# Diseases Communicable from <u>Animals</u> to Humans

Zoonotic diseases: Diseases that may be spread between animals and humans.

- 65% of the 1,415 infectious organisms known to cause disease in human are zoonotic.
- 3 out of every 4 new or emerging infectious diseases in people come from animals (CDC, 2021).
- Yearly, 2.5 billion cases of illness worldwide are a result of zoonotic diseases (World Economic Forum, 2023).

When activities place people in close proximity to animals the risk of exposure to zoonoses increases. These locations include: laboratories, farms, zoos, aquariums, veterinary clinics/hospitals, field (wildlife) and home.

In an academic and research laboratory environment nearly all animals can be involved in disease transmission, but the most common carriers of disease include: non-human primates, wild animals, birds, and pregnant non-rodent mammals.

Research, teaching, animal husbandry, and veterinary care activities may place faculty, staff, students, and volunteers at risk of disease, such as: avian influenza, Brucellosis, Hantavirus, Herpesvirus B, Leptospirosis, Lyme disease, Plague, Psittacosis, Q-fever, Rabies, Rocky Mountain Spotted Fever, Salmonellosis, and West Nile Virus.

Humans are usually not susceptible to the infectious diseases that impact animals. Many times animals carrying an infectious disease may show few, if any, signs of illness. For example a bacterium known to cause serious illness in humans exposed to it may be a part of an animal's normal flora.

Due to the risk of zoonotic diseases one should be aware of the risks associated with working with each type of animal and the possible consequences of infection in order to minimize risk.

If you do become ill with a fever or other flu-like symptoms it is important to let the physician caring for you know about your animal exposure.

## Who should be informed?

All UNL personnel who work in laboratory animal facilities or work with animal tissue should know about this program. Personnel included are those individuals involved in direct care of animals and their living quarters and those individuals who have direct contact with animals (live or euthanized), their viable tissues, body fluids, or wastes, including: staff, investigators, lab assistants, consultants, visitors and students.

## **In Case of Emergency** See a physician if any of the following occur:

See a physician if any of the following occur.You are bitten by an animal

- You are scratched by an animal
- You are experiencing unusual symptoms

Worker's compensation injuries may be treated at any urgent care clinic. More serious injuries may be treated at any emergency room. Contact your supervisor immediately so he/she can submit the "First Report of Alleged Occupational Injury or Illness" form to HR, optimally within 24 hours.

### UNL Institutional Animal Care Program 402-472-4486 https://go.unl.edu/iacp

The University of Nebraska does not discriminate based on race, color, ethnicity, national origin, sex, pregnancy, sexual orientation, gender identity, religion, disability, age, genetic information, veteran status, marital status, and/or political affiliation in its programs, activities, or employment.

Copyright: 2024

# ZOONOSES INFORMATION WHEN WORKING WITH ANIMALS

RESEARC

## Allergies and Working with Animals

Many people with pre-existing allergic conditions (i.e. seasonal allergies, hay fever, pet allergies) eventually develop allergies to lab animals. All personnel should be aware that rats and mice, rabbits, guinea pigs, hamsters, cats, and monkeys are sources of potent allergens to sensitized people.

Allergy symptoms usually worsen with repeated exposure over the course of one to two years. Ten percent of persons with allergic conditions may also develop occupational related asthma.

#### Allergy Symptoms:

- · Itchy, watery eyes
- Runny nose
- Skin rashes
- · Coughing, wheezing, shortness of breath

#### **Prevention strategies:**

- Good hygiene, including frequent hand washing
- Using personal protective equipment (PPE) (e.g. goggles, gloves, lab coats, particulate fine dust masks)
- Working in well-ventilated areas

If symptoms persist or worsen, despite using precautions, limiting exposure may be necessary. Please contact the IACP occupational health and safety nurse if you have questions or concerns.

# Working with Hazardous Agents

Monitor exposure to potentially hazardous biological, chemical, and physical agents. Protective devices should be used and other safety practices consistent with current safety guidelines should be adapted. Potentially hazardous chemicals may be found in disinfectants, cleaning agents, and pesticides used in the animal facility and laboratories. Always, wash your hands after handling chemicals, infectious materials, animals, and before leaving the laboratory. Use a biological safety cabinet when handling infectious materials and a fume hood when handling toxic materials. Decontaminate all work surfaces daily. Decontaminate all contaminated material by autoclaving or chemical disinfection before washing, reuse, or disposal.

## **Special Considerations**

**Rodents:** Contact with rodents requires precautions against diseases such as toxoplasmosis, tapeworm infections, lymphocyctic choriomeningitis (LCM), salmonellosis and ringworm and other dermatomycoses. Additional concerns for investigators using wild rodents are Hantavirus, leptospirosis, and plague. Attention should also be paid to the possibility of allergic reaction. Care must be taken when handling rodents and potentially infected materials, such as bedding and feces, in the laboratory. Gloves, masks and a dedicated lab coat should always be worn when working with rodents.

**Farm Animals:** Working with domesticated farm animals carries the potential for several different zoonotic diseases. **Q fever:** a potentially serious human disease, was quite common in people who drank unpasteurized milk and in slaughterhouse workers exposed to the tissues of freshly harvested cattle, sheep, and goats. We now know that the agent that causes Q fever is shed abundantly from the placental membranes of sheep. Sheep used in reproductive research or other studies should be examined serologically for possible infection. Gloves, masks and protective clothing are required for individuals working with pregnant sheep and goats.

**Rabies:** can also be a threat in large animals such as cattle and horses. A pre- exposure rabies prophylaxis is recommended for people working with cattle or horses.



Bats: Rabies can be a threat in bats. Therefore, personnel working with this species are advised to have the pre-exposure rabies prophylaxis and an annual follow-up.

**<u>Birds:</u>** Can be carriers of diseases such as aspergillosis and psittacosis. Only inspected and properly quarantined birds should be used in research studies or teaching demonstrations.



**Dogs & Cats:** Parasites such as visceral larval from dogs, some tapeworms, and sarcoptic mange are a potential risk to those handling infected animals.

Cats can be a source of allergic reactions and toxoplasmosis infection. Ringworm, a fungus disease of the skin, is also a common infection in cats and is readily transferable to humans. Cat scratch disease is a zoonotic infection characterized by regional lymphadenitis that follows a skin papule (welt) 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.

Aquarium Housed Animals: Aquarium-related cuts and abrasions require immediate first aid because of bacterial flora in the water. Salmonella is frequently harbored in turtles, reptiles, and amphibians, so avoid direct contact.

**NOTE:** Infected animals can make you sick, even if they appear healthy and clean. Gastrointestinal (enteric) zoonoses are one type of illness that can upset the digestive system (stomach and intestines) and can make people sick. Enteric disease has been responsible for illnesses and outbreaks, including Salmonella, E. coli O157:H7, and Cryptosporidium. These germs can come from many types of animals, including pets, wild animals, and farm animals.

## **Special Considerations for Women**

Female caretakers, especially those of childbearing age, should avoid exposure to possible toxoplasmosis from infected species or contact with cats. Since asymptomatic toxoplasma infection is common before childbearing years, serological samples should be taken from women handling high-risk species prior to beginning work to avoid confusion about the significance of positive antibody tests in case of subsequent pregnancy.

Additionally, if you are female of childbearing age, confer with occupational health and safety medical staff or the Environmental Health and Safety (EHS) office prior to exposure to potentially toxic chemicals.