

## CANCER BASICS & TERMINOLOGY



Cancer is one of the leading causes of death in pets. It has been estimated that almost half of the animals that live 10 years or longer will die of cancer. The prevalence of cancer appears to be increasing in pets at a steady rate. Explanations for this increase include a larger population of older pets (advances in health care means that fewer dogs die of other diseases at a younger age), improved recognition and diagnosis of cancer, increased willingness on the part of both veterinarians and pet owners to treat cancer, as well as both genetic and environmental changes.

One of the questions most commonly asked by pet owners is “what caused my pet’s cancer?” The answer to this question is “we don’t know”. The cause of most cancers diagnosed in companion animals (as well as humans) is often poorly understood. We have been successful in finding either a cause or a risk factor in only a few cancers. The small numbers of veterinary patients, incomplete or unknown medical histories and lack of follow-up often hinder our efforts.

The terms used to describe cancer can be confusing. The same word can mean different things to different people. The following section is a glossary that attempts to clarify some of the more commonly used terms.

**Cancer:** Uncontrolled growth of abnormal cells. Synonym - neoplasia.

**Tumour:** Literally, it means “a swelling”. An alternative definition is “a new growth of tissue in which the multiplication of cells is uncontrolled and progressive”. Synonym: neoplasm.

**Oncology / Oncologist:** Oncology is the field that deals with the diagnosis and treatment of cancer. An Oncologist is a doctor that specialises in this field. Veterinarians can become specialists in Medical Oncology, Radiation Oncology or Surgical Oncology by completing a residency and passing several certifying exams.

**Malignant:** “Having the properties of anaplasia, invasion, and metastasis”. These are all characteristics of a tumour that makes it capable of causing the death of a patient. A malignant tumour is one which no longer resembles the cells it was derived from, is invasive at the site where it starts and has the ability to metastasise (or spread) to other organs.

**Benign:** Benign tumours are unlikely to spread, unlikely to cause the death of a patient and have a favourable outcome (however, there are a few exceptions where benign tumours behave more like malignant ones). Benign is the opposite of malignant.

**Primary Site:** This refers to the site where the tumour started being “the original tumour”.

**Metastasis:** The transfer of disease from one organ or part to another not directly connected to it. Metastasis is the process by which the tumour spreads from one location to another - the most common sites of metastasis are the lungs, liver or lymph nodes. The most common routes of metastasis are the bloodstream and the lymphatic vessels.

**Metastatic site:** The term used for the site of spread.

**Biological behaviour:** This refers to how a tumour is likely to behave. For example, how likely it is to metastasise, where are the common sites of metastasis and how invasive is it at the site where it starts.

**Staging:** This term refers to the process of determining how advanced a cancer is and if it has spread. We "stage" an animal through the use of tests such as x-rays, ultrasound, blood work, lymph node aspirates or biopsys and bone marrow aspirates. This is helpful because it allows us to determine the best treatment options and to predict the outcome with treatment.

**Aspiration:** The removal of fluid or gases from a cavity.

**Tumour grade:** This is the description of how abnormal the tumour cells and the tumour tissue look under a microscope (histopathology). For many tumours, the pathologist can assign a numbered grade which can indicate how quickly a tumour is likely to grow and spread.

**Cytology:** This usually involves fine needle aspiration (FNA) through which your veterinarian or pathologist looks at the cells in the FNA on a slide under the microscope. This is a quick and usually easy test that is considered good screening to determine if cancer is present. Some cancer types, like Mast Cell Tumours may be diagnosed with cytology.

**Histopathology:** This is where tissue from a biopsy or a cancer that has been removed is examined by a pathologist. The tissue is very thinly sliced, embedded on a slide, stained, then examined under a microscope. Histopathology is used to get a definitive diagnosis, grade and evaluate surgical margins where this is indicated.