Mammary Gland Tumors, Mastectomy	Mammary tumors are more common in female dogs that are not spayed or were spayed after 2 years of age. Mammary tumors are rare in male dogs and cats. The risk of a dog developing a mammary tumor is 0.5% if spayed before their first heat, 8% after their first heat, and 26% after their second heat. Cats spayed before 6 months of age reduces the risk of developing mammary cancer by 7 times. Spaying at any age reduces the risk of mammary tumors by 40% to 60% in cats. In female dogs, 50% of mammary tumors are benign and 50% are malignant. In cats, over 85% of mammary tumors in cats are malignant and most of these have an aggressive biologic behavior meaning they tend to be locally invasive and spread elsewhere in the body. Signs and Symptoms: A palpable mass underneath the skin of the abdomen is The most common finding in dogs and cats with mammary tumors is a mass palpated under the skin of the abdomen or thorax. Other signs may include discharge from a mammary gland, ulceration of the skin over a gland, painful mammary gland, swollen mammary gland, loss of appetite, weight loss, and generalized weakness.  Dog with mammary gland tumor (left image) and cat with mammary gland tumor (right image). Diagnosis: A complete physical exam is needed to identify the location, size, and character of all the mammary masses and assess local lymph node enlargement. Other procedures that may be performed to stage for cancer may include:

- Bloodwork: blood count, chemistry, urinalysis, and clotting profile
- Thoracic radiographs (X-rays)
- Abdominal ultrasound
- CT scan
- Fine needle aspirate cytology of the mass to help distinguish it from other skin tumors. Lymph nodes may also be assessed to look for a spread of cancer cells.
- A biopsy may be indicated to rule out a certain kind of tumor called inflammatory mammary carcinoma, as surgery is generally not recommended for this tumor type.

Surgical treatment:
The type of surgery depends on the size, location, and number of mammary tumors and species of the pet. Often surgery can be more conservative for dogs with mammary tumors and may involve removal of either the mass alone or the affected mammary gland. In cats more aggressive surgery is recommended with removal of one set of mammary glands referred to as a radical mastectomy or preferably both sets of mammary glands which is referred to as a bilateral radical mastectomy. In some dogs radical mastectomy may also be indicated. Surgery to remove both sets of mammary glands from a cat or dog is often done in two surgical procedures approximately 2 to 3 weeks apart. Additional treatment at the time of surgery or postoperatively may include:

- Local lymph node removal to assess for evidence of spread of the cancer.
- Spaying at the time of mammary gland mass removal as studies have shown a beneficial effect in dogs with mammary tumors and it can prevent or treat diseases, such as pyometra (uterine infection).
- An Oncology consultation may be recommended based on the results of the excised mammary gland mass.

Surgery is not recommended for dogs with inflammatory mammary carcinoma because it does not improve survival rate. Radiation therapy in combination with a non-steroidal anti-inflammatory drug may provide the most effective pain relief in dogs, but the prognosis remains poor.

Postoperative care: Most pets are discharged in approximately 1 to 3 days after surgery depending on the extent of surgery and comfort. Recheck is usually in 10-14 days. If skin sutures or skin staples were placed they are usually removed at that time. Oral pain medication, pain patches, and antibiotics are commonly discharged with the pet.

Restrictions following surgery will include:

	• Elizabethan collar for 10–14 days after surgery to prevent the pets from licking and chewing at the surgical site. • Limited and restricted activity is indicated for approximately 2 to 4 weeks to allow recovery and incision healing. • Paper litter may be recommended rather than clay litter for cats. Postoperative complications can include: • Incision infection • Incision opening or breakdown (called dehiscence), which is more common in the mammary glands near the back legs or when larger areas of tissue have been removed. • Local recurrence of the tumor or spread of the cancer. Prognosis: Benign tumors can be cured by surgery, although the development of new mammary tumors (both benign and malignant) is possible. There is a poorer prognosis with malignant mammary tumors and it also depends on what type of cancer. The prognosis for cats with mammary tumors is guarded as mammary tumors tend to be more aggressive and metastatic in cats.