UNIVERSITY OF NORTH CAROLINA
CHARLOTTE
ANIMAL CARE AND USE PROGRAM

POLICY: Occupational Health Surveillance for Personnel with Animal Exposure and/or Entering the Vivarium

Objective:	Outline the components of Occupational Health Surveillance for individuals with animal exposure and/or entering the Vivarium at UNC Charlotte.
Author:	Attending Veterinarian; Office of Research Protections & Integrity
Date:	July 24, 2023

I. Purpose

In accordance with the *Guide* and PHS Policy, the UNC Charlotte Animal Care and Use Program has established an Occupational Health Surveillance Program (OHSP) to minimize health and safety risks to personnel with exposure to animals used for research, teaching or other projects at UNC Charlotte.

The Office of Research Protections and Integrity (ORPI) contracts a healthcare provider to administer the Program. UNC Charlotte staff, faculty, and students (as defined), and anyone listed on an approved UNC Charlotte Institutional Animal Care and Use Committee (IACUC) protocol is subject to this Policy for enrollment in the OHSP.

II. Scope

Research animals, non-research animals, or the tissues of these animals have the potential to cause injury, transmit zoonotic diseases, and/or cause allergic reactions to persons coming in contact with or working in close proximity to them (i.e., working directly or indirectly with animals or working in/passing through an animal housing facility or room).

Persons with these exposures should be provided appropriate awareness training so that they understand routes of disease transmission and the signs and symptoms of diseases. Training should also include information on appropriate personal protective equipment (PPE), safe waste handling, and what to do/who to contact in case of an emergency.

Personnel included are those involved in the direct handling of vertebrate animals and their living quarters (e.g., animal care technicians, attending and back-up veterinarians, and animal housing management staff), research investigators and associated staff, as well as individuals who may have only indirect contact with animals, but direct contact with viable animal tissues, body fluids or wastes. This Program is intended to address High to Low Risk Levels for several groups of people with varying frequency and intensity of exposure.

- **Appendix A** details Exposure Risks Based on Species used in research at UNC Charlotte.
- **Appendix B** details Medical Surveillance Requirements Based on Frequency and Intensity of Exposure to Laboratory Animals at UNC Charlotte. This serves as a reference tool for the Occupational Health Professional and researchers enrolled in the Occupational Health Program.

Based on the Health History Forms, species worked with, and exposure level, the Occupational Health Professional will determine each individual's health status, identify risks such as allergies, pregnancy, immune system responses and limitations, etc., and recommend the appropriate PPE and protections.

III. Initial Enrollment

All faculty, laboratory and/or technical staff, students and UNC Charlotte employees with animal exposure (as defined in **Appendix B)** are subject to this policy for enrollment in the OHSP. Initial enrollment is achieved by completing and submitting the Initial Health History Form available on the ORPI website.

IV. Updating Information: Annually and As-Needed

At a minimum, health history must be updated annually using the Annual Health Update Form. In addition, if at any time a person has:

1. a significant change in health that could enhance the risks of animal exposure (i.e., allergies, pregnancy, immunocompromised, chronic medical illness, etc.) or
2. a change in the level of animal exposure,

they are encouraged to submit an Interim Health Status Update Form to the Occupational Health Medical Professional.

V. Special Enrollment Considerations

Facilities Management (FM) and Building Environmental Services (BES) staff whose work-related duties may require them to enter any part of the Vivarium may volunteer to be assigned to the facility on a permanent non-rotating basis. The ORPI will work with Human Resources and the supervisors of these volunteers on initial training, OHSP enrollment and updates as required by this Policy.

Members of the IACUC not otherwise subject to exposure to research animals as defined in Appendix B, Visitors to the Vivarium, Observers, Campus Police, Vendors/External Contractors and Guests will NOT be required to enroll in the OHSP due to their infrequent access to the animal housing facility and their low exposure (i.e., no direct animal contact). Access to the Vivarium will be provided on an as-needed basis only. Prior to entry, visitors to the Vivarium will be informed of the risks of entering and given a form to sign as acknowledgement of said information. Additionally, all visitor requirements will apply such as signing the Visitor Log which includes a Risk Exposure Statement and risk information.

VI. Risk Assessment and Medical Surveillance Requirements

Risk Assessments by an Occupational Health Medical Professional will be performed for each person enrolled in the OHSP. The assessment will be based on the pre-contact Initial Health History Form to evaluate the physical risks, work processes, hazardous materials related to the work, and the environment in which the work is being conducted.

Based on review of health history, planned work, exposure and physical examination (as deemed medically necessary) by the Occupational Health Medical Professional, a summary Medical Clearance Notification will be sent to the ORPI and include provisions for any recommended immunizations (e.g., Tetanus or Rabies prophylaxis). Additional occupational exposures to hazardous materials (i.e., carcinogens, toxic chemicals, radiation, or biohazards) may necessitate additional medical surveillance requirements as determined by the Occupational Health Professional. (**See Appendix B**)

VII. Clearance Notification to Vivarium

Following completion of the risk assessment and return of the Medical Clearance Notification, the Occupational Health Medical Clearance Notification will be sent to the enrollee(s), their PI/supervisor, and the Director of the Laboratory Animal Resources/Vivarium, by the ORPI. The notification form will indicate species clearance, immunization recommendations, additional medical evaluation timelines, and any work restrictions (if applicable).

VIII. Training

UNC Charlotte staff, faculty, students, and anyone listed on approved IACUC protocols are subject to this policy for enrollment in the Occupational Health Surveillance Program must complete IACUC-required Vivarium Orientation Training (an online CANVAS course) and Introduction to Animal Research at UNC Charlotte with Vivarium Tour presented by the Director of Laboratory Animal Resources or their designee.

Additional training may be required or recommended for specific risk factors or conditions unique to job tasks as deemed necessary by the Occupational Health Medical Professional. Other training resources include (but are not limited to):

- CITI Training
- Biosafety Training
- Hazardous Waste Training
- General Lab Safety and Chemical Safety Training
- Radiation Safety Training
- Zoonoses Training

IX. Principal Investigator Responsibilities

Principal Investigators should assess health and safety risks in their laboratories or associated with their research projects and implement appropriate practices, equipment, and training to minimize risks.

At the beginning of each semester, the Institutional Official sends all faculty and staff involved in the Animal Care and Use Program and enrolled in the Occupational Health Surveillance Program an official Zoonoses Notice about occupational health risks associated with animal research. The Zoonoses Notice is intended to be used by PIs and supervisors to assist in discussions with staff and/or laboratory personnel about occupational health risks associated with animal research. The Zoonoses Notice (**Appendix C**) consists of:

1) the memo from the Institutional Official,
2) Exposure Risks by Species (**Appendix A**)
3) Medical Surveillance Requirements based on frequency and intensity (**Appendix** B)
4) an Acknowledgement page which is to be signed by individuals and kept on file by the PI or supervisor.

References

Guide for the Care and Use of Laboratory Animals
Biosafety in Microbial and Biomedical Laboratories
Public Health Service Policy on the Humane Care and Use of Laboratory Animals
Occupational Health and Safety in the Care and Use of Research Animals
Potential Hazards Associated with Animal Use (University Email, 082012)

Revision History

Approved 8.26.2013
Administrative Changes 4.24. 2014
Re-approved 4.25.2016
Administrative Changes 4.22.2019
Re-approved 1.24.2022 version 1.4

Administrative changes September 19, 2022
Revisions approved July 24, 2023

APPENDIX A

EXPOSURE RISKS BY SPECIES

SPECIES:	MOUSE, RAT, HAMSTER	RABBIT	AMPHIBIAN & REPTILES	FISH	BAT
Route	Bites, Scratches, Aerosols/Respiratory, Accidental Ingestion, Contact (Direct or Indirect)	Bites, Scratches, Bruises, Aerosols/Respiratory, Accidental Ingestion, Contact with Blood or Tissues, Other Contact (Direct or Indirect)	Bites, Scratches, Envenomation (Bite, Direct Contact) Contact (Direct or Indirect): Water	Bites, Scratches, Wound Infections, Insect Bites, Accidental Ingestion, Inhalation of Aerosolized Materials, Contact (Direct or Indirect)	Bites/Punctures, Scratches, Wound Infections, Mucous Membranes, Inhalation of Aerosolized Materials (esp. guano), Accidental Ingestion, Contact (Direct or Indirect)
RISKS/EXPOSURES					
Allergen Source	Hair, Dander, Urine, Feed/Dust, Bedding, Serum Proteins	Hair, Dander, Saliva, Urine, Feed/Dust, Bedding	Water, Animal Skin, Mouth or Nails, Venom	Water, Animal Skin, Mouth or Nails, Venom	Saliva, Blood/Tissues, Aerosol, Urine, Guano
Infectious/Zoonotic	Rat Bite Fever/Haverhill Fever (Streptobacillus + Spirillum), Salmonella, Campylobacter, E. coli, Shigella	Listeria, Pasteurella, Mycobacterium, Cryptosporidium, Salmonella, Campylobacter, E. coli, Shigella, ADDITIONALLY, WITH WILD RABBITS: Brucella, Tularemia, Plague, Q-Fever, Ringworm species (fungal infection), External Parasites (mites, lice)	Salmonella, Leptospira, Cryptosporidium	Mycobacterium, Erysipelothrix, Campylobacter, Aeromonas, Vibrio, Pseudomonas, Enterobacter, Clostridium, Edwardsiella, Escherichia, Salmonella, Klebsiella, Streptococcus sp., Parasites (Cestodes, Trematodes, Nematodes), Cryptosporidium, NoroVirus	Rabies, Histoplasma, Cryptococcus, Blastomycosis, Salmonella, Shigella, Yersinia and External Parasites (with concomitant Bartonella, Ehrlichia, Borrelia, etc.) IF IMPORTED: Nipah, Hendra, Ebola, SARS, etc. Trypanosoma, Toxoplasma, Coccidia, Leishmania
REACTIONS					
Immune	Allergic Reaction, Asthma, Conjunctivitis, Rhinitis, Cross-reactivity, Anaphylaxis/Death	Allergic Reaction, Asthma, Conjunctivitis, Rhinitis, Cross-reactivity, Anaphylaxis/Death	Contact Allergy, Potentially Life-Threatening Venom Toxicity Reactions	Contact Allergy, Potentially Life-Threatening Venom Toxicity Reactions	Allergic Dermatitis (from ectoparasites)
Clinical Signs / Symptoms In Humans	**DEPENDING ON DISEASE:** Fever, Vomiting, Headache, Muscle Pain, Abdominal Cramps, Diarrhea +/-Blood Loss, Dehydration, Arthritis/Joint Pain & Swelling, Rash, Pneumonia, Septicemia, Hepatitis, Nephritis, Meningitis, Heart Inflammations, Lymphadenopathies, Death (if untreated)	**LISTERIA:** Fever, Muscle Aches, Headache, Stiff Neck, Confusion, Loss of Balance, Convulsions/Seizures, Nausea, Diarrhea, IF PREGNANT: Difficulty Breathing, Miscarriage, Stillbirth, Premature Birth, Fatal Infection after Birth, Septicemia, Meningitis, **TULAREMIA:** Ulcers, Lymphadenopathy, Pneumonia-like Illness, Sore Throat, Abdominal Pain, Diarrhea & Vomiting, **MYCOBACTERIUM:** Lymphadenitis, Pulmonary Disease (similar to Tuberculosis) **PASTEURELLA:** Bite Wound Swelling, Cellulitis, Abscessation, Lymphadenopathy, Arthritic Changes, **RINGWORM**: Focal/Multifocal Skin Lesions **OTHERS:** Primary GI Signs/Symptoms	**DEPENDING ON DISEASE:** Rashes/Skin Irritation, Skin Ulcers & Nodules, Fever, Abdominal Cramps, Diarrhea +/-Blood Loss, Arthritic Changes, Pneumonia, Septicemia, Death	**DEPENDING ON DISEASE:** Vomit, Diarrhea, Skin Ulcers & Nodules, Lymphadenitis, Pulmonary Disease (similar to Tuberculosis), Severe Systemic Disease, Cellulitis, Arthritis, Endocarditis, Meningitis, Septicemia, or Death	**DEPENDING ON DISEASE:** Depression, Anorexia, Diarrhea, Vomit, Abdominal Cramps, (high) Fever and Chills, Headache, Malaise, Lymphadenopathy, Cough, Neurologic Deficits/Changes in Behavior, Hygrophobia, Seizures/Coma, Severe Disease, Death
Persons with specific medical conditions such as a chronic illness, immunodeficiency, and/or pregnancy may be at higher risk of developing disease or complications from a zoonotic disease and should consult with their physician before working with animals.					

APPENDIX B

Reference Guide for Occupational Health Surveillance, Personnel with Animal Exposure and/or Entering Vivarium

	HIGH RISK	MODERATE RISK	LOW RISK
PERSONNEL TYPE	Animal Care Technicians	Principal Investigators	Facilities Maintenance and Operations (FMO)
	Vivarium Staff	Research Staff	Building Environmental Services (BES)
	Attending Veterinarian	Project Staff	Vendors
	Back-up Attending Veterinarian		Visitors / Guests
			Observers
			Campus Police
			IACUC Members
			Compliance Staff
EXPOSURE FREQUENCY & INTENSITY	Daily	< Daily	Infrequent
	Direct Contact	Direct Contact	No Direct Contact
LEVEL OF VIVARIUM ACCESS	ALL AREAS, including: ABSL-2 rooms, radiation areas and cage wash room	ASSIGNED AREAS, may include: ABSL-2 rooms, radiation areas and cage wash room	AS-NEEDED ONLY
OCCUPATIONAL HEALTH MEDICAL SURVEILLANCE PROGRAM (OHSP) REQUIREMENTS	• Enrollment required • Risk disclosure • Annual physical exam • Current tetanus immunization • Annual health status update required • Interim health update required	• Enrollment required • Risk disclosure • Current tetanus immunization • Annual health status update required • Interim health update recommended	• Enrollment available • Review risk disclosure • Sign visitor log (as needed)

APPENDIX C

UNIVERSITY OF NORTH CAROLINA
CHARLOTTE
ANIMAL CARE AND USE PROGRAM

Occupational Health Surveillance for Personnel with Animal Exposure and/or Entering Vivarium

DATE: [Date]

TO: Faculty and staff who use animals in teaching or research

FROM: [Institutional Official]

RE: **Potential hazards associated with animal use**

Although infrequent, the risk of infection(s) and other hazards between research animals and humans does exist and must be recognized in order to avoid exposure. It is the responsibility of faculty and investigators who use animals in research or teaching to ensure that associates, students, and other personnel are aware of potential hazards associated with animal use activities.

The purpose of this memo is to remind you to advise your students, ***in writing***, of potential hazards such as:

Bites, Scratches, and Needle-sticks
The most obvious risk of handling animals and equipment comes from bites, scratches, or needle-sticks. All at risk personnel should have a current tetanus immunization (administered within the last ten (10) years) to prevent contracting tetanus (a.k.a. lockjaw). Tetanus vaccinations are available through the Student Health Center **at no cost to Occupational Health Program participants**. For referral information and forms necessary for vaccination, please contact the Office of Research Protections and Integrity at (704) 687-1872 or via email at uncc-iacuc@charlotte.edu.

Allergens
There is considerable risk from exposure to allergens, particularly rodent urinary proteins carried on the dander. Reactions to these allergens can be severe. Use of a surgical or disposable paper mask may reduce discomfort, but for those who become sensitized, N95 respirators provide greater protection against these particulates, which are typically about 7 microns in diameter.

Zoonotic Disease
Unless experimentally infected with a zoonotic agent (disease transmissible between man and animal), research animals from a licensed breeder/facility generally carry a limited number of microorganisms of concern to animal users. This is due to the existence of preventive medicine programs and the frequent use of specific pathogen free animals in research projects. However, wild animals caught and examined in field research or classes often carry potential pathogens – viruses,

bacteria, protozoans, and fungi (see **Appendix A**). Depending on the species, this may include the lethal Rabies virus.

Rabies
Personnel working with unconditioned animals or mammals in the wild, are at risk from rabies and should consider pre-exposure rabies vaccinations.

Working with Reptiles, Amphibians, and Birds
There are many bacteria, protozoans, and parasites that can come from reptiles, amphibians, and birds. Persons working with these species should take precautions to avoid contamination by *Salmonella spp*. Personal hygiene is especially important when working with these animals and/or in their environment, and particular care should be taken to avoid accidental ingestion of organisms.

Special Risks for Pregnant Women
Pregnant women can work in animal facilities but certain tasks may present a hazard to the unborn human. Women who become pregnant should notify their instructor/supervisor(s) as well as the Occupational Health Medical Professional via an Interim Health Update Form available on the Office of Research Protections & Integrity website. Individuals should also inform their obstetrician (or other health professional assisting in managing the pregnancy) of the exposures to animal species.

Exposure Risks and Occupational Health Medical Surveillance
Depending on the species being handled and the intensity/frequency of exposure, many PI's, laboratory staff, and students are subject to enrollment in the Occupational Health Program as stipulated in the Animal Care and Use Program's Occupational Health Medical Surveillance Policy. Please refer to this policy and use the species exposure risk matrix to help determine whether Occupational Health Program enrollment is warranted for you, your laboratory personnel, and/or students (see **Appendices B**).

You should carefully review any potential risks associated with your use of animals in the laboratory, classroom, or field, **and advise your students of these risks at the beginning of each semester**. Consider distributing such advice as part of the syllabus. The attached form is helpful and necessary. Keep a signed copy on file for each individual that you work with, teach, or mentor who has contact with animals or animal tissues.

If you have questions or concerns about these or other risks, I encourage you to contact the Office of Research Protections and Integrity (uncc-iacuc@charlotte.edu or (704) 687-1872) to obtain the Occupational Health Medical Professional's contact information.

Best wishes for a productive semester.

Risks Associated with the Handling and Use of Animals In Research and Learning Environments

Bites, Scratches, and Needle-sticks
The most obvious risk of handling animals comes from bites, scratches, or needle-sticks. All at-risk personnel should have a current tetanus (a.k.a. lockjaw) immunization (administered within the last ten (10 years). Tetanus vaccinations are available through the Student Health Center **at no cost for Occupational Health Program participants**. For referral and forms necessary for vaccination, contact the Office of Research Protections and Integrity at: uncc-iacuc@charlotte.edu or at (704) 687-1872.

If you have been bitten, scratched, punctured, cut, etc. while working, immediately cleanse your affected skin with soap and water to reduce the chance of cellulitis and infections. Follow up promptly with your supervisor and/or vivarium staff to complete all necessary reporting (per University Policy 101.7 and University Policy 712).

Allergens
There is considerable risk from exposure to allergens, particularly rodent urinary proteins carried on the dander. Reactions to these allergens can be particularly severe. Use of a surgical or disposable paper mask may reduce discomfort, but for those who become sensitized, N95 respirators offer greater protection against these particulates, which are typically about 7 microns in diameter.

> Persons who have had previous severe reactions (such as marked shortness of breath or anaphylaxis) should carry an Epi-pen or its equivalent when in the Vivarium.
>
> In a life-threatening emergency, go to the nearest hospital or urgent care facility for immediate assistance, or dial 911 (with on-campus phones) or by cell phone: 704-687-2200.
>
> Authorized Medical Treatment Facilities (per University Policy 101.7 and the EH&S department):
> https://safety.charlotte.edu/sites/safety.charlotte.edu/files/media/Authorized%20Medical%20Providers.pdf
>
> If you have questions, contact the Office of Research Protections & Integrity at (704) 687-1872.

Zoonotic Disease
Unless experimentally infected with a zoonotic agent (disease transmissible between man and animal), research animals from a licensed breeder/facility generally carry a limited number of microorganisms of concern to animal users. This is primarily due to the existence of preventive medicine programs and the frequent use of specific pathogen free animals in research projects. However, wild animals caught and examined in field research or classes often carry potential pathogens – viruses, bacteria, protozoans and fungi (See **Appendix A**). Depending on the species, this may include the lethal Rabies virus.

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Special Risks for Pregnant Women

Pregnant women can work in animal facilities, but certain activities may present a hazard to the unborn human. Women who become pregnant should notify their instructor/supervisor(s), the Occupational Health Medical Professional via the Interim Health Status Form (https://research.charlotte.edu/departments/office-research-protections-and-integrity-orpi/animal-care-use/occupational-health), and should also inform their obstetrician (or other health professional managing the pregnancy) of the exposures to animal species.

I have read and understand the foregoing information about risks associated with handling animals and any questions I have had have been answered to my satisfaction.

_____

LABORATORY PERSONNEL NAME (PLEASE PRINT)

_____ _____

LABORATORY PERSONNEL SIGNATURE *DATE*

~RETURN TO LABORATORY SUPERVISOR ~

NOTE TO FACULTY MEMBER –RETAIN SIGNED FORMS IN OFFICE OR LABORATORY FOR IACUC REVIEW