

WORKING SAFELY WITH ANIMALS

The University of California, Berkeley actively promotes the safe handling of animals used in research and teaching. This brochure introduces some of the risks associated with the handling of animals and describes the steps that should be taken to minimize them.

Risks in Handling Animals

The hazards associated with handling animals or their tissues can be divided into three categories:

- 1) Physical injuries include bites and scratches inflicted by rodents, rabbits, cats, primates and other species. The key to preventing these types of injuries is proper training of research personnel by animal care staff or other qualified individuals.
- 2) Allergies are associated with respiratory or contact allergens such as animal dander or urine. All personnel should be aware that laboratory animals are sources of potential allergens. The best policy in most circumstances is to prevent exposure.
- 3) Zoonotic diseases are those that can be transmitted from animals to humans, and from humans to animals. Although zoonotic diseases are not common in modern animal facilities, their prevention and detection must be an important concern of all personnel who work with animals in the laboratory or the field. Remember that zoonotic diseases can be transmitted by tissues as well as by live animals.

Zoonotic Diseases

Humans are sometimes susceptible to infectious diseases carried by animals even when the animals themselves show few signs of illness. Microorganisms in the normal flora of a healthy animal may cause serious illness in persons who have had no previous exposure to the organism and lack protective immunity. Persons who are immunosuppressed because of medication or underlying medical conditions may be at a higher risk of infection. Workers should be aware of these possibilities and take precautions to minimize the risk of infection. In the event that you do become ill with a fever or some other sign of infection, it is important to tell your physician that you work with animals.

Personal Hygiene and Protection

There are some common sense steps that can be taken to lessen the risk of infection when working with animals. These include not eating, drinking or applying cosmetics or contact lenses around animals or animal care areas; wearing gloves when handling animals or their tissues; taking care not to rub your face with contaminated hands or gloves; and washing your hands after each animal contact. Research personnel can protect themselves by limiting their use of needles and syringes, taking enough time to give injections properly, anesthetizing animals prior to inoculation with infectious agents, and using a two-person team to inoculate animals. Do not recap used needles! Discard them promptly in a biohazard "sharps" container. For procedures such as necropsies, bedding changes, and tissue and fluid samplings, containment devices such as biological safety cabinets, full face respirators or other personal safety gear should be used as indicated. Consult your supervisor or the Office of Environment, Health and Safety (642-3073) if you feel you need additional training at any time!

What You Should Know

...About Bites, Scratches and Other Injuries

Contact the University Health Service immediately if you are bitten or scratched by an animal, if you cut or scratch yourself on animal caging, or if you are experiencing unusual disease symptoms. The Occupational Health Clinic (642-6891) is open M-F, 8:00AM to 4:45PM. The Urgent Care Clinic (642-3183) is available during extended hours and Saturdays during the academic year.

...If You Are Pregnant or Planning a Pregnancy Toxoplasma is an infectious agent that is shed primarily in cat feces. It can infect unborn babies of women exposed during pregnancy who do not have immunity to the agent. Asymptomatic toxoplasma infection is common before child-bearing years, and many women have elevated antibody levels indicative of immunity. To help assess the level of immunity against this agent, serum samples can be tested. Cat feces should be avoided and gloves should be worn when working in areas potentially contaminated with cat feces. Thorough hand washing after handling any potential source of infection is also necessary. Working with hazardous agents and toxic chemicals is discouraged during pregnancy. The Occupational Health Clinic (642-6891) is available to consult with you about work exposures during pregnancy.

...If You Work with Non-Human Primates

Diseases of non-human primates are often transmissible to humans and can be serious health hazards. Although there are several primate viruses that can cause disease in humans, Herpesvirus simiae (or B-virus) is of greatest concern. The B-Virus occurs naturally in macaque monkeys. Infection with B-Virus usually produces very mild disease in monkeys with no evidence of infection. Transmission to humans can occur via exposure to contaminated saliva, secretions, or tissues. The most likely route of transmission is bites and scratches. The virus may cause a fatal encephalitis in humans. Proper work practices markedly reduce the chances of human infection. When working with nonhuman primates:

- Bites or scratches inflicted by macaques or wounds caused by objects contaminated with their body fluids require immediate medical attention! Instructions for treating wounds and obtaining medical attention are posted in each primate area.
- Wear gloves, gown, mask and goggles.
- Exercise caution at all times, remembering that these are wild animals. They can and will bite, and are capable of transmitting several other diseases besides B-Virus.
- Work together with at least one other person when handling monkeys. Capturing, restraining, or otherwise handling non-sedated monkeys is not recommended. Such procedures should be accomplished using acceptable physical and chemical restraint methods.

Tuberculosis may be transmitted from human to nonhuman primates and rarely, from animals to humans. Nonhuman primates and individuals in contact with them must be TB tested on a regular schedule. Shigella, Campylobacter, and Salmonella cause bacterial dysentery in primates species and can cause similar problems in humans exposed to primate excrement. Parasites such as Entamoeba histolytica can also be transferred to humans and provide further reason for careful hand washing after exposure to primates.

Simian Immunodeficiency virus (SIV), a relative of the HIV virus, is found in the African Green Monkey and other African species. This virus infects several other nonhuman primate species and there is laboratory evidence that it may infect humans.

All persons working with nonhuman primates or their tissues must undergo training by the Director of the Office of Laboratory Animal Care (OLAC). Call 642-9232 to schedule this training if you have not already completed it. Medical screening by the University Health Service Occupational Health Clinic also is required on an annual basis. Call 642-6891 to schedule an Animal Handler Medical Screening appointment.

...If You Work with Cats

All cats used at Berkeley have been vaccinated against rabies. Some cat parasites are potential risks to those handling infected animals. Examples include some immature forms of roundworms and tapeworms, and mange mites. A fungus disease of cat skin called "ringworm" is also readily transmitted to humans, and allergies to these species are a common problem.

Cat scratch disease is a zoonotic infection characterized by inflammation of regional lymph nodes following a cat scratch. While the prognosis is usually excellent and the disease in most cases is self-limiting, an examination by a physician is recommended.

Women of child-bearing years may be at risk of contacting Toxoplasma from cat feces. For more information, see "What You Should Know If You Are Pregnant or Planning a Pregnancy," above.

...If You Work with Rabbits

Rabbits are a common source of human allergies. In addition, rabbit skin mites such as Cheyletiella parasitovorax can cause transient rashes in humans. If you handle wild rabbits or their tissues, see "If You Work With Wild Animals in the Field," below.

...If You Work with Reptiles or Amphibians

Salmonella is frequently harbored by turtles, other reptiles and amphibians. Oral transmission to humans can cause diarrhea, and can be avoided by wearing gloves and careful hand washing. Venomous snakes may be handled only by individuals who have been pre-approved by OLAC veterinary staff and the Animal Care and Use Committee.

...If You Work with Rodents

Allergies are common among personnel who work with rodents (e.g., mice, rats, gerbils, guinea pigs, hamsters). If you already are sensitized to rodent dander, or if you become sensitized, you should report this immediately to the Occupational Health Clinic.

Contact with rodents requires awareness of diseases such as dwarf tapeworm, lymphocytic choriomeningitis (LCM), salmonellosis and ringworm. To protect against these agents, care should be taken to limit direct and aerosol exposure to soiled bedding containing feces and urine. Gloves and masks limit exposure to soiled bedding and help prevent transmission of diseases such as ringworm and fur mites.

If you will handle wild rodents or their tissues, see "...If You Work With Wild Animals in the Field," below.

...If You Work with Wild Animals in the Field

Many bat species can transmit rabies, and personnel working with bats are advised to have a pre-exposure rabies vaccination. Rabies also can be transmitted to humans by skunks, raccoons, foxes, wolves, coyotes, and other carnivores. Anyone whose work involves a risk of bites from these animals should consider immunization against rabies, which is available through the Animal Handlers Medical Screening Program at the Occupational Health Clinic. Call 642-6891 for an appointment to discuss pre-exposure immunization. All bite or scratch wounds involving wild animals require prompt medical evaluation and treatment.

Uncommon but serious risks associated with using wild rodents include Hantavirus, bubonic plague and leptospirosis. Deer mice (*Peromyscus maniculatus*) appear to be the principal reservoir for a new strain of Hantavirus that is pathogenic to humans. The likelihood of infection with Hantavirus appears to be low, but the fatality rate exceeds 50%. Researchers who will be exposed to the blood, tissues, feces, or urine of deer mice should follow the "Guidelines for Handling Animal Reservoirs of Hantavirus: Field Research Practices for UCB," available from the campus Office of Environment, Health and Safety at 642-3073.

Wild birds can be infected by zoonotic diseases, such as psittacosis and avian tuberculosis. Wild rabbits can transmit tularemia to those exposed to fresh tissues. When working with these species, workers should be informed of these possible risks and trained in ways to minimize them.

Ticks can transmit several diseases, including Lyme Disease, which is on the rise on the Pacific Coast. Common antibiotics usually cure Lyme Disease if given within the first few weeks of infection, but if treatment is delayed the disease can lead to arthritic, cardiac or neurological problems, which are more difficult to cure. To prevent tick bites, wear full-length pants and long-sleeved shirts when outdoors in tick-infested areas. Tuck your shirt into your pants, and pant legs into your boots or socks. A tick repellent may also be used on clothing and skin. Inspect yourself often and promptly remove any embedded ticks with forceps or fingers protected by tissue. If you experience a delayed, donut-shaped, red discoloration around a tick bite, or joint pain, fever, chills, headache or malaise after being bitten by a tick, immediately contact the Occupational Health Clinic (642-6891).

For additional information about minimizing these and other health risks in the field, see the campus's "Safety Guidelines for Field Research," available from the Office of Environment, Health and Safety (642-3073).

Animal Care and Use Committee
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<http://www.acuc.berkeley.edu/>

Office of Laboratory Animal Care
203 Northwest Animal Facility #7150
(510) 642-9232
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Occupational Health Clinic
Clinic 4, Tang Center
2222 Bancroft Way #4300
(510) 642-6891
<http://www.uhs.edu/FacStaff/OccHealth/index.html>

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Adapted with permission from the U. S. Department of Veterans Affairs. Revised: 7/97