Cornell University
Cornell Center for Animal Resources and Education

Potential Zoonoses Associated with Birds

The intent of this Information Sheet is to describe the most common zoonotic agents seen in birds and the safe work practices suggested to mitigate the exposure to these pathogens.

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1. **Introduction:** This document provides information about potential zoonotic exposure while working with birds or their products (e.g. fecal sample). The infectious agents listed here are not all inclusive, but provide the most common zoonotic agents seen in birds. The safe work practices are provided as suggestions for staff and researchers who work with animals, in animal facilities, or with animal products.

2. **Zoonotic Pathogens**
    a. Salmonellosis
        i. Organisms: *Salmonella* spp.
        ii. Clinical Signs
            1. Animals – Asymptomatic or Diarrhea.
            2. Humans – Diarrhea, nausea, vomiting, abdominal pain.
        iii. Transmission: Fecal-oral route; handling contaminated objects; contact with contaminated surfaces

    b. Avian Mycobacterium
        i. Organisms: *Mycobacterium avium-intracellulare* complex (active infections within Cornell facilities)
        ii. Clinical Signs
            1. Animals – Asymptomatic; Diarrhea & wasting.
            2. Humans – Asymptomatic to night sweats, weight loss, abdominal pain, fatigue, diarrhea, & cough in people with immunosuppression or preexisting lung damage.
        iii. Transmission: Inhalation of aerosols; fecal-oral route; handling contaminated objects; contact with contaminated surfaces

    c. Avian Chlamydiosis or Psittacosis

i. Organisms: *Chlamydophila* spp.
ii. Clinical Signs
    1. Animals - Asymptomatic to lethargy, anorexia, & ruffled feathers; ocular & nasal discharge & diarrhea are possible.
    2. Humans - Flu-like symptoms (fever, chills, headache, muscle ache, cough); can evolve to pneumonia.
iii. Transmission: Inhalation of aerosols; fecal-oral route; handling contaminated objects; contact with contaminated surfaces
iv. Prevention: minimize inhalation of aerosols such as dust particles.

d. Avian Influenza Virus
    i. Organisms: Influenza Virus
    ii. Clinical Signs
        1. Animals – Respiratory signs (coughing, dyspnea, cyanosis); diarrhea; neurological signs.
        2. Humans – Flu-like symptoms (fever, chills, headache, muscle ache, cough); can evolve to pneumonia.
    iii. Transmission: Inhalation of aerosols; fecal-oral route; handling contaminated objects; contact with contaminated surfaces

e. Campylobacteriosis
    i. Organism: *Campylobacter* spp.
    ii. Clinical Signs
        1. Animals – Asymptomatic; may cause diarrhea, decreased appetite
        2. Humans – Diarrhea, cramping, abdominal pain, fever
    iii. Transmission: Fecal-oral route; handling contaminated objects; contact with contaminated surfaces

f. Histoplasmosis
    i. Organism: *Histoplasma capsulatum*
    ii. Clinical Signs
        1. Animals – None; bird droppings are primarily a nutrient source for the growth of the organism already in the soil
        2. Humans – Mild flu-like symptoms, acute pulmonary disease (malaise, fever, chest pains, dry or non-productive cough); chronic pulmonary disease (resembles TB); may cause serious disease in immunocompromised individuals
    iii. Transmission: Aerosolization of spores from contaminated soil associated with feces; spores can also be carried as contaminant on animal

3. Safe Work Practices

a. Good Personal Hygiene
    i. Wash hands after working with animals or animal products and when leaving animal facilities. For further instruction refer to ACUP 713: Hygiene-Hand Washing.
    ii. Do not eat, drink, or use tobacco products in animal facilities.
b. Personal Protective Equipment (PPE)
    i. Use proper PPE for work setting as appropriate (e.g. coverall, facemask, and respirator). Maintain dedicated protective clothing and footwear while

working with animals or in animal facilities. Do not wear the same protective clothing outside of animal facility.
    ii. Wear disposable gloves during procedures that increase the likelihood of exposure to zoonotic agents (e.g. handling of birds or contaminated surfaces and/or equipment). Exercise increased caution when handling sick animals (i.e. animals showing clinical signs such as diarrhea or ruffled feathers).
    iii. Use surgical/face mask for routine husbandry care (e.g., cage changes, minor cage cleaning) and N95 masks for protection during "aerosolizing procedures" (e.g. high-pressure hosing of cages or equipment).
c. Animal Care
    i. Isolate sick or infected animals when possible.
    ii. Handle and care for sick or infected animals last.
d. Cleaning and Disinfection
    i. Maintain clean, dry, and uncluttered animal areas and workspace.
    ii. Disinfect laboratory work surfaces after each use. Use only disinfectants approved by facility managers and that are suitable for the potential agents identified in this information sheet.
    iii. Dispose of deceased animals, animal products, items contaminated by animal products, contaminated bedding, and laboratory waste in a facility approved manner.
e. Proper Sharps Handling
    i. Work only with one uncapped needle at a time and immediately dispose of after use in sharps receptacle.
    ii. Avoid recapping needles whenever possible.
    iii. For further guidelines refer to ACUP 711: Sharps Precautions.
f. Medical Attention
    i. Contact Gannett Occupational Medicine office (255-6960) for medical evaluation if you suspect any exposure, or if you develop any symptoms associated with infection with zoonotic agents (e.g., fever, malaise, diarrhea, abdominal pain). Alternatively, see your own personal health care provider if any injury or potential exposure to a zoonotic agent occurs.
    ii. Notify the principal investigator or supervisor and complete an accident and injury report (see References).
g. Allergies
    i. Handling of bedding and animal products may aggravate allergies. Proper use of PPE reduces, but does not eliminate, the risk of developing allergies. Refer to the Allergy Prevention web page (see References) for further information.

4. References

a. ACUP 713 Hygiene-Hand Washing: http://www.research.cornell.edu/care/documents/ACUPs/ACUP713.pdf
b. ACUP 711-Sharps Precautions: http://www.research.cornell.edu/care/documents/ACUPs/ACUP711.pdf
c. Allergen Prevention: http://www.research.cornell.edu/Care/documents/OHS/AllergyPreventionFactSheet.pdf
d. Gannett Health Services, (607) 255-5155 or www.gannett.cornell.edu/
e. EH & S Accident Report: http://www.ehs.cornell.edu/forms/

f. A-Z Index for Foodborne, Bacterial, and Mycotic Diseases. CDC, NCZVED, 2010. http://www.cdc.gov/nczved/divisions/dfbmd/diseases/index.html
g. Guidelines to the Use of Wild Birds in Research. The Ornithological Society, 2010. http://www.nmnh.si.edu/BIRDNET/guide/
h. West Nile Virus, Highly Pathogenic Avian Influenza H5N1, and other zoonotic diseases: what ornithologists and bird banders should know. The Ornithological Council, 2010. http://www.nmnh.si.edu/BIRDNET/documents/WNV&H5N1-FactSheet.pdf
i. Zoonotic Diseases (Avian). USGS National Wildlife Health Center, 2009. http://www.nwhc.usgs.gov/outreach/AvianZoonoticDiseases2009b.pdf

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