Psittacosis (Ornithosis, Parrot Fever) Investigation Guideline

CONTENT:	**VERSION DATE:**
Investigation Protocol:	
• **Investigation Guideline**	**01/2010**
• **Psittacosis Human Case Surveillance Report**	**03/2008**
Supporting Materials found in attachments:	
• **Fact Sheet**	**07/2009**
• **Compendium of Measures to Control Chlamydophila psittaci Infection**	**05/2010**

Revision History:

Date	Replaced	Comments
02/2012	-	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 as a result 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 or refer to online guidance at www.kdheks.gov/labs/lab_ref_guide.htm.

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:
Chlamydophila 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.

INVESTIGATOR RESPONSIBILITIES

1) Use current case definition, to confirm diagnosis with the medical provider.
2) Conduct a case investigation to identify potential source of infection.
3) Conduct contact investigation to identify additional cases.
4) 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 Department of Animal Health (KAHD) immediately at 785-296-2326. See Managing Special Situation for pet shops.
5) Initiate control and prevention measures to prevent spread of disease.
6) Complete and submit the Psittacosis Human Case Surveillance Report.
7) As appropriate, use the disease fact sheet to educate 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.)
   - Use the Case Surveillance Record to identify any symptoms of psittacosis:
     - Record onset date, diagnosis date and symptoms experienced.
   - Examine the laboratory testing that was done to ensure all testing that could confirm the case has been reported. Obtain and fax copies of any lab

reports that may still be needed.
- Examine and record the therapy that the case received.
- Collect case's demographic data and contact information (birth date, county, sex, race/ethnicity, occupation, address, phone number(s))
- Record hospitalizations: location, admission and discharge dates
- Record outcomes: recovered or date of death

2) Interview the case or proxy to determine source and risk factors; focus on a 6 month incubation period prior to illness onset.
   - Occupation of the case to help determine if the case had any occupational exposure to birds (e.g., farmer, pet store worker).
   - 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.

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.

Isolation, Work and Daycare Restrictions

None required for humans. There are restrictions for birds in pet stores.

Case Management

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

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.

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 Department of Animal Health has been notified (785-296-2326).
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 KAHD-AFIP 785-296-2326 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. Organize and collect data.

B. Report data via the state electronic surveillance system.

- Especially data that collected during the investigation that helps to confirm or classify a case.

ADDITIONAL INFORMATION / REFERENCES

A. **Treatment / Differential Diagnosis:** Red Book: 2009 Report of the Committee on Infectious Diseases. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2009: 253-255.

B. **Epidemiology, Investigation and Control:** Heymann. D., ed., Control of Communicable Diseases Manual, 19th Edition. Washington, DC, American Public Health Association, 2009.

C. **Case Definitions:** CDC Division of Public Health Surveillance and Informatics, Available at: www.cdc.gov/osels/ph_surveillance/nndss/casedef/case_definitions.htm

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

PSITTACOSIS HUMAN CASE SURVEILLANCE REPORT

Investigation Information			
Report Date ____/____/_____	**Patient Status** □ Inpatient □ Outpatient □ Died	**Diagnosis Date** ____/____/_____	Onset Date ____/____/_____

Patient Information			
Patient ID	**First**	**Last**	**Middle**
Street Address			
City	**County**	**State**	**Zip**
Home Phone ###-###-####	**Ext.**	**Other Phone** ###-###-####	**Ext.**
Parent/Guardian (if under 18yr.)			
First	**Last**	**Middle**	

Demographics		
Gender □ Male □ Female □ Unknown	**Date of Birth** ____/____/_____	**Age**
Race □ Caucasian □ African America □ American Indian/Alaska Native □ Hawaiian/Pacific Islander □ Asian □ Unknown □ Other (Specify)_____		
Ethnicity □ Hispanic/Latino □ Non-Hispanic/Latino □ Unknown		

Report Information				
Person Providing Report				
First	**Last**	**Phone** ###-###-####	**Ext.**	**Email**
Primary Physician				
First	**Last**	**Phone** ###-###-####	**Ext.**	**Email**
Street Address				
City	**County**	**State**	**Zip**	

Case ID First Name Last Name

Clinical Information

Brief clinical description (Symptoms and signs, note maximum temperature, etc.)

□ Fever □ Pneumonia
□ Myalgia □ Rash
□ Chills □ Photophobia
□ Headache □ Other (describe/details):
□ Cough

Specific therapy: (Specify products and dosage)

Outcome:	**If the patient died, date of death:**
□ Recovered □ Died □ Unknown	____/____/_____

Laboratory Information

Test Name/Test Method	Date Specimen Collected	Test Result	Name of Laboratory
MIF	____/____/_____		
IFA- Acute phase serum	____/____/_____		
IFA Convalescent-phase serum	____/____/_____		
PCR	____/____/_____		
Isolation	____/____/_____		

Chest X-rays done:	**If yes, date:**	**If yes, results:**
□ Yes □ No □ **Unknown**	____/____/_____	

Epidemiologic Information

Occupation at date of onset:	**Specific duties:**

Indicate which of the following contacts the patients had during the 5 weeks prior to onset:
(Check all that apply)

□ Birds □ Human case of Psittacosis (specify)_____
□ Other (specify) _____ □ No known exposure

If exposure to birds, complete following table:

Type of Bird	**Species**	**Approximate number**	**Were birds healthy?** (Y=Yes N=No UNK=Unknown)
Psittacines			
Pigeons			
Domestic Fowl			
Other birds			

If birds were not healthy, please elaborate:

Case ID First Name Last Name

Epidemiologic Information cont.

Indicate where the exposure occurred. If the patient had multiple contacts, specify to what they were exposed at each place of exposure.

Type of Establishment	Owner	Address	Exposure To (Species)	Exposure setting	Date of Exposure
1=Private home 2=Private aviary 3=commercial aviary 4=Pet shop 5=Bird loft 6=Poultry establishment 7=other 8=Unknown				I=Indoors O=outdoors	

If other, specify:

If pet birds, domestic pigeons, or fowl are implicated as the source of the human psittacosis, or If any such bird is shown by laboratory methods to be infected, it is important to learn where these birds originated and where they were subsequently purchased or obtained by the present owner. These birds may have acquired a latent form of the infection at any place where they have been detained since hatching.

List the address of every known place where the birds were harbored, including approximate dates.

Additional Relevant Information

Submitted by:	Date: ____/____/_____	Health Depart.
Phone number: ###-###-#####	**Ext.**	

Supporting Materials

Supporting Materials are available under attachments:

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Then double click on the document to open.

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