## OPERATIONAL GUIDELINE

### Working with research animals

<table>
<thead>
<tr>
<th>Contact Officer</th>
<th>Manager, Health &amp; Safety</th>
<th>Document No.</th>
<th>OG:</th>
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<tr>
<th><strong>Purpose</strong></th>
<th>Provide advice and guidance in relation to employees and students who work with research animals.</th>
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<tbody>
<tr>
<td><strong>Guideline</strong></td>
<td>These procedures are designed to provide people who handle animals at the University with guidance in regards to minimising the likelihood of injury or disease as a result of working with research animals.</td>
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<td>The responsibility for implementation of the University's policy and guidelines rests with the relevant Executive Deans, Heads of Departments, Managers and Supervisors. Each workplace is responsible for preparing and enforcing the procedures and for informing, instructing, training and supervising employees and students who handle animals.</td>
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<td>Staff and students are required to comply with the workplace procedures and to report any known or observed safety and health hazards, incidents and injuries. Each individual is responsible for taking reasonably practicable steps to ensure their own safety and personal security when working in isolation.</td>
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<tr>
<td><strong>Background</strong></td>
<td>Animal work should comply with the Australian code of practice for the care and use of animals for scientific purposes NHMRC.</td>
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<td>All work on infected animals should be carried out under the physical containment conditions equivalent to the risk group of the microorganisms present (refer to Standards Australia AS/NZS 2243.3 - Safety in laboratories, Part 3 - Microbiology). The physical containment levels for work with infectious and transgenic animals follow the animal containment levels as per Office of the Gene Technology Regulator (OGTR) requirements of PC2, PC3 or PC4 as appropriate for the pathogen involved.</td>
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<td>Details of the requirements for animal houses, especially for infective and transgenic animals can be found in AS/NZS 2243.3 and from relevant state and federal regulatory agencies.</td>
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In many animal-holding areas, noxious odours, particularly ammonia, are present. Engineering controls should be in place to keep these levels compatible with the health and comfort of workers and the animals. The adequacy of the ventilation system, the design, construction and placement of cages and containers, the numbers of animals housed, the effectiveness of cleaning, and the frequency of bedding changes will all influence the level of odours and allergens such as fibres and animal dander.

Air exchanges within the animal rooms, temperature, humidity, light and noise levels should be maintained within limits compatible with the health and well being of both employees/students and animals.

**Training and Induction**

All persons involved in the study, handling and care of animals should receive appropriate induction training and information regarding standard work practices, potential hazards and how to deal with them. Written Standard Operating Procedures (SOPs) should include the demarcation and restrictions applying to different areas and animals as well as the routine procedures applicable to each. New workers and researchers should be supervised by animal care staff until they have demonstrated their ability to work with the animals without damage or stress to the animal itself and to themselves.

**Safety & Health Risks for Animal Handlers**

Hazards for persons using and handling laboratory animals may arise from a variety of sources, including viruses, bacteria, fungi, parasites, ionising and non-ionising radiation, hazardous substances, toxins, carcinogens, allergens, recombinant DNA techniques, anaesthetic gases and physical injuries.

Prior to any studies being carried out, a risk assessment should be performed and controls put in place to contain hazardous agents and to plan for “worst case” scenarios and emergencies.

The hazards associated with handling animals can be placed into several distinct categories.

**Manual Handling Injuries**

Manual handling is an integral part of animal house work so care is required to minimise the risk of musculoskeletal injury. Ergonomic assessment of routine work procedures should be undertaken to reduce risks associated with working with research animals.

Regular Manual handling training courses should be run to ensure that injuries as a result of poor manual handling procedures are eliminated.
**Physical injuries**

Can occur from bites and scratches, especially from rodents, rabbits, dogs and cats. The key to prevention of these types of injuries is proper training of research personnel by the animal care staff or other qualified individuals.

When handling laboratory animals, gloves should be worn, adequate washing facilities should be provided and **prophylactic immunisation against tetanus is strongly recommended**. Laboratory animals can be unpredictable in their nature and response; and any bite, scratch or injury should be reported as soon as practicable to the supervisor of the area and on the Online reporting system. Medical advice and subsequent supervision may be needed if an infected animal inflicted the injury.

During dissections and post-mortem examinations, gloves, aprons (preferably disposable) and safety glasses or goggles should be worn. It may be also necessary to consider respiratory protection. Penetration of organisms through the skin, especially from accidental self-inoculation and contact with ecto-parasites is a relatively common source of infection. Spillage trays and containers for used instruments should be provided.

The use of restraint devices may be necessary for the welfare of the animals and the safety of persons handling the animals. These devices should only be used to the minimum extent and for the minimum period required to accomplish the task.

Post mortems on infected animals should be carried out under the physical containment conditions equivalent to the risk group of the microorganisms present. Refer to AS/NZS 2243.3 for risk categories for microorganisms.

**Zoonotic diseases**

Zoonotic diseases are those that can be transmitted from animals to humans. Although zoonotic diseases are not common, the prevention, detection, and eradication of zoonotic diseases from the animal facility are a primary concern of the entire animal care staff. Remember that tissues as well as the animals can transmit zoonotic diseases.

In the event that a person becomes ill with a fever or some other sign of infection, it is important that they let their treating doctor know that they work with animals.

There are some common sense steps that can be taken to lessen the risk of infection in general. These include

- not eating or drinking around animals or animal care areas.
- applying cosmetics or contact lenses around animals or animal care areas.
wearing gloves (and other Personal Protective Equipment) when handling animals or their tissues,
not rubbing your face and with contaminated hands or gloves, and
hand washing after each animal contact.

Employees working with laboratory animals can protect themselves against accidental self inoculation by –

- wearing gloves,
- substituting manually operated pipettes for needles and syringes,
- taking enough time to give injections properly,
- anaesthetising animals prior to inoculation with infectious agents, and
- using a two person team to inoculate animals.

**Common species associated Zoonoses** (this list is not an exhaustive list of Zoonoses)

**Rodents and rabbits**
- Salmonella
- Ringworm
- Parainfluenza virus (sendal virus)
- Pseudotuberculosis
- Leptospirosis
- Giardia
- Encephalomyocarditis virus
- Cryptosporidia

**Cats**
- Toxoplasmosis (from cat faeces)
- Cat scratch fever
- Ringworm
- Toxocara cati, Toxascaris leonina (from cat faeces)
- Chlamydia psittaci
- Bites due to oral anaerobic bacteria, pasteurella & others
- Sporothrix schenckii
- Mites
- Assorted cryptosporidia

**Birds (including poultry)**
- Chlamydia psittaci
- Salmonella
- Mites
- Ornithosis
- Arboviruses

**Sheep**
- Q fever
- Salmonella
- Anthrax
- Orf
- Dermatophilus

**Cattle**
- Leptospirosis
- Q fever
- Ringworm
- Pseudocowpox (orf, milker’s nodule, papular stomatitis)
- Ascarid allergy
- Cryptosporidia

**Bats**
- Australian bat lyssaviral

**Fish**
- Mycobacterium spp
- Parasites, algae, viruses, bacteria.

**Australian Native Animals**
- Gastroenteritis.
- Ringworm.
- psittacosis

**Bio-hazard injuries**

**Needles**

**Do not recap the needles!** Instead, discard them promptly in a biohazard "sharps" container. For further information regarding disposal of used needles, please see the University's Procedure for needle and syringe disposal.

Procedures such as necropsies, bedding changes and tissue & fluid samplings physical containment devices such as biological safety cabinets, full-face respirators or other personal safety equipment should be used where possible.

**Asthma and allergies**

Allergic hazards occur as a result of breathing or contacting animal dander or urine allergens (among others). The safest policy is to reduce exposure by wearing protective clothing (such as facemasks, gloves, and a lab coat) when handling animals.

Animal-related asthma is the immune system's response to allergens including animal dander, scales, fur, body wastes and saliva. Workers including laboratory animal workers, veterinarians, veterinary technicians, livestock workers, garment workers, and horse handlers
are all at risk of developing work-related allergy symptoms.

Workers who show signs of allergies previous to employment are more likely to develop animal-induced asthma. Most reactions in technicians handling animals are due to exposures to small animals (rodents) on contact during feeding, cleaning, dosing, sacrifice, surgery, and body fluid collection. Most allergens are found in the urine of rats, and the urine, saliva, and pelts of guinea pigs.

Symptoms of mild reaction include sneezing and runny nose. More serious reactions include cough, chest tightness, wheezing, or shortness of breath. In sensitised individuals the reaction may be immediate or delayed 2 to 8 hours. Occupational asthma without nasal symptoms is uncommon. On developing skin hives, nasal, eye and throat symptoms, usually 50% of workers will go on to develop asthma.

Workers who report symptoms of work-related asthma should be medically monitored for early intervention. Without removal from exposure to allergens, affected workers may develop an irreversible disease. A worker who has severe or life-threatening allergic reactions should be strongly advised to change jobs, since no prevention strategy is completely effective.

**Preventing exposure**

Animal handlers should take steps to protect themselves from exposure to animals and animal products. These steps include:

- performing animal manipulations within ventilated hoods or safety cabinets when possible,
- avoiding wearing street clothes while working with animals, or as minimum protection gloves and lab coats should be worn,
- leaving work clothes at the workplace to avoid potential exposure problems for family members,
- keeping cages and animal areas clean,
- reducing skin contact with animal products such as dander, serum and urine by using gloves, lab coats, and approved particulate respirators with face shields, and
- training workers in recognising the signs and symptoms of allergic reactions and sensitisation may prevent further asthma development.

Prevention of exposure includes several engineering and work practice controls such as, the following:

- modification of ventilation and filtration systems by increasing the ventilation rate and humidity in the animal housing areas.
- ventilating animal-housing and handling areas separately from the rest of the facility,
- directing airflow away from workers and toward the backs of the animal cages, and
installing ventilated animal cage racks or filter-top animal cages
- decreasing animal density (number of animals per cubic metre of room volume),
- keeping cages and animal areas clean,
- using absorbent pads for bedding - if these are not available, use corncob bedding instead of sawdust bedding,
- using an animal species or sex that is known to be less allergenic than others,
- providing protective equipment for animal handlers: gloves, lab coats, and approved particulate respirators with face shields,
- providing training to educate workers about animal allergies and steps for risk reduction, and
- providing health monitoring and appropriate counselling and medical follow-up for workers who have become sensitised or have developed allergy symptoms.

**Anaesthetic agents**

Anaesthetic agents used in laboratory animals may also pose potential hazards to workers. These agents should be treated as hazardous chemicals with a risk assessment carried out of the chemical agents and the operations involved. A material safety data sheet (msds) should be available and understood by all relevant workers.

In addition to worker safety, animal welfare is a paramount consideration in selecting the anaesthetic for each particular species of animal and each operation carried out. The Animal Ethics Committee should always be consulted early in the planning stages and prior to a decision regarding which type of anaesthetic to use.

**Pregnancy and Animal Research**

When planning to become pregnant or if you are pregnant, you should contact your General Practitioner/Health Care Provider to discuss your work environment as to potential hazards that could affect your developing baby.

Working with hazardous agents and toxic chemicals is discouraged, especially during the first trimester of pregnancy. It is important to tell your GP about the chemicals you commonly use so they are aware of the types of potential problems that may need to be dealt with.

Appropriate PPE should be worn when working in areas potentially contaminated by laboratory animals or their waste. Hand washing after handling any potential source of infection is undertaken, as well as always be performed prior to leaving the animal or laboratory facilities and prior to consuming any food or beverages.

It is also important to review the manual handling associated with any research, to ensure that you are able to reduce the risk of
musculoskeletal injuries.

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<tr>
<th>Related policies and procedures</th>
<th>Nil</th>
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<tbody>
<tr>
<td>Links</td>
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</tr>
<tr>
<td>Keywords</td>
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