University of Prince Edward Island
Animal Care Committee
Codes of Practice

Codes of Practice #: ACC-CP-08

Codes of Practice Title:	Zoonotic Disease in UPEI Animal Facilities		
Issued by:	UPEI Animal Care Committee		
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1.0 Purpose

1.1 The University of Prince Edward Island is committed to providing a safe working and learning environment for all users of research, teaching and service animals. Awareness of zoonotic disease potential is critical for prevention and treatment of workplace illness.

2.0 Scope

2.1 All users of University of Prince Edward Island Animal Facilities

3.0 Definitions and Abbreviations

3.1 ACC: Animal Care Committee

3.2 Animal Facilities: all vivaria at UPEI.

3.3 AUP: Animal Use Protocol

3.4 PPE: Personal Protective Equipment

3.5 SOP: Standard Operating Procedure

3.6 SPF: Specific pathogen free

3.7 UPEI: University of Prince Edward Island

3.8 Vivaria: enclosures, containers, or structures adapted or prepared for keeping animals under semi-natural conditions for observation or study.

3.9 Zoonosis: a disease or infection that can be naturally transmitted from vertebrate animals to humans

4.0 Responsibility

4.1 The Animal Care Committee (ACC) represents UPEI commitment to responsible care and use of experimental animals through the formulation and implementation of policies and Codes of Practice.

4.2 The Health, Safety and Environment Department is responsible for assisting in fulfilling an individual's health and safety responsibilities and to provide oversight and guidance on health and safety compliance

4.3 The UPEI Biosafety Committee is responsible for reviewing biosafety permit applications and monitoring activities and laboratories to ensure compliance with all relevant regulations.

4.4 The Facility Manager or facility specific responsible individual is responsible for providing facility appropriate restraint devices and personal protective equipment (PPE).

4.5 The Principal Investigator (PI) is responsible for providing appropriate PPE as required by individual user needs and as per the approved specific Biosafety Permit.

4.6 The animal user is responsible for observing appropriate facility practices, using required PPE, and practicing safe animal handling in order to minimize zoonotic disease exposure.

5.0 Codes of Practice

5.1 Zoonoses are diseases or infections that can be naturally transmitted from vertebrate animals to humans. Many zoonoses are sub-clinical in the animal host (endogenous) but can cause disease in humans, such as salmonella. Animals can also be reservoirs for diseases that can affect both animals and humans, such as influenza (exogenous). Lastly, animals may be deliberately infected with disease for experimental purposes. All animal users should be aware of the zoonotic risks specific to their species and research and use appropriate facility practices, PPE and animal handling practices accordingly.

5.2 Disease can be transmitted via four routes:

1. Inhalation

   Disease can be caused by breathing aerosols that contain the infectious microorganism. Aerosols can be naturally occurring, such as a cough or a sneeze, or they may be artificially created, such as during a necropsy.

2. Absorption

   Microorganisms can be absorbed across mucous membranes, most commonly in the oral mucosa and the conjunctiva. This contact commonly occurs from splashes of contaminated material. Rarely can disease be caused by absorption of the infectious microorganism across an intact skin layer. Absorption is a higher risk if the infectious microorganism were in solution with a chemical that enabled transmembrane transportation.

3. Ingestion

   Consumption of microorganisms can cause disease.

4. Percutaneous

   If the skin layer is broken, it is very easy for microorganisms to penetrate and cause disease. Skin integrity can be naturally compromised, such as dry cracked skin, or traumatically compromised such as from a needle stick, bite, scratch, etc.

5.3 Each of these routes can apply to four principal methods of contact:

1. Direct contact

   Direct contact includes contact with blood, saliva, urine, mucous, feces, or other bodily fluids from an infected animal. All routes of infection may apply to direct contact, although inhalation, absorption and percutaneous are most likely.

2. Indirect contact

   Indirect contact includes interaction with objects and surfaces that animals have touched. This may include habitats, items within the habitat (food and water containers, enrichment, etc), soil, plants and water. All routes of infection may apply to indirect contact, although inhalation, absorption and percutaneous are again most likely.

3. Vector borne

   Vector borne diseases are transmitted from animals to humans via an intermediary such as a flea, tick, or mosquito. Vector borne diseases are transmitted almost exclusively through percutaneous routes.

4. Food borne

   Food products can be contaminated by zoonotic disease. These food products may be directly sourced from animals, such as contaminated milk, or they may have been exposed to animals, such as fruits or vegetables exposed to animal feces. Food borne diseases are transmitted almost exclusively through ingestion routes.

5.4 The risk of exogenous zoonoses from animals sourced from commercial laboratory animal suppliers is very low as these animals are maintained in specific pathogen free (SPF) environments. The risk of exogenous zoonoses is proportionally greater when working with animals from private, farm or wild stock that do not have controlled health backgrounds. Zoonotic infection is possible from endogenous oral or fecal bacteria regardless of animal origin.

5.5 Animal bites from dogs, cats, and wildlife pose particular concern due to risk of bacterial infection and rabies. While rabies is rare, infections are inevitably fatal; any potential rabies exposure must be reported so that appropriate medical treatment is sought. All animal bites from dogs, cats, and wildlife must be managed as described in UPEI Policy Animal Bite Wounds.

5.6 Prior to inoculating animals with potentially zoonotic microorganism, an approved Animal Use Protocol (AUP) and Biosafety Permit must be obtained. Signage and containment practices must be implemented as described in the Biosafety Permit.

5.7 Zoonotic risk can be reduced by:

1. Appropriate user training in handling and restraint

   All UPEI Animal Facility users must receive training from the University Veterinarian or approved designate on how to safely handle relevant animals. Animal restraint should be used when appropriate and when stipulated in an approved AUP to reduce the risk of user and animal injury.

2. Use of proper PPE and hygiene

   Required PPE varies with the UPEI Animal Facility and specific experiment; consult signage and/or the Facility Manager (responsible individual) as appropriate (ACC Code of Practice Personal Protective Equipment in UPEI Animal Facilities; Laboratory Safety Manual). Specific PPE such as Kevlar or metal mesh gloves can be used to minimize the risk of bite and scratch injuries if appropriate. For known zoonotic pathogens, enhanced PPE may be required and will be identified on the appropriate Biosafety Permit(s).

   Use of lab coats or other designated clothing in addition to nitrile gloves reduces risk of direct contact. Regardless of PPE used, rigorous hand washing should be utilized when handling animals and visiting animal occupied areas.

3. Health screening and surveillance of laboratory animals

   Quarantine practices for new animals reduce the risk of introducing animals with communicable disease and also allows for species-appropriate screening tests to be performed. Animals are observed daily for signs and symptoms of illness, pain or distress.

5.8 Response to an animal-related injury that penetrates skin or exposes mucous membranes is discussed in SOP ACC-AD03 Animal Related Injury and UPEI Policy Animal Bite Wounds, including the need to have a rabies assessment performed by the appropriate individual.

5.9 If animals are intentionally infected with a zoonotic disease then any animal-related injury or illness potentially caused by this pathogen must be reported to the Biosafety Officer.

6.0 References

6.1 Animal Use Protocol Form
http://www.upei.ca/research/forms

6.2 Biosafety Protocol Submission Form
http://www.upei.ca/research/forms

6.3 UPEI Incident Report Form

http://files.upei.ca/vpaf/health-and-safety/incident_report_form.pdf

6.4 CCAC Training on Occupational Health and Safety

https://www.ccac.ca/en/training/modules/core-stream/occupational-health-and-safety.html

6.5 ACC Policy Personal Protective Equipment in UPEI Animal Facilities

6.6 Laboratory Safety Manual
http://www.upei.ca/vpaf/health-and-safety

6.7 UPEI Policy avcvthhr_1001 Animal Bite Wounds
https://portal.upei.ca/facultystaff/administrativeservices/avc_dean/Documents/Animal%20Bite%20Wounds.pdf

6.8 SOP ACC-AD03 Animal Related Injury
http://files.upei.ca/research/sop-acc-ad03-animal_related_injury.pdf