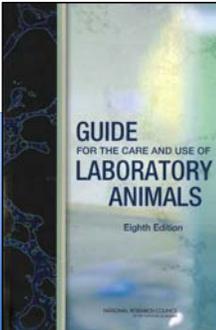
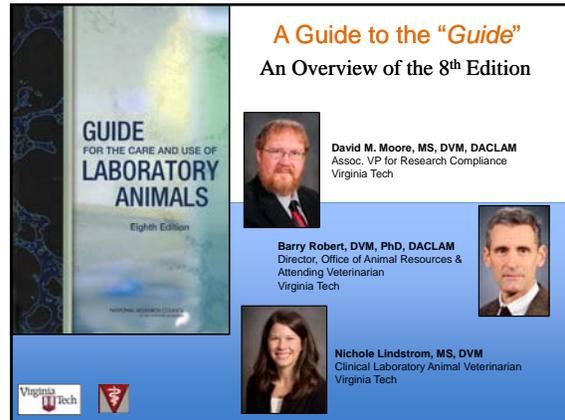


A Guide to the "Guide"

An Overview of the 8th Edition

A Guide to the "Guide"
An Overview of the 8th Edition



David M. Moore, MS, DVM, DACLAM
Director, Office of Animal Resources & Compliance
Assoc. VP for Research Compliance
Virginia Tech



Barry Robert, DVM, PhD, DACLAM
Director, Office of Animal Resources & Attending Veterinarian
Virginia Tech



Nichole Lindstrom, MS, DVM
Clinical Laboratory Animal Veterinarian
Virginia Tech





1963 – "Guide for Laboratory Animal Facilities and Care"

- voluntary recommendations
- sought to avoid involuntary regulations (mandatory federal laws)
- revised in 1965 and 1968

1972 – re-titled "Guide for the Care and Use of Laboratory Animals"

- revised in 1972, 1978, 1985, and 1996



What had been voluntary . . .



What had been voluntary . . .



became involuntary . . .



What had been voluntary . . .



became involuntary . . .



Public Health Service
Policy on Humane
Care and Use of
Laboratory Animals





- required for PHS funding
- required for PHS Assurance
- required for Good Laboratory Practices Act (GLP) compliance



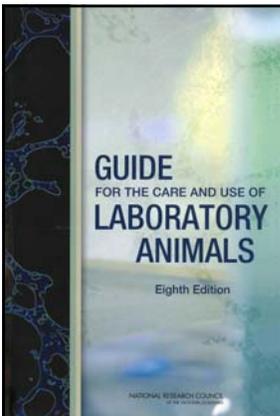
8th Edition Why?

- demonstrating a greater commitment to the “3 Rs”
- improving practices in maturing animal care & use programs
- inclusion of aquatic species
- reflecting enhanced standards of veterinary care
- incorporating new discoveries on animal environmental preferences
- harmonizing care standards with international standards
- adding information and guidance on new topics
- ensuring consistency with PHS Policy, AWARs, & AVMA guidance on euthanasia



8th Edition What?

- provides a clearer definition of the “Program” of animal care & use
- provides more information on most topics
- provides more guidance on defining performance standards
- incorporates “cost/benefit” analysis consideration
- updates available scientific references
- describes expected standards of veterinary practice
- discusses the need for adequate training
- engagement of electronic resources



Chapter

1

Key Concepts



Affirmation of Principles and Shared Responsibilities

“All who care for, use, or produce animals for research, testing, or teaching must assume responsibility for their well-being.”



Source for Decision Making

- establishes the minimum ethical, practice, and care standards for researchers and their institutions
- aids in compliance with various laws, regulations, and policies



Uniformity / Cohesion of Purpose and Action

- through self-regulation, binds researchers & institutions to humane care and use of animals
- both have affirmative duties of humane care and use supported by practical, ethical, & scientific principles





Applicability

Laboratory Animals Defined As -

“Any vertebrate animal (i.e., traditional laboratory animals, agricultural animals, wildlife, and aquatic species) produced for or used in research, testing, or teaching.”

Defers Specifics on Some Animals Species -

- agricultural animals used in production, food & fiber research, and teaching
- wildlife and aquatic species studied in natural settings
- invertebrate animals used in research
- **Does** establish general principles & ethical considerations applicable to these species

Key Concepts
Chap. 1



Goals

- ✓ **Ensuring Humane Animal Care and Use**

“The goal of the *Guide* is to promote humane care and use for laboratory animals by providing information that will enhance animal well-being, the quality of research, and the advancement of scientific knowledge relevant to humans and animals.”
- ✓ **Serving as an Informational Resource**
 - applying humane care and ethical principles to nontraditional species
- ✓ **Using the Guide as a Foundation for a Comprehensive Animal Care and Use Program**

Key Concepts
Chap. 1



Intended Audiences

“...intended for a wide and diverse audience...”

- the scientific community
- administrators
- IACUCs
- veterinarians
- educators and trainers
- lab animal producers
- accreditation bodies
- regulators
- the public

Key Concepts
Chap. 1



Uses of the “Guide”

“The *Guide* is meant to be read by the user in its entirety, as there are many concepts throughout that may be helpful.”

- by researchers / animal users in protocol preparation, and for interactions with the Attending Veterinarian, IACUC, and animal care staff
- by scientific review panels and journal editors to ensure that animal care is in accordance with accepted standards
- by IACUC members to aid in protocol review and ongoing oversight of the animal care and use program
- by Attending Veterinarians in oversight of animal care and use
- by educators & trainers to assess the scope & adequacy of the institution's training programs
- by accrediting organizations for assessing program aspects not subject to strict engineering standards

Key Concepts
Chap. 1



Ethics and Animal Use

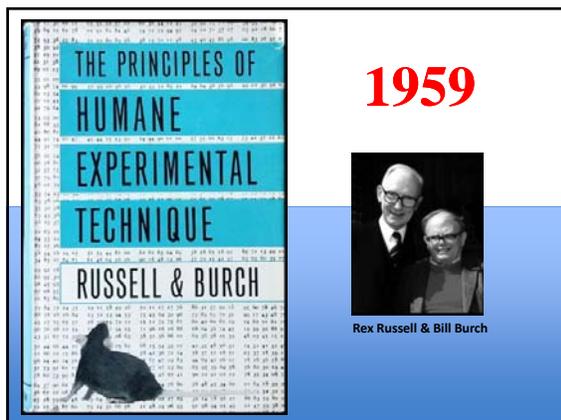
- “The decision to use animals in research requires critical thought, judgment, and analysis.”
- Animal use in research “is a privilege granted by society to the research community” with the expectation of development of significant new knowledge for the improvement of human or animal well-being.
- The “*Guide*” endorses the ethical principles set forth in the “U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training”.
- The “*Guide*” serves as a starting point for ethical considerations – readers encouraged to go beyond

Key Concepts
Chap. 1



The Three Rs

Key Concepts
Chap. 1



The Principles of Humane Experimental Technique
W.M.S. Russell and R.L. Burch

PART ONE: THE SCOPE OF HUMANE TECHNIQUE.

CHAPTER 1: INTRODUCTION
Scope of the Study
Integration in the Vertebrate Organism

CHAPTER 2: THE CONCEPT OF INHUMANITY
Pain and Distress
The Criteria for and Measurement of Distress

CHAPTER 3: THE ECOLOGY OF EXPERIMENTAL ANIMALS
Man and the Animal World
Monitoring Animal Experimentation

CHAPTER 4: THE SOURCES, INCIDENCE, AND REMOVAL OF INHUMANITY
Direct and Contingent Inhumanity
The Analysis of Direct Inhumanity
The Diagnosis of Disease
The Removal of Inhumanity; The Three R's
Contingent Inhumanity and the Problem of Scale

Key Concepts
Chap. 1

The Principles of Humane Experimental Technique
W.M.S. Russell and R.L. Burch

PART TWO: THE PROGRESS OF HUMANE TECHNIQUE.

CHAPTER 5: REPLACEMENT
Comparative Substitution
Modes of Absolute and Relative Replacement
The Principles of Replacement
The Uses of Tissue Culture
The Uses of Microorganisms

CHAPTER 6: REDUCTION
Reduction and Strategy in Research
The Problem of Variance
The Design and Analysis of Experiments
The Sources of Physiological Variance
The Control of the Phenotype
The Control of the Proximate, especially Behavioral Environment

CHAPTER 7: REFINEMENT
Neutral and Stressful Studies
Generally Superimposed Procedures
The Choice of Procedures
The Choice of Species

Key Concepts
Chap. 1

Reduction
Refinement
Replacement

“Over the years, the Three Rs have become an internationally accepted approach for researchers to apply when deciding to use animals in research and in designing humane animal research studies.”

- required by the “Guide”, PHS Assurance, and funding by PHS
- required by the Animal Welfare Act (USDA APHIS Policy #12 – Consideration of Alternatives to Painful/Distressful Procedures. Animal Care Resource Guide)

The AWARs require PIs to consider alternatives to procedures causing more than momentary or slight pain or distress, and they must determine availability of alternatives including **refinements, reductions, and replacements.**

Key Concepts
Chap. 1

Reduction

- keeping the number of animals used to a minimum
 - cryopreservation and breeding control
- employ strategies for obtaining comparable levels of information though using fewer animals
 - use of imaging systems (e.g., IVIS)
- maximizing information obtained from a given number of animals (without increasing pain or distress) so that overall fewer animals are used
- need to ensure that number of animals used will yield statistically significant results
 - use a statistical consultant

Key Concepts
Chap. 1

Reduction

- Better statistical planning **BEFORE** the experiment
 - too few animals may necessitate repeating the study
 - too many animals wastes \$\$ and animal lives
- Perform an adequate literature review to assure that the experiment has not been done before
- Peer (scientific) review or IACUC review to assure that the project is appropriate or necessary
- Provision of appropriate Veterinary Care, Animal Health, and Sanitization Programs
 - prevents animal or data loss due to overt or latent disease
 - minimizes or eliminates complicating factors which might necessitate repeating a study

Key Concepts
Chap. 1



Reduction

Bottom Line:

**Reduction saves experimental \$\$\$
and animal lives**

Key Concepts
Chap. 1



Refinement

- has the greatest and widest potential impact
- decreasing the incidence or severity of pain and distress in those animals used
 - modifying husbandry or experimental procedures to enhance animal well-being and minimize or eliminate pain and distress

Key Concepts
Chap. 1



Refinement

- reduce environmental stress
 - ✓ temperature
 - ✓ humidity
 - ✓ noise
 - ✓ chemical contaminants
 - ✓ microbial contaminants & parasites
 - ✓ social
- reduce handling stress
 - ✓ familiarize with surroundings or procedures before beginning experiment
 - ✓ use non-invasive monitoring or implantable biotelemetry units
 - ✓ explore alternatives to longterm restraint, which is usually used by PI for convenience

Key Concepts
Chap. 1



Refinement

To reduce or eliminate pain, distress, or "suffering" :

- use appropriate anesthetics and analgesics
- minimize aversive stimuli & deprivation studies
- minimize severe endpoints: tissue damage, severe pathology, and death

Key Concepts
Chap. 1



Refinement

To reduce or eliminate pain, distress, or "suffering" :

- Alternatives to death as an endpoint
 - ✓ monitor animals to determine / select an endpoint other than death (e.g., low body temp, weight loss, anorexia, moribund state, blood values)
 - ✓ provide supportive care and euthanize prior to death or when moribund
- Use alternatives to Freund's adjuvant (used to stimulate an immune response to an antigen)

Key Concepts
Chap. 1



Refinement

- Provide caging that meets animals' specific needs (e.g., solid bottom cages for rodents; social housing; other behaviors [foraging, nesting]; environmental enrichment)
- Use spontaneous animal models rather than induced animal models
- Seek the input of professionals (e.g., a lab animal veterinarian) during the experimental design phase
- Provide appropriate / adequate training for technicians, staff, and PIs in proper handling, care, and recognition of pain and distress

Key Concepts
Chap. 1



Replacement

Absolute Replacement:

- replacing animals totally with inanimate systems
 - literature searches
 - epidemiological research
 - chemical assays
 - computer modeling & analysis
 - plants and yeasts
 - microbial systems (Ames microbial mutagenicity / carcinogenicity test)

Relative Replacement:

- substitution of insentient (non-feeling) materials for animals, or substitution of a lower species (for a "higher" species) which might be less sensitive to pain and distress
- non-whole animal methods (cell, tissue, and organ culture systems)

Key Concepts Chap. 1



Replacement

"Methods that do not allow the attainment of the goals of the research are not, by definition, alternatives."

USDA APHIS Policy #12 – Consideration of Alternatives to Painful/Distressful Procedures, Animal Care Resource Guide

Key Concepts Chap. 1



Key Terms Used in the "Guide"

Humane Care

Animal Care and Use Program

Engineering, Performance, Practice Standards

Policies, Principles, & Procedures

Must, Should, & May

Key Concepts Chap. 1



Humane Care

✓ Actions That -

- ensure animal treatment in accordance with high ethical and scientific standards
- promote implementation of a humane care program
- create a work/lab environment where humane care and respect for animals is valued and respected

Key Concepts Chap. 1



Animal Care And Use Program

"Policies, procedures, standards, organizational structure, staffing, facilities, and practices put into place by an institution to achieve the humane care and use of animals in the laboratory and throughout the institution."

"Includes establishment and support of an IACUC or equivalent ethical oversight committee, and the maintenance of an environment in which the IACUC can functional successfully to carry out the responsibilities under the Guide and applicable laws and policies."

Key Concepts Chap. 1





Engineering Standards

Performance Standards

Practice Standards

Key Concepts Chap. 1



Engineering Standards

- specifies, in detail, methods, technologies, or techniques for achieving a desired outcome
- does not allow for modification or use of alternate methods
- prescriptive
- limited flexibility for implementation
- provides a baseline for assessing compliance



Performance Standards

- describes a desired outcome, but allows flexibility in method used
- grants discretion to those responsible for managing animal care and use program, researchers, and IACUC
- requires professional input, sound judgment, and team approach
- accommodates consideration of many variables to align implementation with the recommendations of the *Guide*



Performance Standards

- review peer-reviewed literature (caging, environmental control, enrichment)
- communication and exchange with other institutions
- conduct in-house experiments to assess alternative methods to achieve baseline standards
- establish methods to assess ongoing performance

Performance Standards for the Humane Care and Use of Animals in Research

ILAR Roundtable
April 20-21, 2015
Washington, DC



"Ideally, engineering and performance standards are balanced, setting a target for optimal practices, management and operations, while encouraging flexibility and judgment, if appropriate, based on individual situations."



Practice Standards



Must



Should



May

Key Concepts
Chap. 1



Must

Chap. 1



Should

660 "Should" statements in the 8th Edition of the Guide:

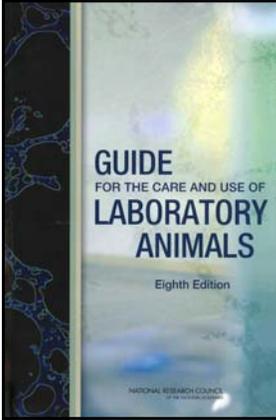
- ✓ Chapter 1 → 7
- ✓ Chapter 2 → 153
- ✓ Chapter 3 → 254
- ✓ Chapter 4 → 99
- ✓ Chapter 5 → 147

Chap. 1



May

Chap. 1



Chapter 2

Animal Care and Use Program



NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES



Regulations, Policies, & Principles

- the *Guide* has taken into consideration – AWA, AWAR, PHS Policy, PHS Principles
- "Interpretation and application of these principles and the *Guide* require knowledge, expertise, experience, and professional judgment."
- periodic review of institutional SOPs to ensure application of *Guide* standards
- ensure that the Program of Care remains current with scientific literature and "best practices"

Chap. 2



Clearly defined Roles, Responsibilities, & Authority:

- Institutional Official
- Attending Veterinarian
- IACUC

"Together they establish policies and procedures, ensure regulatory compliance, monitor Program performance, and support high-quality science and humane animal use."

Chap. 2



Responsibility & Authority: Institutional Official

- Authority to allocate resources necessary to ensure Program's overall effectiveness (and compliance)
- **SHOULD** receive regular communication from the AV, the IACUC, and others associated with the program
- Ensures the alignment of Program goals of quality animal care and use with the institution's mission
- Appoints IACUC members
- Signs and submits annual reports to regulatory agencies



Chap. 2



Responsibility & Authority: Attending Veterinarian

- AV **MUST** have sufficient authority, including:
 - Access to all animals
 - Sufficient resources to manage the program of veterinary care
- If full time veterinarian unavailable, a consulting or part-time veterinarian **SHOULD** be available at appropriate intervals to meet programmatic needs
 - in such a case, an individual **MUST** be assigned responsibility for daily animal care and use and facility management

Chap. 2



Responsibility & Authority: Attending Veterinarian

In large facilities with numerous veterinarians:

- "The management of veterinary medicine, animal care, and facility operations by a single administrative unit is often an efficient mechanism to administer all aspects of the Program."

"For a Program to work effectively, there **SHOULD** be clear and regular communication between the AV and the IACUC."

Chap. 2



Responsibility & Authority: IACUC

- "Responsible for assessment and oversight of the institution's Program components and facilities
- **SHOULD** have sufficient authority and resources (e.g., staff, training, computers, and related equipment) to fulfill this responsibility.

Chap. 2



Collaborations

- "[Collaborating] Institutions **SHOULD** have a formal written understanding (e.g., contract, memorandum of understanding or inter-institutional agreement) between the institutions."
- "The written agreement **SHOULD** address the responsibility for offsite animal care and use, animal ownership and IACUC review and oversight. In addition, IACUC's from both participating institutions may choose to review protocols for the work being conducted."

Chap. 2



Personnel Management

Chap. 2

Personnel Management



Training & Education: All Program Staff

"All personnel involved with the care and use of animals **MUST** be adequately educated, trained and/or qualified in basic principles of laboratory animal science to help assure high quality science and animal well-being."

- Institutions are responsible for resourcing training
- The IACUC provides training oversight and evaluates effectiveness of training

"All Program personnel training **SHOULD** be documented."

Chap. 2

Personnel Management



Training & Education: Veterinary & Other Professional Staff

"Veterinarians providing **clinical and/or Program oversight** and support **MUST** have the experience, training, and expertise necessary to appropriately evaluate the health and wellbeing of the species used in the context of the animal use at the institution. Veterinarians providing **broad Program direction** **SHOULD** be trained or have relevant experience in laboratory animal facility administration and management."

"The institution **SHOULD** provide opportunities and support for regular professional development and continuing education to ensure both that professional staff are knowledgeable about the latest practices and procedures and that laboratory animals receive high-quality care."

Chap. 2

Personnel Management



Training & Education: Animal Care Personnel

"Personnel caring for animals **SHOULD** be appropriately trained, and the institution **SHOULD** provide for formal and/or on-the-job training to facilitate effective implementation of the Program and the humane care and use of animals. Staff **SHOULD** receive training and/or have the experience to complete the tasks for which they are responsible."

"Personnel caring for laboratory animals **SHOULD** also regularly engage in continuing education activities and **SHOULD** be encouraged to participate in local and national laboratory animal science meetings and in other relevant professional organizations. On-the-job training, supplemented with Institution-sponsored discussion and training programs and reference materials applicable to their jobs and the species in their care, **SHOULD** be provided to each employee responsible for animal care."

Chap. 2

Personnel Management



Training & Education: The Research Team

"The institution **SHOULD** provide appropriate education and training to members of research teams—including principal investigators, study directors, research technicians, postdoctoral fellows, students, and visiting scientists—to ensure that they have the necessary knowledge and expertise for the specific animal procedures proposed and the species used."

"Training **SHOULD** be tailored to the particular needs of research groups."

"All research groups **SHOULD** receive training in animal care and use legislation, IACUC function, ethics of animal use and the concepts of the Three Rs, methods for reporting concerns about animal use, occupational health and safety issues pertaining to animal use, animal handling, aseptic surgical technique, anesthesia and analgesia, euthanasia, and other subjects, as required by statute."

"Continuing education programs **SHOULD** be offered to reinforce training and provide updates that reflect changes in technology, legislation, and other relevant areas."

Chap. 2

Personnel Management



Training & Education: The IACUC Members

Training **SHOULD** include a formal orientation for new IACUC members in:

- Relevant legislation, regulations, guidelines, and policies
- Animal facilities and labs at the institution where animals are used
- Processes of animal protocol and program review

"Ongoing educational opportunities to enhance their understanding of animal care and use in science **SHOULD** also be provided."

Chap. 2

Personnel Management




Occupational Health & Safety: Personnel

- "Each institution **MUST** establish and maintain an Occupational Health and Safety Program (OSHP)"
- "The OSHP **MUST** be consistent with federal, state, and local regulations and **SHOULD** focus on maintaining a safe and healthy workplace."
- "The OHSP will depend on the facility, research activities, hazards, and animal species involved."
- "An effective OHSP requires coordination between the research program (PI), the animal care and use Program (AV, IO, and IACUC), the environmental health and safety program, occupational health services, and administration (e.g., human resources, finance, and facility maintenance personnel).

Chap. 2

Personnel Management

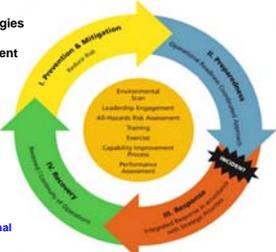


Occupational Health & Safety: Control & Prevention Strategies

"In developing a comprehensive OHSP a hierarchy of control and prevention strategies **SHOULD** be followed that begins with the identification of hazards and the assessment of risk associated with those hazards."

"Managing risk involves the following steps:

- first, the appropriate design and operation of facilities and use of appropriate safety equipment (engineering controls);
- second, the development of processes and standard operating procedures (SOPs; administrative controls);
- and finally, the provision of appropriate personal protective equipment (PPE) for employees."



Chap. 2

Personnel Management



Occupational Health & Safety: Hazard Identification & Risk Assessment

"The institutional OHSP **SHOULD** identify potential hazards in the work environment and conduct a critical assessment of the associated risks."

"Hazard identification and risk assessment are ongoing processes that involve individuals qualified to assess dangers associated with the Program and implement commensurate safeguards."

"Once potential hazards have been identified, a critical ongoing assessment of the associated risks **SHOULD** be conducted to determine appropriate strategies to minimize or manage the risks."

Chap. 2

Personnel Management



Occupational Health & Safety: Hazard Identification & Risk Assessment

The extent and level of participation of personnel in the OHSP **SHOULD** be based on:

- the hazards posed by the animals and materials used (the severity or seriousness of the hazard);
- the exposure intensity, duration, and frequency (prevalence of the hazard);
- to some extent on the susceptibility (e.g., immune status) of the personnel; and,
- the history of occupational illness and injury in the particular workplace.

Chap. 2

Personnel Management



Occupational Health & Safety: Facilities, Equipment, & Monitoring

- "Facilities required to support the OHSP will vary depending on the scope and activities of the Program."
- "The selection of appropriate animal housing systems requires professional knowledge and judgment and depends on the nature of the hazards in question, the types of animals used, the limitations or capabilities of the facilities, and the design of the experiments"
- Their design **SHOULD** preferentially utilize engineering controls and equipment to minimize exposure to anticipated hazards (see also Chapter 5)."
- "Where biological agents are used, the CDC/NIH publication Biosafety in Microbiological and Biomedical Laboratories (2007) manual and the USDA standards (USDA 2002) **SHOULD** be consulted for appropriate facility design and safety procedures."



Chap. 2

Personnel Management



Occupational Health & Safety

Personnel Training

"Personnel at risk **SHOULD** be provided with clearly defined procedures and, in specific situations, personal protective equipment to safely conduct their duties, understand the hazards involved, and be proficient in implementing the required safeguards."

"They **SHOULD** be trained regarding zoonoses, chemical, biologic, and Physical hazards (e.g., radiation and allergies), unusual conditions or agents that might be part of experimental procedures (e.g., the use of human tissue in immunocompromised animals), handling of waste materials, personal hygiene, the appropriate use of PPE, and other considerations (e.g., precautions during pregnancy, illness, or immunosuppression) as appropriate to the risk imposed by their workplace."

Personal Hygiene



- use of appropriate attire & PPE
- change work clothes as necessary, and dispose or launder soiled attire
- wash/disinfect hands
- no eating, drinking, smoking, dipping/chewing tobacco, or cosmetics
- outer garments not worn outside of animal facility

Chap. 2

Personnel Management



Occupational Health & Safety: Animal Experimentation Involving Hazards

"[When using] hazardous agents, careful attention **SHOULD** be given to procedures for animal care and housing, storage and distribution of the agents, dose preparation and administration, body fluid and tissue handling, waste and carcass disposal, items that might be used temporarily and removed from the site (e.g., written records, experimental devices, sample vials), and personal protection."

"Formal safety programs **SHOULD** be established to assess hazards, determine the safeguards needed for their control, and ensure that staff have the necessary training and skills and that facilities are adequate for the safe conduct of the research."

"Technical support **SHOULD** be provided to monitor and ensure compliance with institutional safety policies."

Chap. 2

Personnel Management



Occupational Health & Safety: Personal Protection

"While engineering and administrative controls are the first considerations for the protection of personnel, PPE appropriate for the work environment, including clean institution-issued protective clothing, **SHOULD** be provided as often as necessary."

"Personnel exposed to nonhuman primates **SHOULD** have PPE such as gloves, arm protectors, suitable face masks, face shields, and goggles."

Workers exposed to contaminated airborne particulates or vapors **SHOULD** have suitable respiratory protection with respirator fit testing and training in the proper use and maintenance of the respirator.

"Protective clothing and equipment **SHOULD** not be worn beyond the boundary of the hazardous agent work area or the animal facility."

Chap. 2

Personnel Management



Occupational Health & Safety: Medical Evaluation & Preventative Medicine

"A pre-employment health evaluation and/or a health-history evaluation before work assignment is advisable to assess potential risks for individual employees."

"Continuing periodic medical evaluations are advisable for personnel in specific risk categories."

"An appropriate immunization schedule **SHOULD** be adopted."

Allergies

"Laboratory animal allergy has become a significant issue for individuals in contact with laboratory animals."

"The medical surveillance program **SHOULD** promote the early diagnosis of allergies and include evaluation of an individual's medical history for preexisting allergies."

"Personnel training **SHOULD** include information on laboratory animal allergies, preventive control measures and proper techniques for working with animals."



Chap. 2

Personnel Management



Personnel Security

"While contingency plans normally address natural disasters, they **SHOULD** also take into account the threats that criminal activities pose to laboratory animals, research personnel and biomedical research at the institution. Preventive measure **SHOULD** be considered, including pre-employment screening and physical and information technology security."

Chap. 2

Personnel Management



Investigating & Reporting Animal Welfare Concerns

"The institution **MUST** develop methods for reporting and investigating animal welfare concerns and employees **SHOULD** be aware of the importance of and mechanisms for reporting their animal welfare concerns."

"Mechanisms for reporting concerns **SHOULD** be posted in prominent locations within the facility and on applicable institutional website(s) with instructions on how to report the concern and to whom."

"Multiple points of contact, including senior management, IO, IACUC Chair and the AV are recommended."

"The process **SHOULD** include a mechanism for anonymity, compliance with applicable whistleblower policies, non-discrimination against the concerned/ reporting party and protection from reprisals."



Chap. 2

Personnel Management



Investigating & Reporting Animal Welfare Concerns

"Response to such reports **SHOULD** include communication of findings to concerned employee(s), unless such concerns are reported anonymously."

"Provide report to IO of issue, findings, and corrections."

Training and regular communication with employees
Custodial and maintenance staff
Administrative staff

Documentation of review and action



Chap. 2



Program Oversight

The Role of the IACUC

Chap. 2

IACUC Constitution & Function

Appointed by the CEO or IO

- DVM/VMD – specialty board certified or training & experience with lab animals or the species at the institution
- at least one practicing scientist using animals in research
- at least one outside member with a nonscientific background
- at least one public member with no ties to the institution to represent community interests in the proper care and use of animals

AWA **PHS Policy / Guide**

3 **Minimum Number of Members** **5**



Chap. 2

IACUC Constitution & Function

- "The public member may receive compensation for participation... but the amount **SHOULD** be sufficiently modest..."
- "No more than three voting members **SHOULD** be associated with a single administrative unit."

Responsibilities

- oversight & evaluation of the entire Program and its components
- review, approve, require modifications for approval, or disapprove protocols for animal use
- review and approve proposed changes (amendments) to approved protocols
- regular inspection of facilities and animal use areas (every 6 months)
- regular program review (every 6 months)
- ongoing assessment of animal care and use
- establish a mechanism to receive and review concerns of care and use

Chap. 2

IACUC Protocol Review

The following topics **SHOULD be considered during IACUC protocol review:**

- A clear and concise sequential description of the procedures involving the use of animals that is easily understood by all members of the committee
- Justification of the species and number of animals proposed; whenever possible, the number of animals and experimental group sizes should be statistically justified (e.g., provision of a power analysis, see Appendix A, Experimental Design and Statistics)
- Impact of proposed procedures on the animal's well-being
- Conduct of surgical procedures, including multiple operative procedures
- Postprocedural care and observation (e.g., inclusion of post-treatment or postsurgical animal assessment forms)

Chap. 2

IACUC Protocol Review

The following topics **SHOULD be considered during IACUC protocol review:**

- Description and rationale for anticipated or selected endpoints
- Method of euthanasia or disposition of animals, including planning for care of long-lived species after study completion
- Adequacy of training and experience of personnel in the procedures used, and roles and responsibilities of the personnel involved
- Use of hazardous materials and provision of a safe working environment.

Chap. 2

IACUC Protocol Review

"While the responsibility for scientific merit review normally lies outside the IACUC, the committee members **SHOULD** evaluate scientific elements of the protocol as they relate to the welfare and use of the animals."

"In absence of a formal scientific merit review, the IACUC **MAY** consider conducting or requesting such a review."

"IACUC members named in protocols or who have other conflicts **MUST** recuse themselves from decisions concerning these protocols."

Chap. 2

IACUC Special Review Considerations

Potential for unrelieved pain or distress

Other animal welfare concerns



Chap. 2

IACUC Special Review Considerations

Experimental & Humane Endpoints

- “The humane endpoint **SHOULD** be relevant and reliable”
- “The PI, who has precise knowledge of both the objectives of the study and the proposed model, **SHOULD** identify, explain, and include in the animal use protocol a study endpoint that is both humane and scientifically sound.”

Clinical Observations
Body Condition Scoring
Clinical Signs
Tumor Burden

Chap. 2

IACUC Special Review Considerations

Experimental & Humane Endpoints

- “Determination of humane endpoints **SHOULD** involve the PI, the veterinarian, and the IACUC, and **SHOULD** be defined when possible prior to the start of the study”
- Critical information necessary for the IACUC to assess proposed humane endpoint:
 - ✓ Precise definition
 - ✓ Frequency of animal observations
 - ✓ Training of personnel responsible for assessment and recognition of humane endpoint
 - ✓ Required response when endpoint met
- When information on an alternative endpoint is unavailable: “the use of pilot studies is an effective method for identifying and defining humane endpoints and reaching consensus among the PI, IACUC and veterinarian.”

Chap. 2

IACUC Special Review Considerations

Unexpected Outcomes

- “Because of the potential for unexpected outcomes that may affect animal well-being when highly novel variables are introduced, more frequent monitoring of animals may be required. With their inherent potential for unanticipated phenotypes, GMAs are an example of when increased monitoring for unexpected outcomes could be implemented.”
- “Regardless of whether genetic manipulation is targeted or random, the phenotype that initially results is often unpredictable and may lead to expected or unexpected outcomes that impact the animal’s well-being or survival at any stage of life.”
- “When the initial characterization of a GMA reveals a condition that negatively impacts animal well-being, this **SHOULD** be reported to the IACUC, and more extensive analysis may be required to better define the phenotype...”

Chap. 2

IACUC Special Review Considerations

Physical Restraint

Restraint devices **SHOULD NOT** be considered a normal method of housing and **MUST** be justified in the animal use protocol.



Chap. 2

IACUC Special Review Considerations

Physical Restraint



- “Alternatives to physical restraint **SHOULD** be considered.”
- “Animals to be placed in restraint devices **SHOULD** be given training (with positive reinforcement) to adapt to the equipment and personnel.
- “Animals that fail to adapt **SHOULD** be removed from the study.”
- “Provision **SHOULD** be made for observation of the animal at appropriate intervals, as determined by the IACUC.”
- “Veterinary care **MUST** be provided if lesions or illnesses associated with restraint are observed.”
- “The purpose of restraint and its duration **SHOULD** be clearly explained to personnel involved with the study.”

Chap. 2

IACUC Special Review Considerations

Multiple Survival Surgical Procedures

- “Whether a procedure is major or minor **SHOULD** be evaluated on a case-by-case basis, as determined by the veterinarian and IACUC”
- “Multiple surgical procedures on a single animal **SHOULD** be evaluated to determine their impact on the animal’s well-being.”
- “Some procedures characterized as minor may induce substantial post-procedural pain or impairment and **SHOULD** similarly be scientifically justified if performed more than once on a single animal.”
- Multiple major surgical procedures on a single animal are acceptable only if they are:
 - ✓ “essential components of a single animal use protocol”
 - ✓ “scientifically justified”
 - ✓ “needed for clinical reasons”

Chap. 2

IACUC Special Review Considerations

Food and Fluid Regulation

Three fundamental factors to consider when evaluating food/fluid regulation:

- ✓ Necessary level of regulation
- ✓ Potential adverse effects
- ✓ Methods for assessing health and well-being



Body weights recorded at least weekly or more often for greater restrictions

Written records maintained to document daily consumption

Chap. 2

IACUC Special Review Considerations

Use of Non-Pharmaceutical Grade Chemicals and Other Substances

- "The use of pharmaceutical grade chemicals and other substances ensures that toxic or unwanted side effects are not introduced into studies conducted with experimental animals. They **SHOULD** therefore be used, when available, for all animal-related procedures."
- Use of non-pharmaceutical grade chemicals/substances **SHOULD** be described and justified in the protocol and requires IACUC approval
- Consideration given to:
 - ✓ Grade, purity, sterility, pH
 - ✓ Pyrogenicity, osmolality, stability
 - ✓ Site and route of administration
 - ✓ Formulation, compatibility, pharmacokinetics
 - ✓ Animal welfare and scientific issues

Chap. 2

IACUC Special Review Considerations

Agricultural Animals

"With some studies, differences in research goals may lead to a clear distinction between biomedical and agricultural research."

"But when the distinction is unclear, as in the case of some nutrition and disease studies, administrators, regulators and IACUC's face a dilemma in deciding how to handle such studies."

"The *Guide* applies to agricultural animals used in biomedical research, including those maintained in typical farm settings."




Chap. 2

IACUC Post Approval Monitoring

- "Continuing IACUC oversight of animal activities is required by federal laws, regulations and policies."
- Variety of mechanisms:
 - ✓ Continuing protocol review
 - ✓ Laboratory inspections
 - ✓ Veterinary or IACUC observations of select procedures
 - ✓ Observation of animals by animal care, veterinary, and IACUC staff and members
 - ✓ External regulatory inspections and assessments

Chap. 2

IACUC Post Approval Monitoring

- PAM helps ensure the well-being of the animals and may also provide opportunities to refine research procedures."
- Continuing protocol review:
 - ✓ Annual update
 - ✓ Triennial review
- May be risk based (animals and handlers)
- "The level of formality and intensity of PAM **SHOULD** be tailored to institutional size and complexity"

Chap. 2

IACUC Disaster Planning & Emergency Preparedness

- "Facilities **MUST** therefore have a disaster plan."
- "The plan **SHOULD** define the actions necessary to prevent animal pain, distress, and deaths due to loss of systems such as those that control ventilation, cooling, heating, or provision of potable water."
- Develop plans with investigators to allow for triage of animal populations
- "Animals that cannot be protected from the consequences of the disaster or relocated **MUST** be humanely euthanized."
- Plan **SHOULD** be part of overall institutional emergency response plan
- Copy provided to law enforcement and emergency personnel



Chap. 2

