



Dartmouth College

Animal Care and Use Program

Institutional Animal Care and Use Committee

IACUC Policies and Procedures

Title: Occupation Health Program For Personnel Caring For Or Using Laboratory Animals

Purpose: The Occupational Health Program has an important role in the Dartmouth College, Dartmouth Medical School (DC-DMS) Animal Care and Use Program. This program, operated by the Animal Resources Center (ARC) through the Department of Occupational Medicine, DHMC, is designed to protect both DC-DMS personnel and the laboratory animals they work with.

This informational handout is an introduction to the DC-DMS "Occupational Health Program for Personnel Caring For or Using Laboratory Animals". The requirements of this program are based on guidelines in the NIH Guide for the Care and Use of Laboratory Animals, and the NRC Occupational Health and Safety in the Care and Use of Research Animals.

Policy: All DC-DMS personnel who have substantial contact with laboratory animals should know about this program. Substantial contact with laboratory animals is determined by a review of the Personnel Information Sheet completed by the Principal Investigator on each individual in their laboratory working with animals. The level of participation in the Occupational Health Program is based on the species the individual is working with, the amount of time in contact with the animals, and hazards identified in the protocol. Personnel who have direct contact with non-human primates (NHP), or ruminants which could potentially carry Coxiella burnetti, shall be considered to have substantial contact. Individuals who have direct contact with non-conditioned random source animals which could potentially carry rabies should be informed of this policy and be given the opportunity to become part of the pre-exposure immunization program that is in place for animal care personnel.

This may include:

- All full time animal care staff
- Some investigators and laboratory assistants
- Some students, consultants and visitors.

The Occupational Health Program (OHP) includes: periodic medical examinations for certain levels; tuberculosis screening and Rubeola titer or vaccination, if NHP exposure; and possible pre-exposure rabies immunization. A current tetanus/diphtheria toxoid vaccination is required.

Enrollment

The Personnel Information Form must be completed including each individual that is listed on an ASRF as working directly with animals. This form is completed at the time a new ASRF is submitted for review by the IACUC and amended when new personnel are added to the ASRF through the modification process. This form must be completed by the PI. Once the level of risk has been assigned, the employee will receive this educational handout. If it is determined that the employee falls into the Low through High risk categories they will be asked to contact the Department of Occupational Medicine, DHMC, to schedule an appointment for an initial physical. .

Full time animal care personnel will be enrolled in this program by the ARC office.

If any of the following occur, notify your supervisor and seek medical attention IMMEDIATELY:

- You are bitten or scratched by an animal;
- You are experiencing unusual disease symptoms.

The DHMC Department of Occupational Medicine and Dick's House are available during working hours. It is recommended that students be seen at Dick's House to avoid billing concerns. The DHMC Emergency Department may be contacted evenings, weekends and holidays.

Diseases Communicable from Animals to Humans

Humans usually are not susceptible to the infectious diseases found in animals. However, there are some important exceptions. Some infectious diseases of animals may produce significant disease in people. These infections are called zoonotic diseases. In many cases the animals show little, if any, sign of illness. Bacteria in the normal flora of a healthy animal may produce illness in exposed personnel. While the animals have developed "resistance" to these microorganisms, humans with no previous exposure to the agent lack this protective immunity. Therefore, one should always be aware of possible consequences when working with each type of animal and then take precautions to minimize the risk of infection. In the event that you do become ill with a fever, allergy symptoms, or some other sign of infection, it is important to let the physician caring for you know of the work you do with animals.

Some of the specific diseases and the animals associated with those diseases are described elsewhere in this handout. There are some common sense steps that can be taken to lessen the risk of infection in general. These include cleanliness in routine tasks around animals and hand washing after completion of animal work. Personnel should protect themselves by wearing gloves; substituting manually operated pipettes for needles and syringes, and cannulae for needles; taking enough time to give injections properly; and by using a two-person team to inoculate animals. Further precautions should be taken by thoroughly cleansing the inoculation site. Do not recap the needles; discard them in a container designed for proper disposal. These containers are available from the Scientific Stockroom and are located throughout the ARC facilities, particularly in procedure areas. For procedures such as necropsy, bedding changes, and tissue and fluid sampling; biological safety cabinets, physical containment devices, full-face respirators or other personal safety gear should be used as required, and may have certain requirements associated with their use. Appropriate animal restraint techniques will also help minimize injury to both handlers and animals.

The scope of possible zoonotic infections is quite large, and only a few examples will be described here. All personnel should be aware that laboratory animals (particularly rats, rabbits, guinea pigs, hamsters, cats, and monkeys) are sources of potent allergens to sensitized persons.

If you are PREGNANT

Pregnant women without immunity to toxoplasmosis should not be exposed to possible toxoplasmosis infection from infected species such as cats. The risk of congenital toxoplasma infection exists and precautions must always be taken. Cat feces should be avoided. Gloves should be worn when working in areas potentially contaminated with cat feces. Thorough hand washing after handling any potential source of infection is necessary.

Working with hazardous agents, in particular exposure to the possible inhalation of toxic chemicals, in the first trimester of pregnancy is discouraged. Pregnant women should also be particularly careful around sources of radiation. If you have any questions regarding this issue, contact the Environmental Health and Safety Office as soon as possible for a consultation.

If you work with NONHUMAN PRIMATES (e.g. Baboons, Monkeys)

Primate colonies pose special zoonotic risks. Non-human primate diseases are often transmissible to humans and can be a serious health hazard. Tuberculosis may be transmitted both from animals to man and from man to animals. In all primate colonies, regularly scheduled TB testing must be done of both the primates and the personnel (including animal technicians, clinician investigators, students, and research technicians) exposed to them. Common human viruses such as measles and Herpes virus simplex may also pose particular risks for a number of primate species. Cercopithecine herpes virus, or Herpes B, which is carried by Old World primates, is the primate virus of most concern to people who handle these animals. Herpes B

virus is frequently carried asymptotically by rhesus, cynomolgus and possibly other members of the genus Macaca. It can cause fatal encephalitis in man. Wounds by these species, or from objects contaminated with body fluids from these species, require immediate medical attention. Simian Immunodeficiency virus (SIV), a relative of the AIDS virus, is found in the African Green Monkey and other African species. While this virus can infect several other nonhuman primate species, there is currently no evidence to indicate human disease following exposure. Shigella, Campylobacter and Salmonella are quite common bacterial infections in nonhuman primate species. Precautions must be taken to prevent either human or primate cross-contamination. Parasites such as Entamoeba histolytica can also be transferred to man and provide further reason for the use of protective clothing and careful hand washing after exposure to monkeys or monkey feces.

Protective clothing such as outer garments, gloves, masks, and eye protection should be used when handling nonhuman primates. All personnel who come into direct contact with primates are required to undergo semi-annual screening for tuberculosis. Management practices for potential B virus-contaminated wounds are posted by the sink, and in the Primate Bite/Scratch Kit, in primate housing/handling areas.

If you work with DOGS or CATS

Conditioned dogs and cats used at ARC are immunized against rabies. An exception is made for those animals used in some nonsurvival experiments. Even though these animals are under a veterinarian's supervision, some risk of exposure to rabies exists because the observation period may be too short to allow typical development of the symptoms of the disease to develop. Animal care technicians, investigators, students, and other staff who come in contact with awake unconditioned random-source dogs or cats are strongly encouraged to have the pre-exposure rabies prophylaxis and must be involved in the OHP. In addition, people handling fresh tissues from unconditioned random source dogs and cats should take appropriate precautions.

Parasites such as visceral larval migrans from dogs, some tapeworms, and sarcoptic mange are a potential risk to those handling infected animals. In addition, Toxoplasma gondii represents a potential zoonotic hazard, especially to pregnant women. Those working with cats should also be conscious of possible allergic reactions.

Ringworm, a fungal disease of the skin, is an infection in dogs and cats which is readily transferable to man. All of these diseases can be avoided through the use of protective clothing and good hygiene.

Cat scratch disease is a zoonotic infection characterized by regional lymphadenitis that follows a skin papule at the site of the cat scratch. While the prognosis usually is excellent and the disease in most cases is self-limiting, an examination by a physician is recommended.

If you work with FARM ANIMALS (e.g. Goats, Sheep, Pigs)

Q fever, a potentially serious human disease caused by the rickettsia Coxiella burnetii, was formerly quite common in people drinking unpasteurized milk and in slaughtered cattle, sheep, and goats. It is now known that the organism is shed abundantly from the placental membranes of sheep and goats. This route of exposure has been the cause of some cases of Q fever pneumonia in laboratory workers. Sheep used in reproductive research or other studies should be examined serologically for possible infection, and personnel working with these animals should take extra precautions. Gloves, mask and protective clothing are required for individuals working with pregnant sheep and goats. Infected persons can be effectively treated with antibiotics.

Erysipelas in pigs can be transmitted as a severe focal skin infection to man. Pigs showing diagnostic lesions should be handled with care. Similar appearing, though less severe, skin lesions are also seen on the hands after contact with sheep and goats infected with contagious ecthyma, also called "orf," or vesicular stomatitis. Protective clothing will prevent transmission of both of these diseases.

If you work with BIRDS, RABBITS, FROGS, or TURTLES

Birds have diseases such as psittacosis and avian tuberculosis. Only inspected and properly quarantined birds should be used in research studies or teaching demonstrations. Those working with rabbits should be conscious of possible allergic reactions. Skin parasites such as Cheyletiella parasitivorax can cause transient rashes in man.

Salmonella can be harbored in turtles and other reptiles and amphibians. Transmission can be avoided by the use of protective clothing and good hygiene.

If you work with RODENTS (e.g. GERBILS, GUINEA PIGS, HAMSTERS, MICE, RATS)

Contact with rodents requires precautions against such diseases as tapeworm infection, lymphocytic choriomeningitis (LCM), Salmonellosis and Shigellosis, as well as ringworm and other dermatomycoses. Additional concerns for investigators using wild rodents are leptospirosis and bubonic plague. Attention should also be paid to the possibility of allergic reactions. "Rat Bite Fever" in man can result from the bite of a rodent infected with Streptobacillus moniliformis or Spirillum minus. Bite wounds from rodents should receive medical attention. Bite wounds can be minimized by correct handling techniques.

LCM, a rodent virus found in nervous tissue, and shed in urine and saliva, is transmissible to man. Care must be taken when handling rodents as well as potentially infected materials, such as bedding.

Allergies to animals: Cause, symptoms, medical evaluation and control

Allergy symptoms can occur in individuals that are exposed to animal body fluids, hair or dander; and are particularly common when working with rabbits, or rodents. However, an allergy to any species is possible and not uncommon. Symptoms can range from minor to severe and may include runny nose, runny or itchy eyes, asthma (characterized by wheezing and shortness of breath), a skin rash or bumps, or even gastrointestinal (GI) disorders. The most important part of preventing animal related allergies is to minimize exposure to animals as much as possible by: 1) working in a ventilated hood or biosafety cabinet, 2) working in a well ventilated room, 3) not wearing your street clothes when working with animals, and 4) ALWAYS wear lab coat, scrubs and gloves. If you think you are allergic to animals you work with or around please contact Occupational Medicine, DHMC, if you are an employee; or Dick's House, if you are a student. Your symptoms may be controlled by medication and/or increased measures to reduce exposure. Some people have such severe symptoms that they cannot continue to work with or near animals; however, early detection and control measure will decrease this likelihood.

If you work with Potential or known HAZARDOUS AGENTS

The safe use, storage and disposal of potentially hazardous materials (biological, chemical and radiation--ionizing and non-ionizing) is subject to a variety of regulatory requirements. Dartmouth's compliance with such requirements is overseen by the Office of Environmental Health and Safety (EHS). Each Principal Investigator (PI) is responsible for ensuring that all work is in keeping with the College policy.

In general:

- The use of hazardous chemicals is subject to the Dartmouth Hazard Communication and Chemical Hygiene Plans.
- The use of potentially infectious materials is subject to the Dartmouth Exposure Control Plan for Research Laboratories. These requirements reflect the guidelines outlined in the CDC/NIH publication Biosafety in Microbiological and Biomedical Laboratories.
- The use of ionizing and non-ionizing radiation is subject to the policies and procedures outlined in the Dartmouth Radiation Safety Handbook and oversight by the College's Radiation Safety Officer.
- The proper disposal of hazardous materials at Dartmouth is described in the EHS Hazardous Waste Management, Minimization and Disposal Guide.

For copies of these policies, information and assistance--call EHS at 646-1762, or blitz EHS.