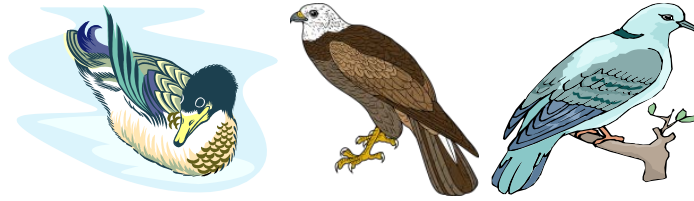


UCSC Biosafety - Information on Zoonotic Diseases

Species Specific Guide - Avian



This guide is designed to inform individuals who work with animals about potential zoonoses (diseases of animals transmissible to humans), personal hygiene and other potential hazards associated with animal exposure. This information sheet is directed toward those involved in the care and use of fowl.

Potential Zoonotic Diseases

Birds can carry organisms that may be potentially infectious to humans. Avian colonies in the laboratory setting are normally closely managed to produce high quality, healthy animal models. The likelihood of a person contracting a disease from avian in a controlled setting is very low. Wild birds do not have such controls. A disease, such as *psittacosis*, is infectious both to other birds and to people. Therefore, an outbreak within a colony could significantly increase the risk of human exposure.

Psittacosis (Ornithosis, Chlamydiosis): Psittacosis is a disease caused by the bacteria, *Chlamydia psittaci*. Psittacosis is common in wild birds of all types and can occur in laboratory bird colonies as well. The reservoir/source of infection to people is infected birds, especially ones displaying symptoms (diarrhea, respiratory signs, conjunctivitis and nasal discharge.) They are highly contagious to other birds as well as humans. Transmission may be through direct contact or from aerosolization with exudative materials (e.g. pus), secretions or feces. **Direct contact with the bird is not necessary.** In people this disease occurs 7-14 days after exposure. An infected human may develop a respiratory illness of varying severity, from flu-like symptoms in mild cases to pneumonia in more significant infections. Serious cases can result in extensive interstitial pneumonia and, rarely, hepatitis, myocarditis, thrombophlebitis, and encephalitis. It is responsive to antibiotic therapy. Relapses occur in untreated infections.

Salmonellosis: It is a disease caused by the bacteria species *Salmonella*. It is one of the most common zoonotic diseases in humans. Birds and reptiles (especially iguanas) are the animals most frequently associated with *Salmonella*. Most people typically contract the disease by consuming food or water contaminated with the bacteria. Symptoms include diarrhea (usually watery and occasionally bloody), nausea, vomiting, fever, chills, and abdominal cramps. If the bacteria leaves the blood stream and enters the central nervous system, meningitis/encephalitis may develop. Salmonellosis is a very serious disease in humans, especially for young children and people with compromised immune systems.

Campylobacter: This is a gram-negative bacterium that has a worldwide distribution. Although most cases of human campylobacteriosis are of unknown origin, transmission is thought to occur by the fecal-oral route, through contamination of food or water, or by direct contact with infected fecal material. The organism has also been isolated from houseflies. *Campylobacter* is shed in the feces for at least six weeks after infection. Symptoms are acute gastrointestinal illness (diarrhea with or without blood, abdominal pain, and fever). It may cause pseudoappendicitis and, rarely, septicemia and arthritis. Usually, it is a brief self-limiting disease that can be treated with antibiotics.

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Newcastle disease and Avian Tuberculosis: Newcastle disease is a serious and fatal viral disease in avian species. Affected birds may demonstrate neurological signs that progress to death. Definitive diagnosis is through viral isolation of the organism. The disease is quite contagious among birds and has zoonotic potential that often may go unrecognized. A clinical symptom in humans most commonly involves a mild conjunctivitis that is self-limiting.

Mycobacterium avian (and possibly other species) is a causative agent of tuberculosis. Affected birds may carry the disease for years and intermittently shed organisms. Humans are more commonly infected with *M. tuberculosis* and occasionally *M. bovis*. In adult humans, tuberculosis frequently affects the lungs, producing respiratory signs.

Allergic Reaction to Birds

Various bird proteins have been identified as sources of antigens involved in both allergic reactions and hypersensitivity pneumonitis. Hypersensitivity pneumonitis is a lung condition with symptoms that mimic pneumonia. Symptoms develop after repeated exposure to a specific antigen found in birds. Signs of an allergic reaction after exposure to birds are rhinitis and asthma symptoms (wheezing and dry cough). Signs and symptoms of both allergic reactions and hypersensitivity pneumonitis usually occur several hours after exposure.

How to Protect Yourself

- **Wash your hands.** The single most effective preventative measure that can be taken is thorough, regular hand washing. Wash hands and arms after handling birds, their cages and their water. Never smoke, drink or eat in the animal rooms or before washing your hands.
- **Wear Personal Protective equipment:** If you handle birds, select the appropriate gloves for the job, and when in close contact with birds of unknown origin, wear respiratory protection.
- **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 birds. If there are any questions, contact EH&S Biosafety (biosafety@ucsc.edu). For more serious injuries or in an emergency go to Dominican Hospital.
- **Tell your physician you work with birds.** Whenever you are ill, even if you're not certain that the illness is work-related, always mention to your physician that you work with birds. Many zoonotic diseases have flu-like symptoms and would not normally be suspected. Your physician needs this information to make an accurate diagnosis. Questions regarding personal human health should be answered by your physician.