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# Psittacosis

## About psittacosis

Avian psittacosis is also known as ornithosis, chlamydiosis or chlamydophilosis. It is a very common condition, especially within communities of commercially bred and stocked birds. It can result in different courses of infection (see later), so latency of disease and resultant silent carrier birds exist within the avian communities, and these asymptomatic birds act as a source of constant infection to other birds. Unfortunately, it can be very difficult to treat, and no immunity will develop within any individual, despite successful treatment.

## What is psittacosis?

The causative organism is an obligate anaerobic intracellular bacterium called *Chlamydia psittaci.* This bacterium resides within white blood cells, so can only be detected when it is being actively shed from the body. Shedding is induced during times of stress – this can be physiological stress or psychological stress. This could be anything from the introduction of a new bird, to a change of environment, change of routine, or stress from the individual's ill health from another cause. *C. psittaci* is environmentally resistant in organic matter, meaning that it lasts a long time in droppings and secretions. It is most commonly found in cockateils and budgerigars, largely because these are commonly bred birds within commercial shops. However, budgerigars remain the main source of silent carriers and silent shedders of *C. psittaci*.

## How does is affect you and your family?

*C. psittaci* is a zoonotic organism, meaning that it can be passed between different species, including between humans and animals.

It poses a high risk, particularly for immunosuppressed individuals such as the very young, the elderly, those undergoing chemotherapy, chronic asthmatics or those with other chest infections. Even if you do not have one of these conditions but are in regular contact with someone with one of these conditions, you may still pass the organism on to them in fomites (non-living matter e.g. on clothing and shoes). *C. psittaci* affects the respiratory system in people, causing a severe pneumonia which usually involves long periods of hospitalisation and can cause death.

Psittacosis causes severe, sometimes fatal pneumonia in immunosuppressed people e.g. those receiving chemotherapy, the young and the elderly, but also in regularly exposed individuals.

It is easily spread to cage mates and other birds via fomites, so is very difficult to control. Every case must be assessed in its own merit: although treatment of an individual is often desirable from a personal perspective, if it may be to the detriment of human health or to a flock of birds, it may be that treatment would be inappropriate.

## How does psittacosis affect birds?

There are two main categories of clinical paths, i.e. the course an infection takes in an individual bird:

- Acute infection (may also be subacute)
- Latent infection (often resulting from chronic infection)

The different types of infection are listed below with a brief explanation of each.

1. **Acute infection**

Acute infections are mainly in young birds, and clinical signs (symptoms) are sudden in their onset. These infections are usually contracted from environments with high burdens of *C. psittaci* present in them, and from infected parents. Acute infections are therefore common in young commercial brds that have come from flocks with resident *C. psittaci* infections, although an infection may not be obvious in the adults within the flock. If the infection goes to the liver of young birds, it causes a rapid deterioration in health and death of the bird.

2. **Sub-acute infection**

Birds suffering with a sub-acute infection become noticeably ill with various clinical signs (see later). They often need supportive care, and may have concurrent diseases. They shed *C. psittaci* in their droppings and via nasal secretions, so act as infectious sources for other birds and people for the duration of their infection. Affected birds may recover with treatment, may develop chronic infections, or may become silent carriers.

3. **Chronic infection**

Birds with chronic chlamydiosis have a low level of disease for prolonged periods of time, often following a sub-acute presentation. Chronicity of infection may be a result of an insufficient treatment course (treatment stopped too early or given at too low a dose, or ineffective dosing from patient or human factors) or may be a natural progression in untreated birds. Bacteria are shed intermittently during chronic infections, making those birds affected difficult both to detect and to treat effectively.

4. **Latent infection / carrier birds**

A latent infection means that it is not clinically obvious, but is hidden within the body. Birds are not clinically affected, but act as pools of infectious material to other more susceptible birds and do continue to shed *C. psittaci* in secretions and droppings. Budgerigars and parakeets are common silent carriers, particularly those that have survived previous infections in large aviary settings; other parrot species do not commonly become carriers, but present with clinical signs of acute or sub-acute disease.

## Routes of transmission – how chlamydiosis is spread

The well-known expression, “coughs and sneezes spread diseases” is still just as true now as when it was first introduced! Birds may pass droplets of secretions containing the organism during episodes of coughing or sneezing, and these organisms are then dispersed over a very wide area in the air, particularly if there is a draught or wind. Consideration must be given to all air spaces, and to separating affected and unaffected birds – but this is often not easy to achieve.

Another common route of transmission is via faeces. Bacteria are shed intermittently in both droppings and in respiratory secretions (coughs and sneezes), but are also stable in the environment when surrounded by organic matter. This means that *C. psittaci* can also be easily transferred to new areas on fomites, i.e. bacteria present in faeces or nasal secretions ae carried on items of clothing or on improperly or unwashed hands, and can then be transferred to other birds.

It is essential when dealing with a case of suspected chlamydiosis that strict hygiene is in place including thorough hand-washing and changes of clothing. This is in order to protect the affected bird, any unaffected birds (which should always be dealt with first), and all persons in direct or indirect contact with them.

## Clinical signs (symptoms)

Clinical signs vary widely between individuals and may include some or all of the following:-

- Lethargy
- Anorexia
- Discharge from the eyes and nostrils
- Difficulty breathing / rapid breathing – often noticed by the tail bobbing up and down with each breath, wings held out away from the body, and legs spread in a wide stance
- Enteritis (diarrhoea)
- Enlarged coelome (abdomen or tummy)
- Yellow / green colour to the white and liquid parts of the droppings
- Emaciation
- Dehydration
- Death

## Diagnosis

The intermittent shedding of *C. psittaci* and its ability to hide within the body at other times makes it notoriously difficult to test and accurately diagnose. Diagnosis is based on the isolation of *C. psittaci* within faeces or blood, on a rising antibody titre (increasing >4 fold in 2 weeks), by the identification of the organism in macrophages, or on post-mortem examination. If the latter, changes may be noted in the liver, spleen, air sacs, pericardium (the sac that the heart sits in), and the serosal surfaces. Unfortunately, even heavily infected birds will only shed the organism intermittently, so a negative test cannot confirm that a patient does not have chlamydiosis – only that it has not been detected at that time. However, a positive result can be assumed to be reliable.

## Treatment of psittacosis

The first consideration when dealing with these patients must be with regard to the zoonotic potential in an individual case. *Should* we treat must be the question in these cases. Often it is better for a flock if a diagnosed bird is euthanised, whereas if the bird is a single bird, flock health may not be a consideration. Euthanasia is also recommended where there are immunosuppressed individuals in contact with the patient, or who are regularly seen by anyone in contact with the patient. Chlamydia may also affect people who are not immunosuppressed if they are exposed over a period of time, so serious thought must go into whether to treat these birds or not.

The next consideration is when to treat – as mentioned above, a negative test does not actually mean that the bird is not suffering with psittacosis, so there must always be an element of clinical judgement

based on cumulative evidence and appropriate knowledge. The key is to start to treat infections early in their course, which involves a course of oral antibiotics for several weeks. Supportive care will also be required for long periods of time, including nutritional support, nebulization, liver supplements, vitamins, and hydration support.