



**ZOONOTIC DISEASE PREVENTION WHEN WORKING WITH POULTRY**

*(adapted from the University of Arizona)*

Although it is not common for personnel to "catch" a disease from poultry (zoonosis), the risk is ever present. The primary method to protect oneself from a zoonotic agent is to practice good personal hygiene.

**STEPS TO PREVENT DISEASE TRANSMISSION FROM BIRDS TO MAN**

1. Wear gloves whenever caring for, or, handling birds, feces or eggs\*, blood, nasal discharges, or fluids draining from wounds. After removing your gloves, wash your hands with soap and water.

\*Eggs are laid through the cloaca, a chamber that receives feces via the rectum, urine via the ureters, and eggs via the reproductive tract. Thus, eggs have passed through a body cavity that is loaded with bacteria and other potential disease agents. Not only is the outside of an egg contaminated but so, too, may be the inside. When a freshly laid egg cools, a pressure differential occurs between the inside of the egg and the outside. Any fluid on the shell, which might be teeming with disease agents, is forced through the shell and into the egg.

2. Never eat or drink in areas where birds, their wastes, or body products are being handled. Also, no eating or drinking is allowed where birds are housed.
3. Although a normal, healthy adult person may have only mild symptoms of a particular zoonotic disease, that person may spread the disease to others. Therefore, good hygiene is not only to protect the person working directly with poultry, but all persons with whom they have contact. At special risk are persons who may have a suppressed immune system, such as: infants, the elderly, people who have had their spleens removed, and people with long-term or debilitating conditions such as cancer, diabetes, AIDS and renal failure.
4. Tetanus booster every 10 years.
5. Wear protective gloves when handling the animals. Upon completion of tasks with animals/glove removal, wash hands thoroughly.
6. Injuries:
  - Immediately wash area thoroughly with soap and water for at least 15 minutes.
  - Control any bleeding and cover with protective dressing (bandage, etc.).
  - For any injuries, needlestick/sharps injury or for signs/symptoms of wound infection such as redness, swelling or pain, contact the Employee Health Clinic at Hall Health at 206.685.1026. After hours or if the clinic is unavailable, go to the UWMC ER.
  - Report injuries on the UW OARS (online accident reporting system)
7. Illness: If you develop signs or symptoms that you think may be related to your work with these animals and/or research work, contact the Employee Health Clinic at 206.685.1026. If you see your own provider, inform him/her that you work with these animals and any other pertinent information regarding your research work.

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### **ALLERGIC SENSITIVITIES**

Allergic skin and respiratory reactions are quite common in personnel working with birds and other animals. Wear protective clothing to prevent direct contact with birds, waste, feathers, carcasses and other body products.

### **ZOONOSES**

The list of possible zoonotic diseases is quite extensive and this paper addresses a few which are more commonly found in this geographic area.

### **SALMONELLOSIS *S. pullorum***

Poultry usually show no signs of infection, but may be shedding huge numbers of *S. pullorum* bacteria in their feces. All eggs should be considered a source of infection and persons should wear gloves and then wash hands after gathering eggs and/or handling raw egg products. Mode of transmission is fecal/oral. A watery, profuse diarrhea for about 10 days is the typical symptom in man, but some individuals will become seriously ill, especially infants, the elderly and anyone with a suppressed immune system.

### **FOOD POISONING**

*Staphylococcus aureus* infections in poultry may cause diseases ranging from skin infections to generalized septicemia. Symptoms in man are nausea, vomiting, abdominal pain, and diarrhea. Contaminated eggs can be a source of infection. Wear gloves and follow hygienic procedures when handling eggs and raw egg products.

### **TUBERCULOSIS (TB) or MYCOBACTERIOSIS *M. avium***

The bacteria are transmitted from infected birds primarily via the aerosol route, so exposure can occur through dirty bedding, as well as from birds coughing and sneezing. Avian TB is common and often found in birds purchased from feed stores. TB may affect virtually every organ system but infected birds may show no obvious symptoms. In man, any organ system may be affected, although the most familiar signs are related to lesions in the lungs. To prevent disease transmission:

1. Poultry from clean flocks should be used if possible.
2. Wear protective masks when exposed to dust or using spray hoses to wash poultry cages.

### **CAMPYLOBACTERIOSIS**

Poultry are an important reservoir for *C. jejuni*. In birds, the disease is characterized by hemorrhagic and necrotic lesions of the liver. In adult birds, egg production notably decreases. The disease is contracted by man through the handling and ingestion of undercooked, contaminated meat. *C. jejuni* is considered to be one of the principal bacterial agents causing enteritis and diarrhea in man. Major mode of transmission is fecal/oral route. Prevention is achieved by maintaining hygienic procedures for handling raw meat from chicken, turkeys and other poultry.

### **LISTERIOSIS *L. monocytogenes***

Lateral deviation of the head with a tendency to circle and paralysis is commonly seen in birds. Fever, headache, nausea and vomiting are all seen in man. Prevention is by wearing protective clothing when handling infected birds or their tissues. Major mode of transmission is the oral route.

### **COLIBACILLOSIS *E. coli***

Maybe the bacteria responsible for Hjarre's disease (coligranuloma), a condition in adult birds, characterized by granulomatous lesions in the liver, cecum, spleen, bone marrow, and lungs. In man, the bacteria can cause profuse and watery diarrhea, abdominal colic and vomiting. The major mode of transmission is fecal/oral route. Prevention is by wearing protective clothing when handling birds, eggs or body tissues.

**PASTEURELLOSIS**

All animals and birds may be colonized by this bacterium, especially throughout the respiratory tract and mouth. Human infection occurs through wounds made by bites or scratches and may cause acute pneumonia or septicemic disease. Wear protective clothing and gloves.

**NEWCASTLE DISEASE**

Newcastle Disease causes respiratory and nervous system signs in birds: gasping, coughing, drooping wings, twisting head and neck. With some strains of the virus, many birds will die. Humans usually only get conjunctivitis, but fever and flu-like symptoms may last up to three weeks. Transmission is by inhalation of infectious aerosols. Hygienic precautions are needed when handling infected birds.

**COCCIDIOSIS**

In birds, protozoan parasites, of the genus *Eimeria*, may cause mucoid or bloody diarrhea, dehydration, ruffled feathers, anemia and weakness. The protozoan is easily transmitted from cage to cage by room dust, or tiny bits of feces clinging to the hands or clothing of the caretakers. Although coccidia species are host specific and the risk of infection to humans is extremely low, birds infected with this parasite should be treated.

**EXTERNAL PARASITES**

External Parasites of poultry will not readily live on the skin and in the hair of man. Therefore, they are not considered to have "zoonotic" potential. Nevertheless, any bird noted to be infected with mites or lice should be immediately treated. Notify the facility supervisor and/or veterinarian if you suspect a problem with external parasites! Heavy infestations of mites and lice are often seen in the spring and summer. To eliminate external parasites, all birds housed in a particular room or building must be treated at the same time and there must be repeated treatment of the birds, as well as cleaning and treatment of the housing area.

**Lice** are the most common external parasites of birds. There are many different species and most are biting insects that consume scales, feathers, bits of skin and feces.

**Scaly-Leg Mites** infest the featherless areas of the face and legs, burrowing into the skin and feather follicles, feeding on connective tissue.

**Quill Mites** infest and destroy new feathers. The mites burrow into the feather shaft and as a result of their activity produce a powdery mass of feather debris, eggs, larvae, molted mite skins and feces visible through the shaft wall.