

Psittacosis

Psittacosis is a Class C Disease. It must be reported to the state within five (5) business days.

Psittacosis is a zoonotic infection caused by an obligate, intracellular bacterium, *Chlamydia psittaci*. The disease is also referred to as parrot fever or ornithosis, a more accurate description that recognizes the potential for all birds, not only psittacines, to act as reservoirs.

Birds are the reservoirs of the disease, and the infection is usually transmitted to humans via the aerosol route through dried fecal dust or respiratory tract secretions. Other noted means of exposure include mouth to beak contact, exposure to the feathers of infected birds, and handling of tissues. Both healthy and sick birds may transmit the organism. Although pigeons have been identified as an important avian reservoir of *Chlamydia psittaci*, transmission of the disease to humans from urban pigeon colonies appears to be uncommon, although a few such cases have been reported.

Psittacosis is found throughout the world. The disease is most often identified in psittacine (parrot-like) birds, most commonly budgerigars (budgies, parakeets) and cockatiels. Turkeys, ducks, pigeons, and doves are other important avian sources in the United States. The disease may also be transmitted to other mammals, such as domestic ruminants and cats. In humans and animals, infection can result in systemic disease. Severe illness and abortion have been reported in pregnant women that were exposed to infected sheep, but person-to-person transmission is rare.

After an incubation period of five to 14 days, the disease appears as an acute febrile respiratory infection, characterized by an often abrupt onset of fever, chills, cough, headache, myalgia and general malaise. Although the cough is usually nonproductive and respiratory signs frequently mild, the patient often exhibits a characteristic severe interstitial pneumonia on radiographs. Rare systemic complications include pericarditis, myocarditis, endocarditis, hepatitis, arthritis, keratoconjunctivitis, and neurologic involvement. Fatal cases have occurred, and occurred with frequency prior to the age of antimicrobial agents (15%-20% case fatality rate in cases with respiratory involvement). Fatalities still may occur, but are extremely rare.

Diagnosis has often been accomplished by serologic testing, which may have often been inaccurate due to cross-reactivity with other *Chlamydia* species. Clinical differentiation of *C. psittaci* and infection with the more common human pathogen, *Chlamydia pneumoniae*, is often difficult. Diagnosis based on serology alone is not recommended, and newer diagnostic tests, such as polymerase chain reaction (PCR) tests, should be utilized when available (often only available through specialized laboratories), although not CLIA validated.

Microimmunofluorescence (MIF) or complement fixation (CF) examining acute and convalescent (taken two to four weeks later) sera are the most commonly used serological tests. Due to potential effects of antimicrobial therapy on antibody response, a third sample taken four to six weeks after acute samples may prove valuable to diagnosis. MIF is more sensitive and specific than CF, but results can still be inaccurate due to cross-reactivity. It is also recommended to concurrently send all samples to the same laboratory for serological and

nucleic acid testing. The organism may also be isolated from respiratory fluids, blood, and other tissues; however, very few laboratories perform these cultures due to concerns with handling tissues that may contain Biosafety Level 3 pathogens. The state health department should be contacted early in the course of the patient's illness to facilitate testing through the Centers for Disease Control and Prevention or other laboratories.

Groups most at risk for psittacosis are poultry workers and farmers, pet shop employees, pet bird owners, zoo and wildlife workers, and veterinarians. Laboratory workers handling the organism are also at risk.

The organism is sensitive to several macrolide antibiotics and chloramphenicol; however, preferred antibacterials are tetracyclines, except in children younger than eight years of age.

In the U.S. from 2006 until 2012, 58 cases have been reported; since 2010, fewer than 10 confirmed cases have been reported each year. The disease is under-reported, especially mild cases, and is often misdiagnosed. Improved diagnostic tests that differentiate *Chlamydia psittaci* from the more common *Chlamydia pneumoniae* might also be responsible for the reduction in reported cases in recent years.

Psittacosis in birds is reportable to animal health officials at the Louisiana Department of Agriculture and Forestry (LDAF). Human infections are often linked to pet bird distributors and breeders, but trace-backs of infected birds are often not possible due to limited regulation of the pet bird industry.

In 2005, one probable case of human psittacosis was reported in a 58-year-old white male in Louisiana. This patient raised doves. In the same year, three confirmed outbreaks of avian psittacosis with potential human exposure were investigated by LDAF and the Louisiana Office of Public Health. Two of the cases involved pet birds while one involved a caged flock of pigeons. In these outbreaks, no human cases were confirmed although several cases were suspected. Euthanasia of birds, mass treatment and disinfection of premises were methods of control exercised in the above outbreaks.

There have been no additional cases reported in Louisiana since 2005.