Companion Animal Practice Based Disease Surveillance in the UK

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Abstract

Disease surveillance in companion animals in the UK has been limited by current data recording capabilities and data extraction methods. The aim of this study was to record standardised disease diagnosis during companion animal veterinary consultations in order to survey prevalence of disease seen in a group of veterinary practices.

Standardised veterinary diagnoses (the VeNom codes) were integrated into commercial practice management systems (PMS) and practices using these PMSs were recruited to participate in this study. Animal signalment, clinical examination notes and treatment were recorded during each consultation and in addition the veterinary surgeon was asked to assign the most appropriate diagnosis to the consultation from the standard list imbedded within their PMS. In the absence of a clinical diagnosis, a presenting sign was assigned. Data were exported to standard statistical software and the prevalence of major conditions was calculated.

Between 2007 and 2009, 3 pilot veterinary practices recorded 31,398 veterinary consultations in dogs and cats (11,305 feline and 20,093 canine). Twenty three veterinary surgeons contributed consultation data ranging from 6 to 3,915 consultations each (median: 1,102). Common conditions documented included diarrhoea, lameness, otitis externa, vomiting, Pyoderma and conjunctivitis. In cats, the most common reasons for consultations included cat bite abscesses, feline lower urinary tract disease (FLUTD), hyperthyroidism, dental disease, lameness, and anorexia.

The study highlights the potential to record disease data routinely within veterinary practice. Recruitment of further practices and practice groups is now ongoing to facilitate companion animal disease surveillance.

Keywords: Companion animal, VeNom codes, surveillance, disease, VEctAR.

Introduction

Recent work has highlighted the lack of surveillance and prevalence data for companion animal disease and has recommended greater routine recording of electronic data within veterinary practices [Anon, 2010; Asher *et al.*, 2009; Bateson, 2010; Summers *et al.*, 2010]. Disease surveillance in companion animals at the UK national level has been underdeveloped for some time, yet much of the required infrastructure has existed for over 10 years in veterinary practices. The vast majority of veterinary practices in the UK (>90%) [Gill, 2007], now record their clinical animal medical data within a practice management system (PMS). It has long been recognised that veterinary practices hold a wealth of disease data electronically within these PMSs, yet these systems have been configured to allow efficient billing and financial reporting rather than to allow identification of disease or facilitate clinical data extraction [Curruthers, 2009]. Limitations of non-standardised veterinary medical terminology and clinical data entry, poor clinical data storage and minimal clinical reporting facilities have restricted the potential for improved clinical disease surveillance using veterinary practice data.

The routine recording of clinical data in an easily extractable electronic format has been undertaken elsewhere in companion animal veterinary medicine. In the USA, the Banfield Veterinary Hospital Group has developed clinical recording capabilities [Moore *et al.*, 2007], though these data have limited relevance to disease monitoring in Europe. The referral institution collaboration, the Veterinary Medicine Database (VMDB), also in the USA, represents the major example of a multi-centre collaboration of electronic records [Guptill *et al.*, 2003], though these data relate to a referral population of animals and may not be relevant to disease prevalence in the UK. Data have previously been analysed from insurance databases [Dobson *et al.*, 2002; Edwards *et al.*, 2003] and have evaluated a number of conditions, though insurance databases have the potential bias towards chronic conditions and those difficult to manage, making their results difficult to interpret.

Veterinary disease data recording has also been limited by the lack of easily usable standardized disease terminology. Human medical terminology has been historically used (SNOMED etc), though these coding systems are not ideal for classification of animal disease, where terminology differs. In the UK, a multi-institution group, the VeNom Coding Group, has developed a set of standardised terminology for use for disease classification (www.venomcoding.org). These terms cover the spectrum of companion animal disease and have now been incorporated into a number of commercial PMS systems in the UK [Upjohn *et al.*, 2008; Summers *et al.*, 2010]. Hence, the aims of the current study were to improve clinical data recording processes within commercial PMS systems and collect clinical disease data from a set of UK companion animal veterinary practices.

Materials and methods

The study received institutional ethics committee approval. Standard diagnoses (the VeNom Codes) were incorporated into commercial practice management systems (RxWorks PMS) to allow recording of diagnoses during animal consultations. Veterinary practices using PMSs with the integrated standard codes were recruited to participate in the project (VEctAR, Veterinary Electronic Animal Record, www.rvc.ac.uk/VEctAR).

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Participating practices recorded their clinical consultations as per usual and in addition at the end of the consultation they assigned one or more standard diagnoses to the disease condition seen. If a diagnosis could not be made, due to insufficient diagnostic certainty, the veterinary surgeon was requested to record the most appropriate presenting complaint.

Data recorded included unique clinic, patient and consultation numbers, consultation date and veterinarian initials. Patient details included species, breed, neutering status, date of birth and weight. Consultation outcome details included clinical notes and diagnosis along with treatment received. The data were extracted from the practice PMS database using a clinical data query integrated within each participating practice's PMS system and data were entered into Microsoft Office Excel 2007 before checking and cleaning. The data were exported to Stata Version 11 (Stata Corporation). Analysis was undertaken separately for cats and dogs. Descriptive statistics were generated and the prevalence of major disease conditions was estimated.

Results

During this pilot study, 3 practices in England recorded standard diagnoses during their clinical veterinary consultations between 2007 and 2009. During this time, 31,398 veterinary consultations (20,093 canine and 11,305 feline) were recorded. Two practices were single-centre clinics contributing 15.5% (4,880) and 24.6% (7,733) of consultations respectively, while the third practice comprised of 5 clinics and contributed 59.8% (18,785) of consultations. Across these practices, 23 veterinary surgeons were involved and contributed between 6 to 3,915 consultations each (median 1,102). Pedigree status was accorded to 26.9% of cats and 84.6% of dogs. For cats, 89.2% were neutered, while 64.6% of dogs were neutered. Of cats, 83.7% were classified as shorthaired breeds, while 49.0% of dogs were large or giant breeds.

Of the consultations recorded, 67.4% of canine and 66.7% of feline consultations had a standard diagnosis coded during the consultation (13,534 and 7,543 consultations respectively). In dogs, the most common reasons for presentation included diarrhoea (845 consultations, 6.2% of coded consultations), lameness (792, 5.9%), otitis externa (761, 5.6%), vomiting (433, 3.2%), pyoderma (382, 2.8%) and conjunctivitis (344, 2.5%). In cats, the most common reasons for consultations included cat bite abscesses (371 consultations, 4.9% of coded consultations), feline lower urinary tract disease (FLUTD) (329, 4.4%), hyperthyroidism (310, 4.1%), dental disease (290, 3.8%), lameness (250, 3.3%), and anorexia (214, 2.8%).

Discussion

This work documents common reasons for companion animals presenting to veterinary practices for treatment and highlights the potential value of electronic patient records for animal disease surveillance. Diagnostic coding frequencies were relatively high in this pilot study and represent a feasible and efficient method of recording veterinary surgeon perceived disease across a number of clinical veterinary practices.

The reasons for consultation recorded here were broadly consistent with previous work in the UK and abroad [Hill *et al.*, 2006; Lund *et al.*, 1999]. The diagnoses recorded represent veterinary surgeon assessed disease and may not always accurately reflect actual disease distributions. Nonetheless, these data are of value as they highlight potential trends in disease prevalence and can alert to changing patterns of companion animal disease. Additional work is ongoing to link the clinical disease data to clinical and histo-pathological diagnoses where further diagnostic work-up has been undertaken.

In summary, this report highlights the feasibility of using private veterinary practice based data to report veterinary surgeon assessed disease. Work is now ongoing within the VEctAR project to enlarge the practice network across the UK.

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