

Lakehead University Health & Safety Procedure	Working Safely With Animals
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Health and Safety Procedure – Working Safely with Animals

Introduction

It is of vital importance that personnel and students working in Lakehead University facilities be protected from undue risks, including those posed by the use of animals in research and teaching. The Ontario Health and Safety Act requires that the employer take all precautions reasonable to protect workers from biological and chemical hazards. These risks may be a result of working with the animal itself, organisms harboured by the animal, or hazardous agents used in conjunction with the study procedures. The hazards include physical, allergy, absorption of toxins and zoonotic risk. These guidelines are intended for personnel with substantial contact with animals. Substantial is defined as contact with animals more than once per month, including direct contact with animals (live or dead), viable tissues, body fluids or wastes. All persons entering animal areas, including visitors and housekeeping staff, must have knowledge of the hazards in the areas and preventative measures in effect.

Zoonoses

Although most animals available through reputable suppliers are typically of high quality, the natural bacterial flora of an animal may pose risk of disease to humans, who may not have protective immunity. These diseases that can be transmitted from animals to humans are called zoonoses or zoonotic disease. Often, these diseases can be passed back to animals from infected humans. Zoonotic diseases can be effectively prevented by using appropriate protective clothing, proper animal handling, practicing good personal hygiene, proper sharps handling and disposal procedures, medical surveillance and vaccination programs. Common zoonotic diseases are listed in Table One. Additional diseases may be present depending on the origin of the animals, treatment with microbiological agents, and the handler's health status. Animals must only be procured following approved Lakehead University procedures and wild or feral animals should be considered at the highest biosafety level of pathogenic microorganisms known to reside in the species (e.g. assume all reptiles are infected with salmonella sp.)

Scope

This procedure pertains to work involving handling animals through examination, surgical procedures and care in animal care facilities or in the course of research and teaching. Specific requirements for types of personal protective equipment based on Animal Use Protocols can be reviewed in the Animal Handler Safety SOP as approved by the Lakehead University Animal Care Committee. This document sets the minimum standards for safety of personnel when working under animal use protocols approved by the Lakehead University Animal Care Committee. All work involving manipulation of harvested animal tissues/cells, fluids, waste or animals purposefully infected with biological agents or known to be infected biological agents will be subject to the Lakehead University Biosafety Policy and review by the Lakehead University Biosafety Committee.

Safe Work Procedure

Personal Hygiene

Good personal hygiene is the key preventative measure for safe animal handling. The following measures must be observed at all times in animal facilities:

- Eating, drinking and smoking are prohibited inside animal facilities.
- Do not handle or apply contact lenses, cosmetics or medication.
- Do not store human food in the animal rooms, or any areas handling hazardous materials or biologically contaminated materials.
- Hands should be thoroughly washed with soap and water throughout the day including:
 - At the beginning and end of every day/shift;
 - Before entering or leaving any room containing animals;
 - After handling animals or any biologically contaminated materials;
 - After removing gloves;
 - After completing a procedure;
 - After any suspected contamination.
- Keep hands away from your mouth, nose and eyes to prevent contamination of the mucous membranes.
- Wear required PPE at all times.
- Remove PPE before exiting an animal room or laboratory. PPE must be disposed or laundered in the facility.
- Wear appropriate clothing and footwear under PPE (e.g. lab coat, coveralls), including closed toe and closed heel shoes that are slip-resistant.

Sharps Handling and Disposal

Sharps, including needles, scalpels and glass, can pose a considerable risk to personnel if handled or disposed improperly. Contaminated sharps pose a physical hazard as well chemical or biological hazard if contaminated. It is imperative that the following guidelines be followed at all times:

- Sharps should be used only if absolutely necessary. If the use of sharps is required, handling must be minimized in order to reduce the risk of injury.
- Safe handling practices be employed and written into the laboratory procedures or SOPs. All staff must be trained in these procedures. Records of training must be kept by the Supervisor.
- Animals must be appropriately restrained when working with sharps. Restraint techniques must be included in the approved animal care protocols for the project.
- Needles must not be removed from syringes or re-capped after use.
- Sharps must be immediately placed into a sharps disposal container (available from the Office of Human Resources – Health and Safety).
- If you are injured with a sharp, clean the wound immediately and seek medical attention. If you know that the sharp is contaminated with a specific chemical or biological hazard, ensure your medical care provider is aware.

See Lakehead Hazardous Disposal Procedures for further information. <http://hr.lakeheadu.ca/wp/?pg=140>

Carcass disposal

Carcasses should be double-bagged and frozen until such time as disposal arranged through the Office of Human Resources – Health and Safety is available.

Carcasses in the Field – Disposal will be respectful of the animal and in accordance with the local requirements where the fieldwork is conducted.

Protective Clothing, Personal Protective Equipment

All personnel in contact with animals must use dedicated clothing (such as lab coats, coveralls, or scrubs) that remains in the animal work area. At minimum, lab coats, gloves and eye protection must be worn when working with the animals. Personnel must wear face masks and head covers when conducting procedures likely to generate aerosols, including changing of bedding and cage cleaning. Finally, the use of disposable shoe covers is highly recommended when working within the animal facility. Footwear in animal facilities must be suitable for lab work (e.g. slip resistant, closed toe and heel). Footwear in the field must be appropriate for the terrain of the field study site.

Medical Surveillance and Vaccination

Medical surveillance and vaccination program requirements are dependent on the species of animal that will be involved in the study. In accordance with the Lakehead University Biosafety Policy, these animal species intentionally infected with pathogens must be limited such that pathogens are limited Biosafety Level Two. Table 1 presents common research animals and associated zoonotic diseases, more detailed lists are available from the Office of Human Resources – Health and Safety. It is strongly recommended that all personnel working with animals visit their family physician yearly, regardless of the level of medical surveillance and vaccination required. It is strongly recommended that all personnel be vaccinated against tetanus every ten years, unless it can not be administered for a health reason. Additionally, rabies prophylaxis should be considered by all personnel who work with cats, dogs or bats, or work in areas where rabies is endemic in natural populations. Finally, toxoplasmosis testing should be completed by all female personnel who work with cats and are of child-bearing years. Requirements for medical surveillance must be considered in all projects where contact with animals is expected or likely. Supervisors are required to explain the risks associated with animal work to the animal users. Specific information or medical records pertaining to the health status of any Animal User can not be requested by the Supervisor, and will be maintained by the user's medical practitioner in strict confidentiality and will not be divulged to any person at Lakehead University.

Allergies

Allergies to laboratory animals may develop with exposure over time. Laboratory Animal Allergies (LAA) are a particular risk for personnel who work with rabbits and rodents. Personnel who already have allergies, a family history of allergies or compromised immune system are at increased risk of developing allergies to laboratory animals. It is important to consult with your family physician regarding suspected allergies. Allergies can be managed with desensitization, antiallergic medication, and prevention. It is recommended that if LAA is of concern, personnel wear clothing, in addition to standard personal protective equipment, that completely covers their skin, such as shoe and head covers. This clothing must be removed before exiting animal rooms and must be disposed or laundered at the animal facility. Allergies to latex may increase with occupational use of latex gloves. It is for this reason that the use of disposable latex gloves is strongly discouraged and the use of non-latex disposable gloves is encouraged where possible. All Animal Users working in animal facilities with rabbits or rodents will be required to participate in the medical surveillance program.

Bites and Injuries

Almost any animal can injure a human by biting, scratching or kicking. Animal bites and scratches must be cleaned promptly. Scratches and cuts caused by animal cages should be treated the same as bites and scratches. Other injuries should be treated according to standard first aid procedures. All injuries sustained during work duties must be reported to your Supervisor and the Office of Human Resources – Health and Safety, including minor scratches and bites. Additionally, bites by cats or dogs must be reported so the animal can be isolated pending rabies surveillance. Should a bite occur outside of the animal facility, the animal should be considered to be rabid (unless it can be proven otherwise) and prompt medical attention sought. First aid kits must be available to any persons conducting field research, particularly those capturing, holding or manipulating animals or animal traps.

Decontamination

All materials contaminated with biological materials must be appropriately decontaminated prior to disposal, in accordance with the Lakehead University Biosafety Policy. Decontamination techniques must be included in the

approved Biosafety protocols for the project. Necropsy materials must be double-bagged and labeled to be stored frozen until incineration is arranged. Incineration for necropsy materials and sharps is arranged through the Office of Human Resources – Health and Safety.

Security

Observing security protocols is the responsibility of all users of the animal facilities. Security includes protection from animal rights incursion, theft, vandalism, and unauthorized entry. Staff should be aware and observant of their area, and quickly notify security services and/or the police in case of an emergency or suspicious activities. Additionally, personnel should be attentive to the presence of any pests and take appropriate pest control action to ensure that wild zoonoses are not introduced to the facility.

Hazardous Substances

The use of hazardous substances requires safe-work procedures. Current Material Safety Data Sheets must be available for all hazardous substances used in the area. Additionally, policies and guidelines have been developed by the Office of Human Resources – Health and Safety to address the following areas:

- Biohazardous Agents – Biosafety Program
- Radiation – Radiation Safety Program
- Chemical – Chemical Safety Program
- Chemical and Biological Waste – Hazardous Waste Procedures

Work with biohazardous or radioactive agents requires an internal permit, contact the Office of Human Resources – Health and Safety for further information.

Training

The Canadian Council on Animal Care requires that “all personnel working with animals must understand how to handle the species involved, both for their own health and safety, and for that of the animals.” All persons working with animals must have the following training:

- WHMIS, provided by the Office of Human Resources – Health and Safety
- Animal Handler Safety, provided jointly by the Office of Human Resources – Health and Safety, and the University Veterinarian.
- Project specific safety training, provided by the Project Supervisor, including:
 - Animal handling training
 - Zoonoses prevention training
 - Fieldwork specific training.
- Any other safety training deemed necessary by the Office of Human Resources – Health and Safety, University Veterinarian, Lakehead University Animal Care Committee or Lakehead University Biosafety Committee based on the specific risks for the project or the experience level of the animal user.
All training will be documented and is required to approve or renew Animal Utilization Protocols (AUP).

Revision Schedule

This procedure will be reviewed as needed by the Lakehead Biosafety Committee and Animal Care Committee, and updated at minimum, every five years.

References

Canadian Council on Animal Care Guidelines, Section VIII, *Health and Safety in the Workplace*.

Canadian Council on Animal Care Modules, Module 4, *Occupational Health and Safety in Experimental Animal Facilities*.

McGill University, Administration Handbook, *Occupational Health for Animal Care Activities*.

Bishop's University, *Standard Operating Procedures for Animal Care and Use*.

University of Minnesota, Research Animal Resources, *Occupational Health and Safety*.

Public Health Agency of Canada, *Laboratory Biosafety Guidelines, Third Edition, 2004*.

Table One - Most Common Zoonotic Diseases

Species	<u>Tuberculosis</u> *	<u>Rabies</u> BSL 2	<u>Toxoplasmosis</u> BSL 2	<u>Cercopithecine Herpesvirus 1 (Herpes B virus)</u> BSL 4	<u>Tetanus</u> BSL 2	<u>Orf</u> BSL 2	<u>Ringworm</u> BSL 2	<u>Q-Fever</u> *	<u>Salmonella</u> BSL 2	<u>Campylobacter</u> BSL 2	<u>Psittacosis</u> BSL 2
Laboratory rabbits and rodents (rats, mice, hamsters, guinea pigs and chinchillas)	X	.	X	.	.	.	.
Dogs	.	X	.	.	X	.	X	.	X	X	.
Cats	.	X	X	.	X	.	X	.	X	.	.
Ferrets	.	X	.	.	X	.	X	.	X	.	.
Nonhuman Primates	X	X	.	X	X	.	X	.	X	X	.
Swine	X	.	X	.	X	X	.
Goats and Sheep	X	X	X	X	X	.	.
Cattle	.	X	.	.	X	.	X	.	X	.	.
Horses	.	X	.	.	X	.	X	.	X	.	.
Birds	X	.	X	.	X	X	X
Reptiles	X	.	.
Wild carnivores	.	X	.	.	X	.	X	.	.	.	.
Wild ungulates	X	.	X	.	.	.	.
Prevention	Respiratory mask during necropsy, regular testing of animals	Prophylactic vaccination of handlers, post-bite treatment of victim and animal quarantine	Serum titers to assess prior exposure, avoidance of animal feces, protective clothing and respiratory protection	Post-exposure treatment and assessment	Prophylactic vaccination	Protective clothing	Protective clothing	Respiratory protection and protective clothing when working with fetal tissues or parturient animals	Protective clothing	Protective clothing	Respiratory protection, protective clothing

Species	<u>Plague (<i>Yersinia pestis</i>)</u> BSL 3	<u>Tularemia</u> *	<u>Hantavirus</u> *	<u>Cutaneous mycobacteriosis</u> BSL 2
Amphibians and Fish	.	.	.	X
Wild or feral rodents and rabbits	X	X	X	.
Prevention	Protective clothing, early treatment of suspicious lesions	Protective clothing	Respiratory protection, protective clothing	Protective clothing or hand washing

* Biosafety Level Two Containment for sample collection, serological testing, Biosafety Level Three Containment for incubation, manipulation