THE INCIDENCE OF NEOPLASIA IN THE CANINE AND FELINE PATIENT POPULATIONS OF PRIVATE VETERINARY PRACTICES IN SOUTHERN ONTARIO

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Information on the epidemiology of cancer is needed to assist companion animal practitioners in patient management and client empowerment. Published estimates of the incidence and prevalence of neoplasia have been based largely on veterinary teaching hospital populations.¹,²,³,⁴ However, the types and severity of cancer cases presented to referral institutions may not be representative of those in the general population. As well, information tends to be unavailable concerning the actual size of the population at risk. Thus, both the numerator and denominator of estimated rates may be unreliable.¹

Two projects have attempted to calculate population-based rates by creating registries of disease.¹,⁵ These registries encouraged practitioners to participate in primary data capture and sample submission beyond that routinely done in private practice. The registries were costly and both programs have ended. Although the resulting epidemiological estimates are of high quality, both studies are over eighteen years old. The practice of veterinary oncology, the populations at risk and the environmental exposures have changed over that time.

With the widespread use of computer systems in veterinary practices, an alternative to the previous approaches is possible. Although relatively few practices are currently storing medical records electronically, most systems are capable of this, and many practitioners are keen to expand the use of their practice computer system.⁶ Use of existing practice data means that relatively little additional effort is required of the participating practices and the expense involved in maintaining the project is more feasible than is the case with registries.

Electronic medical record (EMR) data have been collected from the practice management software systems of 5 practices in Ontario since 1993, initially as part of
an investigation into the occurrence of post-operative complications following elective surgeries. The study reported here used the electronic medical records of private veterinary practices for the collection of epidemiological information on canine and feline neoplasia.

The objectives were to determine patient population and client usage characteristics for 5 veterinary practices in southern Ontario; to use the patient population data from 5 computerized veterinary practices in southern Ontario, and the corresponding neoplasia case information collected retrospectively from histopathology services and prospectively from the practices to generate estimates of neoplasia occurrence in their canine and feline patients; and to assess the feasibility of, and develop the methodology for, generating epidemiological information from the practice management software of computerized veterinary practices.

Materials and Methods

Five companion animal practices in southern Ontario were purposively selected based on participation in a previous practice-based research project. The practices were capturing all patient encounters in their practice management database allowing for a complete representation of their patient populations. However, prior to the study, none of the practices routinely used the EMR portion of their management software.

The patient populations of the practices were characterized retrospectively over a 1 to 10 year period depending on data availability. A simplified coding scheme was developed and all new neoplasms, both HC and non-HC, were identified prospectively over a 3 to 18 month period to determine the incidence of neoplasia. Only the diagnosis and site were recorded in the EMR. EMR entries were cross referenced with the billing database to determine the method used to make the diagnosis and to obtain patient signalment information.

Results

The median age of both dogs and cats increased and the percentage of dogs described as purebred increased while the proportion of cats described as purebred decreased over the 10 year period from 1988 to 1997.

The incidence rates of benign and malignant neoplasia in dogs were 3,965 and 852 neoplasms per 100,000 dog years respectively. The corresponding incidence rates in cats were 429 and 319 neoplasms per 100,000 cat years respectively. The most common malignancies of dogs and cats were mast cell tumour and squamous cell carcinoma respectively. Forty-nine percent of malignant neoplasms and 23% of benign neoplasms were HC in dogs. Differences in the proportion of tumours submitted for histopathology were evident between types of neoplasia.
Intact dogs had a lower risk of benign neoplasia than neutered dogs [Male: Mantel-Haenszel OR 0.68 (95% Confidence Interval: 0.51 - 0.90); Female: 0.71 (0.50 - 0.99)]. American Cocker Spaniels had an increased risk for both benign [1.42 (1.17 - 1.72)] and malignant neoplasia [1.81 (1.11 - 2.96)], as compared with mixed breed dogs. Golden Retrievers were also at increased risk for malignant neoplasia [2.30 (1.43 - 3.70)], while Lhasa Apsos [0.51 (0.32 - 0.81)] and Bichon Frises [0.51 (0.33 - 0.79)] were at decreased risk for benign neoplasia.

**Discussion**

Using computerized medical record systems proved to be a viable method for collecting data on patient populations and neoplasia occurrence. To date, three of the practice management software systems in use in Ontario have been found to be capable of supporting data collection and transfer to a database package. The potential ease with which disease recording and database searching can be done is improving and the number of packages which appear capable of supporting practice-based epidemiology is increasing as operating systems become more sophisticated and user friendly.

Future epidemiological studies of neoplasia in companion animals based on the patient populations of private veterinary practices will be facilitated by encouraging practitioners to more fully utilize their electronic medical record systems, by the development of a standardized nomenclature and coding scheme, and by a better understanding of how to effectively conduct practice-based research.

**References**


