Why do Birds get Sick?

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People often ask me, where did this illness come from. This is not always possible to answer other than in general terms. I feel that a little discussion on this theme may help you to understand the dynamics of disease.

Disease is caused by an interaction between the Organism, the Environment and the Bird's Health, or the strength of its Immune System. We know that birds are constantly being exposed to organisms but do not develop illness. Why do some birds get sick and others remain healthy? It all depends on the dynamics affecting each of these three factors. You can have some influence on each factor.

The Organism

There are five basic disease organism groups:

1. Bacteria - Usually divided into Gram Negative and Gram Positive, Common examples are: E.coli, Staphylococcus (Staphs), Streptococcus (Streps), Salmonella.
2. Fungi & Yeasts - Common examples are: Ringworm, Megabacteria, Aspergillus.
3. Viruses - Common examples are: Circovirus, Polyomavirus, Newcastle Disease, Pacheco's Virus.
4. Protozoan - Common examples are: Giardia, Toxoplasma, Coccisiosis (Eimeria).
5. Parasites - Common examples are: Roundworm, Capillaria, Tapeworm, Lice, and Mites.

These organisms can build up in the environment. Every bird has an ability to fight them but will succumb as they build up to a high enough level. This level varies from bird to bird. You can assist the bird by making your aviary unfriendly to the conditions that assists the organisms to thrive:

- Have a dry floor, organisms love moisture as they can dehydrate easily. Look at the slope of the floor and allow good drainage. Incline the floor slightly so water runs off and does not collect in pools. Have a floor that is easy to clean and remove the remnants of food and droppings.

- Don't allow food particles to build up on the floor. These act as food for organisms as well. We know that moist food such as fruit, bread, vegetables and nectar goes off and becomes contaminated if it sits around and is exposed. This contamination is caused a large build up of organisms and many of them will be dangerous for the bird. Remove any moist food within 24 hours. Wash and clean all dishes used to provide moist food - treat them as you would the dishes you eat from - put them in the dishwasher or washing up each day. Clean up any excess seed and husks regularly, particularly after rain or during humid weather.

- Provide clean, fresh water. Water that is left exposed also develops organisms such as algae and bacteria if left standing for any long period. It can also become more rapidly contaminated by the presence of food and the bird's droppings. Water should be replaced regularly, preferably each day if it is in an open dish or weekly if in a dropper bottle. The water container should be scrubbed and disinfected at each water change.

- Keep vermin out of the aviary. Vermin carry a number of diseases but they also can contaminate food and water by walking through food or depositing urine and faeces into food and water. Rats, mice, cockroaches and wild birds are the main vermin to consider. Other vermin such as owls, foxes, cats, dogs etc, can cause repeated bouts of stress. Chronic stress can also lower the bird's immune system. Remove or fill any cracks and crevices that provide refuge for vermin. Have a regular vermin control program (baits, traps and insecticides) to remove any vermin before they build up. Seal all food in sturdy storage bins.

- Allow regular exposure to sunlight both for the birds and the aviary. Sunlight is the best disinfectant as it helps dry out and organisms. It also has beneficial effects on the bird's health. Avoid overheating and dehydration on hot days by providing shelter and shade.

The Environment

Because you are in charge of the aviary, you have a major input into the bird's environment. You control much of what goes on in the environment. Changes to any of the items below can influence what the bird is exposed to and what the organisms are exposed to.

You control:

The food and the food containers.

- see the comments on food above.
- The food container can act as a refuge for insects or vermin.

- Food containers can carry poisons (zinc and lead from galvanising).
- Over consumption of fatty foods (e.g sunflower, safflower and nuts) can lead to obesity.
- Poor diets can lead to many nutritional diseases such as vitamin or mineral deficiencies
- Breeding hens need extra sources of calcium and special soft foods for feeding chicks
- All-Seed diets are deficient in many essential factors.

The water and the water containers

- see the comments on water above.
- Water containers can leak out poisons (plastic and galvanised container)
- Water contaminated with food or droppings can develop high levels of organisms within a few hours on a warm day
- Position the water container so that moisture is not constantly splashing over to create a moist area close by. This is an excellent means of allowing worm eggs, coccidian oocysts and bacteria to thrive in an area that is regularly walked through by birds. These can then be transmitted to the bird's mouth when it is grooming itself. Overcome this by providing good drainage below and around the water bowl.

The substrate on the floor

- The substrate can harbor decaying food, insects, worms and other vermin.
- Have a substrate that is easy to clean and clean it regularly - at least once a week.
- Design the substrate so it has good drainage. Have it exposed to the sun regularly so no moist spots develop
- Avoid the habit of wetting the substrate regularly,. In some areas, it is a common practice to hose out food and water bowls on the aviary floor each day, this leads to areas that rarely have a chance to dry out - this stops the organisms being dehydrated.
- Design the floor so that any hosing from one floor does not wash into the next aviary and cause cross-contamination.

The materials used to construct the aviary (wire, walls, shelter etc.)

- The choice and design of the aviary can provide refuge for vermin, expose the bird to poisons or expose the bird to extremes of weather and temperature. The ideal aspect in Australia is to have your aviary facing North or North-East. Aviaries that face in other directions can allow to birds to be exposed to chilling or overheating. Provide strong barriers (solid walls) particularly to the South and West.

- Remove all tie-wire clippings left from construction - these are poisonous. Run a magnet over the floor at the end of each day when you are building or renovating.
- Using poor quality galvanised wire will expose the bird to zinc and lead poisoning. Remove all dags from the wire before birds are allowed near it.
- Stainless steel, glass or ceramic containers make the best food and water dishes. Avoid plastic, aluminium, earthenware and galvanised containers.
- Have all wire ties outside the aviary so birds cannot get caught on them
- Look at the air-flow around and through your aviary. Are the birds exposed to a draft? If you are not sure, take a burning cigarette into each section of the aviary and watch where the smoke trail is drawn. You may need to reposition openings and air vent holes to avoid problems here. Aim to have a gentle airflow that will keep the birds cool in Summer but avoid chilling in Winter.
- Look at the shade that is provided during all seasons. Is it too much or too little?
- Can a bird escape attention from a bully? - Provide visual barriers (trees, shrubs, partitions etc.)
- Place nest boxes in a location where they are protected from heat, rain and wind.
- Use materials that minimise injury, escape and theft.
- All solid surfaces should be impervious and easy to clean
- Use non-toxic paint (Acrylic) on all the surfaces the birds can reach

The perches

- Are there enough perches and nest boxes for the bird to feel secure?
- Have perches positioned to give the birds the best sense of security.
- Position them at the highest point in the aviary and under shelter.
- Avoid placing them close to a metal roof that can become overheated in summer.
- Improper perches can cause feet problems
- Some materials used may be poisonous - I prefer to use Australian Native trees as many of the European trees carry poisons.
- Cracks in perches can provide refuge for some mites.
- Replace the perches regularly - particularly if they are becoming smooth and not providing adequate grip for the birds.

Protection from weather and many other influences.

- Can wild birds (e.g. Currawongs, Butcherbirds, raptors or owls) or other wild animals (e.g possums and snakes) access the aviary and harass or pass disease to the residents? Double wiring or solid roofing may be required. Cut back branches that overhang an aviary and provide access for possums, snakes, rats and mice.

- Can dogs or cats approach the aviary so as to frighten the birds? You may need to provide a solid barrier at the lower aspect of the aviary.
- Are exposure to the wind, rain and sun controlled?

You need to regularly clean the environment. The most important aspect is to pick up all the droppings. If you cannot pick it up, then use a strategy that will cause it to dry out. Normal droppings form a hard crust on the outside that allows the centre to remain moist - this is where the worm eggs and coccidian oocysts survive. Dry concrete floor or sandy substrates cause the droppings to dry out more quickly are recommended.

The Bird

It is a simple fact that a healthy bird will have a strong immune system that is more capable of fighting disease organisms. What can you do to maintain a bird in as healthy a condition as possible?

- Select good, strong breeding stock. Healthy strong birds pass this characteristic on to their young.
- Inspect each and every bird daily. Look for departures from normal.
- Birds are very good at masking signs of disease. The first signs are often very subtle. The better you know your birds, the more likely you will pick up the signs at an early stage.
  Look for:
  - Are the birds eating and drinking?
  - Are the droppings normally formed?
  - Is the bird behaving normally?
  - Is the bird moving and flying normally?
  - Are there any signs of illness?
- Provide the best food available. Malnutrition is a major factor in many birds developing disease. If you are buying seed, buy the best you can. Similarly for fruit and vegetables. Store it in ideal conditions away from vermin.
- Many pet birds will be healthier if fed on the new commercial parrot pellet formulations.
- Clean the environment regularly. The area does not need to be sterile,

but visually clean. As an example, do not feed a bird from a dish that you would not eat from yourself. Use a disinfectant where required (see the section on disinfectants)

- Discourage people other than the normal from entering your aviary, especially if they have been in contact with another aviary. If you would like them to enter, have them wash their hands and replace their shoes as these are likely to carry organisms from the other aviary.
- Have a regular worming program.
- Post Mortem any bird that dies. You are not just trying to determine why they died, but you can gather a lot of other information, such as:
- Are there worms present - is your worming program effective?
- Is the bird overweight - are you feeding correctly?
- Is the bird in good or poor condition?
- Is there grit in the gizzard - is the right size being provided and is the bird consuming it?
- Are the birds sexually active - is there good breeding stimulus and are they a bonded pair?
- Are there any unexpected problems present?
- Keep stress to a minimum. Stress plays an important role in weakening the bird's immune system. The important principle here is to look at the world through the bird's eyes. Try to imagine what the bird is viewing and how it is responding. You can walk into the aviary and spend some time looking out to see what the bird sees.
- Consider the bird's behavioural needs:
- Shy birds need privacy and a secure area to hide if frightened.
- Flock birds need to have other birds around them - but not in their territory
- Most birds do best with a pair to an aviary
- Look for signs of bullying or incompatibility in a pair of birds
- Spend some time sitting and watching your birds and noting what they are doing and how they are interacting with each other and with their environment. This is best done from a distance, as if you are noticed by the birds, they will not behave normally.
- Have a Quarantine program.
- All new birds should be kept separate from your normal aviaries for 4 - 6 weeks
- See the section on quarantine
- If you suspect a bird is ill, isolate it from the other birds and take its weight. Feel its breast muscles to make sure the keel bone is not prominent. You can weigh it each day. A bird that is losing weight is in trouble.
- Keep records of all you do to the birds. Relying on your memory can

trick you.

- Breeding results (mating, egg numbers, hatching numbers, fledging numbers, related birds).
- Worming treatments (date, medication used, dose, method).
- Have regular pest control to eliminate any that occur (fleas, flies, lice, mites, ticks, mosquitos, rodents).

- Any diseases and treatments. Record dates to see if the same problem is recurring each year. Try to find a way prevent it.

In summary, disease control comes down to what you do to the birds. You have some influence over the bird, the environment and the organism by how you manage your aviaries. When things go wrong, ask yourself, "What have I done or what have I not done, that contributed to this". You need to be your own strongest critic.

Remember, the major way that disease moves around an aviary is on people - on their hands, feet, clothes and other implements such as buckets and dishes. You need to minimise this.

(This is an excerpt from the revised edition of "A Guide to Basic Health & Disease in Birds - Their Management, Care & Well Being", written by Dr Michael Cannon and published by ABK Publications)