Psittacosis (Ornithosis, Parrot Fever) Investigation Guideline

CONTENTS

Version 07/2009

Psittacosis (Ornithosis, Parrot Fever)
Disease Management and Investigative Guidelines

CASE DEFINITION (CDC 1996)

A. Clinical Description for Public Health Surveillance:

- An illness characterized by fever, chills, headache, photophobia, cough, and myalgia.

B. Laboratory Criteria for Case Classification:

- Isolation of *Chlamydia psittaci* from respiratory secretions, or
- Fourfold or greater increase in antibody against *C. psittaci* by complement fixation (CF) or microimmunofluorescence (MIF) to a reciprocal titer of greater than or equal to 32 between paired acute- and convalescent-phase serum specimens, or
- Presence of immunoglobulin M antibody against *C. psittaci* by MIF to a reciprocal titer of greater than or equal to 16.

C. Case Classification:

- Confirmed: a clinically compatible case that is laboratory confirmed.
- Probable: a clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (e.g., *C. psittaci* titer of greater than or equal to 32 in one or more serum specimens obtained after onset of symptoms).
- Suspect (Internal KDHE definition): clinical symptoms with possible exposure

Note: The serologic findings by CF also may occur as a result of infection with *Chlamydia pneumoniae* or *Chlamydia trachomatis*.

D. Laboratory Testing:

- 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 *Chlamydophila 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 http://www.kdheks.gov/labs/lab_ref_guide.htm.

E. Bioterroris m Potential:

- Psittacosis is a category B bioterrorism agent.

F. Outbreak Definition:

- There are no formal outbreak definitions for psittacosis; however, the

investigator should consider the possibility of an outbreak when there is an unusual clustering of cases in time and/or space.

INVESTIGATOR RESPONSIBILITIES

A. Investigation Related Tasks and Activities:

1) Confirm diagnosis with appropriate medical provider.
   - Before contacting the patient or family, first determine what information has been released about the patient's diagnosis and identify if the needed epidemiologic data can be found in the clinical record alone.
   - Obtain information that supports the case definition.
   - Obtain information on any laboratory tests performed and results.
   - For hospitalizations, obtain medical records, including admission notes, progress notes, lab report(s), and discharge summary.
2) Conduct case investigation to determine the individual's at-risk activities and potential site of exposure; evaluate the possibility of additional cases.
3) Complete and submit the Psittacosis Human Case Surveillance Report.
4) Report all confirmed cases to the Bureau of Surveillance & Epidemiology using established methods.

B. Notifications:

1) 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.
2) Mail or deliver notification letter and/or disease fact sheet to case and contacts (if appropriate and/or requested).

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. Reservoir s:

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.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Standard investigation activities include the following:

1) Confirmation of diagnosis using case definition.
2) Collection of demographic data (birth date, county, sex, race/ethnicity)
3) Collection of clinical information and laboratory results.
4) Determination of risk factors and transmission settings. (i.e., travel, outdoor activity, use of repellent)

Standard investigation **includes** completion of the General Investigation Form(s) and Psittacosis Human Case Surveillance Report. Further actions include:

A. Case Investigation - Identify Potential Source of Infection:

To help identify the source of the infection, the investigator should focus their investigation within the incubation period of 4 weeks prior to 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.

B. Contact Investigation – Identify Exposed Individuals / Populations:

- If a likely source is found, identify other persons who may have had similar exposures (e.g., family members, co-workers).
- 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.

C. Isolation, Work and Daycare Restrictions

- None.

D. Case Management, Including Follow-up of cases:

- None.

E. Contact Management, Including Protection of Contacts:

- Evaluate contacts with recent signs or symptoms compatible with psittacosis as suspect cases.

F. Environmental Measures:

- 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).
- Testing birds or sampling environmental surfaces in the home setting is rarely warranted for public health reasons.

G. Education:

- 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.
- 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 and the KAHD 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

DATA MANAGEMENT AND REPORTING TO THE KDHE

A. Organize, collect and report data with the General Investigation Form(s) and Psittacosis Human Case Surveillance Report.

B. Report data electronically via KS-EDSS using the Disease Name = Psittacosis (Chlamydia psittaci) (Ornithosis) or by fax, include:

- All essential data that was collected during the investigation, especially data that helps to confirm or classify a case.
- All information collected on the General Investigation and supplemental forms.

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, 18th Edition. Washington, DC, American Public Health Association, 2004.

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

D. Kansas Regulations/Statutes Related to Infectious Disease: http://www.kdheks.gov/epi/regulations.htm

E. National Association of State Public Health Veterinarians: Psittacosis and Chlamydiosis. http://www.nasphv.org/documentsCompendiaPsittacosis.html

- **Compendium of Measures To Control Chlamydophila psittaci Infection Among Humans (Psittacosis) and Pet Birds (Avian Chlamydiosis)** Available at: http://www.nasphv.org/Documents/Psittacosis.pdf

F. Additional Information (CDC): http://www.cdc.gov/health/default.htm

Kansas Disease Investigation Guidelines

General Investigation Form

Investigation Information

Case Type: ☐Human Case ☐Non-human Case ***Disease Name:*** _____

Classification: ☐Suspect ☐Probable ☐Confirmed ***KS-EDSS Investigation ID:*** _____

Outbreak: ☐Yes ☐No ***Outbreak Name:*** _____ ***Outbreak #:*** _____

Onset Date: _____ ***Diagnosis Date:*** _____ ***Report Date:*** _____

Assigned to (Investigator): _____ ***Patient Died:*** ☐Yes ☐No ☐Unknown

Patient Information

Name Type: ☐Default/Common ☐Legal ☐Maiden ☐Nickname

Last: _____ ***First:*** _____ ***Middle:*** _____

Street: _____ ***City/State:*** _____ ***Zip:*** _____

Evening Phone #: _____ ***Daytime Phone #:*** _____

Sex: ☐Failure to Report ☐Female ☐Male ☐Other ☐Transexual ☐Unknown

Race: ☐American Indian or Alaska Native ☐Asian ☐Black or African American ☐Native Hawaiian or Other Pacific Islander ☐White ☐Unknown

Hispanic / Latino Ethnicity: ☐Yes ☐No

Date of Birth: _____ ***Age:*** _____ ***Age Unit:*** ☐Days ☐Weeks ☐Months ☐Years

Parent Information (if under 18)

Last: _____ ***First:*** _____ ***Middle:*** _____

Street: _____ ***City/State:*** _____ ***Zip:*** _____

Evening Phone #: _____ ***Daytime Phone #:*** _____

Work / Occupation or School / Grade

Worksites / School: _____

Occupations / Grade: _____

Travel History

1st ***Destination:*** _____ ***Depart Date:*** _____ ***Return Date:*** _____

2nd ***Destination:*** _____ ***Depart Date:*** _____ ***Return Date:*** _____

3rd ***Destination:*** _____ ***Depart Date:*** _____ ***Return Date:*** _____

4th ***Destination:*** _____ ***Depart Date:*** _____ ***Return Date:*** _____

Reporting Source

Title: _____ *Last Name:* _____ *First Name:* _____

Facility: _____ *County:* _____

Street: _____ *City/State:* _____ *Zip:* _____

Phone #: _____ *E-mail:* _____

Primary or Attending Physician

Title: _____ *Last Name:* _____ *First Name:* _____

Facility: _____ *County:* _____

Street: _____ *City/State:* _____ *Zip:* _____

Phone #: _____ *E-mail:* _____

Hospital Information

Hospitalized: ☐Yes ☐No *Patient Status Date:* _____

Hospital Name: _____ *Hospital City:* _____

Date Hospitalized: _____ *Number of Days Hospitalized:* _____

Notes

Supplemental Laboratory Report Form

Lab Reports

Laboratory Name: _____ ***Lab Report Date:*** _____

Ordering Provider Name: _____ ***Phone:*** _____ ***Facility:*** _____

Specimen Accession Number: _____ ***Specimen Collection Date:*** _____

Organism Name: _____ ***Organism Species:*** _____

Organism Serogroup: _____ ***Organism Serotype:*** _____

PFGE Results

Pattern 1 ***KS:*** _____ ***Other State:*** _____ ***CDC:*** _____

Pattern 2 ***KS:*** _____ ***Other State:*** _____ ***CDC:*** _____

Pattern 3 ***KS:*** _____ ***Other State:*** _____ ***CDC:*** _____

Additional Results Information

Reported Test Name:	*Coded Result:*	*Text Result:*	*Numeric Result:*	*Comments:*

Supplemental Contact Form

Contacts

Last: _____ ***First:*** _____ ***Middle:*** _____

Street: _____ ***City/State:*** _____ ***Zip:*** _____

Evening Phone #: _____ ***Daytime Phone #:*** _____ ***E-mail:*** _____

Sex: ☐Failure to Report ☐Female ☐Male ☐Other ☐Transexual ☐Unknown

Race: ☐American Indian or Alaska Native ☐Asian ☐Black or African American ☐Native Hawaiian or Other Pacific Islander ☐White ☐Unknown

Hispanic / Latino Ethnicity: ☐Yes ☐No

Date of Birth: _____ ***Age:*** _____ ***Age Unit:*** ☐Days ☐Weeks ☐Months ☐Years

Worksites / School: _____

Occupations / Grade: _____

Exposure Information

Contact Type: ☐Household ☐Sexual ☐Other: _____ ***Partner / Cluster Code:*** _____

Date of First Exposure: _____ ***Date of Last Exposure:*** _____ ***Frequency:*** _____

Nature of Exposure: _____ ***Comments:*** _____

Testing and Treatment Information

Clinic Code: _____ ***Examination Date:*** _____

Examination Test: _____ ***Examination Result:*** _____

Prophylaxis/empiric treatment date: _____ ***Drug / Dosage:*** _____

Provider (Name / Facility): _____

Disposition and Diagnosis Information

Initiation Date: _____ ***Disposition Date:*** _____ ***Disposition:*** _____

Diagnosis: _____ ***Referral Type:*** ☐Patient ☐Provider ***Post-test Counseled :*** ☐Yes ☐No

Currently Assigned To: _____ ***Follow-up Date:*** _____

Risk Factors

Pregnant: ☐Yes ☐No ***If Yes, # of Weeks:*** _____

Risk factors for complications in contact: ☐None ☐Pregnant Woman ☐HIV Seropositive ☐Unimmunized ☐Index case is a super-spreader

☐Child younger than 5 ☐Age > 65 ☐Otherwise immunosuppressed (s/p transplant, high dose steroids, etc)

PSITTACOSIS HUMAN CASE SURVEILLANCE REPORT

Investigation Information			
Report Date ____/____/_____ MM/DD/YYYY	**Patient Status** □ Inpatient □ Outpatient □ Deceased	**Diagnosis Date** ____/____/_____ MM/DD/YYYY	**Onset Date** ____/____/_____ MM/DD/YYYY

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

Demographics		
Gender □ Male □ Female □ Unknown	**Date of Birth** ____/____/_____ MM/DD/YYYY	**Age □ Years □ Months**
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**
City	**County**	**State**	**Zip**	**City**
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; Maximum temperature: _____□ F □ C _
□ Cough □ Pneumonia (□ **CXR confirmed or** □ **clinical diagnosis)**
□ Myalgia □ Rash
□ Chills □ Photophobia
□ Headache □ Other (describe/details):

Specific therapy: (Specify products, dosage, and duration)

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

Laboratory Information

Test Name/Test Method	Date Specimen Collected MM/DD/YYYY	Test Result	Name of Laboratory
Acute-phase serum □ **CF** □ **MIF**	____/____/_____	**IgM:_____ IgG: _____**	
Convalescent-phase serum □ **CF** □ **MIF**	____/____/_____	**IgM:_____ IgG: _____**	
PCR □ **blood** □ **sputum** □ **other: _____**	____/____/_____		
Sputum culture	____/____/_____		

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

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:

***Psittacine Birds include: Cockatoos, Cockatiels, Macaws, Parakeets, Parrots**

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 of Establishment	Address of Establishment	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: ____/____/_____ MM/DD/YYYY	Health Depart.
Phone number: ###-###-#####	**Ext.**	

Public Health Fact Sheet
Psittacosis

What is psittacosis?
Psittacosis is an infectious disease that is usually transmitted to humans from birds, particularly Psittacine, or parrot-like, birds. It is caused by the bacterium *Chlamydophila psittaci*.

What are the symptoms?
The symptoms of psittacosis range from mild to severe in people. The most common symptoms include fever, chills, headache, fatigue and a dry cough. Many people who are infected develop pneumonia. Older people tend to develop more serious disease, especially if they are not treated.

Symptoms in birds typically include decreased activity, poor appetite, ruffled feathers, runny eyes and nasal discharge. Some birds may also have difficulty breathing. Birds will often have diarrhea and may produce yellow or green droppings.

How is psittacosis spread?
Humans become infected with psittacosis when they inhale the bacteria that are present in dried bird droppings, feather dust or other secretions of infected birds. People may also get ill if they don't wash their hands after touching the feathers of sick birds or if they touch their mouths to the birds' beaks. Person-to-person spread of psittacosis may occur but is very unlikely.

Who gets psittacosis?
Anyone can develop the disease if they are exposed. People with the greatest risk are those who own or work with birds such as bird breeders, poultry processing workers, poultry farmers, veterinarians and pet shop employees.

How is it diagnosed?
Diagnosis is made by special blood tests. Since these tests take some time to be completed, healthcare providers will usually start people they think have psittacosis on antibiotic treatment before the test results are available.

How is psittacosis treated?
Antibiotics such as tetracycline doxycycline are often prescribed.

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How can you prevent psittacosis?
To prevent psittacosis in humans, it is necessary to prevent the exposure of humans to infected birds by following these simple guidelines:

- Avoid birds that are obviously sick. Signs of illness in birds may include runny eyes, runny noses, diarrhea and ruffled feathers.
- Take new birds to a veterinarian for a check-up as soon as possible after purchase.
- Keep new birds in a separate room from other birds for 30 to 45 days; have the new birds tested or treated for psittacosis before they are added to an existing group of birds.
- Clean all birdcages, food bowls and water bowls every day and disinfect them at least once a week.
- Take sick birds to a veterinarian for treatment.

Are there any health regulations for people with psittacosis?
No. People who have psittacosis can continue to do daily activities like school or work as long as they feel well enough to attend.

Where can you get more information?

- Your Local Health Department
- Kansas Department of Health and Environment, Epidemiologic Services Section at (877) 427-7317
- http://www.cdc.gov/health/default.htm
- http://www.nasphv.org/documentsCompendiaPsittacosis.html
- Your doctor, nurse, or local health center

This fact sheet is for information only and is not intended for self-diagnosis or as a substitute for consultation. If you have any questions about the disease described above or think that you may have an infection, consult with your healthcare provider. This fact sheet is based on the Centers for Disease Control and Prevention's topic fact sheets.