A. **Agent**
Psittacosis is a disease in humans caused by the bacteria Chlamydia psittaci that more commonly infects birds.

B. **Clinical Description**
Psittacosis causes mild illness in humans, with symptoms including fever, chills, head and muscle aches, and a dry cough. It can also cause pneumonia which may require hospitalization. The disease rarely leads to death.

C. **Reservoirs**
Most commonly, pet birds in the psittacine (parrot) family and poultry, are reservoirs for the disease. They may either be asymptomatic (not showing signs), or show signs of illness including decreased appetite, diarrhea, difficulty breathing, and eye inflammation (conjunctivitis).

D. **Mode of Transmission**
Both symptomatic and asymptomatic birds shed bacteria in their fecal droppings and respiratory secretions. These fluids then dry and become aerosolized and inhaled. Rarely, human infections may occur through bites and mouth-beak contact.

E. **Incubation period**
1–4 weeks

F. **Period of Communicability**
Symptoms normally begin between 5–14 days post exposure and rarely after 14 days post exposure.

G. **Susceptibility and Resistance**
Humans of all ages, but more commonly adults that have contact with birds, are most susceptible to the disease. This includes people who own birds, feed birds in their backyard, or those that have an occupation that entails contact with birds.

- **Resistance**: Development of resistant mutations is extremely rare and is most concerning when Rifampin is used alone as a treatment.

H. **Treatment**
Antibiotics are the main form of treatment and are most effective if taken soon after symptoms begin. Most people make a full recovery after treatment with the correct antibiotics, but some complications may occur that require hospitalization including:

- Pneumonia- lung infection, may be severe
Psittacosis Protocol
Last Updated: 3/14/2022

- Endocarditis- inflammation of heart valves
- Hepatitis- inflammation of the liver
- Neurologic issues due to inflamed nerves in the brain
- Death- less than 1/100 cases

I. Clinical Case Definition2,5: 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.

- Respiratory symptoms: less severe and disproportionate to the severity of pneumonia that may be produced.
  - i. Nonproductive cough or cough producing small amounts of mucopurulent sputum
  - ii. Low pulse disproportionate to temperature
  - iii. Chest pain and splenic enlargement may occur less frequently
  - iv. Rarely, encephalitis, myocarditis, and thrombophlebitis with possible relapses

J. Laboratory Criteria for Diagnosis1,5: Several tests can be used that require collection of blood, sputum (phlegm), or swabs from the nose/throat.3 Methods of diagnosis include culturing samples to produce an isolate used for other testing methods or use of serology tests like complement fixation and microimmunofluorescent (MIF) antibody testing.

- 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

<table>
<thead>
<tr>
<th>Case Classification</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Confirmed**       | An illness characterized by fever, chills, headache, cough and myalgia, and laboratory confirmed by either:  
  • 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. |
| **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. |

K. Classification of Import Status:
*C. Psittaci* was first introduced to the US through importation of infected birds from Europe in 1929. Imported birds are now quarantined at USDA-supervised facilities before transportation throughout the country.

L. Laboratory Testing:
Mechanisms of diagnostic testing include:

- Microimmunofluorescence (MIF) to test for antibodies to *C. psittaci* in paired sera. This is the most commonly used test for diagnosis.
- Polymerase Chain Reaction (PCR) to further differentiate *C. psittaci* from other chlamydial species.

M. Assessing Laboratory Results:
Reporting to the appropriate health authorities is required in most states.

N. Outbreak Definition:
There are usually less than 10 cases reported a year, so more than 10 cases reported per year may be considered an outbreak, or if there is a cluster of cases with the same known exposure. Psittacosis is believed to be underreported and mis/underdiagnosed.

O. Timeframe:
Symptoms may begin within 5–19 days with an average of 10 days after exposure. Symptoms may dissipate within 2–3 days, but treatment must be continued for 10–14 days due to the possibility of relapses.
P. Forms (Psittacosis Human Case Surveillance Report):

Q. Investigation Steps:
   - **Confirm Diagnosis**: Use the testing methods discussed above as soon as possible.
   - **Conduct Case Investigation**: This is done to determine the source of the infection and to find any and all exposed animals and people. Suspected source birds should be referred to veterinarians. Depending on the state, cases should be reported to the correct public health authorities.¹
   - **Initiate Control and Prevention Measures**: Exposed birds should be treated with feed additives containing tetracycline to decrease the risk of infection. The feces of pet birds should be removed/cleaned up often, so it does not accumulate and aerosolize. Purchase birds from reliable sources that enforce federal psittacosis control methods.²

R. Outbreak Guidelines²:
   - Individuals may contact local and state health departments for information on specific outbreak investigations.
   - The CDC can help public health departments in investigating possible psittacosis cases or outbreaks and help public health laboratories implement the correct training, materials and protocols for testing.
     i. Public health departments must consult with and receive approval from the CDC’s Respiratory Diseases Branch in order to submit samples for testing.
   - CDC testing is done using multiplex real-time Polymerase Chain Reaction (PCR). Sample culturing may be done in certain cases depending on PCR results.
     i. PCR advantages: This test is highly specific and sensitive, produces results within one day, and is approved for testing human samples.
     ii. PCR samples should be either sputum or bronchoalveolar lavages. Other types of samples may be used. Consult the CDC’s Test Directory for more info about submitting samples.
References


