

UNIVERSITY OF ILLINOIS at CHICAGO

OCCUPATIONAL HEALTH PROGRAM FOR INDIVIDUALS WITH ANIMAL CONTACT

This brochure describes the *UIC Occupational Health Program for Individuals with Animal Contact*. It contains information on health concerns associated with working in a laboratory animal facility including zoonotic diseases, animal bites and scratches, animal allergies, and hazardous agents.

The *Guide for the Care and Use of Laboratory Animals* and the *Public Health Service Policy on the Humane Care and Use of Laboratory Animals* require that an occupational health program be part of an institution's overall animal care and use program. The UIC occupational health program was developed by members of University Health Service (UHS), Environmental Health and Safety Office (EHSO), the veterinary staff of the Biologic Resources Laboratory (BRL), and the Animal Care Committee (ACC). The purposes of this program are to protect personnel, protect the animals used in research, and to assure compliance with regulatory and funding agencies. The program is based upon the recommendations of the *Guide for the Care and Use of Laboratory Animals* and the NRC publication on *Occupational Health and Safety in the Care and Use of Research Animals*.

Who Must Participate in the Program?

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All individuals with animal contact as part of an approved animal use protocol, either at UIC animal facilities or at a field study site, are required to participate in the program. Participation extends to animal care staff, investigators, laboratory assistants, students, physical plant workers, consultants, volunteers, and visitors. Enrollment in the program is required to gain access to UIC animal facilities. The level of participation in the program is determined through a risk analysis conducted by UHS staff, based on the species handled, research conducted, and medical evaluation.

The costs of the basic components of the program are covered by the institution with no additional expense to the investigator. These components include the initial and periodic health assessments, tetanus immunization, initial and annual tuberculosis testing required for access to the nonhuman primate colony, animal-related injuries or illness, and B virus exposures for those who work with macaque monkeys. However, the investigator will be charged for costs associated with research-specific health risks, such as special immunizations (i.e. hepatitis B, rabies, measles), special diagnostic testing (i.e. antibody titers for rabies or measles), and any additional tuberculosis testing required by a medical surveillance program developed for a specific study.

Risk Levels

For research staff, there are four risk levels, defined as low, mild, moderate, and high (refer to pages 14 and 15). Low risk includes personnel who have no direct contact with mammals, including physical plant employees, contractors, and visitors. This level also includes individuals who have contact only with reptiles, amphibians, and fish that are considered to pose minimal risk to human health or safety. The mild category consist of personnel who work with the majority of animals housed at UIC animal facilities, including mice, rats, hamsters, guinea pigs, chinchillas, rabbits, dogs, pigs, sheep, and calves. The moderate risk level is defined as those individuals in the mild category who have a

condition that requires more frequent assessment by UHS. For example, personnel with a history of allergies, immunosuppressive medical condition or drug regimen, or pregnancy may warrant inclusion at this higher risk category. The high risk level is reserved for research staff that work with nonhuman primates.

For animal care employees, there are two risk levels, mild and high. The mild category includes office and janitorial staff, who do not have direct contact with animals. The high category includes all BRL employees, as well as Behavioral Sciences Building and Science and Engineering South employees who have direct animal contact, including animal care technicians, veterinary technicians, and veterinarians.

For individuals in contact with wild species at a UIC animal facility or at a field study site, the occupational health program is based on the species and type of research conducted. There are two risk levels for these individuals, low and high. The low risk level includes individuals conducting field studies in North America or Europe in which only animal observation is performed. The high risk level includes personnel in contact with wild species housed at a UIC animal facility as well as individuals conducting field studies in which animals are handled or the geographic location is other than North American or Europe.

Administration of the Program

The BRL veterinary staff, UHS, and the ACC each have a role in ensuring compliance with the occupational health program and ensuring the health and safety of all individuals in contact with animals through UIC programs. The veterinary staff provides species-specific information in an orientation session. At this time, the veterinarian explains the occupational health program and provides enrollment forms to the individual requesting access to an animal facility. UHS conducts a health assessment and determines the level of risk posed by the animal species

and type of research. The ACC approves the addition of new personnel to an animal use protocol and verifies completion of on-line training. Each of these components must be completed for an individual to gain access to an animal facility. In the case of high risk field studies, a risk assessment based on species and geographic location must be performed by UHS in order to obtain ACC approval of an animal use protocol.

Risks in the Animal Research Facility

This section of the brochure focuses on general methods to prevent disease transfer from animals to humans. In general, taking simple precautions while handling an animal or working in an animal room will prevent most zoonotic diseases. First, food and beverages should not be consumed, contacts handled, or cosmetics applied in an animal room. In addition, avoid touching your eyes, mouth, or nose while handling animals. Second, appropriate protective clothing should be worn, which may include a lab coat or gown, gloves, mask, shoe covers, and/or eye protection. The exact protective clothing required is determined by the BRL veterinary staff and may vary depending on the animal species, presence of hazardous materials, and animal facility. Third, wash your hands immediately after you are finished working with an animal. These simple steps are the most important things you can do to prevent transmitting diseases from animals to yourself.

If you do become ill, it is important to inform your physician that you work with animals. Although you may not have contracted a zoonotic disease, it is important that your health care provider has all the facts to help in the diagnosis.

If you are pregnant or plan to become pregnant, there are additional precautions that you will need to consider when working around animals. There are hazardous agents, including biologic, chemical, and radiologic hazards, which may affect a developing child.

Some of the chemical agents that may be used in an animal facility or research laboratory may be teratogens, meaning they are capable of causing birth defects. Common examples used in research facilities are certain gas anesthetics and the injectable anesthetic urethane.

There are several avenues available to obtain more information on the chemicals you and your child may be exposed to in the animal facilities or research laboratories. There are Material Safety Data Sheets (MSDS) available for you to read to determine potential risks. In addition, you should contact your obstetrician and/or an occupational medicine physician at UHS to discuss additional precautions that you should take during your pregnancy. With the information available, you and your health care provider can make an informed decision about the potential risks to your baby.

If you are immunosuppressed or have a chronic medical condition, it is important to assess the risks associated with working around animals. There are certain diseases that may not cause illness in a person with a fully functional immune system that may cause serious disease in an immunosuppressed individual. It is important to discuss the risks with your health care provider and/or an occupational medicine physician at UHS.

Animal Bites and Scratches

If you are scratched or bitten by an animal other than a macaque, it is important to wash the wound thoroughly with soap and water. All animals, including barrier-housed rodents, have bacteria in their mouths and under their claws, which have the capacity to cause infection if a scratch or bite is not cleaned immediately. After the wound has been cleaned, report to UHS for documentation and treatment of the wound. All costs incurred by UIC employees for job-related animal scratches or bites is covered by UIC. Following evaluation at UHS, fill out an accident report (Form No. Rm-01, *University of Illinois Supervisors First Report of Occupational Injury or Illness*)

explaining the nature and circumstances involving the scratch or bite. Accident report forms are available from your department. People who are immunosuppressed should have the wound checked by their physician due to a greater chance of developing serious complications following an animal-inflicted wound. If you are injured after hours, you must go to the UIC Emergency Room for documentation and treatment of the wound.

Due to potential exposure to rabies, all dog, cat, and ferret bites must be reported to the Cook County Department of Public Health. Report bites from these animals to a member of the BRL veterinary staff to ensure proper documentation of an injury.

For individuals scratched or bitten by a macaque monkey (rhesus, cynomolgus, and stumptails), the B-virus exposure protocol must be followed. The B-virus protocol includes informing the primate floor supervisor or veterinarian, washing the wound with soap and water for 15 minutes, and collecting diagnostic samples at UHS.

Following a scratch or bite, it is important to look for signs that may indicate that the wound has become infected, such as fever, a hot, swollen, red wound, or swollen lymph nodes. To minimize these complications, protect the wound with a bandage until it is completely healed. If you develop an infection, please consult UHS.

Although it is important to clean a wound to avoid contracting a zoonotic disease, it is even more important to prevent these types of injuries. First, it is vital that you are familiar with proper restraint and handling techniques. Animals may bite or scratch if they are not handled properly. The use of species-specific restraint devices can be a great help when you do not have an additional person to assist in handling an animal. Second, it is necessary to be knowledgeable of species-specific behaviors, including signs of aggression or fear, which may precede an injury to a handler. If you are not familiar with proper handling techniques or normal behavior patterns, please feel free to

call a member of the BRL veterinary staff for further training. Third, you should wear appropriate protective clothing to avoid injuries, which may include reinforced rubber, cloth, or leather gloves, depending on the species to be handled.

Allergies to Animals

Although allergies are not considered a zoonotic disease, they are one of the most important health conditions that may severely impair one's ability to work around animals. It has been reported that approximately 30% of individuals who work with laboratory animals, especially rodents and rabbits, will develop allergies. Of these, one-third may develop a chronic respiratory disease, such as asthma. Anyone who already has allergies to animals may have an even greater risk of developing allergies to laboratory animals.

Of the commonly used research animals, rodents, rabbits, birds, and cats are the species that are most often associated with a serious allergic response in sensitive individuals, while nonhuman primates, pigs, and ruminants seem to cause fewer allergic reactions. Nevertheless, people may develop allergies to any type of animal. Depending on the species, dander, urine, or saliva contains substances that cause allergies. These allergens are present on dust particles and water droplets in the animal room, which is the reason individuals with allergies can have an allergic reaction just by being in the same room as an animal. It is important to limit exposure to allergens by wearing appropriate protective clothing such as a long sleeve lab coat or gown, gloves, respirator mask, and even eye protection and by minimizing contact with the animals that cause problems for the sensitized person.

It is important to note that the blue dust masks available in the animal rooms at the BRL do not provide much respiratory protection from allergens. Only respirator-type masks (model N95) provide protection from animal allergens. To use a respirator mask, you must receive

medical clearance from UHS and be fitted for the mask by EHSO. If you have allergic reactions to any of the animals housed at UIC, you should consider consulting with your physician or an occupational medicine physician at UHS about proper respiratory protection and/or treatment of animal allergies. Ignoring the problem may one day result in an inability to work with certain species due to severe allergic reactions.

Nonhuman Primate Zoonotic Risks

Of all the commonly used laboratory animals, nonhuman primates have the greatest potential to transmit serious zoonotic diseases due to their biological similarity to humans. For this reason, the *UIC Occupational Health Program for Individuals with Animal Contact* requires all individuals to participate in a zoonotic disease orientation prior to working with these animals. The most important zoonotic disease is Herpes B or *Cercopithecine herpesvirus -1*, which is transmitted to humans from macaque monkeys. The disease usually does not cause symptoms in macaques, but may cause fatal encephalitis in humans if it is not diagnosed and treated. Tuberculosis may also be passed both from nonhuman primates to humans and from humans to nonhuman primates. In order to protect both the humans and the animals, people who work with nonhuman primates are tested for TB yearly and the entire primate colony is TB tested every three months. Other major zoonotic concerns include a variety of intestinal illnesses which may be passed to humans. Many of the pathogens that cause diarrhea in nonhuman primates may also affect people in the same manner. Some of these agents include the bacteria *Shigella*, *Salmonella*, and *Campylobacter*, the protozoan *Entamoeba histolytica*, and various other intestinal parasites. Nonhuman primates are often asymptomatic, but are still able to pass the agents to humans.

If You Work With Hazardous Agents

The final section of the brochure focuses on

hazardous agents. The *UIC Occupational Health Program for Individuals with Animal Contact* is not designed to directly cover individuals administering hazardous materials. Individuals using such materials in animals must adhere to the Institution's programs on Radiation Safety, Chemical Hygiene, and Blood Borne Pathogens, rDNA, and infectious agents. These programs are administered through the EHSO and the Institutional Biosafety Committee (IBC) and are based on federal and state regulations.

The ACC recognizes that the use of hazardous materials may be necessary to carry out the research mission of UIC and therefore provisions have been made to identify their use in animals through the Protocol for Animal Use. In Form A, item 9a, investigators are required to identify use of the following hazardous agents: carcinogens, biohazards, chemical hazards, radioisotopes, and protocols using recombinant DNA in animals. Investigators who indicate they are using such agents are required to describe precautions, containment facilities, protective devices, carcass disposal, clean-up procedures, and other necessary safety procedures in place to protect personnel and prevent accidental animal exposure. The establishment of precautionary measures is the responsibility of the investigator who develops them in consultation with the appropriate representatives from the Radiation Safety Office, EHSO, and UHS, as well as the BRL veterinary staff. The ACC considers personnel safety to be of the utmost importance and will not approve an animal use protocol unless the section on hazardous materials has been appropriately completed.

1) **Radionuclides** - you must include your Radionuclide Project Authorization Number in the Protocol for Animal Use. Your protocol will not be approved until you have obtained appropriate authorization. No work requiring the use of radionuclides in animals may be initiated until you have obtained the appropriate authorization from the Radiation Safety Office and the ACC. In addition, prior to administering radionuclides to animals that will require

housing post-administration in the BRL, College of Medicine Research Building, or Molecular Biology Research Building, you must submit a *Request to Add Lab to a Radiation Project Authorization* form to the Radiation Safety Office. This form requires the signature of the investigator and the Director of the BRL.

2) Recombinant DNA - you must include your Institutional Biosafety Committee (IBC) approval number and the biosafety level of the vector in the Protocol for Animal Use. If applicable, the UIC BSL2 Laboratory Biosafety Manual must be submitted to the IBC. The UIC BSL2 laboratory manual templates provide substantial information on use of rDNA in rodent species. In addition, the CDC publication on *Biosafety in Microbiological and Biomedical Laboratories* should be used to develop precautionary measures. Your protocol will not be approved until you have obtained appropriate authorization from the IBC. No work requiring the use of recombinant DNA in animals may be initiated until you have obtained the appropriate authorization from both the IBC and the ACC.

3) Biohazards - you must include the biosafety level of the agent. If applicable, the UIC BSL2 Laboratory Biosafety Manual must be submitted to the IBC. The UIC BSL2 laboratory manual templates provide substantial information on use of biohazards in rodent species. For BSL3 agents, a custom-designed biosafety manual must be developed under the guidance of the EHSO's biosafety officer. The CDC publication on *Biosafety in Microbiological and Biomedical Laboratories* should be used to develop precautionary measures. Your protocol will not be approved until you have obtained appropriate authorization from the IBC. No work requiring the use of biohazards in animals may be initiated until you have obtained the appropriate authorization from both the IBC and the ACC.

4) Carcinogens and Chemical Hazards - you must include as an attachment the agent's Material Safety Data Sheet (MSDS).

Please visit the Environmental Health and Safety Office website at <http://www.uic.edu/depts/envh> for more information on hazards in the laboratory.

References

- *UIC Occupational Health Program for Individuals with Animal Contact*, <http://tiger.uic.edu/depts/ovcr/research/protocolreview/acc/policies/0316.pdf>
- *Occupational Health and Safety in the Care and Use of Research Animals, 4th ed.* National Research Council, National Academy Press, 1999.
- *Zoonosis Updates.* American Veterinary Medical Association, 1998.

Definitions of Occupational Risk Categories

RESEARCH STAFF

- LOW** Individuals with no direct contact with mammals, including physical plant employees, contractors, security staff, and visitors
Individuals in contact with reptiles, amphibians, or fish with minimal risk to human health or safety
- MILD** Individuals in contact with rodents, rabbits, dogs, pigs, and ruminants
- MODER-
ATE** Individuals in contact with rodents, rabbits, dogs, pigs and ruminants that require annual assessment (i.e. personnel with history of allergies, immunosuppressive medical condition, immunosuppressive drug therapy, or other conditions as determined by the medical staff of University Health Service)
- HIGH** Individuals in contact with nonhuman primates

ANIMAL CARE STAFF

- MILD** Office and janitorial staff
- HIGH** Any staff member in contact with animals, including veterinarians, veterinary technicians, and animal care technicians

FIELD STUDIES and WILD SPECIES

- LOW** Individuals conducting field studies in North America or Europe in which only animal observation is performed (i.e. no animal handling)
- HIGH** Individuals in contact with wild species brought into the laboratory environment.
Individuals conducting field studies in which animals are handled or in a geographic location other than North America or Europe. The occupational health program is custom designed based on the species, potential zoonotic or physical risks, and/or geographic location.

RESEARCH STAFF:

Risk Category	Veterinary Orientation	Health Assessment	Tetanus Vaccination	TB Screening	Measles Screening	Serum Banking
LOW	NO NEED TO VISIT UNIVERSITY HEALTH SERVICE Accompanied by BRL or research staff member enrolled in occupational health program					
MILD	Baseline + every 5 years	Every 5 years	As needed	NA	NA	NA
MODERATE	Baseline + every 5 years	Annual	As needed	NA	NA	NA
HIGH	Baseline + every 5 years	Annual	As needed	Every 6 or 12 months	Baseline	Baseline

**ANIMAL CARE STAFF:
FIELD STUDIES and WILD SPECIES:**

Risk Category	Veterinary Orientation	Health Assessment	Tetanus Vaccination	TB Screening	Measles Screening	Drug Screening	Respirator Clearance	Hepatitis B Vaccination	Serum Banking
MILD	Baseline	Annual	As needed	Annual	Baseline	Baseline	NA	NA	NA
HIGH	Baseline	Annual	As needed	Every 6 or 12 months	Baseline	Baseline	Baseline	Baseline	Baseline

MILD	NO NEED TO VISIT UNIVERSITY HEALTH SERVICE
HIGH	Custom program based on the species, potential zoonotic and physical risks, and/or geographic location

Key Contact Numbers

UIC Police/Fire: 5-5555

BRL Veterinary Staff

Work hours (312) 996-7040

After hours (312) 413-0057

University Health Service: (312) 996-7420

UIC Emergency Room: (312) 996-7298

Radiation Safety Office

Work hours (312) 996-7429

After hours (312) 996-8440

Environmental Health and Safety Office

Work hours (312) 996-7223

After hours pager (312) 996-2695

Biosafety Committee

To obtain Recombinant DNA Protocol forms, call (312) 996-7427; or go to <http://www.uic.edu/depts/ovcr>

*Safety is everyone's
responsibility!*