

## INTRODUCTION

For the past 10,000 years, people all over the world have domesticated animals for various purposes. Some animals such as dogs and cats were domesticated as pets to provide company to humans. Livestock animals such as cattle and sheep were kept to provide products such as meat, wool or milk, or kept as working animals. No matter what the reason, animals and humans have been connected over an extended period of time.



Optimum health is essential to the wellbeing and longevity of all animals. It is the responsibility animal owners to ensure the welfare of the animals within their care. As part of the general care of animals, we need to be able to identify diseases. The first step in recognising diseases in animals is to understand when an animal is unwell. This generally requires three things: information on the history of the animal, a physical examination and specialized testing to identify the cause of the illness.

This book will help you to recognise some signs of ill health in animals. Identifying these signs can then lead to the most suitable method of treatment. It also provides information on animals affected by particular diseases as well as treatments available to treat particular health problems. Treatment options provided in this book can be either traditional or natural where available.

## UNDERSTANDING ANIMAL HEALTH ISSUES



Animals can encounter various health problems including the following.

**Viral Diseases** - A virus is a parasite that must infect a living cell to reproduce. A virus is defined as any of various simple sub-microscopic parasites of plants, animals, and bacteria that often cause disease and that consist essentially of a core of RNA or DNA surrounded by a protein coat. They are unable to replicate without a host cell and are typically not considered living organisms.

**Bacterial Diseases** - Bacteria commonly enter a host's body by invading a break (i.e. wound) in the skin, a membrane or wall. Often this "break" must occur in a specific part of an organ, for a particular type of bacteria e.g. Diphtheria can only enter through the tonsils, while pneumonia can only invade through the walls of the respiratory tract. Once inside a host, bacteria have to resist the defense mechanisms of the host. If the bacteria manage to overcome this system, they will then set about spreading infection by growing rapidly in the immediate tissues, blood or lymphatic fluid.

Bacteria cause injury in tissue by producing toxins or poisons. Some toxins are secreted into tissue while the bacteria lives (eg. tetanus), while others are only released when the bacteria dies or breaks up. Many bacterial diseases show an

incubation period. This means that some time may elapse before the symptoms of the disease develops. Not all hosts show the same susceptibility to diseases.

**Fungal Diseases** - Fungal diseases are called mycoses. Veterinary medical mycology deals with fungal disease in both invertebrate and vertebrate animals. Fungal disease agents are widespread and can be isolated from a wide range of animals, from the soil and the environment. When fungi are suspected to cause animal disease, it is important to have criteria to distinguish infection, colonisation and contamination in order to reach a diagnosis. Some fungi are restricted to specific animals and others are found on a range of different animals. When making a diagnosis it is important to distinguish whether a fungus is actually the causal organism, or whether it is only a secondary factor.

**Genetic Disorders** - A genetic disorder is an illness caused by abnormalities in animal's genome. Genetic disorders caused either by a different form of a gene called a "variation", or an alteration of a gene called a *mutation*. Mutations may occur randomly or as a result of environmental exposure. Other genetic disorders are inherited.

**Metabolic and Nutritional Disease** – These are conditions that are caused by a disturbance of normal metabolic functions. These disturbances can be caused by genetic drift, inadequate or incorrect nutrition and impaired nutrition utilisation. Metabolic diseases are any that disrupt normal metabolism (the process of converting food to energy within the cells). Nutritional diseases are nutritionally-based. Good nutrition supports a healthy immune system to ward off infectious diseases. Proper nutritional balances help keep the animal healthy. Nutritional imbalances may make the animal more prone to disease.

## PREVENTING DISEASE AND INJURY

To maintain healthy animals we need to provide a healthy environment for them. There are many ways in which we can ensure that our animals are kept healthy. These include:

- Inspect pets regularly for signs of ill health
- Feed a balanced nutritious diet
- Change water regularly and keep free from contamination
- Provide suitable exercise for animals
- Provide good ventilation for sleeping areas
- Ensure animals are not exposed to extreme temperature fluctuations
- Provide appropriate stimulation for animals to avoid boredom and stereotypical behaviours
- Check environment for potential threats such as toxic plants and anything on which they might potentially injure themselves
- Ensure animals used for production are not overworked or stressed
- Provide access to adequate shade and shelter for stock animals



## The Importance of Good Nutrition

There can be a combination of factors affecting the health of an animal. Poor nutrition in animals can greatly impact their health and wellbeing. The susceptibility to illness, severity of injuries and the animal's ability to heal itself are all affected by poor nutrition.

Animals that are fed a healthy balanced diet will usually retain good health. Those that are not are more likely to succumb to diseases such as arthritis and diabetes amongst many others. Improved health is maintained by a healthy and active immune system which protects the animal from disease. In nature, animals feed from a variety of fresh food sources, it is difficult to replicate this diet for our domestic animals and therefore we need to supply the next best thing.

## INSPECTING FOR HEALTH



It is important to continually monitor animals throughout their lives to understand their general wellbeing. This provides a base to compare with when the animal becomes ill. Regularly checking the coat, eyes, mucous membranes, gait and general activity levels of the animals will make it easier to recognise when the animal is unwell.

## Background history

Recognising the differences between what is normal and what is abnormal about an animal or group of animals forms the basic foundation for good animal husbandry and veterinary medicine.

Using your powers of observation can be very important for the early recognition of subtle abnormalities. Observation of behavioural changes, changes in energy levels, elimination changes (urine and faeces) and physical changes are important, but don't just evaluate the animal, evaluate its environment too. Ask questions such as: How is the animal housed? What are the climatic conditions? What plants do they have access to? Are they hand fed or do they graze? This type of information is very important in the process of determining what disease processes are occurring.

In addition to evaluating the animal's environment, recording and compiling animal information such as type and condition of animals, age, sex, number of affected animals, and progression of disease are the first steps in the disease recognition process.

## Identifying the Problem

Before we can treat any illnesses we must be able to recognise when an animal or group of animals is unwell by identifying any signs and symptoms of poor health. The ability to inspect the animal for symptoms which will provide an indication of what is wrong, is one of the most important skills to learn.



By compiling information on the history of an animal or group of animals, conducting a physical examination, and undertaking special testing; veterinary experts are generally able to determine the cause of a condition or disease.

Below are some signs to look for that might indicate that animal is unwell.

When dealing with diseased animals it is important to remember that some diseases are zoonoses (they are transmissible to humans). When undertaking a physical examination or post mortem examination, wear protective clothing, gloves and overalls.

FEATURE	WHAT TO LOOK FOR
Mouth	Check colour of mucous membranes, discharge, blisters, tartar accumulation on teeth, tooth loss, mouth lesions, wounds, bleeding, lumps, excessive salivation, choking and coughing.
Eyes	Foreign objects, injury, cut, inflammation and infection.
Nose	Colour, discharge is clear or yellowed, shouldn't be foul smelling and excessive sneezing.
Ears	Especially in dogs the colour of skin inside ears, check for excessive amounts of wax, no redness or swelling, scratching inside ears and shaking of head.
Skin	Check smell has not changed, changes in coat, excessive shedding and discharge.
Temperature	Low or high-grade Fever. Normal temperature range will vary for different animals.
Reproduction	Should be able to conceive easily during sexually mature years. Normal delivery and not passing any genetic disorders.
Respiration	Rate of respiration. Normal respiration rate will vary for different animals.

Digestion	Bad breath, excessive thirst, vomiting, excessive hairballs in cats, stool consistency, diarrhea, and recurring worms.
Weight	Obese or underweight.
Behaviour	Fearful behaviour, aggressive, resistant to training, excessive barking, stereotypical behaviour (repeated non-functional behaviour).

## DIFFERENTIAL DIAGNOSIS

Differential diagnosis is the process of weighing the probability of one disease versus that of other diseases which might account for an animal's illness, condition or death. It involves comparing and contrasting the signs, symptoms, and laboratory findings of two or more diseases to determine which is causing the animal's condition. To assist in this process it is important to gather as much relevant information as possible. The following lesson discusses how information is collected and used to identify diseases.

## SOME COMMON ILLNESSES IN ANIMALS

### AFRICAN SWINE FEVER

**Short Description** – This is a highly contagious and often fatal viral disease of pigs in African countries. Although there have been reports of disease outbreaks in South America, Europe and the Caribbean. It has an incubation period of 5 to 19 days following contact with infected pigs. Incubation period can be less following tick bites. The disease can spread quickly via direct contact and indirect contact through ticks and on feed and equipment. Disease can kill pigs before clinical signs of illness are displayed.

**Animals Affected** – Members of the pig family. Includes domestic pigs, wild boars, wart hogs and peccaries.

**Signs and Symptoms** – These can vary in range and severity. Clinical signs can include high fever (up to 40.6°C), skin reddening, weakness, anorexia, lethargy, abdominal pain, constipation and diarrhea, pronounced hemorrhages in lymph nodes and internal organs, possible enlargement of the spleen.

**Traditional Treatment** – No effective vaccine or treatment at present. Destruction of affected and exposed pigs applied to control or eradicate the disease.

**Natural Treatment** – Not available.

### ALLERGIES

**Short description** - Allergies are hypersensitivity disorders of an animal's immune system, which result in an extreme inflammatory response. An animal may be allergic to substances that it inhales from the environment (e.g. pollen, mold spores),

substances that it ingests (e.g. certain foods, drugs) or direct contact (with things like soaps oils or detergents). Infection with bacteria or parasites and insect infestation (e.g. fleas) can also cause allergic reactions.

**Animals Affected** – Any animal.

**Signs and Symptoms**- Depend very much on the cause of the allergic reaction. Poor appetite, respiratory distress- asthmatic symptoms, gastro-intestinal problems, skin conditions – dermatitis or ‘hives’, excessive grooming or licking of the skin, hair loss, ear infections.

**Traditional Treatment**- Again, depends very much on the cause, which can sometimes be difficult to definitively identify. ‘Scratch’ or intra-dermal allergy testing may be used to try and identify the allergen. Treatments may then include anti-histamines, immune-therapy, steroids or bronchodilators. Symptomatic treatments may also be employed – use of shampoos, washes or ointments that make the animal more comfortable. Elimination diets may be tried if the allergy is thought to be food related.

**Natural Treatment**- Homeopathic remedies may be used to provide relief from various allergic symptoms – Arsenicum Album, Apis Mellifica, Sulphur and Rhus Tox are common remedies for dry, scaly, burning and itchy skin. Thuja may help to counteract the effects of an over-burdened immune system.

## ANAPLASMOSIS

**Short Description** – Caused by bacterium called *Anaplasma phagocytophilum* found in the blood stream. It is an infectious disease transmitted by ticks.

**Animals Affected** – Horses, cattle, sheep, goats, buffalo, dogs and cats.

**Signs and Symptoms** – Depends on the animals age (older animals having more severe symptoms) and the progression of the illness. The symptoms can include a fever, depression, limb swelling, lack of co-ordination, anaemia, muscular tremors, weakness, jaundice.

**Traditional Treatment** – Antibiotics such as Doxycycline, Tetracycline and antiprotozoal agents such as imidocarb. If infection is combined with Lime disease a longer period of treatment may be required.

**Natural Treatment** – Natural repellants to prevent tick bites include dietary preventatives such as garlic, apple cider vinegar and brewer’s yeast. There are also herbal flea and tick collars and sprays available as well as citrus repellants

## ANTHRAX

**Short Description** – Is cause by infection with a bacterium called Bacillus anthracis. The bacterium forms spores that may be eaten by an animal when grazing in an affected area, or it may be spread by flies or other insects from an infected animal to another animal. The incubation period is 3-7 days, during which time the bacteria organism multiplies and spreads (via the blood and lymphatic system) through the infected animal. The bacteria produces a toxin that causes cell death and breakdown of tissues.

**Animals Affected** – All warm-blooded animals.

**Signs and Symptoms** – High fever and agitation followed by chills, depression, severe colic, muscle weakness, loss of appetite, disorientation, difficulty breathing and seizures. Bloody diarrhea and swelling may also occur.

**Traditional Treatment** – Infected animals are treated with antibiotics. Preventative measures include vaccination, quarantine, burning or burial of dead infected animals, reporting of anthrax to relevant bodies.

**Natural Treatment** – Garlic, Thyme and Melissa essential oils.

## **ASPERGILLOSIS**

**Short Description** – A fungal infection as a result of exposure to Asperigillus fungus. Asperigillus spores are widespread in the environment, particularly in damp, poor ventilated places. Spores are inhaled into the lungs and air sacs and when the animal becomes weakened or stressed the disease can be triggered. Animals with poor immune systems are predisposed to contracting the disease. Usually the lower respiratory tract is affected and the infection can spread to other organs.

**Animals Affected** – Mammals and birds. Birds are particularly susceptible and is a major cause of mortality.

**Signs and Symptoms** - There are varying **Signs and Symptoms**, depending on the animals. **Signs and Symptoms** can include loss of appetite, labored breathing, sinus problems, sudden death, mucous congestion, lack of energy, depression, emaciation and other symptoms similar to other respiratory infections.

**Traditional Treatment** - Treatment with anti-fungal drugs, good hygiene, well ventilated cage.

**Natural Treatment** – Boost immune system with proper nutrition, vitamins and herbs. Herbal anti fungal medicine.