

# Your Pet

## EPIDEMIOLOGY



Registered charity no. 209642

of health on admission to the shelter and whether the cat developed respiratory disease while at the shelter.

### Epidemiology and Clinical Research

The Trust's Epidemiology Unit provides epidemiological and statistical support to our clinical research programme. Survival analysis is a statistical tool commonly used to identify prognostic factors and the effects of treatment that are associated with death from cancer. Studies of brain tumours in dogs have shown that treatment with radiotherapy or surgery combined with radiotherapy prolongs survival

compared to palliative therapy with corticosteroids.

Other work includes a study funded by the Kennel Club Charitable Trust to investigate any associations between head dimensions, particularly nose length, and respiratory function in the Bulldog. A second aim of this study is to assess respiratory function before and after surgery for upper airway obstruction.

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The Animal Health Trust is an internationally recognised centre of excellence in the field of veterinary medicine.

It has pioneered many breakthroughs in relation to improving the prevention, diagnosis and treatment of animal disease and injury and is entirely dedicated to improving the health and welfare of cats, dogs and horses.

As a registered charity we receive no government funding and rely on charitable support in the form of legacies and donations to enable us to continue our valuable work. You can help us in the following ways:

- Becoming an AHT Friend
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*the science behind animal welfare*



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### What is Epidemiology and why do we do it?

Epidemiology provides information on the frequency of occurrence of disease in populations. The practice of evidence-based medicine and the use of proven treatments require knowledge gained from epidemiological studies such as clinical trials. The ability to predict how long a pet might live with a disease (prognosis) also requires epidemiological studies with long-term follow-up of pets. Epidemiologists at the Animal Health Trust are responsible for conducting small animal studies and they also provide quantitative support to the clinical and basic science research programmes.

Epidemiologists investigate health conditions by carrying out studies to describe and evaluate the occurrence of disease at the population level rather than in the individual pet. The pets under study may be a sample of a population of cats living in a city or it may be a single breed

of dog. Epidemiologists are also involved in the control of health problems; by understanding patterns of disease occurrence, they facilitate the development of the most appropriate means of prevention and control.

Clinical trials are a specific type of epidemiological study that are designed to evaluate how well different treatments work.

Epidemiologists have expertise in:

- study design
- methods of data collection
- statistical analysis

Epidemiology can be used to look at:

- genetics and inherited disease
- infectious diseases
- cancer and other chronic diseases

Epidemiological studies that pet owners might be involved in may:

- use questionnaires to collect data from pet owners
- collect data from clinical cases of disease treated within veterinary practice

### Epidemiology and Inherited Diseases

Pedigree dogs are susceptible to a variety of inherited diseases, many of which occur predominantly in one or a few breeds.

Considerable progress has been made in identifying diseases caused by single genetic mutations and DNA tests are now available for a number of diseases, such as progressive retinal

atrophy and von Willebrand's disease. However, many common diseases, such as cancer, diabetes and hip dysplasia, are influenced by multiple genetic and environmental factors. Prevention and control of these complex diseases requires progress in understanding the ways in which they are inherited.

Epidemiologists and statisticians at the Trust are exploring mathematical methods to identify whether there are 'major genes' that have a large effect on the disease of interest. Diseases currently being studied include deafness in Dalmatians and Border Collies, glaucoma in Flat Coated Retrievers and Great Danes and hip dysplasia in Labrador Retrievers, Gordon Setters, Newfoundlands and Flat Coated Retrievers.

Our ongoing research in this area should lead to an improved understanding of the way in which diseases are inherited, better methods of designing breeding schemes and the identification of complex diseases for which DNA tests could be developed.

### Health Surveys of Dogs & Cats

In collaboration with the Kennel Club and the British Small Animal Veterinary Association, epidemiologists at the Trust recently completed a nationwide survey to identify important disease conditions in UK dog breeds. We collected information on the health of dogs, litters bred, cause of death and birth defects in puppies. The results of this survey will provide information against which the success of control programmes can be measured.

There are more pet cats than dogs in the UK yet there is very little basic information on cats, including how long the average cat lives or with what frequency common disease conditions occur. The 'Longevity, morbidity and mortality in UK cats' study is a large survey that will collect this information. The study is funded by the Feline Advisory Bureau and the Pet Plan Charitable Trust and the results will help direct future research priorities for cats.

### Epidemiology of Infectious Diseases

A recently completed study of dogs investigated whether there was any temporal association between vaccination and reported signs of ill health. This cross-sectional study was funded by the National Office of Animal Health (NOAH) and used a postal questionnaire sent to owners of dogs that had been randomly selected from the client databases of veterinary practices. Analysis of the data indicated that there was no association between ill health and whether a dog had been vaccinated in the previous three months.

Data collection has also been completed in a study of respiratory disease in cat shelters. This study, funded by Blue Cross, intends to determine whether information available on cats that arrived at shelters was useful as a predictor for whether they would experience an episode of respiratory disease while staying at the shelter. Data collected included breed, gender, age, whether the cat was a stray or from a private household, vaccination history, state

