Original Article

Prevalence of disorders recorded in cats attending primary-care veterinary practices in England

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Abstract

Improved understanding of absolute and relative prevalence values for common feline disorders would support clinicians when listing differential diagnoses and assist prioritisation of breeding, research and health control strategies. This study aimed to analyse primary-care veterinary clinical data within the VetCompass project to estimate the prevalence of the most common disorders recorded in cats in England and to evaluate associations with purebred status. It was hypothesised that common disorders are more prevalent in purebred cats than in crossbred cats. From a study population of 142,576 cats attending 91 clinics across central and South-Eastern England from September 1, 2009 to January 15, 2014, a random sample of 3,584 cats was selected for detailed clinical review to extract information on all disorders recorded.

The most prevalent diagnosis-level disorders recorded were periodontal disease (*n* = 499; prevalence, 13.9%, 95% confidence intervals [CI], 12.5-15.4), flea infestation (*n* = 285; prevalence, 8.0%; 95% CI, 7.0-8.9) and obesity (*n* = 239; prevalence, 6.7%; 95% CI, 5.7-7.6). The most prevalent disorder groups recorded were dental disorders (*n* = 540; prevalence, 15.1%, 95% CI, 13.6-16.6), traumatic injury (*n* = 463; prevalence, 12.9%; 95% CI, 11.6-14.3) and dermatologic disorders (*n* = 373; prevalence, 10.4%; 95% CI, 9.2-11.7). Crossbred cats had higher prevalence for two disorders among the twenty most common disorders recorded and purebreds had higher prevalence for one disorder. Veterinarians could use these results to prioritise highly prevalent disorders as they focus their diagnostic and prophylactic efforts.

The study did not show an increased prevalence of common disorders in purebred cats compared with crossbred cats. Primary-care veterinary clinical data were shown to be versatile and useful for demographic and clinical studies on cats.

Keywords: Electronic patient record; Epidemiology; Feline; Prevalence; Primary-care veterinary

Introduction

The domestic cat (*Felis catus*) was domesticated more than 9,000 years ago (Driscoll et al., 2007). It is estimated that 8.5 to 10.3 million cats are currently owned in the UK and 19.0-25.5% of households own at least one cat (Murray et al., 2010; PFMA, 2013) [1]. Despite substantial medical and genetic advances at an individual cat level (Chandler et al., 2007; Pontius et al., 2007; Drobatz and Costello, 2010; RCVS, 2014) [2], there is an abiding shortage of health information on cats at the population level (Bateson, 2010). Improved understanding of absolute and relative prevalence values for common feline disorders would support clinicians when listing differential diagnoses (Gough, 2007) and would facilitate strategic prioritisation of breeding, research and health control efforts in cats (McGreevy, 2007; Bessant, 2009; Bateson, 2010).

The BBC documentary Pedigree Dogs Exposed [3] asserted that the health of purebred dogs is deteriorating because of inbreeding and conformational extremes. Although just 8% of cats are estimated to be purebred, compared with 75% of dogs [4], inherited and breed-related disorders are also thought to contribute materially to the feline disease burden (Bessant, 2009). More than 200 feline genetic diseases have been identified (Pontius et al., 2007; ICC, 2013) [5], disorder predispositions have been reported in 31 cat breeds (Gough and Thomas, 2010) and many cat breeds are phenotypically defined by genetic mutations that

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[1] See: PFMA, 2013. Pet Population 2013. http://www.pfma.org.uk/pet-population/ (accessed 22 March 2014).

[2] See: RCVS, 2014. Recognised Specialist List 2014. http://www.rcvs.org.uk/document-library/recognised-specialist-list-2013/ (accessed 22 March 2014).

[3] See: BBC, 2008. Pedigree Dogs Exposed. http://www.bbc.co.uk/pressoffice/pressreleases/stories/2008/08_august/19/dogs.shtml (accessed 22 March 2014).

[4] See: PFMA, 2012. The Pet Food Manufacturers' Association 'Statistics'. http://www.pfma.org.uk/statistics/ (accessed 22 March 2014).

[5] See: ICC, 2013. Inherited disorders in cats. http://www.icatcare.org/advice/cat-breeds/inherited-disorders-cats (accessed 22 March 2014).

adversely affect health (Gunn-Moore et al., 2008). Comparing the prevalence of common disorders between purebred and crossbred cats would improve our understanding of the impacts to overall feline health from purebred status, conformational extremes and low genetic diversity.

Generation of reliable population statistics on disorder occurrence requires large-scale systematised data collection (Bateson, 2010). Electronic patient record (EPR) data collected from primary-care veterinary practices have been proposed for reliable epidemiological analyses (McGreevy, 2007; Bateson, 2010). Clinical data recorded by veterinarians at the time of the clinical events should reduce misclassification and recall biases, and data collection covering every patient treated should minimise selection biases (Bateson, 2010). The VetCompass primary-care veterinary database [6] offers comprehensive demographic and clinical information for epidemiological studies (Kearsley-Fleet et al., 2013; O'Neill et al., 2013a; O'Neill et al., 2013b; Mattin et al., 2014; VetCompass, 2014).

This study aimed to estimate the prevalence of the most common disorders in cats attending primary-care veterinary practices in England and to evaluate the influence, if any, of purebred status on the occurrence of common disorders. It was hypothesised that purebred cats have a higher prevalence of common disorders compared with crossbred cats.

Materials and methods

The VetCompass companion animal surveillance system [6] collects de-identified electronic patient record (EPR) data from primary-care veterinary practices for

[6] See: VetCompass, 2013. VetCompass: Health surveillance for UK companion animals. http://www.rvc.ac.uk/VetCOMPASS/ (accessed 22 March 2014).

epidemiological research. Disorder terms were selected by veterinarians at episodes of clinical care from an embedded standard nomenclature, the VeNom codes [7]. Clinical data were extracted electronically from practice management systems using integrated clinical queries (Kearsley-Fleet et al., 2013) and automatically uploaded every week (from September 1, 2009 to January 15, 2014) to a secure structured query language database. Demographic (animal identification number, species, breed, date of birth, sex, neuter status, insurance status and weight) and clinical (free-form text clinical notes, VeNom disorder terms and treatment, with relevant dates) data fields were collected. Ethics approval was granted by the RVC Ethics and Welfare Committee (reference number 2010 1076).

The study sampling frame included all cats with at least one EPR recorded attending any practice within the Medivet Veterinary Group, a large network of integrated veterinary practices covering Central and South-Eastern England [8]. Cats were selected randomly from the overall sampling frame [9] for detailed review of their clinical notes and VeNom disorder terms to identify all final disorder terms. Instead of full analysis of the entire dataset, a sampling methodology was chosen because of the considerable time input required for manual extraction and validation of disorder terms. VeNom disorder terms originally entered at consultations might have been updated to more precise or even different terms after further clinical investigation and thus were deemed insufficiently reliable for automated analytic methods. Sample size calculations estimated that, from a study population of 140,000 cats, a sample of 3,648 animals was required to represent a disorder that has a 2.5% expected

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[7] See: The VeNom Coding Group, 2013. VeNom Veterinary Nomenclature. http://www.venomcoding.org (accessed 22 March 2014).

[8] See: Medivet, 2014. Medivet: the veterinary partnership. http://www.medivet.co.uk/ (accessed 22 March 2014).

[9] See: www.random.org (accessed 22 March 2014).

frequency with a precision of 0.5% at a 95% confidence level [10]. During the data extraction process, disorder terms were re-coded to their most appropriate VeNom term for further analysis. Elective (e.g. neutering) or prophylactic (e.g. vaccination) clinical events were not included. Multiple counting of open-ended disorders was avoided by including only the first event for ongoing conditions. The final disorder term only was used if diagnoses were revised over time, assuming that diagnostic accuracy increased over time (Willard and Tvedten, 2004). The parent term only was included for disorders with multiple child terms (Sleator and Endre Tarjan, 1983); e.g. a parent term road traffic accident may have multiple child terms such as laceration and fracture). Disorder events that were aetiologically independent, despite sharing the same disorder term name (e.g. new occurrences of cat bite abscesses), were included separately. Distinction was not made between pre-existing and incident disorder presentations. Disorders described in the clinical notes by presenting sign terms (e.g. 'vomiting and diarrhoea') were included by using the first sign listed (e.g. vomiting). Inclusion of dental disorders in the study required recommendation of surgical or medical intervention by the veterinarian.

Recognisable specified breeds [11] were grouped as ‘purebred’ and all other cats were grouped as ‘crossbred’. Neuter status was defined by the final EPR status. Insurance status described whether a cat was insured at any time. The maximum bodyweight (kg) for cats aged 6 months or older over was categorised into five groups (< 3.0 kg, 3.0 - 3.9 kg, 4.0 - 4.9 kg, 5.0 – 5.9 kg and ≥ 6.0 kg). The age (years) at the final EPR was categorised into eight groups (< 1.0, 1.0-2.9, 3.0-5.9, 6.0-8.9, 9.0-11.9, 12.0-14.9, 15.0-17.9 and ≥ 18.0). Time

[10] See: Epi Info 7 CDC, 2012. Centers for Disease Control and Prevention (US): Introducing Epi Info 7. **http://wwwn.cdc.gov/epiinfo/7** (accessed 22 March 2014).

[11] See: ICC, 2014. Cat breeds. http://www.icatcare.org/advice/cat-breeds (accessed 22 March 2014).

within the study was calculated using the earliest and latest EPR dates. The mechanism (euthanasia or non-assisted; (McMillan, 2001) and age (years) at death was recorded. The mean and standard deviation (SD) described normally distributed data while the median, interquartile range (IQR) and range described non-normally distributed data (Kirkwood and Sterne, 2003).

Extracted VeNom disorder terms were mapped to both diagnosis-level and mid-level precision hierarchies for analysis. Diagnosis-level terms described extracted disorder terms at the highest clinical precision that was recorded within the EPR (e.g. a record of 'cat bite abscess' would remain as 'cat bite abscess' and a record of 'abscess' would remain as 'abscess'). Mid-level terms grouped extracted terms at general precision level (e.g. both 'cat bite abscess' and 'abscess' would map to 'abscess'). Data cleaning used a spreadsheet (Microsoft Office Excel 2007, Microsoft) before export to a commercially available statistical software program (Stata Version 11.2, Stata) for analyses. Descriptive statistics were generated for the overall study population and the sample group. Prevalence values with 95% confidence intervals (CI) were tabulated for the twenty most prevalent diagnosis-level and mid-level disorders and were reported across all sampled cats, purebred cats and crossbred cats. The proportion of cats with at least one disorder was reported and compared between purebred and crossbred cats using the chi-squared test. The median (IQR, range) number of disorders recorded per cat was reported and compared between purebred and crossbred cats, using the Wilcoxon rank-sum test. Prevalence values were compared between purebred and crossbred cats for the twenty most common diagnosis-level and mid-level disorders using the chi-squared test or Fisher’s exact test as appropriate (Kirkwood and Sterne, 2003). Holm-adjustment of *P*-values accounted for multiple testing effects (Aickin and Gensler, 1996). Statistical significance was set at 5%. The CI estimates were derived from standard errors based on approximation to the normal distribution for disorders with ≥10 events (Kirkwood and Sterne, 2003), while the Wilson approximation method was used for disorders with <10 events (Agresti and Coull, 1998).

Results

The study population comprised 142,576 cats attending 91 clinics. Demographic examination of cats with information available indicated that 15,636 (11.0%) cats were purebred; 72,875 (51.5%) cats were female; 78,080 (96.5%) cats were neutered, and 26,584 (29.6%) were insured. The mean (SD) weight was 4.4 (1.2) kg and the median age was 4.5 years (IQR, 1.2-10.7; range, 0.0-27.2). The most common pure breeds were British Shorthair (*n* = 3,380; 2.4%), Persian (*n* = 1,942; 1.4%), Bengal (*n* = 1,466; 1.0%), Burmese (*n* = 1,321; 0.9%), Siamese (*n* = 1,318; 0.9%) and Ragdoll (*n* = 1,215; 0.9%; Table 1). Data completeness varied between the variables: breed 100.0%, sex 99.2%, neutered 56.7%, insured 63.1%, weight 65.2% and age 85.4%.

The study sample comprised 3,584 cats (2.5% of the overall population) attending 88 clinics. Of cats with information available, 377 (10.5%) cats were purebred; 1,800 (50.6%) cats were female; 2,165 (96.7%) cats were neutered, and 722 (29.0%) were insured. The mean (SD) weight was 4.4 (1.2) kg and the median age was 4.5 years (IQR, 1.2-10.2; range, 0.0-23.0). The most common pure breeds were British Shorthair (*n* = 73; 2.0%), Persian (*n* = 50; 1.4%), Burmese (*n* = 41; 1.2%), Bengal (*n* = 38; 1.1%), Ragdoll (*n* = 33; 0.9%), Birman (*n* = 23; 0.6%) and Siamese (*n* = 22; 0.6%). Of the sampled cats, 457 (12.8%) cats died during the study period. The median (IQR, range) age at death was 13.6 years (9.0-16.9, > 0.0-23.0) and 369 (84.4%) deaths were by euthanasia. The median (IQR, range) time within the study per cat was 2.4 years (1.6-3.0, 0.1-4.3). The sample and study populations were similar across all measures assessed (Table 1).

There were 350 unique diagnosis-level disorder terms and 45 unique mid-level disorder categories recorded. Overall, 5,303 unique disorder events were recorded in the sampled cats and 2,449 (68.3%) cats had at least one disorder recorded. There was no significant difference in the proportion of purebred and crossbred cats that had at least one disorder recorded (purebred cats, 70.3% compared with crossbred cats, 68.1%; $P = 0.390$). The median (IQR, range) number of disorders recorded per cat was 1 (0-2, 0-11). Purebred and crossbred cats did not differ in the number of disorders recorded per cat (median, IQR, range: purebred 1, 0-2, 0-8 vs. crossbred 1, 0-2, 0-11; $P = 0.220$).

The most prevalent diagnosis-level disorders recorded were periodontal disease (n = 499; prevalence, 13.9%; 95% CI, 12.5-15.4), flea infestation (n = 285; prevalence, 8.0%; 95% CI, 7.0-8.9), obesity (n = 239; prevalence, 6.7%; 95% CI, 5.7-7.6), heart murmur (n = 179; prevalence, 5.0%; 95% CI, 4.1-5.8) and traumatic injury (n = 164; prevalence, 4.6%; 95% CI, 3.8-5.3). Comparing purebred and crossbred cats on the twenty most-prevalent diagnosis-level disorders, crossbreds had higher prevalence for two disorders (abscess [excluding cat bite abscess], $P = 0.009$; hyperthyroidism, $P = 0.002$) whereas purebreds had higher prevalence for one disorder (coat disorder; $P < 0.001$; Table 2).

The most prevalent mid-level disorders recorded in cats were dental disorders (n = 540; prevalence, 15.1%; 95% CI, 13.6-16.6), traumatic injury (n = 463; prevalence, 12.9%; 95% CI, 11.6-14.3), dermatologic disorders (n = 373; prevalence, 10.4%; 95% CI, 9.2-11.7), enteropathic (n = 358; prevalence, 10.0%; 95% CI, 8.9-11.1) and parasitic infestation (n = 351; prevalence, 9.8%; 95% CI, 8.7-10.9). Comparing purebred and crossbred cats on the twenty most-prevalent mid-level disorders, crossbreds had higher prevalence for two disorders (abscess, *P* = 0.002; endocrine disorder, *P* = 0.030) whereas purebreds had higher prevalence for one disorder (upper respiratory tract disorder, *P* < 0.001; Table 3).

Discussion

This study identified the most prevalent disorders recorded in cats attending primary-care veterinary practices in England as periodontal disease, flea infestation, obesity, heart murmur and traumatic injury. At a disorder group level, the most common disorders of cats were dental, traumatic, dermatologic, enteropathic and parasitic. There was no evidence supporting higher prevalence of common disorders in purebred compared with crossbred cats. Primary-care veterinary EPR data were shown to be versatile and useful for demographic and clinical studies on cats.

The current study identified dental disease as the most common disorder, with 15.1% of cats affected by overall dental disorders including 13.9% recorded specifically with periodontal disease. A US study of primary-care clinical data similarly identified dental disease as the predominant disorder affecting cats, reporting dental calculus (24.2%) and gingivitis (13.1%) as the two most common disorders (Lund et al., 1999) while a more recent US study reported that 53.4% of feline in-patients aged 5 years and older at veterinary hospitals were affected by dental disease (Lund, 2012). The higher prevalence reported in these US studies may result from inclusion of all dental disease findings regardless of severity. The current study included only dental cases with an associated veterinary recommendation for surgical (e.g. periodontal treatment or dental extractions) or medical (e.g. antibiosis or analgesic) therapy but did not include cases for which only diet change or tooth brushing were recommended. This case definition was chosen to corral cases of periodontal disease sufficient to compromise welfare significantly. An analysis of UK paper-based veterinary clinical records identified dental calculus, gingivitis and periodontitis in 1.9%, 0.9% and 0.9% respectively of consultations for cats, with the combined prevalence of 3.7% making dental disease the most common disorder reported (Edney, 1997). Dental disease is not a new disorder of cats, with 25% of skulls (*n* = 80) of cats that died before 1960 showing evidence of moderate or severe periodontal disease (Harvey and Alston, 1990), and it is clear that dental disorders remain a common and important health problem in modern cats.

Flea infestation was the second most common specific disorder identified in the current study, with 8.0% of cats affected during the study. Flea infestation was also the second most common disorder at US veterinary practices, with 9.2% of cats affected (Lund et al., 1999) and the third most common disorder recorded during consultations in UK practices with 3.0% of consultations affected (Edney, 1997). Another UK study reported 2.1% of feline consultations to show flea infestation (Hill et al., 2006). By contrast, a survey specifically of flea infestation reported that 21.1% of cats at UK veterinary practices were infested, suggesting that routine general clinical examination may substantially under-estimate the true prevalence of flea infestation (Bond et al., 2007). Despite significant advances in the parasiticide therapeutic armoury over recent years (Rust, 2005), it is clear from the current study that flea infestation remains common in cats. As well as causing important dermatological disease in cats (Carlotti and Jacobs, 2000), 50% of fleas in the UK have been shown to carry at least one zoonotic pathogen (Shaw et al., 2004). However, almost half of owners of cats with flea infestation were unaware of the problem (Bond et al., 2007), highlighting the important role of the veterinarian to identify and control of this problem.

The current study categorised all cats that were overweight to any extent as *obese* and reported obesity as the third most common specific disorder, with 6.7% affected. A study specifically of obesity reported that 9.7% of cats attending UK practices were overweight and 1.8% were obese (Courcier et al., 2012) while 28.7% and 6.4% of US practice-attending cats were reported as overweight and obese respectively (Lund et al., 2005). A study of French cats presented for vaccination reported that 19.0% were overweight and 7.8% were obese (Colliard et al., 2009). Precise classification of obesity in cats is problematic because human adiposity classification methods, such as body mass index, are poorly defined for cats (German, 2006). The current study was not designed to specifically examine obesity and the results suggest that true obesity may be substantially under-reported in primary-care practice. Given known associations with important diseases including diabetes mellitus (Prahl et al., 2007), urolithiasis (Lekcharoensuk et al., 2001) and hepatic lipidosis (Center et al., 2000), primary-care veterinarians should remain vigilant for obesity in their feline caseloads.

Traumatic injuries and abscesses are important disorders in cats and their prevalence may relate to varying levels of outdoor access. In the UK, over 90% of pet cats have daily outdoor access (Murray and Gruffydd-Jones, 2012) compared with 80% in Australia (Toribio et al., 2009) and 50-60% in the US (Rochlitz, 2005). Traumatic injury was the second most common disorder group in the current study, with 12.9% of cats having at least one trauma-related event while 6.5% of cats were reported to have at least one abscess-related event. The prevalence of abscesses and cat bite injuries were reported as 6.5% and 4.7% of US practice-attending cats, respectively (Lund et al., 1999). Abscesses, animal bites and road traffic accidents were recorded among 3.3%, 2.2% and 1.4% of UK feline consultations, respectively (Edney, 1997). Trauma was the most common claim recorded for insured cats in Sweden, with an incidence rate of 1.7 per 100 cat years at risk (Egenvall et al., 2010). The current study did not collect information on cats' indoor versus outdoor time budgets but outdoor access is known to increase the risk of fighting or accidental injuries in cats

(Buffington, 2002). However, there is no consensus that restriction to an indoor lifestyle improves feline welfare overall because it may lack enriching environmental features (Ellis, 2009).

This study tested the hypothesis that purebred cats have greater predisposition to common disorders than crossbred cats. This hypothesis was based on the hybrid vigour phenomenon that is widely accepted in production species and that describes superior viability, production and fecundity of crossbred progeny compared with their purebred parents (Dechow et al., 2007; Nicholas, 2010). Hybrid status has been reported to be positively associated with longevity in dogs (O'Neill et al., 2013a) but limited evidence was shown to support an association with the prevalence of common disorders in dogs (O'Neill et al., 2014). In the current study, purebred and crossbred cats differed neither in the proportions with at least one disorder recorded nor the disorder count per cat. Among the twenty most-prevalent recorded disorders, crossbreds showed a higher prevalence for two disorders and purebreds had a higher prevalence for one disorder. Similarly, among the twenty most-prevalent mid-level disorders, crossbreds had higher prevalence for two disorders while purebreds had higher prevalence for one disorder. These results fail to support the hypothesis of overall higher prevalence of common disorders in purebred compared with crossbred cats. However, there were some notable exceptions identified that call for future exploration. Purebred cats showed a substantially lower prevalence of hyperthyroidism compared with crossbred cats (0.5% (95% CI: 0.1-1.9) versus 3.2 (2.7-3.9)), concurring with a previous report in UK cats (Wakeling et al., 2009). Purebred cats also had a lower prevalence of abscesses compared with crossbred cats (2.4% (95% CI: 1.3-4.5) versus 7.0 (6.2-8.0)) which could reflect differing lifestyles, with crossbred cats having more outdoors access that increases opportunity for misadventure (Rochlitz, 2003). Conversely, the higher prevalence of coat disorders in purebred compared with crossbred cats (5.6% (95% CI: 2.9-8.2) versus 2.2% (1.7-2.7)) may stem from the tendency for many pure cat breeds to have a long haircoat with a consequent increased predisposition to coat disorders (Scott and Paradis, 1990). These findings offer opportunities to explore the aetiology of these disorders by comparing genetic and environmental risk factors between purebred and crossbred cats. Characterising the predispositions of individual breeds to disorders may additionally reveal the role of purebred status in feline health and warrants future breed-based studies (Buffington, 2002; Bessant, 2009).

The current study had some limitations. The participating practices formed a single veterinary group and may sub-optimally represent all veterinary practices in England. VetCompass [6] continues to recruit practices and future studies will increasingly represent overall UK veterinary practices. The quality and validity of EPR recording relied on the clinical acumen and note-making of the individual practitioners. Many of the disorder terms extracted during this study were presenting signs (e.g. lameness) that were being used *in lieu* of full clinical diagnoses and may reflect clinical acceptability of initial empirical treatment protocols in common presentations without the temporal and financial costs of reaching a full clinical diagnosis. The inclusion of the first sign listed for disorders characterised with multiple presenting sign terms (e.g. 'vomiting and diarrhoea') may have skewed the reported prevalence values of these disorders at the diagnosis-level but should not have misrepresented the values reported in grouped mid-level reporting. Some purebred and crossbred cats may have been misclassified in the EPR data. The count of cats from specific pure breeds was insufficient for statistically reliable breed-based analyses.

Conclusions

This study reported the most prevalent disorders in cats as periodontal disease, flea infestation, obesity, heart murmur and traumatic injury, and will assist veterinarians to focus on the common disorders of cats. Purebred cats did not show higher prevalence of common disorders than crossbred cats. Primary-care veterinary clinical data were useful for epidemiologic studies on cats.

Conflict of interest statement

None of the authors has any financial or personal relationships that could inappropriately influence or bias the content of the paper.

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Table 1.
Demographic summary of sampled cats (*n* = 3,584) and VetCompass [6] study cats (*n* = 142,576) with available information that attended primary veterinary practices in England

Variable	Category	Sample: No. (%)	Population, *n* (%)
Sex/neuter	Female entire	38 (1.7)	1,387 (1.7)
	Female neutered	1,065 (47.6)	40,170 (49.7)
	Male entire	34 (1.5)	1,363 (1.7)
	Male neutered	1,100 (49.2)	37,910 (46.9)
Purebred status	Crossbred	3,202 (89.5)	126,723 (89.0)
	Purebred	377 (10.5)	15,636 (11.0)
Popular breeds	British Shorthair	73 (2.0)	3,380 (2.4)
	Persian	50 (1.4)	1,942 (1.4)
	Bengal	38 (1.1)	1,466 (1.0)
	Burmese	41 (1.2)	1,321 (0.9)
	Siamese	22 (0.6)	1,318 (0.9)
	Ragdoll	33 (0.9)	1,215 (0.9)
	Birman	23 (0.6)	834 (0.6)
Insurance	Non-insured	1,766 (71.0)	63,383 (70.5)
	Insured	722 (29.0)	26,585 (29.5)
Weight (kg)	< 3.0 kg	255 (9.9)	9,245 (10.0)
	3.0 - 3.9 kg	751 (29.3)	26,537 (28.6)
	4.0 - 4.9 kg	814 (31.7)	29,788 (32.1)
	5.0 – 5.9 kg	492 (19.2)	17,876 (19.2)
	≥ 6.0 kg	254 (9.9)	9,474 (10.2)
Age (years)	< 1.0	703 (20.7)	24,652 (20.3)
	1.0-2.9	652 (19.2)	23,376 (19.2)
	3.0-5.9	560 (16.5)	20,508 (16.9)
	6.0-8.9	448 (13.2)	14,731 912.1)
	9.0-11.9	353 (10.4)	12,690 (10.4)
	12.0-14.9	346 (10.2)	12,567 (10.3)
	15.0-17.9	234 (6.9)	9,329 (7.7)
	≥ 18.0	98 (2.9)	3,888 (3.2)

Table 2.

Prevalence values for the most frequent disorders recorded in cats overall (purebreds only and crossbreds only) that attended primary veterinary practices in England. *P* values (Holm-adjusted) represent comparison between purebreds and crossbreds.

		Overall		Purebred		Crossbred		
Disorder term[a]	No.	Prevalence (%)	95% CI	Prevalence (%)	95% CI	Prevalence (%)	95% CI	*P*
Periodontal disease	499	13.9	12.5-15.4	15.6	11.7-19.6	13.7	12.2-15.2	1.000
Flea infestation	285	8.0	7.0-8.9	5.0	3.0-7.1	8.3	7.3-9.4	0.108
Obesity	239	6.7	5.7-7.6	5.0	2.7-7.4	6.9	5.9-7.9	1.000
Heart murmur	179	5.0	4.1-5.8	4.2	2.2-6.3	5.1	4.2-5.9	1.000
Traumatic injury	164	4.6	3.8-5.3	4.0	2.0-5.9	4.7	3.9-5.4	1.000
Nail clip	132	3.7	3.0-4.4	5.3	3.4-7.2	3.5	2.7-4.2	0.504
Chronic kidney failure	130	3.6	3.0-4.2	4.2	2.2-6.2	3.6	2.9-4.2	1.000
Cat bite injury	129	3.6	3.0-4.2	2.7	0.9-4.4	3.7	3.0-4.4	1.000
Abscess (excluding cat bite abscess)	115	3.2	2.7-3.7	0.8	0.3-2.3	3.5	2.9-4.2	0.009
Cat bite abscess	113	3.2	2.5-3.8	1.3	0.6-3.1	3.4	2.8-4.1	0.145
Conjunctivitis	108	3.0	2.5-3.5	2.9	1.2-4.6	3.0	2.5-3.6	1.000
Hyperthyroidism	106	3.0	2.3-3.6	0.5	0.1-1.9	3.2	2.7-3.9	0.002
Vomiting	104	2.9	2.4-3.4	3.2	1.4-5.0	2.9	2.3-3.4	1.000
Urinary tract infection	95	2.7	2.2-3.2	2.9	1.2-4.7	2.6	2.1-3.1	1.000
Diarrhoea	94	2.6	2.1-3.1	3.4	1.6-5.3	2.5	2.0-3.0	1.000
Coat disorder	91	2.5	2.0-3.1	5.6	2.9-8.2	2.2	1.7-2.7	< 0.001
Wound	82	2.3	1.7-2.8	1.9	0.9-3.8	2.3	1.9-2.9	1.000
Degenerative joint disease	73	2.0	1.5-2.6	2.7	1.4-4.8	2.0	1.5-2.5	1.000
Flea bite hypersensitivity	68	1.9	1.5-2.3	0.5	0.1-1.9	2.1	1.6-2.6	0.258
Tooth structure disorder	61	1.7	1.3-2.1	2.7	1.4-4.8	1.6	1.2-2.1	1.000

CI, confidence interval

[a] Describes the most precise disorder term recorded in the electronic patient record for this event

Table 3.

Prevalence results for the most frequent disorder groups recorded in cats overall (purebreds only and crossbreds only) that attended primary veterinary practices in England. *P* values (Holm-adjusted) represent comparison between purebreds and crossbreds.

		Overall		Purebred		Crossbred		
Grouped disorder term	No.	Prevalence (%)	95% CI	Prevalence (%)	95% CI	Prevalence (%)	95% CI	*P*
Dental disorder	540	15.1	13.6-16.6	17.5	13.5-21.5	14.8	13.2-16.4	1.000
Traumatic injury	463	12.9	11.6-14.3	10.1	6.9-13.3	13.2	11.8-14.7	0.664
Dermatologic	373	10.4	9.2-11.7	13.3	9.5-17.0	10.1	8.8-11.4	0.392
Enteropathic	358	10.0	8.9-11.1	13.0	9.4-16.6	9.7	8.6-10.7	0.240
Parasite infestation	351	9.8	8.7-10.9	8.0	5.3-10.6	10.0	8.9-11.2	1.000
Heart disease	244	6.8	5.9-7.8	6.6	4.1-9.2	6.8	5.8-7.8	1.000
Ocular disorder	241	6.7	6.0-7.5	9.3	6.4-12.1	6.4	5.6-7.2	0.185
Obesity	239	6.7	5.7-7.6	5.0	2.7-7.4	6.9	5.9-7.9	1.000
Abscess	234	6.5	5.7-7.3	2.4	1.3-4.5	7.0	6.2-8.0	0.002
Nail disorder	177	4.9	4.2-5.7	7.2	4.7-9.6	4.7	3.8-5.5	1.000
Upper respiratory tract disorder	169	4.7	4.0-5.4	10.6	7.5-13.7	4.0	3.3- 4.7	< 0.001
Lower urinary tract disorder	159	4.4	3.7-5.1	4.5	2.5-6.5	4.4	3.7-5.2	1.000
Renal disease	149	4.2	3.5-4.8	5.0	2.9-7.2	4.1	3.3-4.8	1.000
Endocrine disorder	145	4.0	3.4-4.7	1.6	0.7-3.4	4.3	3.7-5.1	0.030
Neoplasia	121	3.4	2.8-4.0	1.3	0.6-3.1	3.6	3.0-4.3	0.060
Musculoskeletal disorder	115	3.2	2.6-3.8	3.7	2.0-5.5	3.2	2.6-3.7	1.000
Non-specific illness	114	3.2	2.6-3.8	2.4	1.3-4.5	3.3	2.7-4.0	1.000
Undesirable behaviour	95	2.7	2.1-3.2	3.4	1.7-5.2	2.6	2.0-3.1	1.000
Mass lesion disorder	79	2.2	1.8-2.6	1.3	0.6-3.1	2.3	1.8-2.9	1.000
Death - Unknown cause	73	2.0	1.5-2.5	2.1	1.1-4.1	2.0	1.6-2.6	1.000

CI, confidence interval