

**THE UNIVERSITY OF MELBOURNE
ANIMAL WELFARE COMMITTEE**

**GUIDELINES ON THE EDUCATION AND TRAINING OF
INVESTIGATORS AND TEACHERS WHO USE ANIMALS FOR
SCIENTIFIC PURPOSES**

This document is adapted from the FELASA recommendations for the education and training of persons carrying out animal experiments (Category B), Laboratory Animals (2000) 34, 229-235.

Purpose

This document provides a broad curriculum for the education and training of investigators and teachers who use animals for scientific purposes. These recommendations should be considered in conjunction with the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes.

Responsibilities of investigators and teachers

- To abide by the laws and guidelines relating to the use of animals for scientific purposes
- To be aware of and respect the societal expectations regarding the ethical conduct of animal research
- To ensure that any use of animals is underpinned by sound theory so that scientifically relevant data can be obtained
- To be competent in the handling of animals and other techniques to be carried out
- To understand the general principles of animal housing and care and, where appropriate, policies and procedures specific to the animal facility where the animals will be housed
- To be able to assess the welfare status of the animals being used
- To be able to take appropriate action to ensure that any impact on the welfare of an animal is minimised

Competence

Education and training should be tailored to ensure each individual is competent to perform the specific tasks required by their research or teaching project. Some components of education and training lend themselves to group learning but for specific tasks 'hands on' training by suitably qualified people is essential. Assessment at the end of training is necessary to measure the

competence attained. Technical competence should be assured before individuals are permitted to perform procedures on animals independently.

Curriculum

Legislation, ethics and the 3R's

- To have knowledge of and understand
 - The laws concerning use of animals for scientific purposes eg. the Victorian Prevention of Cruelty to Animals Act and the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes
 - The principles of the 3Rs – replacement, refinement, reduction

Basic biology and husbandry of relevant laboratory animal species

- Basic biology
 - To be aware of normal ranges of physiological parameters and to understand biological variability
 - To have knowledge of the behavioural and physiological characteristics relevant to the procedures being conducted
 - To have sufficient knowledge of breeding, and of relevant genetic techniques, for the procedures being conducted

Husbandry

- To have knowledge of the relevant animal housing and care requirements and how these might impact on experimental results
 - To be aware of how biological characteristics relate to care and husbandry practices
 - To know how laboratory animals are classified according to their microbiological status
 - To understand the importance of proper hygiene in animal facilities with respect to disease prevention and control, and its consequences for experimental results and animal welfare

Animal welfare and scientific integrity

- Welfare
 - To be knowledgeable of the behavioural and environmental factors which impact on the well-being of the species being used
 - To recognise the signs of ill-health in the species being used
- Scientific integrity

- To understand the principles of experimental design and analysis and how these are best applied to experiments using animals
- To apply the principles of the 3Rs to experimental design
- To understand the importance of an animal's health and welfare to the scientific validity of the investigation
- To be informed of the importance of measures to minimise stress in relation to the housing and care of the relevant species
- To be informed of the influence of environmental complexity on biological variability, and its effect on individual animals and experimental outcomes

Handling and basic techniques

- Handling
 - To understand the principles and importance of correct handling for the procedures to be conducted
 - To be capable of selecting and employing the most appropriate method of handling and restraint
- Administration of substances
 - To understand the mechanism of action of any substance administered and to be aware of the expected effects of the substance
 - To know the correct dose rate, method and route of administration of the substance
 - To be competent to administer the substance by the chosen route
- Sampling techniques
 - To be knowledgeable about the potential impact of collecting samples from an animal
 - To be competent to collect samples by the chosen route
 - To be knowledgeable about the correct methods of storage of biological samples
- Euthanasia
 - To know which methods of euthanasia are considered acceptable
 - To be able to select the most appropriate method(s) of euthanasia
 - To be competent to perform the chosen method(s) of euthanasia and to determine that death has occurred
- Record keeping
 - To understand how to prepare an application for approval to use animals
 - To know what records should be maintained

Monitoring

- Recognition of well-being and health
 - To be able to observe and assess the health status of relevant species
 - To understand biological variability in normal healthy animals
 - To be aware of the literature sources of physiological data of relevant species
- Recognition of pain, suffering or distress
 - To be able to recognise signs of pain, suffering and distress
 - To be familiar with the concept of humane endpoints and with the necessity to predetermine them for procedures
 - To be aware of the principal stressors in relevant species
 - To be able to evaluate the severity of a procedure and to understand its impact on animal welfare
- Recognition of ill-health
 - To be able to recognise signs of ill-health in relevant species and to know the appropriate actions to be taken
 - To have knowledge of health monitoring and disease prevention or control in relevant species

Anaesthesia, analgesia and basic principles of surgery

- Methods of anaesthesia
 - To understand the definition of anaesthesia
 - To have knowledge on indications for general and local anaesthesia
 - To have knowledge on the routes and methods of administration of anaesthetic agents
 - To have knowledge of the anaesthetic agents most commonly used, their specific indications and contraindications
- Preoperative care
 - To be aware of the importance of preoperative physical examination and the appropriateness of food restriction
 - To be aware of the most commonly used pre-anaesthetic medications and their importance as a means of ensuring an animal's well-being and smoother anaesthesia induction
 - To be competent in the preparation of an animal for surgery
- Maintenance of anaesthesia
 - To be able to assess the depth of anaesthesia in relevant species

- To be aware of the importance of monitoring the progress of anaesthesia and to be capable of maintaining adequate records
- To be aware of the common anaesthetic emergencies and capable of responding promptly
- To be competent in the use of anaesthetic machines, where appropriate
- Postoperative care
 - To be able to monitor an animal postoperatively
 - To be able to recognise and promptly treat post-anaesthetic emergencies
 - To have knowledge of the benefits of analgesia
 - To be able to select and administer the most appropriate analgesia
- Basic principles of aseptic surgery
 - To understand the principles of aseptic technique
 - To be competent in the conduct of aseptic procedures
 - To be competent in the preparation and proper sterilisation of surgical instruments and material packs

Occupational health and safety

- Zoonoses and dangerous pathogens
 - To have knowledge of the health status of the animals, the principal pathogens affecting them and related health hazards for humans
- Hazardous chemicals
 - To have knowledge of the main hazards associated with the handling of chemicals being used
 - To be able to correctly interpret the symbols and warnings appearing on the labels of substances
- Biohazards
 - To be aware of the hazards related to the handling of micro-organisms and biological materials
- Allergies
 - To be able to recognise the early signs suggesting the development of allergies
- Precautions and personal protection
 - To be aware of the policies and procedures relevant to occupational health and safety

- To have knowledge of the basic principles of hygiene and asepsis
- To be able to properly operate health and safety related equipment
- To be able to implement appropriate precautions to minimise potential risks
- Waste disposal and public health
 - To know the procedures for waste disposal including the correct disposal of animal carcasses