

Zoonoses Associated with Reptiles & Amphibians

This document provides information on various diseases that can be passed from aquatic, semi-aquatic and terrestrial reptiles and amphibians to people. The zoonotic diseases associated with reptile and amphibian contact are primarily bacterial infections. These include *Salmonella*, *Mycobacterium*, *Campylobacter*, *Aeromonas*, *Escherichia coli*, *Klebsiella*, *Serratia* and *Flavobacterium meningosepticum*. Often these infections do not make animals appear ill but can cause serious illness in humans. Persons with specific medical conditions such as a chronic illness, immunodeficiency and pregnancy may be at higher risk of developing disease or complications from a zoonotic disease and should consult with their physician before working with animals.

Any reptile or amphibian may be infected with *Salmonella*. Clinical symptoms of salmonellosis in reptiles and amphibians can include lack of appetite, diarrhea and lethargy but many animals may be infected carriers and show no symptoms at all. Humans acquire the infection via poor hygiene and accidental ingestion of contaminated feces, water or other contaminated materials. Infected humans can develop fever, abdominal cramps, diarrhea with or without blood and less commonly arthritis, pneumonia and septicemia. More severe illness is likely to occur in susceptible people such as children under 5, the elderly, and people who have lowered natural resistance to disease due to pregnancy, cancer, chemotherapy, organ transplants, diabetes, liver problems or other diseases.

Reptiles and amphibians can carry various atypical *Mycobacterium* species including *Mycobacterium marinum*, *M. fortuitum* and *M. chelonae*. All can be associated with acute or chronic disease but many animals are long-term carriers before clinical disease is detected. Persons infected with mycobacteriosis may develop “fish tank granulomas” which appear as skin ulcers or nodules usually on the hands. Immunosuppressed persons can develop lymphadenitis & pulmonary disease similar to tuberculosis or more severe disseminated disease.

Campylobacter, *Aeromonas*, *Edwardsiella*, *Escherichia coli*, *Klebsiella*, *Serratia* and *Flavobacterium meningosepticum* and other bacteria are pathogens which may be transmitted by contact with abraded skin or wounds or accidental ingestion of feces, contaminated water or other materials. Contact may result in wound infections and ingestion can result in gastroenteritis with vomiting and diarrhea. More severe & potentially life-threatening disease and septicemia may occur in immunosuppressed persons.

In addition to infectious diseases, many species of reptiles and amphibians are venomous. Facilities with venomous animals must have safety procedures in place to prevent contact as well as an action plan in the event of a venom exposure. Lastly, several species of reptiles and amphibians are carnivorous and are fed rodents, fish or other species of prey animals. Please refer to the zoonoses fact sheets for information regarding those animal species.

Transmission of zoonotic diseases from animals is primarily by direct contact, indirect contact with insect vectors and contaminated inanimate objects, oral ingestion or inhalation of aerosolized materials. We can protect ourselves from most diseases by using the following basic hygiene procedures:

- Do not eat, drink, apply makeup or use tobacco products while handling animals or in animal housing areas.

- Wear eye and respiratory protection when appropriate.
- Wear gloves and/or protective sleeves when handling contaminated water, animals, animal tissues, body fluids and waste, and wash hands after contact.
- Wear dedicated protective clothing such as a laboratory coat, coveralls or apron when handling animals. Launder the soiled clothing separate from your personal clothes and preferably at the animal facility.
- Cover abraded skin, cuts, scrapes or sores and do not allow wound contact with animals, animal contaminated materials or aquarium water. Persons with infected wounds indicated by swelling, redness, pain and draining fluids with or without a fever should seek medical treatment.
- Keep animal areas clean and disinfect equipment after using it on animals or in animal areas. Use cleaning techniques that do not aerosolize contaminated water or other materials.

Most importantly, familiarize yourself about the animals that you will be working with and the potential zoonotic diseases associated with each species. If at any time, you suspect that you have acquired a zoonotic disease, inform your supervisor and seek medical care.

If you have further questions, contact:

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