

## **Summary of Cancer Surveillance and Registry Project from the Cornell University College of Veterinary Medicine**

December 8, 2004

During the past 2 years we have collected and analyzed the biopsy reports from dogs and cats that live in 2 different geographic locations of New York State. The first data set comes from Nassau County during an 8 month time period in 2003. This data set consisted of approximately 9000 total submissions that were evaluated for cancer diagnoses. Approximately 33% of the biopsies in this data set were determined to be malignant cancers. This is consistent with other reports.

The biopsy reports from dogs and cats with cancer were geocoded with the zip code of the submitting veterinarian and analyzed for trends in geographical clustering. Some types of cancer were reported by individual veterinary practices in greater quantity than the county-wide average and some practices had reduced quantity of reports for specific cancer types. The report for this preliminary phase of the project in Nassau County samples of maps with differences in cancer reporting for breast cancer in dogs and cats. The primary conclusion from this data set is that a large, previously unutilized resource of cancer diagnoses has been identified and can be evaluated for geographic differences that may be useful for further study of cancer causes. No conclusions about cancer causation or similarity to human cancer clustering can be made yet.

The second data set includes biopsy reports submitted to the NY State Animal Health Diagnostic Laboratory at the College of Veterinary Medicine, Cornell University in Ithaca, NY. This data set includes records that extend from 1980 – 2003 and represents veterinary practices from most regions of the state, particularly upstate and western NY. This data set includes 170,000 records for dogs and cats. Twenty-six – thirty percent (26-30%) of submissions each year were considered malignancies. The 25 year time period allowed important trends in specific cancer diagnoses to emerge. From this data it appears that breast cancer in dogs and cats has declined substantially over this period (Figures 1 and 2). This is most likely a result of early spay programs that have become more widespread during this period resulting in prevention of breast cancer in animals that are neutered early. However, the incidence of breast cancer in dogs, even after such a decline, may be great enough to continue studying as a means to investigate shared risk factors between dogs and women.

Surprisingly, lymphoma in dogs has increased dramatically in the last 4-5 years (Figures 3 and 4). The cause for this change is unknown. However, human non-Hodgkin's Lymphoma is also increasing and several factors have been implicated in this change. Some environmental contaminants have been demonstrated to increase the risk of lymphoma in people and in dogs. In particular, 2,4-D, a dioxin derived herbicide exposure is a risk factor in both species. The data from canine lymphoma provides a valuable tool for investigating the potential reasons why dogs with lymphoma appear to be diagnosed more frequently during the last few years and may have implications for human non-Hodgkin's lymphoma. This increase in reporting of lymphoma in dogs

appears to be a general increase across upstate NY rather than a regional or geographic clustering (Figures 5 & 6). Similar graphs and data exist for the most common types of cancer in animals and will be included in the final progress report for this years project.

Both data sets required substantial initial programming development and logistical effort. The ability to manipulate large data sets and perform geospatial analysis is not trivial but represents the only attempt of its kind in the country to use canine and feline cancers for surveillance that may benefit humans as well.

The pathology laboratories that participated in this study have consented to expanding our access to data. On Long Island we have requested all submissions for Kings, Queens, Nassau and Suffolk counties. We believe we can manage this data set which should be 4 times the size of the Nassau county data set. Continued access to the NY State Diagnostic Lab has also been confirmed.

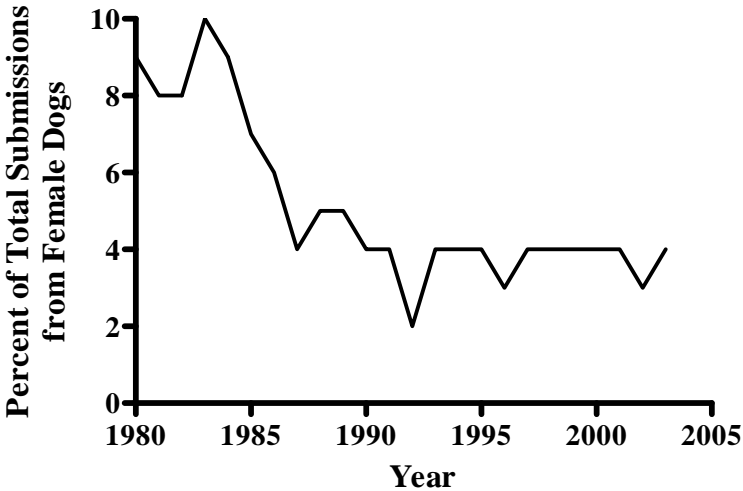
We are hopeful that we can continue to refine the information submitted by veterinarians on each biopsy that might include more detailed information about the animal, its' environment and its owners. We also plan to initiate a 'cancer awareness' campaign in companion animals and their owners. This will be focused at the level of Nassau county veterinary practices and will include educational materials and information about the need for surveillance of cancer in dogs and cats. Early detection programs and healthy lifestyle suggestions will be developed with the intent of creating both healthy pets and healthy humans. In this way, a new constituency (pet owners and especially children with pets) will be informed about maintaining healthy habits for a long life.

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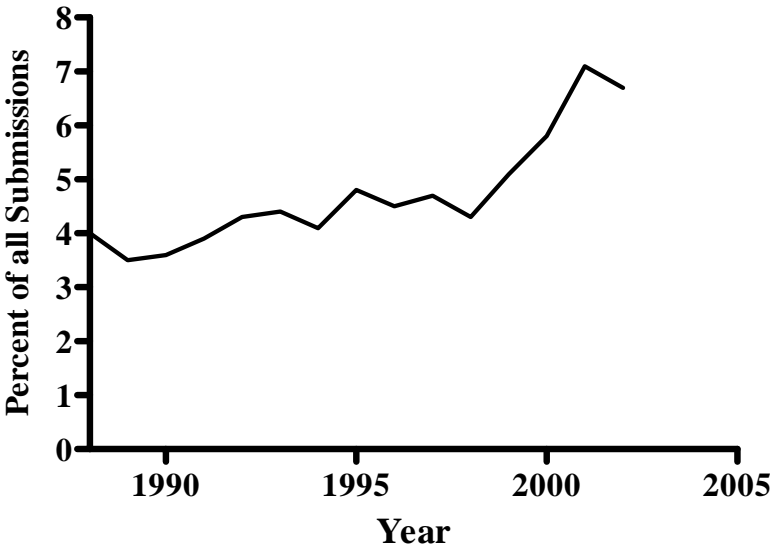
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# Canine Breast Cancer Diagnoses From NY State Animal Health Diagnostic Laboratory, Ithaca, NY



# Canine Lymphoma Diagnoses From the NYS Animal Health Diagnostic Lab, Ithaca, NY



# Spatial distribution of canine lymphoma during 2 time periods (1989-1995 vs. 1996-2002) in upstate NY.

