Working With or Near Wildlife

Introduction

Occupational exposures to wildlife can increase the risk of workers becoming ill by both novel and known zoonotic diseases. Zoonotic diseases are infectious diseases transmitted between animals and people. Working with or near wild animals (e.g., rodents, bats, wild birds, deer, raccoons) can lead to exposures that may cause illness, even when those animals do not appear sick. Zoonotic diseases can cause infections in people that range from no or mild symptoms to severe symptoms and even death, depending on the pathogen involved. Working with wildlife requires specific precautions to minimize risks and protect the health of workers.

This document is intended to provide employers and workers with information on several zoonotic diseases associated with occupational wildlife exposures and recommends control measures that can be implemented to minimize the risk of infection.

Exposure to Wildlife Zoonotic Diseases and Transmission to People

Workers can be exposed to pathogens (germs such as bacteria, viruses, and parasites) from wildlife. Generally, workers can be exposed through:

- Contact with an infected animal, body fluids (e.g., saliva, blood, urine, or feces) or animal products (e.g., tissue or hides), either directly or from contact with contaminated surfaces or objects
- Contact with areas where infected animals live (such as racoon dens)
- Breathing air contaminated by pathogens from infected animals
- A bite or scratch from an infected animal
- A bite from a bug (e.g., tick, mosquito, or flea) that is carrying a pathogen
- Eating or drinking food or exposure to water contaminated by animals

The following activities may increase the risk of exposure to pathogens that can cause a zoonotic disease, whether the animal is dead or alive (and appears healthy or sick):

- Trapping and handling wildlife and carcasses
- Collecting or testing biological samples from wildlife (e.g., blood and feces)
- Working on a site where wild animals may be present (e.g., rodents or wild birds in a barn)
- Cleaning areas contaminated with large quantities of animal urine and feces, especially in an indoor setting
- Handling contaminated equipment (e.g., traps, cages, field equipment, and soiled laundry or footwear)

Any individual working outdoors may be at risk of encountering wild animals and wildlife-associated zoonotic diseases. Occupations with an increased risk of exposure may include but are not limited to:

- Construction worker
- Farm and agricultural workers
- Forestry worker
- Hydro worker
- Landscapers
- Pest control worker
- Telecommunications line worker
- Veterinarians and veterinary staff
- Wildlife biologist

- Wildlife rehabilitator

Each workplace is unique, and the employer is required to take every reasonable precaution for the protection of workers. Workplaces with workers at risk of exposure to zoonotic infections from wildlife must conduct a risk assessment and implement appropriate control measures. A risk checklist can help identify risks and suggested control measures.

Wildlife Zoonotic Diseases

The list below provides general information on several zoonotic diseases that could affect workers. This list is not exhaustive, and it is recommended that employers and workers understand the diseases and animals that may be found in their specific work locations and the symptoms associated with these diseases. If you are seeking additional information related to a specific zoonotic disease, contact a health care provider.

Wildlife Zoonotic Diseases table

Disease	Potentially Infected Wildlife	Possible Workplace Exposures	Symptoms in People	Incubation Period (time from exposure to symptom development)
• Anthrax	• Bison Deer Moose	• Contact with infected animals, carcasses, or animal products Breathing in contaminated air (e.g., during the processing of wool, hides, or hair or during the burial of infected carcasses)	• **Skin anthrax**: Blisters, bumps, painless skin sore with black center **Inhalation anthrax**: Fever, chills, nausea, headache, cough	• 1-7 days for skin anthrax, or up to 2 months for inhalation anthrax
• Avian influenza	• Wild aquatic birds Wild mammals that eat wild birds (e.g., skunk, fox, raccoon)	• Contact with wild birds, their feathers, fluids, or feces Contact with wild animals that eat wild birds Breathing in contaminated air (e.g., live animal markets)	• Cough, fever, shortness of breath, muscle aches, headache	• 1-5 days (and occasionally longer)
• Bovine tuberculosis	• Bison Elk Deer	• Contact with infected animals or tissues and fluids (e.g., lungs, lymph nodes)	• Asymptomatic or fever, weight loss, night sweats, persistent cough, gastrointestinal issues, and fatigue	• 4-12 weeks (occasionally decades)
• Brucellosis	• Bison Caribou Deer Elk Muskox	• Contact with infected animals Breathing in contaminated air	• Fever, sweating, lack of appetite, headache, pain in muscles, joints or back, fatigue, feeling unwell	• 5 days-6 months
• Echinococcosis	• Cervid Coyote Fox Wolf Rodent	• Contact with infected animals, carcasses or feces Contact with feces contaminated vegetation, water or soil or contaminated objects	• Abdominal pain, nausea and vomiting; if lungs involved, chronic cough, chest pain and shortness of breath	• 5-15 years

Working With or Near Wildlife

Disease	Potentially Infected Wildlife	Possible Workplace Exposures	Symptoms in People	Incubation Period (time from exposure to symptom development)
• Hantavirus	• Rodent (deer mouse, white-footed mouse, red-backed vole)	• Breathing in contaminated air Contact with contaminated objects Bite from infected animal	• **Hantavirus pulmonary syndrome**: tiredness, dizziness, fever, chills, muscle aches, headache, nausea, vomiting, stomach pain, coughing **Hemorrhagic fever with renal syndrome**: headache, back and stomach pain, fever, chills, nausea, blurred vision	• 1-6 weeks
• Leptospirosis	• Raccoon Rodent Skunk	• Contact with urine or anything contaminated with urine (e.g., food, water, soil)	• Fever, headache, chills, nausea, vomiting, diarrhea, muscle pain, skin rash, eye infection, jaundice (yellowing of eyes and skin)	• 2-3 weeks
• Lymphocytic choriomeningitis	• Rodent	• Contact with urine, droppings, or saliva Bite from infected animal	• Fever, muscle pain, headache, nausea, vomiting, lack of appetite, feeling unwell, encephalitis (swelling of the brain)	• 8-13 days
• Plague	• Ground squirrel Marmot Prairie dog	• Bite from infected flea carried by a rodent Contact with contaminated animal tissues or fluids Breathing in contaminated air	• **Bubonic plague**: swollen lymph nodes usually in the neck, armpits, or groin, weakness, fever and chills, headache **Septicemic plague**: fever and chills, skin turning black, weakness, abdominal pain **Pneumonic plague**: cough, chest pain, fever, weakness, shortness of breath, bloody/watery mucous, pneumonia	• 2-7 days
• Q fever	• Deer Rabbit Rodent Wild bird	• Breathing in contaminated air Contact with infected animal tissues or fluids	• Fever, chills, headache, fatigue, muscle pain, chest pain, cough, pneumonia	• 13-28 days
• Rabies	• Bat Fox Raccoon Skunk	• Bite from infected animal (note that puncture wounds from bat bites may not be clearly visible on the skin)	• Fever, headache, discomfort at the bite site, changes in mental state, anxiety, confusion, agitation, death	• Weeks to months
• Toxoplasmosis	• Bear Bison Moose Wild bird	• Contact with contaminated feces, water, sand, or soil	• Fever, headache, muscle pain, tiredness, swollen lymph nodes usually in the neck, vision changes	• 5-23 days

Working With or Near Wildlife

Disease	Potentially Infected Wildlife	Possible Workplace Exposures	Symptoms in People	Incubation Period (time from exposure to symptom development)
• Tularemia	• Beaver Rabbit Rodent	• Contact with infected animal Bite from infected tick or deer fly Breathing in contaminated air	• Sudden fever, chills, headache, muscle pain, joint pain, dry cough, weakness, pneumonia	• 3-14 days

See the Resources section for more information on zoonotic diseases.

Workplace Control Measures

After identifying the risks to workers, employers must implement the most appropriate control measures with consideration given to the hierarchy of controls. A layered approach where multiple control measures are applied at the same time is recommended since a single control measure alone is not likely to be very effective.

The selected control measures must be based on the assessed risk to workers. Each workplace and even workers within the workplace can have different risk levels.

Depending on the animal and the zoonotic disease of concern, the control measures will vary. Standard precautions should always be implemented when working with wildlife to prevent transmission of zoonotic diseases.

These include:

- Consider vaccination, if available and appropriate (e.g., rabies vaccine, seasonal influenza)
- Perform work outdoors and upwind of animals or specimens, or work in well-ventilated indoor environments
- Regularly disinfect surfaces, objects, and equipment
- Regularly wash hands with soap and water. If soap and water are not available, use hand sanitizer containing at least 60% alcohol
- Avoid touching the eyes, nose, or mouth with unwashed hands
- Avoid eating, drinking, and smoking when working around wildlife
- Wear dedicated clothing and footwear, and wash them regularly
- Wear disposable (e.g., latex or nitrile) gloves
- Wear cut-resistant (e.g., leather) gloves if there is risk of being scratched or bitten by an animal
- Wear disposable coveralls when handling large animals
- Wear eye protection or a face shield if there is a risk of dust, sprays or droplets being created
- Wear footwear that can be disinfected (e.g., rubber boots or boot covers) if it may be contaminated with feces or other body fluids
- Wear an appropriate mask (preferably a fit tested N95 or better) when:
  - handling animals (dead or alive) suspected or known to be infected
  - performing tasks where dusts or other aerosols may be created (such as cleaning activities where large quantities of animal feces are present)
- Wash reusable personal protective equipment (PPE) and safely discard disposable PPE after use
- Wash and change all clothes and footwear and shower after work

Emergency Preparedness and Response Plan

An emergency preparedness and response plan is useful in workplaces where exposure to a zoonotic disease is a plausible threat. A documented plan should outline how to respond to workers who become sick. It can be written in the form of a policy and procedure.

Workers who become sick should be encouraged to take time away from work and seek medical attention (this can be supported by a sick leave policy). Individuals who continue to work while sick may pose a risk to other workers. Additionally, the sick workers may experience worsening symptoms and can present a hazard to others should they become impaired.

Call 911 for medical assistance if a worker develops life-threatening symptoms. Inform their emergency contact and report to applicable parties (e.g., external regulators, health and safety committee, etc.).

Clean and disinfect areas, tools, equipment, etc., that may be contaminated. If the illness originated while at work, conduct an incident investigation to determine the cause and attempt to prevent recurrence to determine the cause and attempt to prevent recurrence.

Report and Support

Workers may become ill with an occupational disease, experience lost work time, or require medical attention from working with wildlife. Should this occur, inform the government department responsible for health and safety and worker's compensation board, if the reporting requirements for your jurisdiction have been met.

Some pathogens are of national and international concern and require reporting because they can cause disease in people, in domestic animals, or threaten wildlife populations around the world. Notify local or regional public health authorities and the Public Health Agency of Canada if a worker is suspected of having a reportable disease (e.g., anthrax, hantavirus, tularemia).

Notify the Canadian Food Inspection Agency if a land or aquatic animal being cared for or controlled by the workplace is suspected of having a reportable disease. Should a sick or dead animal be observed outside of the workplace, consider contacting a veterinarian, the applicable provincial or territorial animal health or wildlife authority, Fisheries and Oceans Canada (aquatic animals), or the Canadian Wildlife Health Cooperative (non-governmental organization).

Becoming ill with a zoonotic disease or being involved in a zoonotic disease outbreak can have an impact on workers' mental health, and may lead to increased stress, anxiety, and depression. Mental health resources and support should be provided to all workers, including access to an employee assistance program, if available.

Refer to the following mental health information resources:

- Mental health support: Get help – Public Health Agency of Canada
- Mental health and wellness – Public Health Agency of Canada
- Mental health – Canadian Centre for Occupational Health and Safety

Resources

- Avian Influenza A(HN5N1) or "Bird Flu" – Canadian Centre for Occupational Health and Safety
- Diseases and conditions – Public Health Agency of Canada
- Lyme Disease – Canadian Centre for Occupational Health and Safety
- Wildlife and avian influenza – Handling guidelines to protect your health – Public Health Agency of Canada