

Infectious Disease Prevention and Control in Adult Exotic Birds

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Preventing the introduction and spread of diseases in our captive breeding programs is the most important factor in long term breeding success. There is nothing more depressing than the loss of a proven breeder to a disease that could have been prevented.

Parrots from all over the world carrying contagious diseases are often mixed together in quarantine stations, pet stores, and private aviaries. A disease that may cause no problems in a South American parrot could be deadly to an African or Australian parrot. Many birds are asymptomatic carriers of diseases that are common in their geographic area.

As we expand our veterinary knowledge of exotic bird medicine, we find there are many more diseases, especially viruses, that have yet to be isolated and classified. When you start to consider all of the potential illnesses, it is quite overwhelming. Fortunately, with good medical management most of these diseases can be avoided.

Classification of Infectious Diseases

Infectious diseases are classified into bacterial, viral and fungal diseases. It is important to understand the differences in these very different types of infections. Confusion of these categories of disease has led to many of the old wive's tales concerning bird diseases and to improper medical treatment.

Bacteria

Bacteria are one celled organisms that replicate inside or outside of the



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bird's body. They are, in fact, little animals that are present at all times in the bird's mouth, intestinal tract, sinus, skin, eyes, and, in general, on all body surfaces. There are good bacteria that live in peaceful coexistence with the bird's body causing no disease and protecting the bird from

abnormal bacteria. These are called normal bacterial flora.

Bacteria that cause disease are called *pathogenic bacteria*. These bacteria invade the bird's body and cause infections. Some bacteria live outside the body cells, such as *E. coli* and *Klebsiella*. Other types of bacteria live inside the cells such as *Chlamydia* and *Mycoplasma*. Bacteria that are harmful to some species of birds may not be harmful to other species. For instance, bacteria normally found in raptors' intestinal tracts causing no disease are often deadly to psittacine birds.

Some birds carry pathogenic (or harmful) bacteria without showing clinical signs of disease. These same birds can infect their cage mates with the bacteria. A common example of this is African grey parrots that carry *salmonella* asymptotically. Often a completely normal appearing African grey will be a *salmonella* carrier and shed this bacteria intermittently when stressed. The unfortunate mate of this bird often dies acutely when infected with this bacteria.

Bacteria are detected with gram stains and bacterial cultures. Bacteria are treated with antibiotics.

Viruses

Viruses are not truly living organisms and consist only of DNA and a few proteins. Viruses are extremely small and can only be observed with an electron microscope. Viruses use the bird's own body to replicate and cannot replicate outside of the bird's body like bacteria. *Antibiotics which kill bacteria have no effect on viruses*. While there are a few antiviral medications designed to kill viruses, for the most part there is no drug to kill a virus after it has invaded a bird's body. In dogs and cats, and even in poultry, there are vaccines available to give the animal immunity against viruses, but in exotic birds there are only a few such experimental vaccines available. (Editor's Note: Since this article was written, a commercially available vaccine has been licensed to help protect psittacines against the virus that causes parrot pox.) As bird owners become more aware of the devastating effect of viruses in our pet birds, major drug companies will consider the great expense of making vaccines.

Viruses currently are the major cause of disease in aviaries. Only recently has the development of viral tests (serology) become available due

to the work of Dr. Jack Gaskin. Unfortunately, these tests are still not commercially available. We currently have tests for only a handful of the potential viruses. We have not been able to even isolate and culture many of the common viruses such as the Proventriculus Dilatation Disease (Macaw Wasting Syndrome, Myenteric Ganglionuertis).

Viruses can usually be prevented with proper quarantine and cage design. There will be times that even the best medical management will not prevent viral infections in the aviary. When these infections do occur, the diseases need to be detected quickly with proper necropsy and histopathology and isolated. Some viruses can be air borne and some are spread by insects, so isolation procedures need to be complete. People are often the inadvertent cause of the spread of viruses in the aviary.

Some viruses will not be detected during quarantine such as Papova virus (polyoma virus) in adult birds and Pacheco virus in conures. Papova virus is the most devastating of all viruses to the aviculturist. Some aviaries lose 50% or more of their babies to this disease. These very common viruses can only be detected with the serology test developed by Dr. Gaskin. Only when enough aviculturists understand the economic loss these viruses cause to their aviaries and the necessary test needed to prevent this loss will there be enough demand for these tests to become commercially available. We hope that day is soon.


Fungi

Fungi are a cross between bacteria and plants. Fungal organisms grow in moist, humid environments like Florida. Not all funguses cause disease; in fact, most do not. In birds, two fungal infections are common — Aspergillus and Candida. These can be killed with disinfectants outside the bird's body and antifungal medications inside the bird's body. Often fungal infections occur when antibiotics kill off the normal bacterial flora. While Candida is usually easily treated, Aspergillosis is very difficult to treat unless detected very early and treated very aggressively.

General Preventative Measures Procuring Birds


Buy birds only from reliable sources. Bargain birds are almost

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always diseased and sometimes have not been through quarantine. Remember that even the best pet stores, breeders, and wholesalers cannot detect disease in asymptomatic birds (this is often difficult for us veterinarians) so don't be too hard on your source of birds if you occasionally get a sick one.

Quarantine all new birds for 40 to 90 days. All new birds should be considered diseased until proven otherwise (with time). Quarantine means preferably a separate building with no cross contamination of utensils, food, and especially people. A foot bath of disinfectant to rinse shoes should be used before and after entering the quarantine area. Hands should be washed thoroughly before and after entering quarantine or, if possible, rubber gloves should be worn and discarded. Make sure the birds are not under the same ventilation system as many diseases can be spread through air circulation.

Do not confuse the USDA quarantine with your own personal quarantine. The USDA quarantines only for Exotic Newcastle's Disease and does not really care about any other disease including psittacosis. Government quarantine is designed to protect poultry, not the birds being quarantined.

Quarantine should eliminate all of the birds that are asymptomatic when purchased and getting ready to show clinical signs of disease. Quarantine will not eliminate those birds carrying diseases such as Papovavirus or Pacheco's.

Recommended Complete Physical Exam and Testing Performed on all New Birds

Have your avian veterinarian do a thorough physical exam and fecal culture and analysis to detect abnormal bacteria and parasites.

Minimum health check for new birds going to an aviary quarantine for aviaries breeding inexpensive birds such as parakeets and cockatiels:

- Physical exam
- Fecal test for parasites
- Gram stain for abnormal bacteria
- Psittacosis blood test or treatment during quarantine

Routine health check for new birds going into an aviary:

- Physical exam
- Fecal test for parasites
- Gram stain for abnormal bacteria

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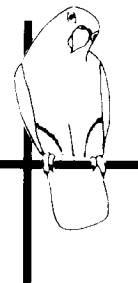
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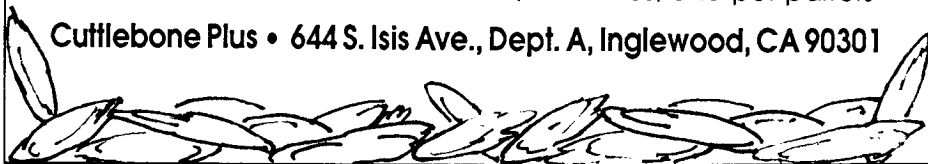
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State of the art disease control health check for new birds going into an aviary quarantine (for aviaries breeding more expensive birds):

- Physical exam
- Fecal test for parasites
- Gram stain and culture/sensitivity
- Psittacosis blood test
- X-rays to detect internal diseases
- Blood test — SGOT, uric acid, glucose and calcium
- Complete cell count
- Serology test for Pacheco's, Reo, Papova and Pox

We now have serology (blood tests) to detect Pacheco's, psittacosis, reo and papovavirus. These tests should be available to your veterinarian in the near future. There appear to be many asymptomatic carriers of these diseases.

A positive blood test indicates the bird has been exposed to the virus and is potentially a carrier of the disease. These birds should be monitored closely during the quarantine period and in the aviary.

Babies from birds testing positive for papovavirus are often immune to the disease but can carry the infection. These babies under no circumstances should be allowed near other baby parrots. These babies are suitable for pet birds but should not be purchased with the intent of breeding until we learn more about the prevention of this disease.

To the beginning aviculturist, these tests may seem extensive and expensive. Any of the common diseases we deal with in aviaries cause rapid death of babies and often adults. If you put new birds into your aviary without testing and quarantine, it is only a matter of time before you will have a costly and emotionally devastating experience.

Eliminate Psittacosis From the Aviary

We strongly recommend either testing or treatment of all birds coming from quarantine stations, bird

wholesalers and pet stores to prevent psittacosis infections. Psittacosis is such an easy disease to prevent, there is no reason to have this disease in your aviary.

Tetracycline, an antibiotic that is virtually worthless for most bacterial infections, is the antibiotic most effective in controlling psittacosis. Tetracycline works by stopping the reproduction of the psittacosis bacteria — not killing the bacteria. By treating for 45 to 90 days, it is hoped the bird's immune system will kill the latent psittacosis bacteria. Usually antifungal agents are used to prevent fungal infections during the antibiotic treatment period. Additionally, supplements of Vitamin K should be used with the tetracycline therapy.

Good Nutrition and a Stress Free Environment

New birds are often eating only seeds, resulting in malnutrition and increased susceptibility to disease. A proper omnivorous diet should be started with fresh fruits and vegetables, a good protein (eggs, cottage cheese, cheese, etc.) and, most importantly, a high quality vitamin powder similar to Phoenix Nutrition Plus, Nekton S, or others. If feeding a mixture of foods, have your veterinarian computer analyze the diet to make sure it is balanced. It is rare for an aviculturist to stumble onto a balanced ratio of foods without the aid of a computer. In general, we recommend 30% seeds, 40% vegetables, 10% protein high foods, 10% nuts, and 10% fruit — with vitamins and calcium added. It is often difficult to get birds to eat a smorgasbord of food if they have free access to unlimited seeds.

It is important to make sure the birds do not have access to spoiled food (which can occur rapidly in a hot climate). Pelleted diets are recommended because these are balanced diets and are protected against rapid spoilage. Pelleted food should be stored in an airtight container either in the refrigerator or for an extended time in the freezer.

Aviary and General Husbandry Cage Design

Cages should be designed or purchased with disease prevention in mind. The cage should be easy to clean. Suspended wire cages often are the best for an aviary, designed to allow the droppings to fall through to the ground and not contact other bird

cages. Spaces should be present between cages to prevent horizontal spread of disease and trauma from biting. Shelter should be provided from the weather and for privacy for outdoor birds.

A mosquito screen cage should be used around the cages (in those areas with mosquitos) to prevent diseases spread by insects from asymptomatic carriers and wild birds. Hardware cloth 1/4 inch may be used with the mosquito screen to prevent entry of snakes and rats.

Cleanliness

The aviary should be designed for easy cleaning. Droppings allowed to accumulate are a perfect place for bacteria and fungus outside the cage or flight. Cleaning solutions should be antibacterial, antiviral, and antifungal such as:

Chlorine Bleach — diluted to 1 cup per gallon for common household bleach. This is corrosive to most metal except stainless steel. Granulated chlorine for swimming pools should not be used as it can produce lethal vapors.

Roccal D — is a good disinfectant with detergent action that is not corrosive. It is suitable for cages and feed bowls as well as floors.

Novalsan — is a disinfectant of low toxicity although not effective against all bacteria. Not as affected by organic material as most disinfectants.

Environ One Stroke — is a phenol disinfectant particularly effective for wooden cages and foot baths.

Pest Control

Wild birds, insects, and rodents can carry diseases and spread diseases in an aviary. After going through all the effort and expense of testing and quarantine, you do not want your birds to catch an infection from the wild birds either directly or through insects. Do not feed the wild birds food from the aviary birds as this attracts more of them.

While controlling these pests, the safety of the birds should be kept utmost in mind. For controlling insects, the safest insecticides are the pyrethrins and microencapsulated dursban.

Insecticides that have been used safely in aviaries are Siphatrol House Treatment, Adams Anticrawl and Duratrol Yard and Kennel Concentrate.

Rodent poisons are all toxic to birds so placement of these toxins should be done with great care. ●