain, Distress, and Euthanasia

- Pain and distress must be **avoided or minimized** unless scientifically justified.
- Humane endpoints must be clearly defined.
- Euthanasia methods must be consistent with current AVMA guidelines.

5. Personnel Training and Occupational Health & Safety

- All personnel must be **adequately trained and qualified** for their roles.
- Training must include:
 - Animal handling and care.
 - Ethics and regulations.
 - Species-specific biology.
 - Anesthesia, surgery, and euthanasia (as applicable).
- Institutions must maintain an **Occupational Health and Safety Program (OHSP)** addressing:
 - Zoonoses.
 - Allergies.



- Chemical, biological, and physical hazards.
- Personal protective equipment (PPE).

6. Physical Facilities (Animal Housing and Support Areas)

- Facilities must be designed to:
 - Support animal well-being.
 - Enable effective sanitation and biosecurity.
 - Protect personnel safety.
- Key considerations:
 - HVAC systems with appropriate air exchange.
 - Secure access control.
 - Specialized areas for surgery, imaging, hazardous agents, and quarantine.
 - Disaster preparedness and emergency response plans.

7. Reporting and Continuous Improvement

- Clear mechanisms must exist for reporting animal welfare concerns without fear of retaliation.
- Institutions must promote a culture of care and continuous evaluation of practices.
- Programs should remain current with scientific advances and updated standards.

Reference

These guidelines are derived from the *Guide for the Care and Use of Laboratory Animals, 8th Edition*, National Research Council, National Academies Press, Washington, DC