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CBS 817

10/26/23

Tripinichgul, Suphawan, Sompoth Weerakhun, and Kwankate Kanistanon. "Prevalence and Risk Factors of Avian **Chlamydiosis** Detected by Polymerase Chain Reaction in Psittacine Birds in Thailand." *Journal of Avian Medicine and Surgery* 36.4 (2023): 372-379.

**Abstract:**

This study surveyed avian chlamydiosis, with the aim to estimate the prevalence and potential risk factors associated with *Chlamydia psittaci* infection in psittacine birds kept as domestic pets in Thailand. Oropharyngeal swabs were collected from 120 psittacine birds that were randomly selected from hospitals in the central (Bangkok) and northeastern regions (Khon Kaen) of Thailand between 2019 and 2021. The oropharyngeal swabs were subject to polymerase chain reaction testing to detect the *C psittaci ompA* gene. The prevalence of *C psittaci* was 2.5% (3/ 120, 95% confidence interval = 0.3–5.3). Of the 3 positive birds, 1 was a *Forpus* parrot (*Forpus* species)(CP43TH) and 1 was an African grey parrot (*Psittacus erithacus*)(CP49TH) from Bangkok; both were juvenile birds with clinical signs of disease. The third positive bird (CP12TH) was a subclinical adult sun conure (*Aratinga solstitialis*) from Khon Kaen. Two sequences of samples that were previously identified in human psittacosis cases (accession numbers MK032053.1 and HM450409.1) were also examined. Since there was a low number of infected birds, potential associations between *C psittaci* infection and various environmental variables (eg, cage cleaning, synanthropic birds, quarantine of new birds, and overcrowding) were assessed by Fisher exact tests. This study provides estimates of the prevalence and potential risk factors associated with *C psittaci* infection in psittacine birds from central (Bangkok) and the northeastern regions (Khon Kaen) of Thailand. The detection of *C psittaci* in captive psittacine birds demonstrates that there is a possibility for bird-to-bird transmission as well as some zoonotic potential for the human caretakers of these birds. Furthermore, larger-scale studies should be conducted to confirm these findings.

**Background:**

* Avian chlamydiosis, or psittacosis in humans, is caused by *Chlamydia psittaci,* an obligate intracellular Gram-negative bacterium.
* *Chlamydia psittaci* has been detected in at least 467 species of birds belonging to 30 bird orders. The orders Psittaciformes and Columbiformes have the highest infection rates.
* In parrots, the prevalence ranges between 16 and 81%. Many infected birds are subclinical carriers of the pathogen and expose other birds. Psittacine birds infected with *C psittaci* shed the pathogen regularly or intermittently in feces, lacrimal fluid, nasal discharge, and oropharyngeal mucus.
* The incubation period of *C psittaci* infection is typically 3 days to several weeks prior to the appearance of the first clinical signs of disease. Clinical signs of avian chlamydiosis range from mild to severe systemic illness, especially in young birds, and may include anorexia, dehydration, depression, conjunctivitis, nasal and ocular discharge, dyspnea, and greenish diarrhea.
* Transmission to humans typically occurs by direct contact with birds or contaminated materials. Human psittacosis normally causes influenza-like symptoms and conjunctivitis, with severe pneumonia in rare cases.

**Key Points:**

* Pet birds, regardless of their clinical disease signs, were selected from birds that were presented to animal hospitals for routine diagnosis in central (Kwuncum Animal Hospital Co, Ltd, Bangkok, Thailand) and northeastern (Kwuncum Animal Hospital Co, Ltd, Khon Kaen, Thailand) Thailand between June 2019 and April 2021
* Oropharyngeal swabs (n = 120) were collected from 18 species of psittacine birds and examined for the presence of the *C psittaci ompA* gene using polymerase chain reaction (PCR) technology. Three out of the 120 samples (2.5%; 95% CI: 0.3–5.3) were positive for *C psittaci*.
* A questionnaire for risk factors related to *C psittaci* infection was given to the bird owners. The questionnaire collected the following data about the birds: species; age; habitat; ventilation; housing; synanthropic birds; bird density; quarantine protocol for new birds; antibiotic use in sampled birds; cage cleaning routine; and presence of clinical signs including conjunctivitis, lethargy, ocular or nasal discharge, sneezing, dyspnea, and diarrhea with green-yellowish droppings.
* According to the univariate analysis, age (*P* = 1.0), clinical status (*P* = 0.224), location (*P* = 0.224), housing (*P* = 1.0), ventilation (*P* = 0.093), and antibiotic use (*P* = 1.0) were not associated with *C psittaci* infection.
* 4 factors, including cage cleaning, synanthropic birds, quarantine of new birds, and overcrowding, were significant risk factors associated with *C psittaci* infection in psittacine birds.

**Takeaway:**

This study showed that the prevalence of *C psittaci* infection was 2.5% (3/120) in psittacine birds kept in captivity in 2 regions of Thailand. 4 factors, including cage cleaning, synanthropic birds, quarantine of new birds, and overcrowding, were significant risk factors associated with *C psittaci* infection in psittacine birds.

Santos, Bernardo Mirabal, et al. "Determining the Prevalence of Avian **Chlamydiosis** in Wild Amazona Species From Brazil Using Molecular Testing and Clinical Signs." *Journal of Avian Medicine and Surgery* 37.1 (2023): 32-40.

**Abstract:**

Avian chlamydiosis is a disease that occurs in birds, especially parrots, and is caused by the Gram-negative bacterium *Chlamydia psittaci*. Wild Animal Screening Centers in Brazil receive, maintain, treat, and place (preferably to nature) wild animals recovered from illegal trafficking. We performed molecular testing for avian chlamydiosis in parrots from the genus *Amazona* that were presented to these centers. Cloacal swab samples were collected from 59 parrots (*Amazona* species) and transported in aqueous or culture medium. The samples were subsequently submitted for DNA extraction by the boiling method, polymerase chain reaction (PCR) amplification using CPF/CPR primers, and agarose gel electrophoresis. Conjunctivitis, nasal discharge, and poor body condition were the clinical signs associated with a differential disease diagnosis of avian chlamydiosis. Transport medium did not have an effect on the test results. The prevalence of *C psittaci* in the samples was 37% (22/59, 95% confidence interval: 25–49). There was a significant (*P* = 0.009) association between the PCR test results and clinical signs. Follow-up testing was conducted on a subgroup of 14 individuals that initially tested negative on PCR; 50% (7/14) of these birds were found to be positive within 24 days of the first test. The results of this study confirm the feasibility of using the CPF/CFP primer–based PCR to detect *C psittaci* in *Amazona* species, describe a less costly method of transporting biological material for DNA extraction, and evaluate the temporal aspect for obtaining positive results through molecular testing for *C psittaci* in *Amazona* species.

**Background:**

* Avian chlamydiosis is an infectious disease of birds (eg, Psittaciformes) and mammals, and is also a zoonotic disease. The pathogen responsible for avian chlamydiosis is the Gram-negative bacterium *Chlamydia psittaci*, an obligate intracellular parasiteof the Chlamydiaceae family.
* The primary morphological feature of the chlamydial organism is the major outer membrane protein. The *ompA* gene is responsible for encoding the major outer membrane protein. Genotype A of the *C psittaci ompA* gene is the most common genotype identified in Psittaciformes
* Avian chlamydiosis is difficult to diagnose due to subclinical infection and nonspecific clinical disease signs. Molecular DNA testing methods, including polymerase chain reaction (PCR) technology, have been used to detect *C psittaci*.

**Key Points:**

* Samples were collected from 59 adult parrots (49 *Amazona aestiva*, 8 *Amazona amazonica*, 1 *Amazona rhodocorytha*, and 1 *Amazona vinacea*) seized from illegal wild animal trafficking and housed at the CETAS-VDC.
* Cloacal samples were initially collected with a sterile cotton swab from all 59 parrots. The cloacal samples were subsequently placed in autoclaved threaded bottles containing 1 mL of transport solution. The primary transport solution for the samples from all 59 birds consisted of autoclaved distilled water. Additional cloacal swabs from 10 of the parrots were transported in culture medium enriched with horse serum
* A differential diagnosis of avian chlamydiosis was determined by the presence of 1 or more of the following clinical disease signs in the parrots: conjunctivitis, nasal discharge, and/or poor body condition.
* There was no significant difference (*P* = 1.0) between the 10 biological samples that were collected in duplicate to assess the impact of transport media on the PCR results
* The prevalence of *C psittaci* in this population of birds was 37% (22/59, 95% confidence interval [CI]: 25–49), and the prevalence of avian chlamydiosis (based on clinical signs) was 36% (21/59, 95% CI: 24–48).
* There was no association between the PCR test results and clinical signs. These clinical disease signs associated with avian chlamydiosis are nonspecific and should not be used alone to make a diagnosis of this disease

**Takeaway:**

This study found that a simple, economical DNA extraction method could be used for the molecular testing of *C psittaci*, that ADW could be used as a transport medium for biological samples instead of a more expensive medium supplemented with animal serum, that the prevalence of avian chlamydiosis can be high in wild parrots (37%), and that there was no association between the PCR test results and clinical signs.

Survival and Release of 5 American Crows (Corvus brachyrhynchos) Naturally Infected With West Nile Virus

Cynthia Hopf, DVM, Elizabeth Bunting, VMD, Anne Clark, PhD, and Sara Childs-Sanford, DVM, MS, Dipl ACZM

Abstract: West Nile virus (WNV) has had a significant effect on avian populations in the United

States since being first identified in 1999. Avian species in WNV endemic areas do not suffer the same level of mortality that has been reported in birds within the United States since the virus was first identified in North America. Because of their unique susceptibility, American crows (Corvus brachyrhynchos) are often used to monitor the spread and severity of WNV in North America. American crows with WNV infections are received and treated at the Janet L. Swanson Wildlife Hospital (Cornell University, Ithaca, NY, USA) on a regular basis during the summer and fall and have historically had a 100% mortality rate. This report describes WNV-positive American crows that were treated, recovered from the infection, and were subsequently released. The 5 American crows in this case series were tested, when possible, by polymerase chain reaction (PCR) and plaque reduction neutralization on admission and monitored with both PCR and plaque reduction neutralization throughout their rehabilitation process. Four of the 5 birds had a negative PCR test before release, and 1 bird had a ‘‘suspect’’ positive PCR test result before release. One of the crows was confirmed to have survived for at least 2.5 years after release. Viral shedding was documented up to 93 days after initial hospitalization, which is longer than any previous report of WNV shedding in an American crow.

* WNV: zoonotic arthropod-borne flavivirus maintained in enzootic cycle between mosquitoes and birds; humans, horses, other mammals= dead end hosts
* American crow= develop high viremias and shed large amounts of virus in feces; mortality rate of 100%
	+ Severe dehydration, acid-base and electrolyte imbalances, cellular injury and multiorgan inflammation/necrosis- then death
	+ Often will get secondary fungal or bacterial infections
* 5 crows presented to wildlife center (Cornell), during summer and fall with presenting complaint of lethargy/decreased response to human presence
	+ Poor BCS, dehydration, weakness, neuro signs (depressed mentation, ataxia, and tremors
* First 24 hrs: fluid therapy and meloxicam; then B-complex, and itraconazole were added as well as broad spectrum abx (abx included enrofloxacin, TMS, or Clavamox), all were treated with ivermectin and/or fenbendazole and/or praziquantel; omnivore care was given until crows ate
* CBC/biochem: anemia, heterophilia with bands, reactive lymphocytes, increased NA, UA, AST, CK, and bile acids
* WNV testing: choanal swabs and whole blood by PCR and hep plasma for plaque reduction neutralization
* All crows had clinical improvement and started to eat on own within 1 week
* Starting early supportive care and treatment is important
* Are the crows adapting? House sparrows have over time
* Numerous avian strains develop neutralizing antibodies to WNV which can be protective against subsequent infection for many years- and can spread to offspring to protect chicks
	+ Duration of titers vary greatly- 12 months in captive fish crows
* Choanal swab is best sampling site for WNV nucleic acid in corvids

**Žlabravec, Zoran, et al. "Detection of herpesviruses in passerine birds captured during autumn migration in Slovenia." *The Journal of Wildlife Diseases* 57.2 (2021): 368-375.**

Laura Martinelli

**Abstract:** **Herpesviruses (HVs) were detected by PCR in the cloacal swabs of 0.76% (4/525) clinically healthy free-living passerine birds from 32 different species captured in mist nets in Slovenia during the 2014 and 2017 autumn migrations.** Herpesviruses were detected in the **Eurasian Blackcap** (*Sylvia* *atricapilla*), the **Common Blackbird** (*Turdus merula*), and the **Eurasian Blue Tit** (*Cyanistes caeruleus*). Phylogenetic analysis of partial DNA polymerase gene nucleotide sequences of the HV strains showed a distant relationship with other alphaherpesviruses of birds. **In the phylogenetic tree, the HVs detected were clustered together with HV detected in Sulphur-crested Cockatoo and Neotropic Cormorants, as well as with known HVs such as gallid HV1, psittacid HV1 and HV2, and passerine HV1.** Different sequences of HVs with relatively low identity were detected in our study, suggesting that different HVs were circulating in passerines sampled during the autumn migration in Slovenia.

**Key Points:**

* Examples of avian herpesviruses (HV’s)
	+ Marek’s disease and Infectious laryngotracheitis 🡪 Gallinaceous birds
	+ Duck virus enteritis 🡪 Anseriformes
	+ Pacheco’s disease 🡪 Parrots
	+ Inclusion body disease or Herpesvirus hepatitis 🡪 pigeons, owls, Falconiformes
* All characterized avian HV’s Genera *Iltovirus* and *Mardivirus* of subfamily *Alphaherpesvirinae*
* Isolation and molecular characterization of HV’s from free-living passerine birds rarely described, one reported:
	+ Columbid HV1 🡪 Hooded crow and Song thrush
* Only three bird species (four total individuals) positive for HV, strain of HV similar to that found in other bird species
* Prevalence of HV’s in free-living passerines low (0.76%), the lowest prevalence as compared to other bird groups (owls, “birds of prey”, seabirds) in other studies

**Take Home Point:** HV’s with different partial DNA gene sequences are circulating in the population of free-living passerines caught during autumn migration in Slovenia.

**Potential diagnostic biomarkers for pulmonary tuberculosis in humans are not elevated in *Mycobacterium tuberculosis* culture–positive Asian elephants (*Elephas maximus*).** Am J of Vet Resear. 83(8): 1-9. 2022.

Laura Martinelli

**Abstract**

OBJECTIVE
To determine (1) if chemokine (C-X-C motif) ligand 1 (CXCL1), matrix metalloproteinase 8 (MMP8), interleukin-10 (IL-10), interferon-γ (IFN-γ), and tumor necrosis factor-α (TNF-α) can be detected in serum from Asian elephants, and (2) if their concentrations are significantly elevated in *Mycobacterium tuberculosis* (M.tb) culture–positive elephants compared to –negative elephants. **CXCL1, MMP8, IL-10, IFN-γ, and TNF-α were recently identified as potential diagnostic biomarkers for pulmonary tuberculosis in experimental studies in animals and humans. Therefore, we hypothesized that they would be detectable and significantly elevated in M.tb culture–positive elephants compared to M.tb culture–negative elephants.**
SAMPLE
101 Asian elephant serum samples, including 91 samples from 6 M.tb-negative elephants and 10 samples from 5 M.tb-positive elephants (none of which exhibited clinical signs of disease). M.tb status was determined by trunk wash culture.
PROCEDURES
Commercially available ELISA kits were used to determine the concentrations of each biomarker in serum samples.
RESULTS
Biomarker concentrations were below the limit of detection for the assay in 100/101 (99%) samples for CXCL1, 98/101 (97%) samples for MMP8, 85/101 (84%) samples for IL-10, 75/101 (74%) samples for IFN-γ, and 45/101 (45%) samples for TNF-α. **Multiple M.tb culture–positive elephants did not have detectable levels of any of the 5 biomarkers.**
CLINICAL RELEVANCE
**CXCL1, MMP8, IL-10, IFN-γ, and TNF-α were not elevated in M.tb culture–positive Asian elephants compared to M.tb culture–negative Asian elephants. This may be related to disease state (ie, clinically asymptomatic). More sensitive assays are needed to better understand the role of these biomarkers in M.tb infection in Asian elephants.**

Key Points

* Humans are the natural host for M.tb and main source of transmission to elephants
	+ Can spread from elephant to elephant, elephant to other mammal, then potentially elephant back to human
* Cases of M.tb in elephants have occurred on multiple continents, in wild and captive, and in Asian and African elephants
* Multi-drug resistant M.tb has been documented in captive Asian elephants
* Asian elephant TB clinical signs and treatment same as humans:
	+ Weight loss, inappetence, lethargy, coughing
	+ Pulmonary granulomas with necrosis
	+ Treat with same antituberculosis drugs
* Gold Standard Test: Trunk wash culture
	+ Cons: training time, up to 12 weeks for results, intermittent shedding so negative culture cannot rule out infection
* Next Best Test: Dual Path Platform VetTB Assay
	+ Pros: rapid, high sensitivity and specificity
* Further testing, either new or adjunct serologic testing, needed, knowledge gaps in elephants’ immune response to M.tb and infected animals show no clinical signs until disease is severe

Take Home Point: Biomarkers CXCL1, MMP8, IL-10, IFN-γ, and TNF-α can be detected in Asian elephant serum. However, these markers were not significantly elevated in M.tb culture-positive elephants as compared to M.tb culture negative elephants. It is important to note that all culture-positive elephants in this study were showing no clinical signs of M.tb and authors posit this may have lead to the observed results.

**Fowler Zoo and Wild Animal Medicine, 9th ed Chapter** [**85 - *Mycobacterium pinnipedii***](https://www-sciencedirect-com.prox.lib.ncsu.edu/science/article/pii/B9780323552288000850) by Alexis Lécu. Pages 603-609

Laura Martinelli

**Introduction**

* *Mycobacterium* *tuberculosis* complex (MTBC)
	+ Human-adapted Strains
		- *M. tuberculosis*
		- *M. africanum* (subtypes 1 and 2)
	+ Animal-adapted Strains
		- Numerous, based on host of initial or most frequent isolation
		- Includes *M. pinnipedii* in seals and sea lions

**Etiology & Hosts**

* *M. pinnipedii* identified in 1981 in Western Australia, called “seal bacillus” at the time
* In 2003, classified as its own species within MTBC
* Slow-growing mycobacterial species, culture takes 3-6 weeks, sensitivity an additional 2-4 weeks
* *M. pin* has specific sequence deletions 🡪 **RD2seal, RDpin**
	+ Deletions noted in all strains and independent of geographic origin or host type
	+ RD2seal 🡪 demonstrated as essential for full virulence
* *M. pin* does not produce antigens MPB70 and MPB83 antigens – serodiagnostic methods based on these antigens may or may not be helpful
* Hosts:
	+ “Natural” wildlife hosts all originate from southern hemisphere
	+ Otariidae, other marine and terrestrial mammals
	+ Outbreaks seen mostly Atlantic side of South American and African continents, and Pacific Ocean around Australia and New Zealand



**Epidemiology**

* Infection typically dormant for several years in pinnipeds
* South American sea lion (*Otaria byronia*) most likely to spread infection (imported all over world)
* Transmission 🡪 direct contact, water (oral route), aerosols (i.e. high-pressure cleaning)
* Note: Cattle infected while grazing adjacent to seal beaches, suspect aerosol transmission

**Postmortem Diagnosis**

* Gross 🡪 granulomas in lymph nodes (cervical, submandibular, tracheal, mediastinal, mesenteric) and/or organs like lung, spleen, liver, uterus, and bladder; if pregnant, potential lesions in placenta
* Complete culture, PCR, and cytology of granuloma 🡪 Ziehl Neelsen or Auramine stains

**Antemortem Diagnosis**

* Clinical Signs
	+ Subclinical
	+ Weight loss, amyotrophy, enlarged lymph nodes (often cervical), coughing, and upper and lower respiratory discharge
	+ Bloodwork – nonspecific anemia and/or transient neutrophilia, or inflammation and organ necrosis, highly variable
* Imaging
	+ May see calcified granulomas on radiographs but difficult in large patients
	+ **CT best imaging modality for these lesions**
	+ Ultrasound can be used to assess lymph nodes
* Immunological Testing
	+ Intradermal testing 🡪 Cellular immunity, skin test not effective, can induce nonspecific immune reaction to antigens in PPD not related to *M. pin* infection
	+ Antibody titers 🡪 Humoral immunity, unpredictable and not helpful, further research needed
	+ Significant exposure to other mycobacterial species in water that can cross-react with a number of tests

**Treatment**

* Bi- or Tritherapy 🡪 oral rifampicin (7.5 mg/kg), isoniazid (5 mg/kg), and +/- ethambutol (15 mg/kg)
* No PK studies of antituberculous drugs in pinnipeds, so unclear efficacy of drugs and side effects occurred including anorexia, abdominal discomfort, lethargy, and hepatotoxicity
* Consider humane euthanasia based on risk analysis and ability to treat

**Prevention**

* Animals – Quarantine/Admission
	+ Consider history of contact wild high-risk animals
	+ PCR on bronchoalveolar lavage
	+ CT scan
	+ Repetition recommended since shedding intermittent!
* Husbandry: Water
	+ Suspect survives in environment for extended periods of time
	+ Life-support
		- Mechanical + biological filtration will not remove mycobacteria and may even create places for it to hide out
		- Chlorine (at safe levels for pinnipeds) has no bactericidal effect on mycobacteria
		- UV can reduce mycobacteria but can be impaired by organic matter from marine mammals
		- Ozone is most effective tool for eradicating mycobacteria
* Husbandry: Staff Practices
	+ Avoid “kiss” or “bark to face” behaviors that increase aerosol production
	+ Minimize pressure washing
	+ Keepers and trainers should not care for other mammals during the day OR use foot baths, clothing change, and separate tools
	+ Routine TB-testing should be completed for staff

**Falcons From the United Arab Emirates Infected With *Chlamydia psittaci/C abortus Intermediates* Specified as *Chlamydia buteonis* by Polymerase Chain Reaction.** JAMS 2021. Sandro Stalder, Hanna Marti, Nicole Borel, Barbara Renate Vogler, Theresa Pesch, Barbara Prähauser, Peter Wencel, Karine Laroucau, Sarah Albini. - review by lmumm

Abstract**:** Chlamydiaceae are obligate intracellular bacteria with a broad host range. Several studies have found chlamydial species that are genetically intermediate between Chlamydia psittaci and Chlamydia abortus in various avian species. One of these intermediate Chlamydia species, found in a red-shouldered hawk (Buteo lineatus), was recently classified as a new species Chlamydia buteonis. This newly described Chlamydia species has, so far, only been reported in hawks exhibiting clinical signs of conjunctivitis, dyspnea, and diarrhea. In the present study, fecal samples of 5 gyrfalcons (Falco rusticolus), 3 gyr/peregrine falcon hybrids (Falco rusticolus × Falco peregrinus), and 15 falcons of unknown species presented to falcon clinics on the Arabian Peninsula were shipped to the Vetsuisse Faculty, University of Zurich (Zurich, Switzerland), for examination for the presence of Chlamydiaceae. A step-wise diagnostic approach was performed to identify the chlamydial species involved. Chlamydiaceae were detected in 21/23 falcons by a family-specific real-time quantitative PCR (qPCR). Further identification with a 23S ribosomal RNA-based microarray assay and 16S conventional PCR and sequencing yielded inconclusive results, indicating the presence of an intermediate Chlamydia species. Because none of the falcons tested positive for Chlamydia psittaci by specific qPCR, all 23 samples were subjected to a Chlamydia buteonis–specific qPCR, which was positive in 16/23 samples. Detailed information regarding clinical history was available for 8 falcons admitted to a falcon clinic in Dubai, United Arab Emirates. Six of those birds that were presented to the clinic because of loss of performance and poor general condition, including vomiting and diarrhea, were positive for C buteonis. In 2 birds without clinical disease signs admitted for a routine health examination, 1 was positive for C buteonis, and 1 was negative. It is yet unknown whether Chlamydia buteonis causes disease in birds, but the findings in this study indicate that Chlamydia buteonis may be an infectious pathogen in falcon species.

Background:

* Genus: Chalmydiaceae – 14 species; *C. psittaci* and *C. abortus* zoonotic
* Wide host range (mammals, reptiles, birds, amphibians)
* Highest prevalence in Columbiformes and Psittaciformes; likely reservoirs of several C. species
* *C. psittaci* = agent of chlamydiosis in birds (psittacosis/ornithosis in humans)
	+ Clinical signs: respiratory, ocular, enteric
	+ Bird-to-human: inhalation of feather dust, resp/ocular secretions
* *C. buteonis* = new chlamydia species reported in hawks; intermediate of C. psittaci and C. abortus
	+ Clinical signs: conjunctivitis, dyspnea, diarrhea
	+ Clinical importance unknown

Methods: feces from falcons (n=23) in United Arab Emirates evaluated for Chalmydiaceae

Key Points:

* Chlamydia detected in 21/23 falcons (fecal samples) qPCR (23S rRNA)
* Further tests inconclusive (23s rRNA microassay, 16s conventional PCR) 🡪 15/21 were intermediates between C. psittaci and C. abortus
* All negative for C. psittaci specific PCR
* Positive C. buteonis specific PCR in 16/21
* Clinical history known for 7 birds - 6 general illness/loss of fitness, 1 GI signs, 1 no signs
	+ 1 pneumonia/air sacculitis, 6 with no respiratory disease, no conjunctivitis
	+ Focal white liver spots in 3 birds – suggestive of generic chronic bacterial disease
* Treated clinically ill birds for chlamydia (azithro) and all improved
	+ Other common bacteria responsive to azithro i.e. salmonella enterica, clostridium perfringens

**TLDR: *C. buteonis* can be detected in falcons; potential to cause disease but not confirmed**

*JAMS* 2021 35(3):325-332

[**Survey of Beak and Feather Disease Virus (BFDV) in Guatemalan Neotropical Psittacine Birds**](https://doi.org/10.1647/20-00042)

Morales A, Sibrián X, Porras FD

**ABSTRACT:** Beak and feather disease virus (BFDV), a circovirus, is the etiologic agent of psittacine beak and feather disease (PBFD), a progressive and often fatal disease in Psittaciformes. Even though neotropical psittacine species are more resistant to clinical infection than Old World species, BFDV is recognized as a threat to immunologically naïve wild psittacine flocks and its epidemiologic control is paramount for conservation efforts in Neotropical species. Samples were collected from multiple psittacine species, including *Ara* species, *Amazona* species, and the white-crowned parrot (*Pionus senilis*) from the only rescue center in Guatemala with formal psittacine rehabilitation and reintroduction programs. A total of 117 birds, with 101 adults and 16 juveniles of unknown sex, were tested for BFDV by means of a real-time polymerase chain reaction (PCR) assay. The BFDV prevalence found in this study was 0%, (95% confidence interval, 0%-6.0%). Seven 2-8-year-old scarlet macaws (*Ara macao cyanoptera*) with positive results from previous surveys by conventional PCR yielded negative results in this study, suggesting complete infection resolution.

**Background:**

* Beak and feather disease (BFDV) in family *Circoviridae*, single-stranded DNA virus
	+ Highly contagious, stable in environment
	+ Tropism for epithelial cells – particularly skin and GI mucosa
	+ Clinical signs: abnormal beak and feather growth, featherless areas, immunosuppression
	+ All species of psittacines susceptible
		- Neotropical birds are thought to be more resistant (most clear infection) vs. Old World psittacines (particularly young cockatoos and African greys)
	+ Non-psittacine birds affected: Columbiformes, corvids, raptors
	+ Increased prevalence due to both legal and illegal bird trafficking

**Key Points:**

* Recommendations if releasing birds to the wild:
	+ 6-month quarantine of birds coming in before they are mixed with others
	+ Regular and thorough cleaning of enclosures
	+ Regular health testing & screening

**TLDR:** BFDV does not appear to be a major threat to reintroduction programs in Guatemala at this time

**Related Articles:**

González-Hein G, Gil IA, Sanchez R, Huaracan B. Prevalence of Aves Polyomavirus 1 and Beak and Feather Disease Virus From Exotic Captive Psittacine Birds in Chile. *J Avian Med Surg*. 2019;33(2):141-149