

**(on·col·o·gy):** the study of cancer, including the origin, development, diagnosis and treatment



*Specialty Care for Special Pets*

OAKLAND VETERINARY  
REFERRAL SERVICES 



**(can•cer):** a mass of tissue created when cells divide in an uncontrolled, relatively autonomous fashion

## THE DIAGNOSIS

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Learning that your pet has a diagnosis of cancer can be overwhelming. We realize that your pet is an important member of your family who deserves the best cancer treatment available. Fortunately, continuous improvements in our knowledge, as well as new and evolving methods of treatment provide many different options to pets recently diagnosed with cancer.

Some cancers may be cured with appropriate treatment. Others, while they may not be curable, can be treated while maintaining a good quality of life.

For patients with advanced cancer, treatment may help alleviate symptoms, such as pain, and greatly improve the quality of the pet's remaining life.

Together, your oncology team will formulate a treatment plan that fits your treatment goals while keeping your pet's best interest in mind. With this comprehensive approach to treatment and careful attention to quality of life, cancer treatment can be a rewarding and healing experience.



## WHAT IS CANCER?

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Cancer is a tumor created by an abnormal process in which cells divide in an uncontrolled, relatively autonomous fashion, leading to a continual increase in the number of dividing cells. Tumors are subdivided into two fundamentally different categories based on differences in their growth patterns:

- 1 Benign Tumors:** growth is confined to a local area and does not spread to other organs
- 2 Malignant Tumors:** invade into surrounding tissues, but can also enter the bloodstream or lymphatics and spread to distant parts of the body

There are various kinds of cancer and they differ significantly in how frequently they arise, the tissue or organ from which they originate and their potential to metastasize.

**(me·tas·ta·sis):** the process in which cells are carried to distant tissues where they lodge and start new tumor masses

## WHAT CAUSES CANCER?

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The conversion of normal cells into a cancer cell is a complex, multi-step process that typically takes many years to unfold. Despite the complexity of this process, however, many initiating causes in people are known, which likely are similar in our pets. Cancer is essentially the result of non-lethal genetic damage to cells. Causes of such DNA mutation include:

- 1 Radiation & Chemical Exposure**
- 2 Hormones**
- 3 Chronic Inflammation**
- 4 Infection**

Some damage to cellular DNA is daily “wear and tear” but all mammals have many safeguards to prevent or repair such damage. Nonetheless, such protective mechanisms are not flawless. In some individuals, there are defects in such defenses, resulting in a higher than expected prevalence of cancer.

Some of those defects in cellular protection can be inherited and - especially in purebred dogs - can result in predispositions to cancer development.

In other instances, damage to DNA is caused by excessive cellular injury. The mutated DNA upsets the normal regulation of cell growth allowing uncontrolled and careless growth of the “altered” cells that no longer obey the rules governing coordinated cell activity.

## HOW IS CANCER DIAGNOSED?

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Cancer may be suspected from clinical signs, such as weight loss or a visible mass; by diagnostics such as X-rays, ultrasounds or CT scans; or by blood tests.

Veterinary oncologists diagnose tumor types by acquiring a sample of the tumor tissue, which can be obtained using methods, such as:

- 1** **Cytology:** the study of the microscopic appearance of cells removed by aspiration
- 2** **Biopsy:** the removal of a larger tissue sample for a more accurate result, usually requiring anesthesia
- 3** **Histopathology:** the study of a tumor's origin and characteristics to provide appropriate treatment plan and prognosis

**(as·pir·a·tion):** suction removal of tumor cells via syringe and needle



## WHY HAS MY PET DEVELOPED CANCER?

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Cancer frequency increases with age. The more divisions a cell undergoes, the more probable a cell mutation can develop in time. Because our pets are living longer due to preventive medicine, cancer is more commonly diagnosed in older animals. In other cases, an animal has been exposed to carcinogens that can cause or promote cancer. These include sunlight, radiation, chemicals and some infections. Some animals have a genetic susceptibility to cancer because of a hereditary predisposition. Studies are underway to look for specific genetic changes that can predispose certain breeds to cancer. Once that information is obtained, genetic testing may become available to evaluate animals at increased risk. While a vast majority of cancers are not passed from one pet to another, in rare instances animals can pass viruses or other microorganisms to other animals, some of which can promote the development of cancer. Feline leukemia virus, for example, can cause cancers of the blood and lymphoid system in cats. Finally, on occasion, tumors require hormones to start growing or to enable them to persist.

## HOW DOES CANCER AFFECT MY PET?

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The most obvious effect of most cancers is an enlarging mass, but not all masses are malignant and they may not be external and easily visualized. A mass may ulcerate, bleed or have physical effects on the surrounding tissues. Benign tumors only enlarge locally, displacing normal tissue by expansion. In contrast, malignant tumors may invade into deeper tissues and spread to other organs through the blood or lymphatics. The cells may then be carried to distant tissues where the cells lodge and start new tumor masses. Additionally, tumor spread may occur through widespread distribution of a cancer. This occurs when cancer cells break away from the original tumor and seed in body cavities (such as the pleural cavity of the chest or peritoneal cavity of the abdomen).

Symptoms associated with a tumor are dependent upon its location, invasiveness and if metastasis has occurred. Specific changes to monitor for in your pet can be discussed during your consultation. However, changes in weight, appetite and activity levels are common. A few tumors induce clinical signs that are not readily explained by the tumor source. These are called paraneoplastic syndromes.

Examples of paraneoplastic symptoms include:

**1**

Loss of Hair

**2**

Blood Sugar Increase/Decrease

**3**

Blood Calcium Increase



**(on·col·o·gist):** a doctor that specializes in cancer treatment

## WHAT IS A VETERINARY ONCOLOGIST?

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Like human medicine, veterinarians specialize in various fields of advanced treatment. In addition to veterinary school, our board certified oncologists have undertaken a one-year oncology internship followed by a three-year residency. Board certification requires passing a series of vigorous examinations and meeting all the clinical requirements within the residency program. Both our oncologists have been an active part of clinical research and each has designed clinical trials to further advance canine cancer treatment options for dogs diagnosed with lymphoma. The results of their clinical trials have been published in the Journal of the American Veterinary Medical Association.

Before your appointment, your oncologist will review all the information provided by your primary care veterinarian. During your appointment, your oncologist will:

- 1** Perform Examination
- 2** Discuss Diagnosis
- 3** Recommend Tumor Staging Tests
- 4** Outline Treatment Options

To provide the most up-to-date information and treatments for all aspects of your pet's health, our oncologists may consult with other specialty services in the hospital including: anesthesia, cardiology, emergency/critical care, dermatology, internal medicine, neurology, ophthalmology and surgery.

## WHAT TYPES OF CANCER TREATMENTS ARE AVAILABLE?

Treatment options are categorized into local, systemic, and multimodality therapies.

- 1 Local Therapy:** surgery, intralesional chemotherapy, cryosurgery and radiation are best for tumors apparently confined to a well-defined area in an accessible site
- 2 Systemic Therapy:** whole body treatments consisting of chemotherapy, gene therapy, anti-angiogenic protocols, anti-inflammatory drugs and immunotherapy for widespread tumors with risk of metastasis
- 3 Multimodality Therapy:** treatment involving therapies from more than one treatment category to provide the best possible outcome and quality of life

In addition to the above mainstream treatments, nutrition counseling and complementary and alternative medicine (CAM) is a holistic approach providing treatments designed to treat all aspects of your pet's health.

## WHAT SURGICAL TREATMENT OPTIONS ARE AVAILABLE?

Surgery is a common part of cancer treatment in which the preoperative goal can range from being a curative procedure to palliative (not curative, but improving overall quality of life). The type and extent of surgery along with possible complications is dependent upon tumor type, location, grade and stage and will be discussed in further detail for individual patients during your consultation. Your primary care veterinarian can perform some surgeries, however, many cancer surgeries are more complex requiring the expertise of a board certified veterinary surgeon.

Cryosurgery is a special form of surgery which can be used for small skin tumors. Cryosurgery consists of rapidly freezing a tumor using liquid nitrogen and then allowing the tumor to thaw slowly. Usually two to three freeze-thaw cycles are performed during each treatment. After cryosurgery, the tumor tissue slowly dies over the following two weeks. Success of this treatment is dependent upon tumor size (less than 1 cm) and invasiveness. Cryosurgery usually needs to be repeated in two to three weeks.



## HOW WILL CHEMOTHERAPY AFFECT MY PET?

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Although we use many of the same chemotherapeutics as those used to treat people with cancer, the side effects in our animal patients are much less severe than is traditionally associated with chemotherapy in people. The reason for lower side effects is that veterinary chemotherapy protocols use lower total doses and less aggressive drug combinations than most human chemotherapy protocols. Therefore, most dogs and cats undergoing chemotherapy enjoy a good quality of life during and after treatment.

Chemotherapy is recommended for various cancers such as: lymphoma, leukemias, mast cell tumors, hemangiosarcoma, osteosarcoma, high-grade sarcomas and high-grade carcinomas.

It may also be indicated for localized disease if surgery or radiation is not feasible. The goal of chemotherapy varies from obtaining a complete remission, or prolonging the period of remission to palliative therapy intended to minimize patient discomfort, pain and suffering. Most cancers, in veterinary medicine, will not be permanently cured by chemotherapy and chemotherapy protocols have, therefore, been designed to maximize the patient's life span and most importantly their quality of life.

**(che·mo·ther·a·py):** treatment using anticancer drugs that selectively destroy cancerous tissue



## WHAT ARE IMMUNOTHERAPY & RADIOTHERAPY?

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Our veterinary oncologists are adept at choosing the appropriate, cutting-edge treatment for your pet's unique cancer. Two of our most common

treatments include:

1

**Immunotherapy:** a method of stimulating or enhancing the immune system to kill cancer cells

2

**Radiotherapy:** using high-energy radiation to shrink tumors or alleviate pain

Immunotherapy uses drugs or vaccines to boost natural immunities when an animal's immune system becomes incapable or too weak to recognize

cancer cells as abnormal. Radiation is often used in combination with surgery and/or chemotherapy, but can be used alone to destroy cancer cells,

which are more susceptible to radiation effects than normal tissue.

## WHAT IS COMPLEMENTARY & ALTERNATIVE MEDICINE?

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Complementary and alternative medicine (CAM) encompasses holistic treatments such as acupuncture, botanical/herbal therapies, nutraceuticals and nutritional therapies. Veterinarians with a special interest in CAM must seek additional training, and our oncologist has received certification in veterinary acupuncture (CVA) and completed extensive Traditional Chinese Medicine herbal training courses.

CAM can be used in conjunction with mainstream treatments and through this multimodality approach, cancer patients may obtain the best possible outcome and quality of life. CAM may also provide treatment options for patients who are not good candidates for traditional cancer therapies.

**(ac•u•punc•ture):** the insertion of very small needles just below the skin to restore balance in the body, thereby allowing the body to heal itself

## THE SOLUTION

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Oakland Veterinary Referral Services (OVRs) has long been considered a leading center of specialty veterinary care in the Midwest. As a result of ongoing expansion, we now have one of the most comprehensive veterinary specialty facilities in the country.

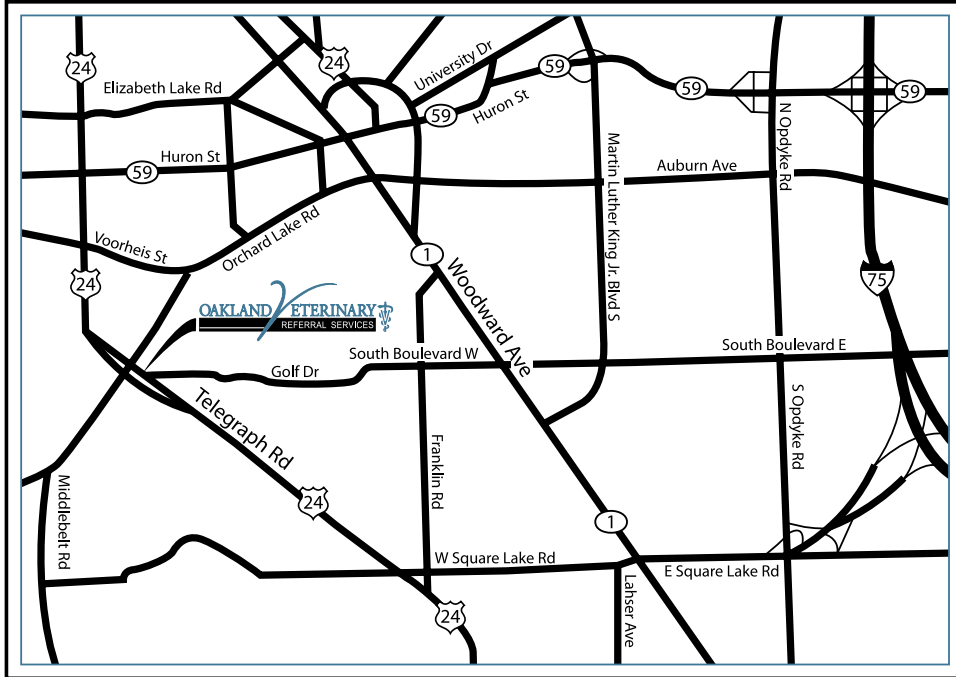
When your regular veterinarian decides that your pet needs the expertise and care of a veterinary oncologist, OVRs is the world-class choice for your pet's specialty care. Our oncologists are board-certified in their specialties, and they are supported by a highly trained staff of licensed veterinary technicians and other caring professionals.

Our expert professionals, advanced technology, and wide range of treatment options all contribute to top-of-the-line oncology care. However, we realize the ultimate satisfaction of our clients depends on the excellence of our client service. We are proud to have earned the confidence, trust, and respect of thousands of local veterinarians and pet owners alike by offering exceptional care through your pet's diagnosis and treatment, and outstanding services in a nurturing environment.



**(o·v·r·s):** your pet's best friend for comprehensive oncology care





## Our Location

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*An OVRs Commitment*

The health of our patients is our top priority. We will always work in close partnership with the referring veterinarian to promote the best course of care.