

## Working with Birds and Poultry

- I. All personnel working with animals, their tissues, or working in areas where animals are housed must complete an Animal Use Medical Screening form. This form screens for exposure to possible health hazards in the work environment. Complete the form online at this link:  
<https://ucs.admin.washington.edu/era/uwnetid/AUMS/>
  1. Tetanus booster should be obtained every 10 years.
  2. **Illness:** Whenever you are ill, even if you're not certain that the illness is work-related, always mention to your healthcare practitioner 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. Contact UW EHC (206.685.1026) when you return to work.
  3. **Allergies:** Exposures to birds can cause rhinitis (runny nose), asthma symptoms and skin reactions.
    - a. Birds are a potential source of hypersensitivity pneumonitis (cough, fever, chills, achiness, and shortness of breath). Proteins that trigger hypersensitivity are found in serum and droppings that contain serum.
    - b. Allergic skin and respiratory reactions are quite common in personnel working with birds and other animals. Wear protective clothing (gloves, goggles, lab coats, hair bonnets, sleeve covers) to prevent direct contact with birds, waste, feathers, carcasses and other body products.
      - i. If you experience any of these symptoms, contact the UW EHC at 206.685.1026. Please review precautions and methods of control to prevent exposure to animal allergenic substances on the EH&S LAA website:  
<http://www.ehs.washington.edu/rbs/resocchealth.shtm#Lab> or in the [EH&S Lab Animal Allergies pamphlet](#)
- II. **Work Practice and Training:**
  1. Staff, including animal handlers and maintenance personnel, should receive documented training, and show evidence of understanding on:
    - a. Potential hazards associated with working in bird facilities,
    - b. Necessary precautions to prevent exposure to Q fever, Tuberculosis, or other zoonoses listed below,
    - c. Practices to prevent creating dust or splash/splatter when handling birds and cage materials,
    - d. Operational protocols for the project in process, and
    - e. Emergency procedures.
  2. Factors important for the safety of researchers using birds include:
    - a. Follow Universal Precautions
    - b. Perform a risk assessment of the study design, procedures, and facility. Important features are:
      - i. Minimize contact with bird excrement
      - ii. Minimize the creation of infectious aerosols, and
      - iii. Reduce the opportunity for exposure of staff and the environment.

3. Restrict access to authorized personnel only. Only persons meeting specific entry requirements (including medical surveillance requirements) will be admitted.
4. Never eat or drink in areas where birds are housed, or birds, their wastes, or body products are being handled.

### III. Personal Protective Equipment (PPE):

1. When handling birds wear protective gloves and a laboratory coat. Thoroughly wash hands upon completion of tasks with birds and glove removal.
2. Add a face shield, goggles, or safety glasses with side shields and surgical mask to the PPE used when cleaning the cages to protect from splash/splatter.
3. Masks should be worn when exposed to dust or using spray hoses to wash cages.
4. A respirator (N-95 or PAPR) may be required when working in enclosed areas when handling birds or manipulating the cages, based on the risk assessment. PPE should NOT be worn outside the designated area. Place contaminated reusable PPE in the appropriate laundry bin and discard disposable PPE after use.

### IV. Injuries:

1. Immediately wash area thoroughly with soap and water for at least 15 minutes.
2. Control any bleeding and cover with protective dressing (bandage, etc.).
3. See EH&S [Exposure](#) poster.
4. For any injuries, needlestick/sharps injury or for signs/symptoms of wound infection such as redness, swelling or pain, contact the UW EHC at Hall Health at 206.685.1026. After hours or if the clinic is unavailable, go to the nearest Emergency Department.
5. Report injuries on the [Online Accident Reporting System](#) (OARS) found on the EH&S' website.

### V. Fieldwork:

Apart from the risks associated with working with birds in captivity, fieldwork can expose researchers to other risks.

1. Accidents during monitoring: Checks of nests in bushes and trees should be done from the ground or with a telescoping apparatus if possible. If a ladder is needed, two people should always be present so that one person is always able to hold the ladder.
2. See information sheet about Working in the Field or contact the EH&S Occupational Health Nurse (206.221.7770, [ohnurse@uw.edu](mailto:ohnurse@uw.edu)).

### VI. Zoonoses:

1. Healthy adults may have only mild symptoms of a particular zoonotic disease; however that person may spread the disease to others. Good hygiene is not only to protect the person working directly with birds and 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, or who are taking immuno-suppressive medicine, and people with long-term or debilitating conditions such as cancer, diabetes, AIDS and renal failure.

2. The list of possible zoonotic diseases is quite extensive and only the most prominent ones are listed below.
3. Eggs are also a source of zoonoses because they are laid through the cloaca, a chamber that receives feces via the rectum, urine via the ureters, and eggs via the reproductive tract. Eggs pass through a body cavity that is loaded with bacteria and other potential disease agents. Not only is the outside of an egg contaminated but the inside may be contaminated as well. As 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.

### References

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Public Health--Seattle & King County  
[sharon.hopkins@kingcounty.gov](mailto:sharon.hopkins@kingcounty.gov)

**Krauss, H., Weber, A., et al. (2003).** *Zoonoses: Infectious Diseases Transmissible from Animals to Humans*. 3<sup>rd</sup> ed. Washington D.C.: ASM Press.

**Rabinowitz, P.M., & Conti, L.A. (2010).** *Human-Animal Medicine: Clinical Approaches to Zoonoses, Toxicants and Other Shared Health Risks*.

Review of bird zoonoses in <http://www.veterinaryresearch.org/content/44/1/36>

### ZOONOTIC DISEASE POTENTIALS FROM BIRDS AND POULTRY

Disease/Infective Agent	Transmission & Incubation	Symptoms	Prevention & Treatment
<b>Campylobacteriosis,</b> <i>Campylobacter</i>	Transmission via fecal-oral route as present in droppings of birds. Person-to-person transmission is possible. Usual incubation is 3 to 5 days. Food-borne transmission common.	Acute enteritis (nausea, colicky abdominal pain, nausea, diarrhea), fever, chills, and headache. One to 5 weeks later, reactive arthritis may develop. Could result in Guillain-Barre' syndrome.	Prevented by good hygiene, and consistently wearing PPE. Treatment includes fluids and antibiotic only if diarrhea persists.
<b>Colibacillosis (<i>E. coli</i>)</b> enterohemorrhagic strain of <i>Escherichia coli</i> (EHEC)	Transmission via fecal/oral route as present in droppings of birds. Human-to-human transmission is common. Incubation is 2 to 10 days. Food-borne transmission common.	Causes profuse and watery diarrhea, bloody diarrhea, abdominal colic and vomiting. Can resolve in 5 to 10 days and can be fatal.	Prevention is by wearing protective clothing when handling birds, eggs or body tissues. Treat with fluids. Antibiotics and anti-motility drug increase the release of toxins.
<b>Chlamydiosis/ Ornithosis or Psittacosis</b> <i>(Chlamydothyla psittaci)</i>	Transmission via contact, aerosol, or dust from bird feathers and dried feces. Wide avian host range including parrots, chickens, turkeys, ducks, pigeon and many others. Incubation can be 7 to 21 days, or as long as 3 months.	Infection can be asymptomatic or be a mild respiratory infection. Can be life-threatening pneumonia with high fever, severe headache and multi-organ failure.	Prevented by use of protective clothing and mask. Regular serologic monitoring is recommended.
<b>Cryptococcosis (<i>Cryptococcus neoformans</i>)</b>	Transmission is when inhale dust contaminated with droppings from psittacines, pigeons and other avian species.	Respiratory signs, encephalitis, or meningitis may occur. Immuno-compromised individuals are at highest risk.	Diagnosis via antigen tests on blood, CSF and sputum. Antifungal treatment. Prevent inhalation with mask and protective clothing.

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<p><b>Cryptosporidiosis</b> is caused by protozoa of the genus <i>Cryptosporidium</i>; <i>C. baileyi</i> affects birds and an unnamed species in quail. Similar to coccidiosis. See this <a href="#">link on Cryptosporidium in Passeriformes</a>.</p>	<p>Person-to-person and animal-to-human transmission is possible via fecal-oral route by ingestion of infective oocysts (spores). Also aerosol via contaminated air. Incubation is 3 – 7 days.</p>	<p>Abdominal pain, nausea, and watery diarrhea lasting 3-4 days. Sometimes bloody diarrhea. In immuno-compromised people symptoms are more serious.</p>	<p>Diagnosis via microscopic inspection of stool. Treat with fluid and electrolytes. For severe symptoms anti-parasitics. Spores are very resistant to disinfection. Prevention via hygiene.</p>
<p><b>Erysipeloid/Erysipeloid</b> (<i>Erysipelothrix rhusiopathiae</i>)</p>	<p>Transmission via direct contact through cuts when handling animal tissue or feces of carrier animals. Can be on fomites and soil. Incubation is 2 to 5 days.</p>	<p>Sharply demarcated inflammation at injury site, extending outward. The area becomes deep-red, then blue-red, and finally blanches. Area is swollen, itchy, and painful.</p>	<p>No serological test. Affected tissue can be cultured. Immobilize the limb; apply moist compresses, and possibly antibiotics.</p>
<p><b>Histoplasmosis (<i>Histoplasma capsulatum</i>)</b></p>	<p>Has been found in droppings of chickens, blackbirds, pigeons, and gulls. Incubations time 1-3 weeks</p>	<p>Pneumonia like symptoms, fever, chest pain, nonproductive cough. . Immuno-compromised individuals are at highest risk.</p>	<p>Prevented by use of protective clothing and mask.</p>
<p><b>Influenza A (avian influenza)</b> H5N1, H7N7, H9N2</p>	<p>Transmission via live birds, person-to-person. Confirmed via droplet, however airborne is not impossible. Incubation is 7 to 10 days.</p>	<p>Symptoms can range from mild to severe. Influenza starts suddenly and may include fever (usually high), headache, tiredness (can be extreme), cough, sore throat, runny or stuffy nose, body aches, diarrhea and vomiting.</p>	<p>Vaccine in development, but effectiveness is subject to virus mutation. PCR for diagnosis. Early diagnosis and treatment is important.</p>

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<b>Listeriosis</b> ( <i>L. monocytogenes</i> )	Transmission is the oral route from raw poultry. Low rate of infection in humans except for high risk groups: pregnancy, blood cancers, diabetes, and immunosuppression. Incubation is 1 to 4 weeks.	Fever, headache, nausea and vomiting. Symptoms can be specific depending on predisposing factors.	Prevention is by wearing protective clothing when handling infected birds or their tissues. High risk groups should avoid eating raw food and vegetables.
<b><i>Mycobacterium avium</i></b> , non-tuberculosis Mycobacteria.	Transmission is via ingestion or inhalation of dried feces or contaminated food and water. Infected birds are constantly shedding bacterium into the environment. Incubation period is unknown.	Cough, purulent or bloody sputum, weight loss fever, night sweats. Also, local wound infections with swelling of regional lymph nodes. Immuno-compromised individuals are at highest risk.	Unlike other <i>Mycobacterium</i> infections, <i>M. avium</i> is highly resistant to antibiotics. Surgical excision and lymph node removal are often necessary. Use protective clothing when handling birds.
<b>Newcastle Disease</b> , Newcastle Disease Virus (NDV), a paramyxovirus Exotic Newcastle's Disease (highly pathogenic strain) is excluded from US poultry farms. Last outbreak 2003.	Transmission through contact via smear to the conjunctivae or aerosol, highly contagious. Exposure can occur from NDV vaccine (animal) while dissolving live virus or using vaccine sprays. Incubation is 1 to 2 days.	Infection is usually mild in humans. A uni- or bilateral follicular conjunctivitis that may become hemorrhagic. Cornea not involved. Resolves in 3 to 4 days.	No human vaccine. Virus can be isolated in eye or throat swabs. Hand hygiene and use of eye protection when handling live virus or poultry.
<b>Pasteurellosis</b> , <i>Pasteurella multocida</i>	Transmission via contact to non-intact skin, bite or scratch, inhalation, and ingestion. Found in nasopharynx of healthy birds and many mammals. Incubation is 2 to 14days.	Wound infections at the site of injury with redness and swelling, with cellulitis and abscess a possibility.	No vaccine. Diagnosis via drainage culture. Treatment via antibiotics. Use protective equipment

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<p><b>Q Fever</b>, <i>Coxiella burnetii</i>, a Rickettsiaceae</p>	<p>Transmission via contact or airborne (infected dust or dried excreta). Game birds, pigeons, and sparrows are a source of infection to humans. <i>C. burnetii</i> may survive for a year in the environment. Incubation is 2 to 4 weeks.</p>	<p>Sudden fever, chills, malaise, joint aches, muscle aches, frontal and retro-orbital headache, and sensitivity to light. Fever can last 1 to 2 weeks; pneumonia, abnormal liver function, brain inflammation, and multi-organ involvement can occur. Myocarditis, pericarditis, and endocarditis (esp. with existing heart valve disease) can develop months to years after primary infection. Recovery can take months. Miscarriage is possible.</p>	<p>No vaccine. Diagnosis is via history, symptoms, and serology. Early and prolonged antibiotic treatment, up to 3 years for the chronic version of the disease. Proper hygiene with animals and use of personal protective equipment.</p>
<p><b>Salmonellosis</b>, <i>Salmonella spp.</i></p>	<p>Transmission via fecal-oral Worldwide in poultry (hens, turkeys, geese, and ducks), wild birds (seagulls and pigeons). Incubation occurs in 5 to 72 hours.</p>	<p>Symptoms appear suddenly, nausea vomiting; watery and foul-smelling diarrhea (resolving in a few hours) and possibly fever. Can develop infections in the brain, blood, bones, heart, urinary tract, and others.</p>	<p>Diagnosis via vomit or stool culture. Treated with fluid &amp; electrolyte maintenance. Antibiotics for severe cases. Salmonellae are ubiquitous; good hygiene and cooking practices.</p>
<p>West Nile Fever/ West Nile Virus</p>	<p>WNV may be present in blood, serum, tissues, oral fluids, feces and cerebrospinal fluid of infected humans, birds, mammals, and reptiles. Laboratory infections from contact with infected tissues have been documented. Incubation is 3 to 14 days.</p>	<p>Abrupt appearance of symptoms: biphasic fever, malaise, headache, muscle and bone aches, swollen lymph nodes, and a fine rash on the torso. More rarely inflammation of the heart and brain can result in death.</p>	<p>Vaccine is in development. Virus is detectable in the blood for diagnosis. Treatment is purely symptomatic.</p>

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<p><b>Yersiniosis, <i>Yersinia pseudotuberculosis</i></b></p>	<p>Ingestion or smear infection from eye secretions, feces. Incubation is 7 to 21 days. Low rate of infection in humans.</p>	<p>Symptoms are somewhat non-specific, diarrhea, fever, pain in lower right quadrant (mimics appendicitis).</p>	<p>Diagnosis is through culture and/or serology. Treat with fluids and electrolytes. Antibiotics for recurring diarrhea. Prevention via food hygiene and avoiding contact with infected animals.</p>