

This information sheet is for the care and use of amphibians.

Potential Zoonotic Diseases for Amphibians



The overall incidence of transmission of disease-producing agents from amphibians to humans is low. There are, however, a few agents that are found in amphibians and aquarium water that have the potential to be transmitted. In general, humans acquire these diseases through ingestion of infected tissues or aquarium water, or by contamination of lacerated or abraded skin. Exotic amphibians can produce highly dangerous skin secretions, and should be labeled as such and handled with protective

gloves. An important feature of many of these organisms is their opportunistic nature. The development of disease in the human host often requires a preexisting state that compromises the immune system. If you have an immune-compromising medical condition, or you are taking medications that impair your immune system (steroids, immunosuppressive drugs, or chemotherapy), you are at risk for contracting diseases and should consult your physician. The following is a list of potential amphibian zoonoses.

Salmonella: This bacterium inhabits the intestinal tract of many animals and humans. Salmonella occurs worldwide and is easily transmitted through ingestion, either direct or indirect. Common symptoms of the illness are acute gastroenteritis with sudden onset of abdominal pain, diarrhea, nausea and fever. Antibiotic treatment is standard treatment for the illness.

Sparganosis: While unlikely in this area, amphibians can become intermediate hosts to the pseudophyllidean cestode of the genus *Spirometra*. Disease in man is primarily caused by ingestion of meat or contaminated water. Contact with the muscles of infected frogs is also considered a mode of transmission. Common symptoms include a nodular lesion (bump) that develops slowly and can be found on any part of the body. The main symptom is itching, sometimes accompanied by urticarial rash. Human sparganosis can be prevented by avoiding ingestion of contaminated water and meat, and avoiding direct contact with infected muscles.

Other Diseases: *Escherichia coli* and *Edwardsiella tarda* are additional zoonotic organisms that have been documented in amphibians. Human infections are typically acquired through wound contamination or ingestion of contaminated water resulting in gastroenteritis type symptoms, such as nausea, vomiting, and diarrhea.

Allergic Reactions to Amphibians: Human sensitivity to amphibian proteins in the laboratory setting is rare. It remains possible, however, to become sensitized to amphibian proteins through inhalation or skin contact. You are strongly advised to contact the Occupational Health Coordinator at 949-824-3757 to discuss this issue and arrange for follow-up with an occupational health physician.

Seek Medical Attention Promptly. If you are injured on the job, promptly report the accident to your supervisor even if it seems relatively minor. Minor cuts and abrasions should be immediately cleansed with antibacterial soap and then protected from exposure to animals and their housing materials. For more serious injuries seek medical services through Workers Compensation by calling (949) 824-9152 or visiting their website at <http://www.hr.uci.edu/>

For treatment locations <http://www.ehs.uci.edu/MedEmergPoster.pdf>

References: http://dels-old.nas.edu/ilar_n/ilarjournal/48_3/pdfs/4803Alworth.pdf

SPECIES	BIOLOGICAL HAZARD/PATHOGEN	ROUTE OF TRANSMISSION	CLINICAL SYMPTOMS	PREVENTION/PROPHYLAXIS	MEDICAL SURVEILLANCE REQUIRED	RISKS FOR EXPOSURE AT UCI
Amphibians	Aeromonas hydrophila	Contamination through wounds or various traumas	Diarrhea, slight fever, abdominal pains, blood and mucus in feces, weight loss, dehydration, cellulitis	Clean and disinfect wounds, personal hygiene, PPE	No	No
Amphibians	Campylobacteriosis	Fecal, contaminated food and water	Diarrhea, vomiting, fever, abdominal pain, visible or occult blood, headache, muscle and joint pain	Personal hygiene and PPE	No	Yes
Amphibians	Escherichia coli	Fecal/Oral, contaminated food and water	Diarrhea, abdominal pains, fever, vomiting, hemolytic anemia, thrombocytopenia, azotemia, thrombosis in terminal arterioles and capillaries	Personal hygiene and PPE	No	Yes
Amphibians	Klebsiella spp	Direct contact, handling	Pneumonia, UTI, nosocomial infection, and septicemia	Personal hygiene and PPE	No	Yes
Amphibians	Mycobacterium ulcerans	Handling infected animals.	Infections start as erythematous nodules on the extremities and gradually become large, indolent ulcers with necrotic base	Personal Hygiene and PPE	No	No
Amphibians	Pentastomiasis	Fecal/oral, contaminated food and water	Prostatitis, ocular infection, acute abdomen, lacrimation, nasal discharge, dyspnea, dysphagia, vomiting, headaches, photophobia, exophthalmia	Personal hygiene and PPE	No	Yes
Amphibians	Salmonellosis	Fecal/Oral, contaminated food and water	Diarrhea, vomiting, low grade fever	Personal hygiene and PPE	No	Yes
Amphibians	Sparganosis	Contaminated food and water	Pruritus, urticaria. Ocular sparganosis consist of painful edema of eyelids with lacrimation and pruritus	Personal hygiene and PPE	No	No
Amphibians	Burkholderia pseudomallei	Contaminated soil and surface water and contact with contaminated wounds	Localized skin infection, pulmonary infections and acute blood stream infections	Wearing boots in agricultural situations, Universal precautions in hospitals/care facilities and PPE personal hygiene	No	Yes