Psittacosis

Revision Dates

Case Definition	July 2012
Reporting Requirements	July 2012
Remainder of the Guideline (i.e., Etiology to References sections inclusive)	December 2005

Case Definition

Confirmed Case

Clinical illness[1] with laboratory confirmation of infection:

- Isolation of *Chlamydia psittaci* from respiratory secretions

OR

- Detection of *C. psittaci* nucleic acid (e.g., PCR) in an appropriate clinical sample (e.g., CSF, sputum, BAL, throat swab, NP aspirate)[2]

OR

- Seroconversion or significant (i.e., fourfold or greater) rise in IgG antibody titres to *C. psittaci* between acute and convalescent phase sera collected 2 – 3 weeks apart.

OR

- Presence of IgM antibody against *C. psittaci* by MIF (≥ 1:16).

**The following probable case definition is provided as a guideline to assist with case finding and public health management, and should not be reported to AH.*

Probable Case*

Clinical illness[1] with a single[3] elevated IgG titre (≥ 1:32) to *C. psittaci* and other respiratory pathogens have been excluded

OR

Clinical illness[1] in a person epidemiologically linked to a confirmed case.

[1] Clinical presentations are variable. Most common are fever, headache, myalgia, chills, rash and upper or lower respiratory tract disease (usually with dry cough). There is usually a history of exposure to birds.

[2] Refer to the National Microbiology Laboratory (NML) Guide to Services for current specimen collection and submission information.

[3] A single elevated IgG titre of ≥ 1:32 to *C. psittaci* is suggestive of recent infection. It is recommended that the acute and convalescent specimens be collected 2 – 3 weeks apart. A second laboratory result with a stable (unchanged/static or ≤ two fold rise) antibody titre is suggestive of past infection.

Reporting Requirements

1. **Physicians, Health Practitioners and others**
   Physicians, health practitioners and others listed in Sections 22(1) or 22(2) of the *Public Health Act* shall notify the Medical Officer of Health (MOH) (or designate) of all confirmed and probable cases in the prescribed form by mail, fax or electronic transfer within 48 hours (two days).

2. **Laboratories**
   Section 23(a)(ii) of the *Public Health Act* requires that all laboratories, including regional laboratories and the Provincial Laboratory of Public Health (ProvLab), shall report all positive laboratory results by mail, fax or electronic transfer within 48 hours (two days) to the:
   - Chief Medical Officer of Health (CMOH) (or designate),
   - MOH (or designate) and
   - Attending/ordering physician.

3. **Alberta Health Services and First Nations Inuit Health Branch**
   - The MOH (or designate) of the zone where the case currently resides shall forward the preliminary Notifiable Disease Report (NDR) of all confirmed cases to the CMOH (or designate) within two weeks of notification and the final NDR (amendment) within four weeks of notification.
   - For out-of-zone reports, the MOH (or designate) first notified shall notify the MOH (or designate) of the zone where the client currently resides by mail, fax or electronic transfer and fax a copy of the positive laboratory report within 48 hours (two days).
   - For out-of-province and out-of-country reports, the following information should be forwarded to the CMOH (or designate) by phone, fax or electronic transfer within 48 hours (two days) including:
     - name,
     - date of birth,
     - out-of-province health care number,
     - out-of-province address and phone number,
     - attending physician (locally and out-of-province) and
     - positive laboratory report (faxed).

Etiology

Chlamydia psittaci is a non-motile, gram-negative bacilli. This bacteria is susceptible to moist heat (121° C for at least 15 minutes) and dry heat (160° C – 170° C for at least one hour). It can survive outside of the host for a few days to two months.

Clinical Presentation

Psittacosis is an acute generalized chlamydial disease with variable clinical presentations. Fever, headache, rash, myalgia, chills and upper or lower respiratory tract symptoms are common. Respiratory symptoms are often disproportionately mild when compared with the extensive interstitial pneumonia demonstrable on x-ray. Cough is initially absent or non-productive. When present, sputum is scant. Pleuritic chest pain and splenomegaly occur infrequently. The pulse may be slow in relation to temperature. Encephalitis, myocarditis, and thrombophlebitis are occasional complications. Relapses may occur. Although usually mild or moderate in character human disease can be severe or fatal especially in untreated elderly persons.

Diagnosis

The diagnosis may be suspected in persons with clinically compatible symptoms who have a history of exposure to birds and elevated or increasing antibodies to chlamydial antigens collected 2 – 3 weeks apart. Laboratory results to assist with diagnosis include:

- a fourfold or greater change in antibody titre to at least 1:16,
- a 1:32 titre on a single specimen may be an indicator of disease if associated with compatible clinical illness or a epidemiological link, or
- the presence of IgM of at least 1:16 by immunofluorescence.

Specimens should be sent to the ProvLab after consultation with the microbiologist on call. Recovery of the agent may be difficult especially if the case has received broad-spectrum antibiotics.

Epidemiology

Reservoir (1)

The reservoir is birds, principally parakeets, parrots, and lovebirds, and less often poultry, pigeons, canaries and seabirds. Birds that appear to be healthy can be carriers and shed the infectious agent in feces, particularly when subjected to the stresses of crowding and shipping. Imported psittacine birds are the most frequent source of exposure, followed by turkey, squab (young pigeons) and duck farms. Processing and rendering plants have also been sources of occupational disease. Laboratory infections have occurred.

Transmission (1-4)

Transmission of infection occurs by the inhalation of the agent from desiccated droppings, secretions, and dust from feathers of infected birds. Persons most likely to contract psittacosis are those exposed through occupation or hobby to infected living or dead birds. Person-to-person transmission has been suggested but not proven.

Incubation Period

The incubation period is from 1 – 4 weeks, commonly ten days.

Period of Communicability (3)

Diseased, as well as seemingly healthy birds may shed the agent intermittently and sometimes continuously, for weeks or months. Person to person transmission has been suggested but not proven.

Host Susceptibility

Susceptibility is general. Any individual in contact with an infected bird is at risk. Most individuals with psittacosis have had some contact with birds, usually as pets. Immunity following infection is generally incomplete and transitory. Older adults may be more severely affected. There is no evidence that persons with antibodies at any given concentration are protected.

Occurrence

General

Psittacosis occurs worldwide. Infection may be associated with obviously sick or apparently healthy pet birds. Although psittacosis is common among psittacine birds the disease in relatively rare in human. Most human cases are sporadic. Many infections are probably not diagnosed. Outbreaks occasionally occur in households, pet shops, aviaries, avian exhibits in zoos, and pigeon lofts. Epidemics related to infected aviaries or bird suppliers may be extensive.

Canada

In Canada, surveillance is not conducted nationally and the incidence of disease is not known.

Alberta (3,8)

The rate of psittacosis in Alberta has remained below 1/100,000 since 1992.

Key Investigation

Single Case/Household Cluster

- Determine the possible source of infection. This may include:
  - history of contact with birds such as:
    - the parrot family including parrots, budgies, lovebirds, etc.,
    - other caged birds,
    - the contact with bird droppings or dander, and
    - on poultry farms and
  - occupational exposure.
- Identify others who may have had contact with the same source.
- When contact with birds is the suspected source:
  - trace origin of suspected birds and if practical, test birds,
  - Public Health may need to investigate, in collaboration with a veterinarian, the location the bird(s) was procured (e.g. pet shops, dealer, breeder, and quarantine station). This may include:
    - a visit to the site,
    - the type and number of birds,
    - the health of the birds,
    - the treatment protocol used,
    - ventilation-related factors, and
    - record of sales of other birds.(4)

Control

Management of a Case

- Routine practices for hospitalized individuals. Isolation is not necessary.
- Coughing patients should be instructed to cough into paper tissue.

Treatment of a Case

- Antibiotics of the tetracycline group, given for 14 – 21 days.
- Erythromycin is an alternative when tetracycline is contraindicated (i.e., pregnancy, children less than nine years of age).

Management of Contacts

- No public health follow-up required for contacts of human cases.
- If it is possible that the bird(s) could have infected other persons, public health may chose to monitor these contacts for one to four weeks. Contacts should be instructed to seek medical attention if they develop signs or symptoms of disease (i.e. influenza-like-illness, or other respiratory illness) within the incubation period.

Preventive Measures (1,4-6)

- Educate breeders, pet shop owners, and others who may house/transport birds about of the symptoms of psittacosis infections in birds.
  - Psittacosis should be considered in any increased incidence of weakened birds, wasting disease, increased nasal and/or ocular discharge accompanied by diarrhea and increased mortality.
- Educate the public about the dangers of household contact with infected pet birds.
- Educate individuals and groups who have contact with known infected birds about the mode of disease transmission and appropriate personal hygiene.
  - Clean all cages, food bowls, and water bowls daily.
  - Thoroughly scrub with soap and water, disinfect, and rinse all items in clean running water.
  - *C. Psittaci* is susceptible to most disinfectants and detergents as well as heat, for example, Lysol (1%) or 1:100 dilution of household bleach (i.e. 2.5 tablespoons per 4.5 litres of water).
  - Birds should be treated, isolated from people for at least 45 days in a clean uncrowded cage, or euthanized and in either situation the living area of the bird must be thoroughly disinfected.
  - Discard all items that cannot be adequately disinfected (e.g., wooden perches, ropes, nest material and litter).
  - Do not use a vacuum cleaner and minimize aerosolization by wetting the floor prior to sweeping it. Burn or double-bag the waste for disposal.
  - Isolate birds requiring treatment. Thoroughly scrub the soiled cage with a detergent to remove all fecal debris, rinse the cage, disinfect it (allowing at least 5 minutes of contact with the disinfectant), and re-rinse the cage.
- Quarantine birds
  - Management of the environment
    - Inform all persons in contact with infected birds about nature of disease.
    - Advise protective clothing, gloves, a disposable surgical cap, and an appropriately fitted mask (i.e., N95 or higher) when cleaning cages or handling infected birds.
    - When transporting dead birds (or performing necropsy), wet the carcass with detergent and water to prevent aerosolization of infectious particles.
  - Prevent or eliminate infections of birds by quarantine (of at least 45 days) and appropriate antibiotic treatment.
  - Newly acquired and ill or exposed birds should be isolated. Isolation should include housing in a separate airspace from other birds and non-caretakers for at least 30 days and monitored for infection.
  - Large doses of tetracycline can suppress, but not eliminate, infection in poultry flocks. Infected birds should be treated, and the area where they were housed thoroughly cleaned

and disinfected (See above). Quarantine infected farms or premises with infected birds until diseased birds have been destroyed or adequately treated with tetracycline and the buildings disinfected.
    - In production facilities the dust level should be kept down and staff should wear fitted filter (N95 or higher) masks.
    - After the cultures are taken, the MOH may issue an official quarantine order for all affected pet and suspect birds and that treatment be supervised by a veterinarian. Tetracyclines can be effective in controlling disease in companion birds.
- Educate medical personnel responsible for occupational health in processing plants about the symptoms of psittacosis in humans.

For further information:
Canadian Food Inspection Agency, Animal Products, Animal Health and Production Division. *Importation of Pet Birds from Countries Other than the United States,* May 15, 2003. Available at: http://www.inspection.gc.ca/english/anima/heasan/import/birds_othere.shtml

References

(1) Schachter J. *Chapter 22: Psittacosis* in Diseases Transmitted from Animals to Man, 6th ed. Springfield IL. 1975.

(2) Hansen PF, Sorensen LB. *Interhuman Transmission of Ornithosis*. Danish Medical Bulletin; 1955;2(2).

(3) Alberta Health and Wellness, Disease Control and Prevention. *Communicable Disease Reporting System.* March 2003.

(4) The American Veterinary Medical Association. *Compendium of measures to control Chlamydophila psittaci (formerly Chlamydia psittaci) infection among humans (Psittacosis) and pet birds, 2003.* National Association of State Public Health Veterinarians. http://www.avma.org/pubhlth/psittappenda.asp

(5) Canadian Food Inspection Agency. *Importation of Pet Birds from Countries Other than the United States.* Animal Products, Animal Health and Protection Division. September 2003. http://www.inspection.gc.ca/english/anima/heasan/import/birds_otherre.shmtl

(6) Meyer KF, Eddie B*, Knowledge of Human virus Infection of animal origin.* JAMA 1947;133.

