



Psittacosis (Ornithosis, Parrot Fever) Investigation Guideline

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Revision History:

Date	Replaced	Comments
05/2018	02/2012	Notification section modified with the requirements of revised regulations. Updated Kansas Department of Agriculture Division of Animal Health contact information.
09/2012	03/2008	Removed references to KS-EDSS

Psittacosis (Ornithosis, Parrot Fever)

Disease Management and Investigative Guidelines

CASE DEFINITION (CDC 2010)

Clinical Description for Public Health Surveillance:

- Psittacosis is an illness characterized by fever, chills, headache, myalgia, and a dry cough with pneumonia often evident on chest x-ray. Severe pneumonia requiring intensive-care support, endocarditis, hepatitis, and neurologic complications occasionally occur.

Laboratory Criteria for Case Classification:

- Isolation of *Chlamydia psittaci* from respiratory specimens (e.g., sputum, pleural fluid, or tissue), or blood, or
- Fourfold or greater increase in antibody (Immunoglobulin G [IgG]) against *C. psittaci* by complement fixation (CF) or microimmunofluorescence (MIF) between paired acute- and convalescent-phase serum specimens obtained at least 2-4 weeks apart, or
- Supportive serology (e.g. *C. psittaci* antibody titer [Immunoglobulin M (IgM)] of greater than or equal to 32 in at least one serum specimen obtained after onset of symptoms), or
- Detection of *C. psittaci* DNA in a respiratory specimen (e.g. sputum, pleural fluid or tissue) via amplification of a specific target by polymerase chain reaction (PCR) assay.

Case Classification:

Confirmed: An illness characterized by fever, chills, headache, cough and myalgia, and laboratory confirmed by either:

- Isolation of *Chlamydophila psittaci* from respiratory specimens (e.g., sputum, pleural fluid, or tissue), or blood, OR
- Fourfold or greater increase in antibody (Immunoglobulin G [IgG]) against *C. psittaci* by complement fixation (CF) or microimmunofluorescence (MIF) between paired acute- and convalescent-phase serum specimens obtained at least 2-4 weeks apart.

Probable: An illness characterized by fever, chills, headache, cough and myalgia that has either:

- Supportive serology (e.g. *C. psittaci* antibody titer [Immunoglobulin M, IgM] of greater than or equal to 32 in at least one serum specimen obtained after onset of symptoms), OR
- Detection of *C. psittaci* DNA in a respiratory specimen (e.g. sputum, pleural fluid or tissue) via amplification of a specific target by polymerase chain reaction (PCR) assay.

Suspect (Internal KDHE definition): clinical symptoms with possible exposure

Note: Although MIF has shown greater specificity to *C. psittaci* than CF, positive serologic findings by both techniques may occur because of infection with other *Chlamydia* species and should be interpreted with caution.

LABORATORY ANALYSIS

- The State Public Health Laboratory does not provide testing and sends specimens to the CDC. Prior authorization from the State Epidemiology Program is needed before specimens are processed at the CDC.
- A list of commercial laboratories that accept human specimens for *C. psittaci* testing is provided in the [National Association of State Public Health Veterinarians: Compendium of Measures to Control *C. psittaci* Infection](#).
- Methodology: MIF (requires paired sera) and PCR, culture, or genotyping
- Laboratory Kit: Serology.
- Specimen: Serology: Serum (acute and convalescent); Other: sputum or other respiratory specimen
- Amount: 3-5 ml each of acute and convalescent sera.
- For additional information and/or questions, call 785-296-1620.

EPIDEMIOLOGY

Psittacosis occurs sporadically worldwide during any season. Most human cases are confined within family groups. Outbreaks, among humans, have been associated with pet shops, avian exhibits in zoos and pigeon lofts. Outbreaks, among birds, have been associated with poultry flocks and other groups of birds such as in pet stores. Other animals, such as cattle, goats, sheep and cats may become infected and transmit *C. psittaci* to humans.

DISEASE OVERVIEW

A. Agent:

Chlamydomphila psittaci (formally *Chlamydia psittaci*), an intracellular bacterium.

B. Clinical Description:

Human: An acute illness characterized by fever, chills, headache, muscle aches, and respiratory symptoms. Respiratory symptoms are often disproportionately mild when compared to the atypical pneumonia demonstrable on x-ray. Cough is initially absent or nonproductive; when present, sputum is scant but may contain pus and/or mucus. Complications include: encephalitis, myocarditis and thrombophlebitis. Human disease can be severe, especially in untreated elderly persons and relapses may occur.

Avian: Symptoms range from asymptomatic to death. Infected birds are often lethargic, anorexic, and have ruffled feathers. They may have ocular and/or nasal discharge containing pus and/or mucus. Droppings may be yellow-green in color, turning white and watery if the illness persists for several weeks.

C. Reservoirs:

Parakeets, parrots, and lovebirds are the primary reservoir; however, many other species of birds may also shed *C. psittaci*.

D. Mode(s) of Transmission:

The agent is transmitted through the inhalation of dried droppings, nasal discharge, secretions or dust from feathers of infected birds. Pet birds are implicated, especially when owners clean a cage with dried droppings. Occupational exposure may also occur when workers are exposed to areas with contaminated dust during cleanup, repair or demolition. Laboratory infections have occurred as well. Person-to-person transmission has been suggested but would be a rare occurrence.

E. Incubation Period:

Average 7-14 days; range 1-4 weeks.

F. Period of Communicability:

Birds that appear healthy may be carriers for life and can for weeks or months at a time intermittently shed *C. psittaci*. Shedding may be triggered by any stress exerted on the bird (e.g., transport, change of feed, new cage mate, chilling, etc.) Person-to-person transmission is extremely rare but could occur during paroxysmal coughing associated with acute illness. Prompt, proper antibiotic treatment resolves any potential risk of communicability.

G. Susceptibility and Resistance:

Re-infection may occur; long lasting immunity does not occur following initial infection. Those with occupational exposure to birds (i.e., pet store employees, veterinarians, poultry workers, etc.) and bird owners are at highest risk.

H. Treatment:

Tetracycline or doxycycline administered for 10 to 21 days are the drugs of choice, except for children younger than 8 years of age and pregnant women. Erythromycin and azithromycin are the alternative agents.

NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

Suspected cases of Psittacosis shall be reported within 24 hours, except if the reporting period ends on a weekend or state-approved holiday, the report shall be made by 5:00 p.m. on the next business day after the 24-hour period:

1. Health care providers and hospitals: report to the local public health jurisdiction or KDHE-BEPHI (see below)
2. Local public health jurisdiction: report to KDHE-BEPHI (see below)
3. Laboratories: report to KDHE-BEPHI (see below)

**Kansas Department of Health and Environment (KDHE)
Bureau of Epidemiology and Public Health Informatics (BEPHI)
Phone: 1-877-427-7317
Fax: 1-877-427-7318**

Further responsibilities of state and local health departments to the CDC:

As a nationally notifiable condition, **confirmed psittacosis cases** require a STANDARD report to the Center of Disease Control and Prevention (CDC).

- **Local public health jurisdiction** will report information requested on the disease reporting forms as soon as possible.
- KDHE-BEPHI will file an electronic case report the next regularly scheduled electronic transmission.

(KDHE-BEPHI files electronic reports weekly with CDC.)

INVESTIGATOR RESPONSIBILITIES

- 1) [Report](#) all confirmed, probable and suspect cases to the KDHE-BEPHI.
- 2) Contact medical provider to collect additional information and confirm diagnosis using current [case definition](#).
 - Collect all information requested in [Step 1](#)) of case investigation.
 - If necessary, assist KDHE-BEPHI in obtaining additional specimens for confirmatory testing at a reference laboratory.
 - Ensure that case/proxy is aware of the diagnosis.
- 3) Continue with the [case investigation](#) to identify potential source of infection.
- 4) Conduct [contact investigation](#) to identify additional cases.
- 5) Identify whether the source of infection is major public health concern.
 - If a pet store, aviary, poultry flock or other animal (e.g., cattle, sheep, goats) is implicated as the possible source of infection, notify the Kansas Division of Animal Health immediately at 785-564-6601. See [Managing Special Situation](#) for pet shops
- 6) [Educate](#) on the [environmental](#) measures to prevent disease.
- 7) [Record](#) data, collected during the investigation, in the KS EpiTrax system under the data's associated [\[tab\]](#) in the case morbidity report (CMR).
 - As needed, assist KDHE-BEPHI with the completion of any additional questionnaires.
- 8) As appropriate, use the notification letter(s) and the disease [fact sheet](#) to notify the case, contacts and other individuals or groups.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Case Investigation

- 1) Contact the medical provider who ordered testing of the case and obtain the following information. (This includes medical records for hospitalized patients.)
 - Record [onset date](#) (approximate if exact date is not known) [\[Clinical\]](#)
 - Record [hospitalizations](#): location and duration of stay [\[Clinical\]](#)
 - Record outcomes: survived or [date of death](#) [\[Clinical\]](#)
 - With death investigation, identify if autopsy was performed.
 - Obtain clinical information on [symptoms and signs](#), [\[Notes\]](#)
 - Examine the laboratory testing that was done: fax any results that have not been reported to the state; determine with BEPHI staff if additional testing should occur at a reference laboratory. If needed, assist in the coordination for additional testing. [\[Laboratory\]](#)
 - Collect case's demographics and contacting information ([address](#), [birth date](#), [gender](#), [race/ethnicity](#), [primary language](#), and [phone number\(s\)](#)) [\[Demographic\]](#)
- 2) Interview the case or proxy to determine source and risk factors; focus on incubation period 6 weeks prior to illness onset.
 - Occupation and job duties to help determine if the case had any occupational exposure to birds [\[Epidemiologic\]](#)
 - Travel history, dates and places during the incubation period. [\[Notes\]](#)
 - Include travel history to other counties, states or countries.
 - Record places and dates the case visited.

- Bird contact (e.g., psittacine birds, pigeons, domestic fowl, or other birds).
 - If possible, indicate the type(s), number of bird(s), and health of the bird(s) to which the case may have been exposed.
 - Type and location of exposure: indoor/outdoor; private home; private aviary; commercial aviary; pet shop; bird loft; poultry establishment; other or unknown.
 - Were any birds recently purchased? If so, where?
 - Inquire if the case had recent contact with a person who has/had a respiratory illness with a dry cough.
 - If yes, list names and contact information.
- 3) Examining the epidemiological data, record where the infection was most likely imported from. (Indigenous or out-of-county, state, or U.S.) [[Epidemiologic](#)]
 - 4) Investigate epi-links among cases (clusters, household, co-workers, etc).
 - Highly suspected local sources should be investigated. Refer to [Environmental Measures](#).
 - For suspected [Outbreak](#) to Managing Special Situations section.

Contact Investigation

- 1) If a likely source is found, identify other persons who may have had similar exposures (e.g., family members, co-workers).
- 2) If droppings and/or bird carcasses were encountered at a work site, obtain the names, contact information and exposure histories for those that may have been exposed.
- 3) ONLY if a risk of transmission exists because of high risk of exposure, create a line listing of contacts at-risk of developing disease. [[Contact](#)]

Isolation, Work and Daycare Restrictions

None required for humans. There are restrictions for [birds in pet stores](#).

Case Management

- 1) Follow-up if case had not yet recovered, since last contact.
- 2) Report any changes in case status (i.e. death, recovered)

Contact Management

- 1) Symptomatic acquaintances, household members, associates, or co-workers should be strongly urged to contact their physician for a medical evaluation.
- 2) Contacts with recent signs or symptoms compatible with psittacosis are handled as suspect cases.
- 3) Non-symptomatic contacts with possible exposures should watch for symptoms for a period of 4 weeks.
- 4) A symptomatic contact is considered a suspect case requiring investigation and [reporting](#) to KDHE-BEPHI [[Contact](#)]
 - On the [[Contact](#)] Tab of the CMR, click '[Show](#)' beside the symptomatic contact on the listing. When [View Contact Event](#) opens in show mode, select '[Promote to CMR](#)'
 - Investigate symptomatic contacts with respiratory illness as suspect cases.

Environmental Measures

- 1) If the source of infection is a pet bird, obtain the history of ownership, date and place of acquisition and bird's health history and ensure that the Kansas Division of Animal Health is notified at 785-564-6601.
- 2) Testing birds or sampling environmental surfaces in the home setting is rarely warranted for public health reasons.

Education

- 1) Birds should only be purchased from a licensed pet store or aviary. Birds that have not been through the USDA quarantine (i.e., smuggled) are more likely to be a source of psittacosis and other exotic diseases.
- 2) Birds should be housed in clean cages of ample size. They should be lined with newspaper that is changed frequently in a well-ventilated area. Scattering the contents of the soiled newspaper should be avoided.

MANAGING SPECIAL SITUATIONS

A. Pet Shop-Associated Disease:

- Investigations are carried out if a bird with confirmed or probable avian psittacosis was:
 - Procured from a pet store, breeder, or dealer within 60 days of the onset of signs of illness;
 - Linked to a person with confirmed or probable psittacosis; or
 - Associated with several other suspect avian cases from the same source.
- Special control measures may be necessary at pet stores that have been linked to cases of human psittacosis or where there has been a documented avian outbreak.
 - Control measures may include quarantine, treatment and/or destruction of the exposed birds.
 - Cleaning of cages and other surfaces is also required.
 - Both the USDA and the Kansas state veterinarian may be involved in bird tracing.
 - The Kansas Animal Health Department's (KAHD) Animal Facilities Inspection Program (AFIP) is responsible for the licensing and inspection of pet shops in the state of Kansas.
- The [National Association of State Public Health Veterinarians: Compendium of Measures to Control *Chlamydophila psittaci* Infection Among Humans \(Psittacosis\) and Pet Birds \(Avian Chlamydiosis\)](#) is used to guide the investigation and for the implementation of any control measures.
- Contact KDHE at 877-427-7317 or Kansas Division of Animal Health 785-564-6601 for more information.

B. Reported Incidence Is Higher than Usual/Outbreak Suspected:

- If you suspect an outbreak, consult with the epidemiologist on call at KDHE.
- They can help determine a course of action to prevent further cases and can perform surveillance for cases that may cross county lines that would be difficult to detect at the local level.
- A common source, such as a cluster of sick birds in a pet store should be sought and applicable preventive or control measures instituted.

C. Intentional Contamination

Psittacosis is a Category B potential bioterrorism weapon. If the case has no known exposures or is not employed in an occupation that is prone to exposure, then consider an intentional (bioterrorist) event. Specific epidemiological, clinical, and microbiological findings that suggest an intentional release of psittacosis should result in the issue of a health alert.

If suspected:

- Notify local law enforcement, the local Health Officer, the on-call epidemiologist (local) and KDHE (1-877-427-7317) immediately.
- Implement "[Chain of Custody](#)" procedures for all samples collected, as they will be considered evidence in a criminal investigation.
- Work to define population at risk which is essential to guide response activities. Public health authorities will play the lead role in this effort, but must consult with law enforcement, emergency response and other professionals in the process. The definition may have to be re-evaluated and redefined at various steps in the investigation and response.
- Once the mechanism and scope of delivery has been defined, identify symptomatic and asymptomatic individuals among the exposed and recommend treatment and/or chemoprophylaxis.
- Establish and maintain a detailed line listing of all cases and contacts with accurate identifying and locating information.

Safety Considerations:

Risks to public health, health care and emergency response personnel are not significant.

DATA MANAGEMENT AND REPORTING TO THE KDHE

- A. Accept the case assigned to the LHD and record the date the LHD investigation was started on the [\[Administrative\]](#) tab.
- B. Organize and collect data, using appropriate data collection tools including:
 - Investigators can collect and enter all required information directly into EpiTrax [\[Investigation\]](#), [\[Clinical\]](#), [\[Demographics\]](#), [\[Epidemiological\]](#) tabs.
 - [CDC case investigation form](#) can be used to collect additional information.
 - During outbreak investigations, refer to guidance from a KDHE epidemiologist for appropriate collection tools.
- C. Report data collected during the course of the investigation via EpiTrax.
 - Verify that all data requested has been recorded on an appropriate EpiTrax [\[tab\]](#), or that notes are recorded for a case lost to follow-up
 - Some data that cannot be reported on an EpiTrax [\[tab\]](#) may need to be recorded in [\[Notes\]](#) or scanned and attached to the record.
 - Paper report forms do not need to be sent to KDHE after the information is recorded and/or attached in EpiTrax. The forms should be handled as directed by local administrative practices.
- D. If a case is lost to follow-up, after the appropriate attempts to contact the case have been made:
 - Indicate 'lost to follow-up' on the [\[Administrative\]](#) tab with the attempts to contact the case recorded.
 - Record at least the information that was collected from the medical records.
 - Record a reason for 'lost to follow-up' in [\[Notes\]](#).
- E. After the requirements listed under [Case Investigation](#) have been completed, record the "Date LHD investigation completed" field located on the [\[Administrative\]](#) tab.
 - Record the date even if the local investigator's [Case](#) or [Contact Management](#) for the contact is not "Complete".
- F. Once the entire investigation is completed, the LHD investigator will click the "Complete" button on the [\[Administrative\]](#) tab. This will trigger an alert to the LHD Administrator so they can review the case before sending to the state.
 - The LHD Administrator will then "Approve" or "Reject" the CMR.
 - Once a case is "Approved" by the LHD Administrator, BEPHI staff will review and close the case after ensuring it is complete and that the case is assigned to the correct event (DF/DHF), based on the reported symptoms reported.

(Review the [EpiTrax User Guide, Case Routing](#) for further guidance.)

ADDITIONAL INFORMATION / REFERENCES

- A. Treatment / Differential Diagnosis:** Red Book: 2009 Report of the Committee on Infectious Diseases. 29th Edition. Illinois, Academy of Pediatrics, 2014.
- B. Epidemiology, Investigation and Control:** Heymann. D., ed., Control of Communicable Diseases Manual, 19th Edition. Washington, DC, American Public Health Association, 2010.
- C. Case Definitions:** CDC Division of Public Health Surveillance and Informatics, Available at: wwwn.cdc.gov/nndss/
- D. Kansas Regulations/Statutes Related to Infectious Disease:** www.kdheks.gov/epi/regulations.htm
- E. National Association of State Public Health Veterinarians: Psittacosis and Chlamydiosis.** www.nasphv.org/documentsCompendiaPsittacosis.html
- **Compendium of Measures To Control Chlamydophila psittaci Infection Among Humans (Psittacosis) and Pet Birds (Avian Chlamydiosis)**
Available at: www.nasphv.org/Documents/Psittacosis.pdf
- F. Additional Information (CDC):** www.cdc.gov/health/default.htm

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