



— 2025 —

PORTUGUESE WATER DOG FOUNDATION HEALTH SURVEY



SUPPORTING HEALTH. ADVANCING KNOWLEDGE. STRENGTHENING OUR FUTURE.



RESEARCH.
COLLABORATION.
CARE.

TOGETHER, WE CAN IMPROVE THE HEALTH AND WELL-BEING
OF PORTUGUESE WATER DOGS FOR GENERATIONS TO COME.

The 2025 Portuguese Water Dog Health Survey

Final Report

Charles Bettini

With help from:

Claire Wiley, VMD, DACVIM (SAIM)

Janice Duffy, VMD

Janet Boyd

Steve Dostie

Mary Guziak

Anne Paige

Bill Waters

July 2026

Introduction

The 2025 Portuguese Water Dog Health Survey, conducted by the Portuguese Water Dog Foundation, collected owner-reported health and behavioral data on 3,345 Portuguese Water Dogs (PWDs) to evaluate current breed health trends and help guide future research priorities. Overall, the findings support that PWDs remain a generally healthy, active, and long-lived breed population, with many of the major health and behavioral concerns identified in 2005 remaining similar in frequency or showing only modest variation over time. Cancer remained the leading reported cause of death, while dermatologic, allergic, gastrointestinal, and behavioral conditions represented the most reported health concerns. At the same time, many historically significant inherited diseases occurred at relatively low prevalence.

Breed-specific inherited conditions, including juvenile dilated cardiomyopathy (JDCM), progressive retinal atrophy (PRA), microphthalmia, and hip dysplasia, remain important areas for ongoing surveillance despite low reported frequency, reflecting the continued importance and apparent success of longstanding genetic testing, health screening, and responsible breeding practices. Compared with the 2005 survey, the 2025 results demonstrate overall continuity in breed health patterns while helping identify areas for continued monitoring, education, and future Foundation-supported research focused on cancer, inflammatory disease, behavior, genetics, and long-term health outcomes.

Background

In 2025, the Portuguese Water Dog Foundation conducted a health survey among PWD owners belonging to the Portuguese Water Dog Club of America, Portuguese Water Dog Club of Canada, regional clubs, and American Kennel Club (AKC)-registered dogs. The purpose was to survey observed breed-related problems and develop data to identify areas of concern in terms of health, disease, and reproductive issues in broad domains: activity and exercise, preventative health measures, causes of death, breeding health, behavioral issues, and 16 other major systems impacted by disease (autoimmune, bone and skeletal, cancers, ears and eyes, endocrine issues, gastrointestinal, neurological, etc.). The structure and scope of the survey was guided by prior health surveys, and comparisons to the 2005 survey are contained herein where applicable or interesting.

Methods

Survey questions were developed based on the Portuguese Water Dog Club of America (PWDCA) 2005 Health Survey and reviewed by the Portuguese Water Dog Foundation board, which includes two veterinarians. Questions were updated slightly to reflect current terminology and health conditions affecting the breed. An electronic survey with weblink was created in April 2025. Invitations to participate in the survey were emailed on April 21, 2025, and a weblink was shared the same week. An additional link was shared the following August. The survey consisted of 42 questions, and survey respondents were tagged with anonymous respondent identifiers. The questions included structured multiple-choice answers as well as the option of “other” free-text replies. Incoming results were collected over a period of 30 weeks (Appendix I). The survey results were compiled into an Excel workbook with a master table of all survey responses by question and respondent ID. The results were analyzed in terms of sex and age bin with applied statistical significance testing and interpretation of “other” answers with the application of categorical tags based on keywords from replies. Tags that could be mapped to structured responses had their counts added to those buckets, while those that could not be mapped were retained in the “other” category.

When results showed more than a 2% difference between male and female dogs in a specific health category, a chi-square test was used to analyze the data (excluding male-only and female-only datasets). Precedent use of the two percent test was the primary reason for its use in the current survey where this difference was considered large

enough to be of potential importance biologically or clinically. Odds ratios (ORs) were also calculated where this rule was satisfied. Despite high ORs in some cases, only differences where p-values were less than 0.05 were considered statistically significant and indicated a real difference between sexes (Appendix III).

In terms of data cleanliness, there were a very limited number of cases where answers to the sex and age questions were given as free-text replies in the “other” category and indicated the respondent could be referencing multiple dogs or sexes. Where this happened, “indeterminate” was given as sex if the sex could not be determined from the “other” response category for “What gender is your dog?” Where multiple dog ownership was suggested, the assumption was made that all question references were to a single dog. Free-text data were reviewed carefully in this section as well as the “other” replies to “How old is your dog? (if alive)” to make the best possible approximation of gender and dog age. In most cases where structured answer choices were not used, “other” text allowed a meaningful answer to be applied to the other questions (e.g., no answer given for gender and no answer given for age if alive, but free-text “other” answer is given as “he is 6 years and 4 months,” which answers both questions). Of all the dogs represented in the survey, multiple dogs per respondent were suggested in 28 cases (0.84% of respondents). Where the status of the dog as living or dead was not given directly, “other” replies were reviewed in an effort to categorize properly. Finally, since dog ages were given in terms of bins or ranges, median age was estimated by identifying the median bin and applying an interpolation formula.

To assess whether survey participation was sufficient to draw meaningful conclusions about the PWD population, a sample size calculation was performed using the SurveyMonkey sample size calculator. The approximate population size of 20,000 was based on AKC-registered PWDs aged 15 years and younger. Using this estimate, a minimum of 377 responses would be required to achieve a 95% confidence level with a 5% margin of error, representing a relatively stringent standard for survey-based research. Because this estimate includes only AKC-registered dogs aged 15 years and younger, the true population represented by the survey is likely larger. Therefore, the calculated sample size requirement is likely conservative. With 3,345 completed responses, the 2025 survey substantially exceeded the sample size needed to achieve robust statistical confidence for population-level estimates.

Results

Population Overview

The dataset includes 3,345 dogs in total, of which 2,462 are reported as living (1,177 males, 1,275 females, 10 sex-indeterminate), 815 reported deceased (378 males, 424 females, 13 sex-indeterminate), and 68 not reported as living or deceased (14 males, 20 females, 34 sex-indeterminate) (Table A-1). Overall, 73.6% of dogs are reported living, 24.4% deceased, and 2.0% not reported. By sex across all dogs, 46.9% are male, 51.4% female, and 1.7% sex-indeterminate corresponding to 1,569; 1,719; and 57 dogs, respectively. The proportion of deceased dogs is similar by sex, with 24.1% of males and 24.7% of females reported deceased. The sex-indeterminate group is small but has a higher share of cases not classified as living or deceased. The largest living age group is 3–6 years (791 dogs; 24%). Estimated median ages for living dogs are 5.6 years (males) and 5.8 years (females), with maximum ages of 16.5 and 17.5, respectively (Table A-3A). Median age at death is 10.8 years (males) and 11.4 years (females), with the oldest ages at death reported as 17 for a male and 16 for a female (Table A-3B).

Age and Longevity

Reporting of dog age at time of death showed the longevity of the breed in the fact that most lived to older ages, with over half dying at 10 years or older. The largest group died between 10 and 13 years (36%), followed by those reaching 13 years and beyond (24%).

Mid-life deaths were less common, and very few dogs died before 5 years of age. Deaths in the first year of life were rare. Male and female patterns were similar across all age groups (Table A-3A).

Causes of Death and Top Health Concerns

Cancer was the leading cause of death in this population (452 deaths; 56.1%), followed by old age/natural death or euthanasia (146; 18.1%), with other causes (heart, kidney, gastrointestinal, Addison's, accidental/trauma, behavioral euthanasia) comparatively uncommon (Table A-4). Among issues and health problems, temperament/behavior problems are the single largest category ($\approx$ 2,986 responses), and skin/hair disorders are the most frequent medical complaint (2,107 total; allergies 906; non-allergic 1,201), alongside substantial burdens of infectious disease (693) and cancer prevalence (505) (Graph A-3). At the individual-condition level, the most frequently reported problems were lipomas/fatty tumors (570 dogs; 18.23%), atopic allergies (472; 15.10%), inflammatory bowel disease (IBD; 491; 14.68%), sebaceous cysts (456; 14.59%), hip dysplasia (477; 14.26%), food allergies (442; 14.14%), chronic ear infections (348; 11.18%), Bordetella/kennel cough (317; 10.35%), cataracts (233; 7.43%), and arthritis (221; 7.23%) (Appendix IV; Graph A-3). Temperament detail shows a high behavioral burden, with 53% of respondents reporting at least one issue and the most frequently reported behaviors including reactivity toward other dogs (783 cases), separation anxiety (688), reactivity toward people (405), noise phobias (455), and aggression-related behaviors such as biting a human or another dog (Table B-1; Graph A-4).

The 2025 survey shows the same core health problems reported in 2005 but at higher prevalence and with new high-frequency conditions, such as IBD and food allergies, now emerging. Behavior problems, which affected about 47% of dogs in 2005, are reported more common today, with 53% of owners indicating issues. For behavioral health, reactivity issues and separation anxiety now surpass the earlier emphasis on biting, dog-dog aggression, and shyness. Overall, the 2025 findings reflect continuity in problem types but a clear rise in both medical and behavioral burden.

Sex-Linked Health Differences

Using a two-percent rule for male–female response differences and chi-square testing (Appendix III), clear sex-specific differences emerged across multiple health and behavioral domains. Females showed the strongest excesses in urinary and kidney disease, with markedly higher odds of general urinary/kidney problems (OR 0.39; $p < 1e-25$), recurring urinary infections (OR 0.18; $p < 0.00001$), and cystitis (OR 0.23; $p = 0.00015$). Females also had significantly higher odds of liver/spleen disease (OR 0.57; $p = 0.0002$), cataracts (OR 0.78; $p = 0.022$), and noise phobias (OR 0.80; $p = 0.027$). In contrast, males showed higher odds across a broad set of medical and behavioral conditions. These included skin and hair disorders, both overall (OR 1.43; $p < 0.00001$) and specifically atopic (OR 1.31; $p = 0.0006$), and food allergies (OR 1.28; $p = 0.0029$) as well as gastrointestinal problems (OR 1.23; $p = 0.016$). Behavioral differences were especially pronounced, with males having substantially higher odds of biting a human (OR 2.63; $p < 0.000001$), aggression toward people (OR 2.16; $p < 0.00001$), reactivity toward other dogs (OR 1.51; $p < 0.000001$), dog-dog aggression (OR 1.55; $p = 0.0017$), and separation anxiety (OR 1.20; $p = 0.031$). Reactivity toward people also showed a statistically significant male excess (OR 1.27; $p = 0.024$). Cancer-related sex differences were generally modest, but hemangiosarcoma showed a statistically significant male excess (OR 1.43; $p = 0.0049$), indicating that this specific cancer type was more prevalent in males. ORs and confidence intervals for all significant conditions are reported in Appendix III to quantify the magnitude of these sex differences.

Sex-linked patterns seen in 2005 persist in 2025 but across more conditions and with stronger statistical support. Male-skewed behaviors in 2005, biting humans (OR 2.6), aggression toward people (OR 3.2), dog-dog aggression (OR 2.5), and guarding (OR 1.8), remain male-biased in 2025 with similarly elevated odds for biting (OR 2.63), aggression (OR 2.16), and dog-dog aggression (OR 1.55) and with

new male-excess traits such as reactivity toward dogs (OR 1.51) and separation anxiety (OR 1.20). Medical male biases noted in 2005 (contact dermatitis, dietary allergies, hip dysplasia) now extend to a broader set, including atopic allergies, food allergies, GI disease, lipomas, and hemangiosarcoma. Female-skewed urinary issues in 2005 intensify in 2025, with urinary/kidney disease (OR 0.39), cystitis (OR 0.23), and recurrent UTIs (OR 0.18) showing extremely strong female excess alongside new female-biased conditions such as noise phobias, cataracts, and liver/spleen disease. Overall, the 2025 dataset shows the same directional sex differences as 2005 but across more conditions and with larger, more robust effect sizes.

Behavioral Health

Temperament problems were very common. Approximately 53% of owners reported at least one behavioral issue, led by reactivity toward other dogs (24.5%), separation anxiety (21.5%), and noise phobias (14.2%) (Table B-1; Graph A-4). Significance testing (Appendix III) confirms a strong male predominance for externalizing behaviors. Having bitten a human showed the largest sex difference, with males having 163% higher odds (OR 2.63; $p < 0.000001$). Other pronounced male excesses included aggression toward people 116% higher odds (OR 2.16; $p < 0.00001$), reactivity toward other dogs 51% higher odds (OR 1.51; $p < 0.000001$), and dog-dog aggression 55% higher odds (OR 1.55; $p = 0.0017$). Males also showed a smaller but statistically significant excess for separation anxiety (OR 1.20; $p = 0.031$) and a moderate excess for reactivity toward people (OR 1.27; $p = 0.024$). In contrast, noise phobias showed a modest but significant female predominance (OR 0.80; $p = 0.027$). About 7.7% of responses were free-text behavioral comments, most describing additional issues such as general anxiety or fear, compulsive or hyperactive behaviors, environmental or vehicle reactivity, or shyness and social withdrawal (Table B-1; Graph A-4; Appendix III).

Despite this concentrated behavioral burden, only 15.9% of owners reported seeking veterinary behavioral consultation, with 18% seeking consult for males versus 14% for females (Table B-1A). Free-text responses (114 entries, 3.56%) show that most additional help-seeking involved working with a trainer (54 responses) or behaviorist or specialist involvement (12), and smaller numbers reported no need, veterinary guidance, plans to seek help, medication-based management, or self-management by an owner who is a trainer. These patterns indicate that while formal behavioral intervention is not overly common, many owners pursue alternative or non-veterinary avenues for managing behavioral concerns.

Temperament problems rose from 47% in 2005 to 53% in 2025, with the profile shifting from dog-dog aggression (7.4%), noise phobias (7.1%), shyness (5.7%), and biting a human (5.4%) to modern dominance by reactivity toward other dogs (24.5%), separation anxiety (21.5%), and noise phobias (14.2%). The strong male bias seen in 2005 persists in 2025 with males again overrepresented in biting (8.5% vs. 3.4%), aggression toward people (6.3% vs. 3.0%), dog-dog aggression (8.2% vs. 5.5%), and reactivity toward dogs (27.6% vs. 20.1%). New male-skewed traits such as reactivity toward people and separation anxiety appear, while noise phobias now show a modest female excess. Despite the high burden, help-seeking increased only slightly, from 11% to 15.9%.

Dermatological Conditions

Dermatological problems affect a large part of the population. At least one skin or hair issue was indicated in 48.9% of responses. The most common conditions were lipomas/fatty tumors (18.2%), atopic allergies (15.1%), sebaceous cysts (14.6%), and food allergies (14.1%) (Table B-2). Raw sex-specific percentages show modest but consistent male excesses for several allergic and dermatologic conditions, including atopic allergies (16.1% males vs. 12.8% females), food allergies (14.7% vs. 11.9%), and lipomas (18.4% vs. 16.3%). Appendix III's significance testing confirms that these

differences reflect statistically significant male excesses for allergic skin and hair outcome, specifically atopic allergies, food allergies, and overall skin/hair problems, indicating that the descriptive pattern in Table B-2 corresponds to a real and measurable sex effect in dermatologic disease. About 3.8% of responses were free-text dermatology answers, most describing chronic skin issues, such as ongoing dermatitis or itching, fungal or yeast infections, and non-lipoma tumors. Smaller numbers mentioned ear problems, paw irritation, or endocrine-related skin changes.

Skin and hair problems rose sharply from 2005 to 2025. In 2005, the main issues were sebaceous cysts (10%), lipomas (3.9%), and viral papillomas (2.3%), with only modest male excesses for contact dermatitis (OR 1.7) and dietary allergies (OR 1.6). By 2025, these conditions were far more common. Appendix III shows a broader male predominance: overall skin/hair OR 1.43, atopic allergies OR 1.31, food allergies OR 1.28, and lipomas OR 1.16. Female excesses remained minimal. The 2025 dataset shows continuity in condition types but a large numerical increase and stronger, statistically confirmed male-skewed risk.

Bone and Skeletal Health

Table B-3 indicates that most dogs (84.95%) had no diagnosed bone or skeletal problem, leaving 15.05% with at least one condition. The most common diagnoses were arthritis (7.23%), hip dysplasia (3.47%), and cruciate ligament injury (2.68%), while elbow dysplasia, osteochondritis dissecans, luxating patellae, and panosteitis were all uncommon (<1%) (Table B-3). Raw sex-specific percentages show only modest differences. Arthritis was slightly more frequent in males (7.27% vs. 6.11%), whereas hip dysplasia and cruciate ligament injuries were marginally higher in females (hip: 3.55% vs. 2.74%; cruciate: 2.62% vs. 2.23%).

In 2005, the main issues were hip dysplasia (6.9%) and arthritis (6.5%), with other conditions rare and only a small male excess in hip dysplasia compared to females. By 2025, arthritis (7.2%) became the dominant diagnosis, hip dysplasia fell to 3.5%, and cruciate ligament injury rose to 2.7%, while all other disorders stayed low. Sex differences widened slightly: males showed higher arthritis, elbow dysplasia, and panosteitis, while females showed slightly higher hip dysplasia and cruciate injury. The 2005 PWD survey reported a statistically significant male excess in hip dysplasia relative to population, with 40% higher odds for males than females to be diagnosed. That pattern is not evident in the 2025 survey. Overall, the orthopedic burden stayed modest, but the distribution shifted toward more cruciate injury and less hip dysplasia.

Eye Conditions

Most responses indicated no diagnosed eye problems (87.59%, Table B-4). The most common diagnosis was cataracts, affecting 233 dogs (7.4%). Other findings included entropion (41; 1.3%), distichiasis (36; 1.1%), and persistent pupillary membrane (30; 1.0%). Less frequent conditions included glaucoma (14; 0.4%), keratoconjunctivitis sicca (23; 0.7%), lens luxation (2; 0.1%), and (5; 0.2%). Ophthalmology screening data in Table B-4A show that 952 dogs (30.05%) had been evaluated by a board-certified ophthalmologist and submitted to OFA Companion Animal Eye Registry. The majority (1,797 dogs, 56.72%) were not evaluated, while 419 (13.23%) respondents were unsure. These screening patterns align with the sex-specific findings in Appendix III, where females showed a statistically significant modest excess in cataract diagnoses and were more likely than males to have undergone ophthalmologic screening.

Eye problems remained uncommon in both surveys, with only small shifts over time. In 2005, cataracts (5.9%) were the only notable diagnosis and showed no sex-linked differences, while all other conditions clustered around 1%. By 2025, the overall pattern remained similar, but cataracts rose to 7.4% and

entropion increased to 1.3%, while all other conditions again stayed near 0.1%–1.2%. Significance testing shows the only meaningful sex difference emerging in 2025: females had ~22% higher odds of cataracts (OR 0.78; $p = 0.022$), replacing the fully neutral pattern seen in 2005. No other eye condition reached significance in either year.

Cancer

In terms of cancers, 79.7% of dogs had no reported cancer and 20.3% had at least one diagnosis. The most common was hemangiosarcoma (7.1%), affecting 223 dogs (124 males, 98 females, 1 indeterminate) (Table B-5). Other reported cancers included lymphoma (91; 2.9%), mast cell tumors (72; 2.3%), lung tumors (32; 1.0%), melanoma (28; 0.9%), and squamous cell carcinoma (26; 0.8%), with smaller counts for brain/CNS tumors (25; 0.8%), osteosarcoma (23; 0.7%), mammary cancer (20; 0.6%), and bladder or prostate cancer (18; 0.6%) (Table B-5). Age-at-diagnosis data (Table B-27) show that most cancers were identified in middle to older age groups (primarily 3–13 years), with median ages around 11 years for many tumor types. Hemangiosarcoma had a median age of 11 years with earliest onset reported at 1–3 years, osteosarcoma showed a notably earlier median (4.5 years), and bladder/prostate cancer showed a later median (14 years). A large share of hemangiosarcoma cases appeared in the “Deceased” column (181 of 223 cases) (Table B-27). Appendix III’s tests found a statistically significant male excess for hemangiosarcoma (OR 1.43; $p = 0.0049$), while the overall comparison of “any cancer” by sex showed no significant difference, and most other tumor categories lacked meaningful male to female differences. About 4.8% of respondents reported additional cancer types in the free-text section, most commonly anal sac adenocarcinoma, liver tumors, soft-tissue sarcomas, and metastatic cancers of unknown primary. Smaller numbers described pancreatic, thyroid, renal, cardiac, hematologic, and oral tumors. These entries show that while the major cancer categories capture most diagnoses, a modest number of owners report a wide range of less common malignancies not fully represented in the structured options (Table B-5).

Compared to 2005, cancer prevalence rose slightly from 17% to 20.3% in 2025, but the dominant cancers remained the same. Hemangiosarcoma increased from 3.1% to 7.1%, becoming the clearest sex-linked cancer in 2025, with significance testing showing higher male odds (OR 1.43; $p = 0.0049$). In contrast, 2005 showed no statistically significant sex differences beyond the expected female predominance in mammary tumors. All other cancers in both years remained low frequency and sex-neutral. Overall, the 20-year shift reflects a modest rise in total cancer burden and the emergence of a statistically confirmed male-skewed risk for hemangiosarcoma, with other patterns largely stable.

Kidney and Urinary Tract

Table B-6 shows that 11.8% of dogs had at least one kidney or urinary tract problem. The most common conditions were recurring urinary infections (125; 4.1%), strongly concentrated in females (106 females, 6.2% vs. 19 males, 1.2%), and incontinence after a spay (75; 2.4%). Other reported conditions included bladder or kidney stones (72; 2.3%), cystitis (28; 0.9%), chronic renal failure (44; 1.4%), and prostatitis (21; 0.7%) (Table B-6). Appendix III’s significance testing confirms a strong female predominance for kidney and urinary tract problems overall (male positives 143 vs. female positives 349). With an OR of 0.39 for males, females have approximately 61% higher odds of a reported urinary/kidney condition in general.

Most urinary and kidney conditions show only modest shifts between 2005 and 2025, with the same sex-difference pattern persisting across both years. Bladder/kidney stones remain essentially unchanged, chronic renal failure increases modestly, and renal dysplasia remains rare. Recurring urinary infections stay high and strongly female-skewed in both years.

In 2005, this difference was already statistically significant (OR 4.8; $p < 0.0001$), and in 2025, significance testing again confirms a strong female excess.

Ear Health and Hearing

Table B-7 shows that 2,629 dogs (84.43%) had no reported ear or hearing issues. Chronic ear infections were reported in 348 dogs (11.2%), with very similar rates across sexes (170 males; 10.8%, 174 females; 10.1%, 4 indeterminate; 7.0%). Deafness was reported in 110 dogs (3.5%), including 45 males (2.9%), 64 females (3.7%), and 1 indeterminate (1.8%). An additional 82 dogs (2.6%) were reported under “other” with free-text comments most commonly describing occasional ear infections, wax or cerumen buildup, hair- or water-related irritation, or allergy-associated ear issues.

Compared to 2005, chronic ear infections roughly doubled by 2025 (5.4% to 11.2%) and deafness increased modestly (2.5% to 3.5%). “Other” ear conditions remained low in both years. Sex patterns remain stable, with chronic infections and deafness occurring at similar rates in males and females in both years.

Gastrointestinal Health

The main findings in Table B-8 show that IBD was the most common gastrointestinal diagnosis (112 cases; 3.7%), with a male predominance (68 males; 4.3% vs. 44 females; 2.6%). IBD occurred across age groups but rose with age with a median diagnosis age of 11 years. Pancreatic disease (57 cases; 1.9%) appeared across a broad age range with many cases spanning the 1–3 year and 6–13 year bands (median 7.5 years). Chronic vomiting (39 cases; 1.3%) was seen mainly in younger to middle-aged dogs (earliest onset 1–3 years, median 7.5 years). Chronic colitis (25 cases; 0.8%) was more frequent in older dogs (median 11 years), and protein-losing enteropathy (20 cases; 0.7%) was most common in the 6–9 year group (median 7.5 years). All other GI conditions were rare (<1%) but followed similar age-related patterns, with earliest onset typically in early adulthood and median ages clustering between 7.5 and 11 years. Appendix III shows that gastrointestinal conditions overall are more common in males who have approximately 23% higher odds of GI disease compared with females, which reinforces the male skew observed for IBD and several other GI diagnoses.

Most GI conditions stay low and stable from 2005 to 2025. IBD and pancreatic disease rise modestly. Chronic vomiting and colitis increase slightly but remain uncommon. Significance testing for 2025 shows a modest male excess in overall GI problems (OR 1.23; $p = 0.016$), which isn’t reported in the 2005 data.

Oral and Dental Health

Most Portuguese Water Dogs had no reported oral or dental abnormalities, with 2,832 dogs (91.9%) showing none of the listed conditions (Table B-9). Among the defined categories, the most frequently reported issues were undershot jaw (73; 2.4%), base narrow canines (58; 1.9%), and missing teeth (52; 1.7%), while overshot jaw, wry mouth, and cleft palate were rare. A total of 95 owners (3.1%) provided free-text descriptions of additional mouth-related concerns, which encompassed a broad range of structural, developmental, and dental conditions. These included tooth resorption, fractured or broken teeth, malocclusion or bite problems, retained deciduous teeth, supernumerary teeth, periodontal disease, and oral tumors or masses, along with smaller numbers of salivary gland disorders, tooth decay, oral inflammatory or immune-mediated conditions, and developmental tooth abnormalities. Collectively, these findings indicate that while most dogs had normal oral health, a small subset exhibited a diverse array of dental issues that extend beyond the predefined categories.

Mouth conditions remain uncommon in both years, with only small shifts in frequency. Undershot jaw is the most frequent structural issue in both datasets (3.7% in 2005; 2.4% in 2025). All other conditions remain rare with only minor year-to-year variation. Across all structured conditions, sex differences remain minimal, with no consistent male to female pattern.

Endocrine Conditions

For endocrine issues, most responses indicated no diagnosis (92.9%), but the main reported conditions were Addison's disease (2.9%) and hypothyroidism (2.7%) (Table B-10). Addison's disease tended to appear earlier, with an earliest onset of 1–3 years and a median age of 7.5 years, whereas hypothyroidism typically began later, with an earliest onset of 3–6 years and a median age of 11 years (Table B-27). Cushing's disease (1.2%) and diabetes mellitus (0.2%) were less common and generally showed earliest onset in the 9–13 year range with median ages around 11 years (Table B-10; Table B-27). Hyperparathyroidism (0.2%) was rare and also clustered in older age groups. Across all endocrine conditions, sex differences were minimal with no statistically significant male–female differences.

From 2005, Addison's disease rises slightly (1.7% to 2.9%), Cushing's disease increases (0.56% to 1.2%), and diabetes mellitus stays rare in both datasets (~0.3% → 0.2%). Hypothyroidism decreases from 4.3% in 2005 to 2.7% in 2025. Hyperparathyroidism remains rare in both years. Across all structured conditions, sex differences are small, with no consistent male–female pattern in either dataset.

Cardiovascular Health

The most common cardiovascular finding was heart murmur (100 dogs; 3.3%) followed by cardiomyopathy (21; 0.7%), mitral valve disease (16; 0.5%), arrhythmia (12; 0.4%), and diet-mediated dilated cardiomyopathy (10; 0.3%). Murmurs were observed as early as 1–3 years but were concentrated in middle-aged to older dogs, with the largest counts in the 6–9 year (19 cases) and 9–13 year (23 cases) groups. Congenital defects, including patent ductus arteriosus, pulmonic stenosis, and JDCM, were rare. No cases of atrial septal defect or tetralogy of Fallot were reported. Additional free-text cardiovascular conditions were uncommon (0.7%) and included isolated reports of valvular abnormalities, pericardial effusion, pulmonary hypertension, congenital defects, and other single-case findings. None of these altered the overall pattern of low cardiovascular disease prevalence in the breed (Table B-11; Table B-27).

Patterns are largely similar from 2005 to 2025 with only small shifts in a rise in murmurs and slight changes in cardiomyopathy and JDCM.

Hernias

Hernias were uncommon overall, with 97.8% of dogs having no reported hernia diagnosis. The most frequently reported type was an umbilical hernia (64 dogs; 2.1%), identified in younger animals and showing a modest female predominance (41 females; 2.4% vs. 23 males; 1.5%). Inguinal hernias (8 dogs; 0.3%) were rare and evenly distributed between males and females, while peritoneal-pericardial hernia (1 dog; 0.0%–0.1%) was extremely uncommon. No cases of body-wall or diaphragmatic hernias were reported (Table B-12).

Data from 2005 are consistent with 2025, with umbilical hernia being the only condition above trace levels in both datasets (2.7% to 2.1%), while all other hernia types remain at very low frequencies and show no meaningful sex-difference pattern.

Neurological and Autoimmune Conditions

Most PWDs in the population had no diagnosed neurologic condition (2,878; 93.5%) (Table B-13). The most common neurologic problems were non-specific seizures (83; 2.7%), with earliest onset in 1–3 years and a median age of 11

years (Table B-27), and epilepsy (32; 1.0%), with earliest onset in 3–6 years and a median age of 7.5 years (Table B-27). Other neurologic diagnoses were not common, including vestibular disease (36; 1.2%), intervertebral disc disease (21; 0.7%), stroke (12; 0.4%), inflammatory CNS disease (7; 0.2%), degenerative myelopathy (2; 0.1%), and polyneuropathy (2; 0.1%) (Tables B-13, B-27). Autoimmune disorders were likewise rare in this population (Table B-14) as demonstrated by the 3,029 dogs (98.6%) with no autoimmune diagnosis. Reported autoimmune conditions included immune-mediated hemolytic anemia (IMHA) in 9 dogs (0.3%), immune-mediated thrombocytopenia in 5 dogs (0.2%), and lupus in 4 dogs (0.1%). Sex counts for these diagnoses were small and similar across males and females. Taken together, both neurologic and autoimmune problems affected only a small fraction of the population.

Neurological and autoimmune diseases remain rare across both 2005 and 2025. Neurological issues shift from epilepsy/seizures as the main 2005 finding (1.7%) to a similar 2025 pattern dominated by nonspecific seizures (2.7%) and epilepsy (1.0%), while autoimmune diseases stay extremely uncommon in both datasets. IMHA and lupus present at low levels in 2005 (0.54% and 0.14%) and similarly low in 2025 (0.3% and 0.1%). Sex differences remain minimal, and no consistent male–female pattern emerges.

Liver, Spleen, Respiratory, and Blood Disorders

Liver and spleen disorders were also very uncommon, with 2,979 dogs (97.3%) reporting no liver or spleen problem (Table B-15). The most frequent specific finding was splenic hematoma (noncancerous) in 20 dogs (0.7%), evenly distributed between males and females (10 each). Hepatic shunt (4 dogs; 0.1%) and gallbladder mucocele (4 dogs; 0.1%) were also uncommon. Hepatic shunts occurred in 1 male and 3 females, while gallbladder mucocèles were reported only in females. Free-text responses (2.0%) described a wide range of additional issues, including liver or splenic masses, chronic hepatitis, liver failure, gallbladder disease, toxin-related injury, and systemic cancers involving these organs. Although case numbers were small, Appendix III indicates that general liver/spleen issues show a statistically significant female skew, suggesting that females in this cohort were more likely than males to have owner-reported disease. Respiratory disease also presented rarely, with 2,996 dogs (97.5%) free of reported respiratory issues (Table B-16). The leading respiratory diagnoses were pneumonia (47 dogs; 1.5%), more often in males (29) than females (18), and laryngeal paralysis (18 dogs; 0.6%), with a modest male excess (11 males, 7 females). Blood and clotting disorders were exceedingly rare. No blood or clotting disorder was reported for 3,070 dogs (99.8%) (Table B-17), with no cases of von Willebrand disease and only 2 dogs (0.1%) reported with other clotting abnormalities. As a whole, clinically significant liver, splenic, respiratory, and hematologic/clotting conditions affected only a small fraction of the population.

The 2025 results mirrored the 2005 survey, which was dominated by splenic hematoma (0.7%). Respiratory issues show only trace-level findings in 2005 and remain rare in 2025. Blood/clotting disorders are near-absent in both years, with no von Willebrand disease detected and only minimal “other” clotting cases. No sex differences or patterns emerge in either year.

Infectious Diseases

Incidence of diagnosed infectious disease was limited, with most respondents reporting none (2,435; 79.5%) (Table B-18). Among reported conditions, the most common were Bordetella (kennel cough) (317; 10.4%) and Lyme disease (187; 6.1%), followed by other infections such as Anaplasma, Ehrlichia, Rocky Mountain spotted fever, or Bartonella (106; 3.5%). Less frequent diagnoses included canine influenza (32; 1.0%), leptospirosis (22; 0.7%), parvovirus (17; 0.6%), and systemic fungal infections such as blastomycosis, histoplasmosis, or cryptococcosis (16; 0.5%). Rare infectious diseases included brucellosis (2; 0.1%), coronavirus (3; 0.1%), parainfluenza (1; <0.1%), and a small number

of atypical or isolated infections reported in the free-text responses. Sex distributions for all infectious disease categories were small and similar across males and females. Overall, infectious diseases affected only a minority of the population, with respiratory and tick-borne pathogens representing the largest burdens.

Reproductive Health

With regard to reported reproductive problems, when present, male issues were uncommon and included prostatic disease (24; 1.1%), abnormal semen (9; 0.4%), lack of libido (7; 0.3%), and subfertility/infertility (7; 0.3%). Additional free-text male reproductive findings (44 responses, 2.1%) were dominated by cryptorchidism, with smaller numbers reporting high libido, monorchidism, or other isolated concerns. Female reproductive problems were also infrequent, with the most common issues being unplanned cesarean section (40; 1.8%), irregular heat cycles (38; 1.6%), mastitis (25; 1.2%), pyometra (23; 1.1%), and difficulty whelping or failure to conceive (22 each; 1.0%). Free-text female reproductive responses (65 entries, 4.4%) primarily reflected spay status, false pregnancy, cycle irregularities, vaginal or conformational issues, and small numbers of structural or infectious conditions along with reports of females too young to cycle or never bred. Most females were not reported bred, as shown by the 1,165 (81.35%) reporting zero litters (Table C-1). The population as a whole only reported 592 total litters.

Reproductive issues are broadly higher in 2005 than in 2025 in terms of raw counts. Females show larger counts across every major problem category, while males show more or less similar results. Overall, 2005 reports a far greater volume of litters, while 2025 is dominated by females with zero litters and only small numbers across 1–6 litters. The question structure of 2005 referenced identified breeding dogs, whereas the 2025 survey does not, which limits the ability to make percentage comparisons based on population.

Puppy Health

The most common puppy problems were stillbirths (42; 3.07%), undescended testicles (26; 1.90%), unthrifty/small puppies (14; 1.02%), fading puppies (12; 0.88%), and less frequent congenital anomalies such as cleft palate (7; 0.51%) or liver shunt (6; 0.44%). Additional free-text neonatal findings (55 entries, 4%) included dental or jaw defects, conformational abnormalities, umbilical or abdominal wall hernias, isolated congenital defects (e.g., imperforate anus, hydrocephalus, congenital kidney disease), and a small number of later-onset or genetic diagnoses reported retrospectively (e.g., chondrodystrophy [CDDY], Addison's disease) (Table C-4).

Both 2005 and 2025 show the same general pattern of recurring puppy problems, but the scale is dramatically different. In 2005, several categories reach triple-digit counts (undescended testicles 114, fading puppies 108, stillbirths 56, and an "other" category of 110), while 2025 reports the same categories at much lower levels, with stillbirths 42, undescended testicles 26, unthrifty/small pups 14, fading puppies 12, and "other" 55.

A key driver of this difference is that 2005 reports 1,108 litters, whereas 2025 has far fewer litters overall. With dramatically fewer litters in 2025, the absolute opportunity for puppy problems to be observed and reported is much smaller, amplifying the contrast in raw counts between years.

Activities and Lifestyle

The survey also explored the active lives of the PWD. Most are kept as pet companions (55.92%), but many also participate in organized activities such as obedience (27.58%), agility (22.39%), conformation (18.82%), water trials (19.08%), scent work (16.27%), and rally obedience (15.82%) (Table B-19). Females are slightly more represented in most performance activities, including conformation, water trials, agility, scent work, and rally. A larger share of males

report no listed activities. In addition to the predefined categories, 160 owners (5.23%) provided free-text descriptions of other activities. These responses reflected a broad range of additional engagement, including service dog work, hiking, trick training, walking, hoopers, fetch, freestyle, and various endurance or outdoor pursuits. Smaller numbers reported more specialized or niche activities such as Treibball, parkour, disc sports, shed hunting, boat work, drafting, kayaking, Nordic or cross-country skiing, and truffle hunting as well as roles in emotional support and Canine Good Citizen/Good Neighbor programs.

Relative to 2005, pet companionship drops sharply from 87% to 56% in 2025. Core sport/working activities show broadly similar patterns but generally lower engagement in 2025, as seen in conformation 41% to 19%, water trials 24% to 19%, obedience 39% to 28%, agility 30% to 22%, therapy dog 18% to 10%, and tracking 6% to 4%. Rally is the only major category that rises slightly (13% to 16%). The 2025 data also show greater diversification, with mid-single-digit participation in scent work, barn hunt, Fast CAT, and other niche sports, whereas 2005's tail is shorter and less varied. This last observation could suggest an abundance of other activities available to the PWD in 2025 are driving down overall numbers engaged in core activities.

In terms of general activity level, the breed is predominantly active, with 59% of dogs described as moderately active, 31% as very active, and only 10% as calm or sedate (Table B-20). Daily exercise amounts reflect these patterns, with 69.5% of dogs receiving one to three hours of exercise per day, 21.6% receiving less than one hour, 8.23% receiving more than three hours, and 0.67% reported as needing more exercise than the owner can provide (Table B-21).

Activity levels from 2005 to 2025 shift only modestly. Very active drops from 38% to 31%, moderately active rises from 54% to 59%, and calm/sedate increases from 6% to 10%. Daily exercise shifts as follows: 1 to 3 hours stays dominant (74% to 69.5%), >3 hours declines (12% to 8%), and "more than I can provide" shrinks (3% to 0.7%).

Vaccination Practices

Most dogs received their first vaccine at 6–8 weeks (51%) with 24% vaccinated before 6 weeks, 7% at 9–12 weeks, 2% after 12 weeks, and 14% of owners unsure of timing (Table B-22A). Routine vaccine coverage is high for rabies (92.59%), distemper (69.05%), parvovirus (54.01%), and Bordetella (70.28%), while leptospirosis (47.66%), canine influenza (35.12%), and Lyme (28.05%) show moderate uptake (Table B-22B). Most owners report annual vaccination (74%) with a higher yearly rate in males (78%) than females (71%) (Table B-22C). Use of vaccine titers to guide vaccination is less common, with 27% of owners reporting titer use and 73% not using titers (Table B-22D). Overall, the population shows strong adherence to required and core vaccines, substantial use of additional risk-based vaccines, generally consistent annual revaccination, and a minority relying on titers to tailor vaccine decisions.

First-vaccine timing stays broadly the same from 2005 to 2025, with slight shifts: 6–8 weeks rises (45% → 51%), <6 weeks increases (17% → 24%), and "don't know" halves (29% → 14%), while other timings remain consistent. Yearly vaccination remains stable at a high level (68% → 74%). Titer use rises modestly (20% → 27%), though most still do not use them.

Veterinary Care and Preventive Measures

With regard to veterinary care and check-ups, dogs receive routine veterinary care on a predictable schedule, with 64.1% seen yearly and 18.7% receiving biannual check-ups (Table B-23). A smaller proportion are evaluated as needed (13.0%) or every 2–3 years (1.7%), while 4.8% follow individualized schedules that include high-frequency monitoring for chronic illness, puppy first-year protocols, or owner-veterinarian care. Preventive health practices are widely adopted, with 82% of owners using flea and tick preventatives and 80% administering heartworm prevention,

while only 9% report using none of the listed measures (Table B-24). Additional owner-directed preventive strategies (joint supplements, microbiome support, dental care, holistic approaches, and seasonal or travel-based parasite control) appear within the 5% reporting “other” measures. Dental care practices vary, with 38% brushing their dog’s teeth, 16% obtaining professional scaling, and 10% performing at-home scaling, while 37% report “none of the above” (Table B-25). Free-text “other” dental-care responses (11%) are dominated by chew-based dental products along with diet additives, supplemental treatments, and condition-specific interventions. Overall, these findings indicate that the population receives consistent veterinary oversight, strong adherence to core preventive measures, and a wide range of owner-selected supplemental health practices, though dental care remains more variable than other aspects of routine preventive care. There are no 2005 comparative data for this section.

Diet and Nutrition

Most PWDs in this sample are fed kibble (80.1%; 2,425 dogs) as their primary diet, with commercial raw reported for 18.7% (567) and homemade raw for 9.7% (293) (Table B-26). Free-form responses reveal a wide range of additional feeding practices including commercial fresh diets (112), homemade/cooked preparations (147), fruits and vegetables (167), wet/canned food (71), prescription or condition-specific diets (57), raw or mixed-raw mentions (50), kibble mixed with fresh or toppers (25 + 15), and smaller counts for table food, brand-specific diets, and other individualized approaches. These patterns indicate that many owners supplement or partially replace kibble with fresh, cooked, wet, prescription, or raw components and commonly add produce or toppers. Combining the structured and free-form responses, approximately 80% of entries fall within the structured diet categories and 20% derive from the diverse “other” responses, underscoring that while kibble clearly dominates, a substantial minority employ alternative or mixed feeding strategies tailored to individual dogs. There are no 2005 comparative data for this section.

Discussion

The 2025 Portuguese Water Dog Health Survey achieved broad participation, capturing data on 3,345 dogs and providing a detailed picture of current health and behavioral trends in the breed. As in earlier surveys, some respondents were unfamiliar with medical terminology or provided incomplete information, and a small number of free-text replies required interpretation to determine sex, age, or whether multiple dogs were being referenced. Despite these challenges, the dataset was robust and allowed meaningful analysis across major health categories.

Cancer

Cancer remained the most significant health concern among owners and the leading cause of death, accounting for 56.1% of reported deaths. Hemangiosarcoma showed the largest increase in prevalence and was the only cancer with a clear sex difference, occurring more often in males (OR 1.43; $p = 0.0049$). Other cancers such as lymphoma, mast cell tumors, and melanoma remained relatively uncommon. These patterns are broadly consistent with those reported in 2005, though the overall cancer burden and the prominence of hemangiosarcoma have increased, reinforcing its importance as a priority for further study.

Behavioral Health

Behavioral issues were the most frequently reported problems in the 2025 population, with approximately 53% of owners indicating at least one concern. The profile of behavioral problems has shifted over time, with reactivity toward other dogs, separation anxiety, and noise phobias now the most common issues. Males continued to show higher rates of biting, aggression toward people, and dog-dog aggression, as well as increased odds of reactivity and separation anxiety. Despite this substantial burden, only a minority of owners pursued veterinary behavioral consultation, suggesting a gap between prevalence and formal intervention.

Dermatologic and Gastrointestinal Disease

Dermatologic disease represented a major area of morbidity, affecting nearly half of all dogs (48.9%). Lipomas, atopic allergies, sebaceous cysts, and food allergies were the most frequently reported conditions, with males showing consistent excesses across allergic and dermatologic categories. Gastrointestinal disease also increased in prevalence, with IBD emerging as a notable diagnosis and demonstrating a male predominance. Together, these findings suggest a growing burden of inflammatory and potentially immune-mediated disease within the breed.

Inherited Conditions

Several historically important breed-specific inherited conditions remain relevant despite relatively low prevalence. JDCM, once a major cause of early mortality, was rarely reported, likely reflecting the success of genetic testing and selective breeding practices. Similarly, PRA (0.2%) and microphthalmia (0.1%) were uncommon but remain important targets for continued surveillance. Orthopedic disease patterns suggest progress, with hip dysplasia declining to 3.5% compared to higher rates reported in 2005, although arthritis (7.2%) and cruciate ligament injury (2.7%) remain important contributors to morbidity. Emerging awareness of chondrodystrophy/chondrodysplasia-associated variants (CDDY) further highlights the need to monitor newer genetic risk factors that may influence orthopedic and neurologic health.

Sex-Linked Differences

Sex-linked differences were observed across multiple systems, with females demonstrating significantly higher odds of urinary and kidney disease, particularly recurrent UTIs and cystitis, while males showed increased prevalence across behavioral, dermatologic, gastrointestinal, and certain cancer categories. These patterns suggest underlying biologic influences, including hormonal, genetic, or immunologic factors, that warrant further investigation.

Limitations

An important limitation of this survey is that all data were owner reported and diagnoses were not independently verified through veterinary medical records, diagnostic testing, or pathology review. As a result, some conditions may have been underreported, overreported, or misclassified. This limitation is particularly important for diseases requiring definitive diagnostic confirmation, such as hemangiosarcoma, where histopathology is considered the gold standard for diagnosis. Owners may have reported presumptive diagnoses based on imaging findings, clinical suspicion, or verbal communication without tissue confirmation. Similarly, distinctions between related inflammatory, immune-mediated, orthopedic, gastrointestinal, or behavioral conditions may not always have been fully clear to respondents. In addition, owners of dogs affected by significant medical or behavioral disease may have been more motivated to participate in the survey, potentially introducing response bias and inflating prevalence estimates for some conditions.

The survey was also not specifically designed to evaluate causative or risk-factor associations, and therefore conclusions regarding disease causation cannot be drawn from these data alone. Although several important sex-linked differences were identified, additional factors such as age at spay/neuter, reproductive status, breeding history, diet, environmental exposure, exercise level, genetic background, and vaccination practices were not analyzed in a manner that would allow robust causal inference. Future studies could further investigate potential associations between spay/neuter timing and orthopedic disease, cancer, behavioral outcomes, or urinary disorders, as well as possible relationships between vaccination practices and immune-mediated or inflammatory disease. Longitudinal studies incorporating veterinary-confirmed diagnoses, genetic testing data, standardized behavioral assessments, and prospective health monitoring would provide valuable additional insight into disease risk factors and long-term health outcomes within the PWD population.

An additional limitation when comparing the 2005 and 2025 survey results is the likely difference in survey population and respondent demographics between the two studies. The 2025 survey intentionally broadened outreach beyond the PWDCA membership and regional breed clubs by utilizing broader AKC-associated owner contact lists and electronic distribution methods designed to reach a wider population of PWD owners, including pet-only homes and non-club-affiliated owners. In contrast, the 2005 survey population was derived more heavily from PWDCA-affiliated owners, breeders, and actively engaged members of the breed community. As a result, some observed differences between the two surveys may reflect changes in the sampled population rather than true changes in disease prevalence over time. For example, shifts in participation from highly engaged breeders and performance owners toward a broader companion-pet population could influence reported rates of behavioral concerns, reproductive outcomes, activity participation, preventive health practices, or chronic medical conditions. Increased owner awareness of certain diseases, broader access to advanced veterinary diagnostics, and greater familiarity with behavioral terminology in 2025 may have also contributed to higher reporting frequencies for some conditions compared with 2005.

Overall, the 2025 survey demonstrates that PWDs remain a generally healthy and resilient breed, with many of the same major health and behavioral concerns identified in 2005 remaining stable or showing only modest variation over time. Several inherited and historically recognized breed conditions continue to occur at relatively low prevalence, likely reflecting the positive impact of responsible breeding practices, health screening programs, and increased owner awareness. While cancer, dermatologic disease, gastrointestinal disease, and behavioral concerns remain important areas for continued monitoring and research, the overall findings support that PWDs continue to be an active, long-lived, and comparatively healthy breed population.

Conclusion and Implications for the Foundation

From the perspective of the Portuguese Water Dog Foundation, these findings help identify important opportunities for continued research, education, and health monitoring within an overall healthy and resilient breed population. While cancer, allergic and inflammatory disease, gastrointestinal disease, and behavioral concerns remain important areas for ongoing study, many of the major health patterns identified in 2025 are similar to those observed in 2005, with only modest variation over time. These findings support the value of continued surveillance and targeted research while also reflecting the positive impact of responsible breeding practices, health screening, and increased owner awareness.

Importantly, historically significant inherited diseases such as JDCM, PRA, and microphthalmia were reported at very low prevalence, highlighting the success of longstanding genetic testing and breed health initiatives. The Portuguese Water Dog Foundation remains uniquely positioned to support future health research, encourage participation in screening programs and registries, and promote collaborative efforts aimed at preserving the health, longevity, and quality of life of PWDs for future generations.

Table A-1: General Information on Dogs

Reported Living Dogs	Reported Living Dogs	%
Male dogs	1177	47.8%
Female dogs	1275	51.8%
Sex indeterminate (not answered)	10	0.4%
Totals	2462	

Reported Deceased Dogs	Reported Deceased Dogs	Other Deceased	%
Male dogs	364	14	46.4%
Female dogs	405	19	52.0%
Sex indeterminate (not answered)	3	10	1.6%
Totals	772	43	

Not Reported Living or Deceased and Total Dogs	Not Reported as Living or Deceased	Total Living and Deceased Dogs	%
Male dogs	14	1569	46.9%
Female dogs	20	1719	51.4%
Sex indeterminate (not answered)	34	57	1.7%
Totals	68	3345	

Table A-2: Owner Health Concerns

Number of Owners Concerned with These Health Problems (Owners = 3345)	Owners	Owner %
Cancer	1887	56.4%
Addison's disease	969	29.0%
Cardiomyopathy/juvenile dilated cardiomyopathy	388	11.6%
Allergies	1101	32.9%
Hip dysplasia	477	14.3%
Temperament and behavior issues	811	24.2%
Inflammatory bowel disease	491	14.7%
Skin and coat problems	632	18.9%
Epilepsy	223	6.7%
Other (please specify)	343	10.3%
Neurological	56	1.7%
Orthopedic/structural	41	1.2%
Kidney/urinary	40	1.2%
Endocrine	35	1.0%
Eye conditions	32	1.0%
Immune-mediated	23	0.7%
Ear issues	22	0.7%
Dental	9	0.3%
General concern	9	0.3%
Cardiac	6	0.2%
Reproductive/genital	1	0.0%
Other (unclassified)	69	2.1%

Table A-3A: Ages of Living and Deceased Dogs

Q5 How old is your dog? (if alive)	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
0 to 12 months	102	3%	50	3%	52	3%	0	0%
1 year to 3 years	424	13%	201	13%	219	13%	4	17%
3 years to 6 years	791	24%	397	26%	393	23%	1	4%
6 years to 9 years	532	16%	249	16%	282	17%	1	4%
9 years to 13 years	492	15%	231	15%	258	15%	3	13%
13 years to 15 years	96	3%	38	2%	58	3%	0	0%
15 years and older	25	1%	11	1%	13	1%	1	4%
Deceased	772	24%	364	23%	405	24%	3	13%
Other (please specify)	43	1%	14	1%	19	1%	10	43%

Q6 How old was your dog when it passed away?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
0–6 months	1	0.1%	0	0.0%	1	0.2%	0	0.0%
6 months–1 year	1	0.1%	1	0.3%	0	0.0%	0	0.0%
1–2 years	6	0.7%	4	1.1%	2	0.5%	0	0.0%
2–5 years	22	2.7%	9	2.4%	13	3.1%	0	0.0%
5–8 years	82	10.1%	49	12.9%	33	7.9%	0	0.0%
8–10 years	160	19.8%	82	21.6%	76	18.1%	2	16.7%
10–13 years	292	36.0%	133	35.1%	155	37.0%	4	33.3%
13 and older	195	24.1%	83	21.9%	110	26.3%	2	16.7%
Other (please specify)	51	6.3%	18	4.7%	29	6.9%	4	33.3%

Table A-3B: Ages of Living and Deceased Dogs

Age of Living Dogs (Years)	Male	Female
Median	5.6	5.8
Maximum	16.5	17.5

Age at Death of Deceased Dogs (Years)	Male	Female
Median	10.8	11.4
Maximum	17	16

Table A-4: Causes of Death

Q7 What was the primary cause of death for your PWD(s)?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Cancer	452	56.1%	218	57.8%	231	55.3%	3	30.0%
Old age/natural death/euthanasia	146	18.1%	70	18.6%	101	24.2%	3	30.0%
Heart problems	31	3.9%	17	4.5%	33	7.9%	0	0.0%
Accidental/trauma	4	0.5%	6	1.6%	5	1.2%	2	20.0%
Kidney disease	19	2.4%	15	4.0%	9	2.2%	0	0.0%
Gastrointestinal problems	19	2.4%	15	4.0%	8	1.9%	0	0.0%
Addison's disease	10	1.2%	7	1.9%	6	1.4%	0	0.0%
Behavioral euthanasia	14	1.7%	13	3.4%	3	0.7%	1	10.0%
Other (please specify)	110	13.7%	45	11.9%	61	14.6%	4	40.0%
Neurological	31		15		15		1	
GI/hepatic/pancreatic	24		5		19			
Endocrine/immune (other)	11		5		4		2	
Respiratory	4		4					
Infectious	3		2		1			
Unknown/undetermined	37		14		22		1	

Table B-1: Temperament and Behavior Problems

Q8 Has your PWD exhibited any of the following behavior issues?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	1501	47.0%	668	42.6%	823	47.9%	10	17.5%
Aggression towards people	152	4.8%	99	6.3%	52	3.0%	1	1.8%
Reactivity towards people	405	12.7%	214	13.6%	190	11.1%	1	1.8%
Reactivity toward other dogs	783	24.5%	433	27.6%	346	20.1%	4	7.0%
Bitten a human	193	6.0%	134	8.5%	59	3.4%	0	0.0%
Bitten another dog	100	3.1%	49	3.1%	50	2.9%	1	1.8%
Dog-dog aggression	225	7.0%	129	8.2%	94	5.5%	2	3.5%
Noise phobias	455	14.2%	194	12.4%	258	15.0%	3	5.3%
Separation anxiety	688	21.5%	352	22.4%	333	19.4%	3	5.3%
Other (please specify)	245	7.7%	120	7.6%	121	7.0%	4	7.0%
Anxiety & fear (general/situational)	29		20		9		0	
Compulsive/hyperactivity/other behavioral issues	44		23		21		0	
Environmental/vehicle reactivity	16		9		7		0	
Shyness/social withdrawal	29		10		18		1	
No behavioral issue reported	54		18		33		3	

Table B-1A: Behavioral Consultation

Q9 Have you sought behavioral consultation for your PWD with a veterinarian?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Yes	509	15.88%	281	18%	226	14%	2	10%
No	2583	80.57%	1192	78%	1377	83%	14	70%
Other (please specify)	114	3.56%	59	4%	51	3%	4	20%
Worked with a trainer	54		28		25		1	
Other/unclear	30		11		16		3	
Worked with a behaviorist/specialist	12		8		4			
No need/not needed	8		4		4			
Worked with a veterinarian	4		4					
Considering/planning to seek help	3		2		1			
Medication/medical management	2		1		1			
Self-managed/owner is a trainer	1		1					

Table B-2: Skin and Hair Problems

Q10 Has your PWD experienced any of the following skin or hair problems?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	1596	51.1%	734	46.8%	850	49.4%	12	21.1%
Atopic allergies	472	15.1%	252	16.1%	220	12.8%	0	0.0%
Follicular dysplasia	5	0.2%	3	0.2%	2	0.1%	0	0.0%
Food allergies	442	14.1%	230	14.7%	204	11.9%	8	14.0%
Hair loss	96	3.1%	34	2.2%	54	3.1%	8	14.0%
Lipoma/fatty tumors	570	18.2%	289	18.4%	281	16.3%	0	0.0%
Sebaceous cysts	456	14.6%	212	13.5%	243	14.1%	1	1.8%
Viral papilloma (warts)	83	2.7%	44	2.8%	39	2.3%	0	0.0%
Other (please specify)	118	3.8%	43	2.7%	46	2.7%	29	50.9%
Fungal & yeast infections	17		6		7		4	
Unspecified dermatitis/chronic itching	37		14		13		10	
Tumors (non-lipoma)	20		6		10		4	
Ear infections/ear dermatitis	13		4		6		3	
Feet chewing/paw licking	7		4		1		2	
Hot spots (non-food related)	3		1		1		1	
Parasites (Demodex)	4		2		1		1	
Pigment/color changes	3		1		1		1	
Medical/endocrine skin changes	6		1		3		2	

Q10 Has your PWD experienced any of the following skin or hair problems?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Behavioral self-trauma	1		1		0		0	
Vaccine/medication reactions	3		1		2		0	
Other (misc. dermatologic)	4		2		1		1	

Table B-3: Bone and Skeletal Problems

Q11 Has your PWD been diagnosed with any of the following bone or skeletal problems?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2597	84.95%	1234	78.65%	1352	78.65%	11	19.30%
Arthritis	221	7.23%	114	7.27%	105	6.11%	2	3.51%
Elbow dysplasia	22	0.72%	12	0.76%	8	0.47%	2	3.51%
Hip dysplasia	106	3.47%	43	2.74%	61	3.55%	2	3.51%
Osteochondritis dissecans	8	0.26%	3	0.19%	3	0.17%	2	3.51%
Luxating patellae	6	0.20%	2	0.13%	2	0.12%	2	3.51%
Cruciate ligament injury (ACL)	82	2.68%	35	2.23%	45	2.62%	2	3.51%
Panosteitis	4	0.13%	3	0.19%	1	0.06%	0	0.00%
Other (please specify)	85	2.78%	44	2.80%	39	2.27%	2	3.51%
Broken leg	3		1		2			
CDDY carrier	7		5		2			
Congenital fused bones	1				1			
Congenital malformed leg	1				1			
Dropped carpus	1		1					
Knee subluxation/ knee blew out	2		1		1			
Limb length discrepancy	1		1					
Limp	2		2					
Not bone related	20		10		10			
Polyarthritis	3		3					
Progressive paralysis of hind legs/spine	3		1		2			
Severe back/disc problems	10		7		3			
Small cysts	1		1					
Soft tissue injury	6		1		5			
Sore/weak shoulder	4		1		3			
Spondylosis	3		2		1			
Sprain	1				1			
Transitional vertebrae	3		3					

Q11 Has your PWD been diagnosed with any of the following bone or skeletal problems?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Tumors/growths	5		1		3		1	
Unspecified bone issue	8		3		4		1	

Table B-4: Eye Problems

Q12 Has your PWD been diagnosed with any of the following eye conditions/problems?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2746	87.5%	1314	83.7%	1417	82.4%	15	26.3%
Cataracts	233	7.4%	95	6.1%	131	7.6%	7	12.3%
Distichiasis (extra row of eyelashes)	36	1.1%	14	0.9%	20	1.2%	2	3.5%
Ectropion	5	0.2%	4	0.3%	1	0.1%	0	0.0%
Entropion	41	1.3%	24	1.5%	17	1.0%	0	0.0%
Glaucoma	14	0.4%	5	0.3%	8	0.5%	1	1.8%
Keratoconjunctivitis sicca	23	0.7%	7	0.4%	10	0.6%	6	10.5%
Microphthalmia	4	0.1%	2	0.1%	2	0.1%	0	0.0%
Persistent pupillary membrane	30	1.0%	11	0.7%	18	1.0%	1	1.8%
Progressive retinal atrophy (PRA)	5	0.2%	2	0.1%	2	0.1%	1	1.8%
Lens luxation	2	0.1%	0	0.0%	2	0.1%	0	0.0%
Other (please specify)	61	1.9%	33	2.1%	27	1.6%	1	1.8%
Conjunctivitis (all types)	8		3		5			
Goopy eyes/discharge	10		4		6			
Tear duct disorders (blocked/absent)	3		3		0			
Corneal ulcers/corneal disease	3		1		2			
Nuclear/lenticular sclerosis (age-related)	5		3		2			
Iris tumors/iris masses/melanoma	4		4		0			
Vision loss/blindness (non-PRA)	7		3		4			
Eyelid disorders (meibomian cysts)	3		2		1			
Neurologic eye signs (nystagmus)	2		2		0			
Age-related eye changes (cloudiness)	5		2		3			
Uveitis/immune-mediated eye disease	2		1		1			
Corneal dystrophy	1		1		0			
Unspecified eye condition	8		4		3		1	

Table B-4A: Ophthalmologist Screenings

Q13 Has your PWD been evaluated by a board-certified veterinary ophthalmologist and submitted findings to the OFA Canine (CAER)?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Yes	952	30.05%	394	25%	550	32%	8	14%
No	1797	56.72%	913	58%	875	51%	9	16%
Not sure	419	13.23%	206	13%	212	12%	1	2%

Table B-5: Cancers

Q14 Has your PWD been diagnosed with any of the following cancers?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2497	79.7%	1185	75.5%	1297	75.5%	15	26.3%
Brain or central nervous system	25	0.8%	14	0.9%	11	0.6%	0	0.0%
Hemangiosarcoma	223	7.1%	124	7.9%	98	5.7%	1	1.8%
Lung	32	1.0%	19	1.2%	13	0.8%	0	0.0%
Lymphoma	91	2.9%	44	2.8%	46	2.7%	1	1.8%
Mammary	20	0.6%	1	0.1%	19	1.1%	0	0.0%
Mast cell tumors (skin)	72	2.3%	29	1.8%	43	2.5%	0	0.0%
Melanoma	28	0.9%	15	1.0%	13	0.8%	0	0.0%
Osteosarcoma	23	0.7%	12	0.8%	11	0.6%	0	0.0%
Squamous cell	26	0.8%	12	0.8%	14	0.8%	0	0.0%
Bladder or prostate cancer	18	0.6%	11	0.7%	7	0.4%	0	0.0%
Other (please specify)	150	4.8%	57	3.6%	91	5.3%	2	3.5%
Anal gland/anal sac adenocarcinoma	36		14		21		1	
GI tumor	11		4		7		0	
Liver tumor/hepatocellular carcinoma (HCC)	21		8		13		0	
Liver adenocarcinoma	2		1		1		0	
Liposarcoma	3		1		2		0	
Myosarcoma	2		1		1		0	
Spindle cell sarcoma	5		2		3		0	
Soft tissue sarcoma (limb/shoulder/other)	7		3		4		0	
Pancreatic carcinoma	4		1		3		0	
Insulinoma	1		0		1		0	
Thyroid carcinoma	4		1		3		0	
Parathyroid tumor	3		1		2		0	
Renal carcinoma	3		1		2		0	
Kidney cancer	3		1		2		0	
Heart tumor	3		1		2		0	

Q14 Has your PWD been diagnosed with any of the following cancers?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Heart base tumor	1		0		1		0	
Leukemia	1		1		0		0	
Multiple myeloma	1		0		1		0	
Plasmacytoma	1		1		0		0	
Histiocytic disease	1		0		1		0	
Ear canal tumor	2		0		2		0	
Oral/odontogenic tumor	2		1		1		0	
Metastatic cancer (unknown primary)	7		4		3		0	
Skin/limb tumor (unspecified)	3		1		2		0	
Esophageal tumor	1		0		1		0	
Adenocarcinoma (unspecified primary)	2		1		1		0	
Benign lipomas	2		1		1		0	
Non-oncologic	2		1		1		0	
Unknown/not specified	16		6		9		1	

Table B-6: Kidney/Urinary Tract Problems

Q15 Has your PWD been diagnosed with any of the following kidney/urinary tract conditions?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2733	88.8%	1374	87.6%	1344	78.2%	15	26.3%
Bladder/kidney stones	72	2.3%	38	2.4%	33	1.9%	1	1.8%
Chronic renal failure	44	1.4%	23	1.5%	21	1.2%	0	0.0%
Cystitis (bladder inflammation)	28	0.9%	5	0.3%	23	1.3%	0	0.0%
Incontinence before a spay	8	0.3%	0	0.0%	8	0.5%	0	0.0%
Incontinence after a spay	75	2.4%	2	0.1%	73	4.2%	0	0.0%
Renal dysplasia	6	0.2%	1	0.1%	4	0.2%	1	1.8%
Recurring urinary infections	125	4.1%	19	1.2%	106	6.2%	0	0.0%
Prostatitis	21	0.7%	21	1.3%	0	0.0%	0	0.0%
Other (please specify)	60	1.9%	17	1.1%	41	2.4%	2	3.5%
Incontinence (unspecified/secondary)	22		7		15		0	
Hooded/recessed vulva	8		0		8		0	
Endocrine/metabolic urinary effects	6		3		3		0	
Vaginitis/reproductive anomalies	6		0		6		0	
Bladder mass/tumor	2		1		1		0	
Kidney mass/tumor	2		1		1		0	
Preputial infection	1		0		1		0	

Q15 Has your PWD been diagnosed with any of the following kidney/urinary tract conditions?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Anal gland issues	2		1		1		0	
Gastrointestinal (non-urinary)	3		2		1		0	
Medication/diet related	3		1		2		0	
Cancer-associated urinary issues	2		1		1		0	
Other (nonmedical)	3		0		1		2	

Table B-7: Ear Problems

Q16 Has your PWD been diagnosed with any of the following issues involving their ears or hearing?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2629	84.4%	1256	80.1%	1360	79.1%	13	22.8%
Chronic ear infections	348	11.2%	170	10.8%	174	10.1%	4	7.0%
Deafness	110	3.5%	45	2.9%	64	3.7%	1	1.8%
Other (please specify)	82	2.6%	32	2.0%	47	2.7%	3	5.3%
Occasional ear infections	33		14		18		1	
Wax/cerumen buildup	9		3		6		0	
Hair-related ear issues	6		2		4		0	
Water-related ear issues	9		3		5		1	
Allergy-related ear issues	9		4		5		0	
Ear hematoma	4		2		2		0	
Ear mass/tumor	2		1		1		0	
Vestibular disorder (without deafness)	3		1		2		0	
External irritation/itchy ears	3		1		2		0	
Rhinitis/non-ear issues	2		1		1		0	
Other (nonmedical/irrelevant)	2		0		1		1	

Table B-8: Gastrointestinal Problems

Q17 Has your PWD been diagnosed with any of the following gastrointestinal conditions?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2729	89.0%	1295	82.5%	1419	82.5%	15	26.3%
Bloat	12	0.4%	6	0.4%	6	0.3%	0	0.0%
Chronic colitis	25	0.8%	15	1.0%	10	0.6%	0	0.0%
Chronic vomiting	39	1.3%	25	1.6%	14	0.8%	0	0.0%
Hemorrhagic gastroenteritis	17	0.6%	6	0.4%	11	0.6%	0	0.0%
Intestinal lymphangiectasias	9	0.3%	5	0.3%	4	0.2%	0	0.0%

Q17 Has your PWD been diagnosed with any of the following gastrointestinal conditions?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Inflammatory bowel disease	112	3.7%	68	4.3%	44	2.6%	0	0.0%
Megaesophagus	9	0.3%	6	0.4%	3	0.2%	0	0.0%
Pancreatic disease	57	1.9%	23	1.5%	33	1.9%	1	1.8%
Protein-losing enteropathy	20	0.7%	12	0.8%	8	0.5%	0	0.0%
Other (please specify)	108	3.5%	51	3.3%	57	3.3%	0	0.0%
Diarrhea	32		14		18		0	
Food sensitivity/allergy	17		8		9		0	
Parasitic infection	10		5		5		0	
Gastritis/GI upset	7		4		3		0	
Anal gland issues	5		2		3		0	
Diet-related GI problems	11		5		6		0	
GI cancer	2		1		1		0	
Autoimmune GI conditions	3		1		2		0	
Foreign body/obstruction	3		2		1		0	
Miscellaneous GI issues	11		6		5		0	
Unknown/unspecified	7		3		4		0	

Table B-9: Mouth Problems

Q18 Has your PWD been diagnosed with any of the following conditions of their mouths?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2832	91.9%	1363	86.9%	1456	84.7%	13	22.8%
Base narrow canines	58	1.9%	19	1.2%	30	1.7%	9	15.8%
Cleft palate	3	0.1%	2	0.1%	1	0.1%	0	0.0%
Missing teeth	52	1.7%	21	1.3%	26	1.5%	5	8.8%
Overshot jaw (parrot mouth)	6	0.2%	2	0.1%	4	0.2%	0	0.0%
Undershot jaw	73	2.4%	29	1.8%	41	2.4%	3	5.3%
Wry mouth	5	0.2%	1	0.1%	3	0.2%	1	1.8%
Other (please specify)	95	3.1%	46	2.9%	49	2.9%	0	0.0%
Tooth resorption	17		9		8		0	
Fractured/broken teeth	9		3		6		0	
Malocclusion/bite problems	15		8		7		0	
Retained deciduous teeth	10		4		6		0	
Supernumerary/extra teeth	7		5		2		0	
Periodontal/gum disease	7		4		3		0	
Oral tumors/masses/growths	8		3		5		0	
Salivary gland disorders	4		1		3		0	

Q18 Has your PWD been diagnosed with any of the following conditions of their mouths?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Tooth decay/caries	4		3		1		0	
Oral inflammation/ulcers/immune conditions	4		1		3		0	
Developmental tooth abnormalities	4		3		1		0	
General dental problems	3		1		2		0	
Normal bite	2		1		1		0	
Other/unclassified	1		0		1		0	

Table B-10: Endocrine Problems

Q19 Has your PWD been diagnosed with any of the following conditions of the endocrine system?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2859	92.9%	1370	87.3%	1474	85.7%	15	26.3%
Addison's disease	89	2.9%	41	2.6%	48	2.8%	0	0.0%
Cushing's disease	36	1.2%	13	0.8%	23	1.3%	0	0.0%
Diabetes mellitus	6	0.2%	2	0.1%	4	0.2%	0	0.0%
Hypothyroidism	82	2.7%	40	2.5%	42	2.4%	0	0.0%
Hyperparathyroidism	6	0.2%	1	0.1%	5	0.3%	0	0.0%
Other (please specify)	17	0.6%	6	0.4%	11	0.6%	0	0.0%
Diabetes insipidus	1				1		0	
Possible Addison's disease	1				1		0	
Unknown/not specified	3		1		2		0	
Cardiac	1		1				0	
Thyroid support	1		1				0	
Family history/carrier or litter history	1				1		0	
Neurologic	1				1		0	
Infectious	1		1				0	
Thyroid testing pending	1				1		0	
Ophthalmic	1				1		0	
Splenic	1		1				0	
Autoimmune	1				1		0	
Possible Addison's/ possible Cushing's	1				1		0	
Parathyroid tumor	1		1				0	

Table B-11: Heart/Circulatory Problems

Q20 Has your PWD been diagnosed with any of the following heart or circulatory conditions?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2927	95.2%	1390	88.6%	1523	88.6%	14	24.6%
Atrial septal defect	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cardiomyopathy	21	0.7%	12	0.8%	9	0.5%	0	0.0%
Diet-mediated dilated cardiomyopathy	10	0.3%	3	0.2%	7	0.4%	0	0.0%
Juvenile dilated cardiomyopathy	2	0.1%	1	0.1%	1	0.1%	0	0.0%
Murmur	100	3.3%	51	3.3%	49	2.9%	0	0.0%
Patent ductus arteriosus	1	0.0%	0	0.0%	1	0.1%	0	0.0%
Pulmonic stenosis	1	0.0%	1	0.1%	0	0.0%	0	0.0%
Tetralogy of Fallot	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Mitral valve disease	16	0.5%	8	0.5%	8	0.5%	0	0.0%
Arrhythmia	12	0.4%	7	0.4%	5	0.3%	0	0.0%
Other (please specify)	23	0.7%	12	0.8%	10	0.6%	1	1.8%
Acute cardiac event	1				1			
Aortic stenosis	1						1	
Bradycardia	1		1					
Cardiomegaly	1		1					
Carrier of JDCM	1				1			
Congestive heart failure	3		1		2			
Degenerative valvular disease	1		1					
Heart base tumor	1		1					
Mitral valve dysplasia	1		1					
Mitral valve regurgitation	2				2			
Other—hematologic	1		1					
Other—under investigation	1		1					
Pericardial effusion	2		2					
Pulmonary hypertension	2		1		1			
Pulmonic stenosis	1		1					
Valvular disease	1				1			
Valvular vegetation	1				1			
Ventricular septal defect	1				1			

Table B-12: Hernias

Q21 Has your PWD been diagnosed with any of the following hernias?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	3013	97.8%	1443	92.0%	1554	90.4%	16	28.1%
Body wall	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Diaphragmatic	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Inguinal hernia	8	0.3%	4	0.3%	4	0.2%	0	0.0%
Peritoneal-pericardial	1	0.0%	1	0.1%	0	0.0%	0	0.0%
Umbilical hernia	64	2.1%	23	1.5%	41	2.4%	0	0.0%
Other (please specify)	0	0%	0	0%	0	0%	0	0.0%

Table B-13: Neurological Problems

Q22 Has your PWD been diagnosed with any of the following neurological conditions?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2878	93.5%	1370	87.3%	1494	86.9%	14	24.6%
Epilepsy	32	1.0%	19	1.2%	13	0.8%	0	0.0%
Seizures (nonspecific)	83	2.7%	50	3.2%	31	1.8%	2	3.5%
Degenerative myelopathy	2	0.1%	1	0.1%	1	0.1%	0	0.0%
Intervertebral disc disease (spinal disease due to herniated discs, disc degeneration, etc.)	21	0.7%	12	0.8%	9	0.5%	0	0.0%
Vestibular disease	36	1.2%	13	0.8%	23	1.3%	0	0.0%
Stroke (infarct)	12	0.4%	5	0.3%	7	0.4%	0	0.0%
Polyneuropathy	2	0.1%	2	0.1%	0	0.0%	0	0.0%
Inflammation of the brain or spinal cord (encephalitis, meningitis, meningoencephalitis)	7	0.2%	1	0.1%	6	0.3%	0	0.0%
Other (please specify)	49	1.6%	22	1.4%	27	1.6%	0	0.0%
Brain aneurysm	1		1					
Canine cognitive dysfunction	1				1			
Cervical radiculopathy	1				1			
Cervical spinal cord compression	1				1			
Cognitive decline	5		1		4			
Dizziness	1				1			
Drug-related neurobehavioral	1		1					
Drug-related neurotoxicity	3		3					
Drug-related seizures	2				2			
Episodic movement disorder	1		1					
Fibrocartilaginous embolism	1		1					

Q22 Has your PWD been diagnosed with any of the following neurological conditions?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Fly-catching syndrome	1		1					
GOLPP	1		1					
Heat-related seizures	2		2					
Intervertebral disc disease	1				1			
Laryngeal abnormality	1				1			
Meningitis	1		1					
Myasthenia gravis	2		2					
Neurologic/undifferentiated	3		2		1			
Neuromuscular weakness	1		1					
Neuropathy	1				1			
Paroxysmal dyskinesia	2		1		1			
Peripheral nerve sheath tumor	1		1					
Puppy movement disorder	1				1			
Sensory neuropathy	1		1					
Single idiopathic seizure	4				4			
Steroid-responsive meningitis arteritis	1		1					
Stroke	1				1			
Sundowning	1				1			
Syncope	1				1			
Tremor	1				1			
Unknown	3				3			

Table B-14: Autoimmune Problems

Q23 Has your PWD been diagnosed with any of the following autoimmune diseases?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	3029	98.6%	1454	92.7%	1561	90.8%	14	24.6%
Immune-mediated hemolytic anemia (IMHA)	9	0.3%	3	0.2%	6	0.3%	0	0.0%
Lupus	4	0.1%	1	0.1%	3	0.2%	0	0.0%
Immune-mediated thrombocytopenia	5	0.2%	1	0.1%	4	0.2%	0	0.0%
Other (please specify)	27	0.9%	10	0.6%	16	0.9%	1	1.8%
Addisonian crisis	1				1			
Allergic disease	1				1			
Autoimmune hepatitis	1				1			
Autoimmune neurologic concern	1		1					
Autoimmune-mediated leukopenia	1				1			

Q23 Has your PWD been diagnosed with any of the following autoimmune diseases?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Chronic hepatitis	2				2			
Chronic oral ulcers	1		1					
Evaluated for lupus	1				1			
Immune-mediated arthritis	1		1					
Immune-mediated bone marrow hypoplasia	1		1					
Immune-mediated hemolytic anemia	1				1			
Immune-mediated ocular disease	1				1			
Immune-mediated polyarthritis	2		2					
Juvenile cellulitis	2				2			
Masticatory myositis	1		1					
Meningitis	1				1			
Myasthenia gravis	1		1					
Nonspecific hemolytic anemia	1				1			
Pemphigus	1				1			
Possible autoimmune GI disease	1		1					
Post-vaccination immune reaction	1				1			
Post-vaccination suspected autoimmune reaction	1				1			
Severe tissue loss	1						1	
Steroid-responsive meningitis arteritis	1		1					

Table B-15: Liver and Spleen Problems

Q24 Has your PWD been diagnosed with any of the following liver or spleen problems?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2979	97.3%	1434	91.4%	1530	89.0%	15	26.3%
Hepatic shunt	4	0.1%	1	0.1%	3	0.2%	0	0.0%
Splenic hematoma (noncancerous)	20	0.7%	10	0.6%	10	0.6%	0	0.0%
Gallbladder mucocele	4	0.1%	0	0.0%	4	0.2%	0	0.0%
Other (please specify)	60	2.0%	20	1.3%	40	2.3%	0	0.0%
Liver cancer/hepatic tumors	15		6		9			
Splenic cancer/splenic tumors	11		3		8			
Metastatic disease (liver or spleen)	4		1		3			
Chronic hepatitis/hepatopathy	7		2		5			
Liver failure/severe hepatic dysfunction	3		1		2			
Benign liver masses	4		2		2			
Splenomegaly/splenic enlargement	3		1		2			
Splenic rupture/hemorrhage	2		0		2			
Gallbladder/biliary disorders	2		1		1			
Copper-associated hepatitis	1		0		1			
Autoimmune hepatitis	1		0		1			
General liver disease	6		3		3			
Other/unclassified	1		0		1			

Table B-16: Respiratory Issues

Q25 Has your PWD been diagnosed with any of these respiratory issues?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2996	97.5%	1426	90.9%	1555	90.5%	15	26.3%
Elongated soft palate	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Laryngeal paralysis (LARPAR)	18	0.6%	11	0.6%	7	0.4%	0	0.0%
Pneumonia	47	1.5%	29	1.8%	18	1.0%	0	0.0%
Other (please specify)	23	0.8%	11	0.8%	11	0.6%	1	1.8%
Allergies	2		2					
Aspiration pneumonia	3		3					
Aspiration pneumonia secondary to allergies	1		1					
Chronic bronchitis	1				1			
Pneumonia	2		1		1			
Pneumonia (environmental)	1				1			

Q25 Has your PWD been diagnosed with any of these respiratory issues?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Pulmonary metastases	1				1			
Pulmonary neoplasia	1		1					
Recurrent pneumonia	1		1					
Suspected asthma	1		1					
Tracheal collapse	1				1			
Post-procedural stridor	1				1			
Sinusitis	1		1					
Coccidioidomycosis	1				1			
Other—likely neurologic	1				1			
Unknown	1						1	
Tracheal stiffening	1				1			
Pharyngeal injury	1				1			
Kennel cough sequelae	1				1			

Table B-17: Blood/Clotting Disorders

Q26 Has your PWD been diagnosed with any of these blood/clotting disorders?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	3070	99.8%	1468	93.6%	1586	92.3%	16	28.1%
Von Willebrand disease	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other clotting disorder	2	0.1%	0	0.0%	2	0.1%	0	0.0%
Other (please specify)	4	0.1%	1	0.1%	3	0.2%	0	0.0%
Immune thrombocytopenia (ITP)	1				1			
Thrombocytopenia; bone marrow hypoplasia	1				1			
Transient juvenile thrombocytopenia (resolved)	1				1			
Thromboembolic event	1		1					

Table B-18: Infectious Diseases

Q27 Has your PWD been diagnosed with any of the following infectious diseases?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	2435	79.5%	1161	74.0%	1260	73.3%	14	24.6%
Brucellosis	2	0.1%	1	0.1%	1	0.1%	0	0.0%
Canine influenza	32	1.0%	18	1.1%	14	0.8%	0	0.0%
Canine parvovirus	17	0.6%	8	0.5%	8	0.5%	1	1.8%
Chagas disease	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Coronavirus	3	0.1%	2	0.1%	1	0.1%	0	0.0%

Q27 Has your PWD been diagnosed with any of the following infectious diseases?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Leptospirosis	22	0.7%	7	0.4%	15	0.9%	0	0.0%
Lyme disease	187	6.1%	84	5.4%	102	5.9%	1	1.8%
Parainfluenza	1	0.0%	0	0.0%	1	0.1%	0	0.0%
Fungal infection (blastomycosis, histoplasmosis, cryptococcosis, etc.)	16	0.5%	12	0.8%	4	0.2%	0	0.0%
Bordetella (kennel cough)	317	10.4%	156	9.9%	160	9.3%	1	1.8%
Vector-borne (or tick-borne) diseases other than Lyme (Anaplasma, Ehrlichia, Rocky Mountain spotted fever, Bartonella)	106	3.5%	49	3.1%	56	3.3%	1	1.8%
Other (please specify)	37	1.2%	18	1.1%	19	1.1%	0	0.0%
Giardiasis	16		9		7		0	
Coccidia/coccidiosis	2		1		1		0	
Hookworm/intestinal parasites	1		0		1		0	
Viral respiratory infections (non-influenza)	4		2		2		0	
Parvo-like viral illness	3		2		1		0	
Severe viral outbreak in litter	2		1		1		0	
Pneumonia	1		1		0		0	
Conjunctivitis	1		0		1		0	
Tick-borne (unspecified)	2		0		2		0	
Localized bacterial infections	2		0		2		0	
Rare/atypical infections	1		1		0		0	
Vaccination-related illness	1		1		0		0	
Unknown/not specified	1		0		1		0	

Table B-19: Activities of PWD

Q28 What activities is your PWD involved in?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	705	23.04%	362	23.1%	341	19.8%	2	3.5%
Pet companion	1711	55.92%	802	51.12%	899	52.30%	10	15.8%
Conformation	576	18.82%	241	15.36%	324	18.85%	11	14.0%
Water trials	584	19.08%	229	14.60%	330	19.20%	25	8.8%
Obedience	844	27.58%	394	25.11%	441	25.65%	9	14.0%
Rally obedience	484	15.82%	202	12.87%	278	16.17%	4	7.0%
Scent work/nosework	498	16.27%	210	13.38%	282	16.40%	6	5.3%
Agility	685	22.39%	285	18.16%	389	22.63%	11	12.3%
Therapy dog	308	10.07%	136	8.67%	168	9.77%	4	1.8%
Tracking	122	3.99%	56	3.57%	65	3.78%	1	1.8%
Barn Hunt (RAT)	104	3.40%	41	2.61%	63	3.66%	0	0.0%

Q28 What activities is your PWD involved in?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Fast CAT	115	3.76%	44	2.80%	69	4.01%	2	1.8%
Other (please specify)	160	5.23%	61	3.89%	51	2.97%	48	3.5%
Service dog	32		11		10		11	
Hiking	19		7		5		7	
Trick training	18		6		6		6	
Walking	13		5		4		4	
Hoopers	11		4		4		3	
Fetch	6		2		2		2	
Freestyle	6		2		2		2	
Endurance	4		2		1		1	
Treibball	3		1		1		1	
Parkour	3		1		1		1	
Frisbee	2		0		1		1	
Disc	2		0		1		1	
Shed hunt	2		1		1		0	
Boat dog	2		1		0		1	
Drafting	1		0		1		0	
Recreation	1		0		1		0	
Grooming	1		1		0		0	
Havanese	1		1		0		0	
Physical therapy	1		1		0		0	
Hunting	1		0		1		0	
Kayak partner	1		0		1		0	
Playgroup	1		1		0		0	
Nordic skiing	1		1		0		0	
Breeding	1		0		1		0	
Working dog	1		1		0		0	
Musical freestyle	1		1		0		0	
Truffle hunting	1		1		0		0	
Regular hikes	1		1		0		0	
Canine Good Citizen	1		0		1		0	
Canine Good Neighbor	1		1		0		0	
Trekking	1		1		0		0	
X-country skiing	1		1		0		0	
Emotional support	1		1		0		0	
Other (literal tag)	18		5		6		7	

Table B-20: PWD Activity Level

Q29 What is your PWD's activity level?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Very active	936	31%	478	33%	453	29%	5	36%
Moderately active	1763	59%	830	58%	928	59%	5	36%
Calm or sedate	312	10%	126	9%	182	12%	4	29%

Table B-21: PWD Exercise Per Day

Q30 How much exercise does your PWD get each day?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
<1 hour	649	21.61%	306	21%	342	22%	1	7%
1–3 hours	2087	69.50%	997	70%	1082	69%	8	57%
>3 hours	247	8.23%	121	8%	122	8%	4	29%
More than I can provide	20	0.67%	7	0%	12	1%	1	7%

Table B-22A: Vaccine Information

Q31 Age First Vaccine Administered	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
<6 weeks	722	24%	353	25%	367	23%	2	14%
6–8 weeks	1518	51%	712	50%	797	51%	9	64%
9–12 weeks	217	7%	100	7%	115	7%	2	14%
>12 weeks	57	2%	28	2%	28	2%	1	7%
Don't know	426	14%	205	14%	221	14%	0	0%
Other (please specify)	66	2%	30	2%	36	2%	0	0%

Table B-22B: Vaccine Information

Q32 Vaccines you routinely administer to your PWD	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Bordetella (kennel cough)	2057	70.28%	1034	66%	1017	59%	6	11%
Canine influenza	1028	35.12%	503	32%	520	30%	5	9%
Distemper	2021	69.05%	969	62%	1044	61%	8	14%
Hepatitis	594	20.29%	260	17%	332	19%	2	4%
Leptospirosis	1395	47.66%	663	42%	727	42%	5	9%
Lyme	821	28.05%	395	25%	424	25%	2	4%
Parvovirus	1581	54.01%	748	48%	827	48%	6	11%
Parainfluenza	585	19.99%	268	17%	315	18%	2	4%
Rabies	2710	92.59%	1307	83%	1391	81%	12	21%
Other (please specify)	239	8.17%	116	7%	121	7%	2	4%

Table B-22C: Vaccine Information

Q33 Do you vaccinate yearly?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Yes	2227	74%	1119	78%	1100	71%	8	57%
No	781	26%	315	22%	460	29%	6	43%

Table B-22D: Vaccine Information

Q34 Do you use vaccine titers?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Yes	748	27%	337	26%	407	28%	4	31%
No	2037	73%	972	74%	1056	72%	9	69%

Table B-23: Veterinary Check-Ups

Q35 How frequently does your dog receive veterinary check-ups?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Yearly	1939	64.1%	916	58.4%	1015	59.0%	8	14%
Every 6 months	566	18.7%	288	18.4%	277	16.1%	1	2%
Every 2–3 years	50	1.7%	26	1.7%	24	1.4%	0	0%
As needed basis	392	13.0%	169	10.8%	219	12.7%	4	7%
Other (please specify)	144	4.8%	70	4.5%	73	4.2%	1	2%
Quarterly (every 3 months)	13		6		7			
Monthly	16		9		7			
Every 4–8 weeks	9		4		5			

Q35 How frequently does your dog receive veterinary check-ups?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
Weekly/multiple times per week	4		3		1			
Puppy: frequent first-year schedule	6		3		3			
Schedule changes with age (annual to biannual)	9		4		5			
Frequent due to chronic illness	17		7		10			
Frequent due to owner veterinarian	3		3		0			
Other/not specified	2		1		1			

Table B-24: Preventative Care Measures

Q36 What preventive care measures do you follow?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	259	9%	113	7%	144	8%	2	4%
Flea and tick preventative	2467	82%	1200	76%	1259	73%	8	14%
Heartworm preventative	2399	80%	1159	74%	1230	72%	10	18%
Other (please specify)	146	5%	72	5%	70	4%	4	7%
Allergy and dermatologic treatments	4		2		2			
Chronic disease management	4		3		1			
Dental and routine care	11		5		6			
Digestive and microbiome support	9		4		5			
Joint and mobility supplements	19		8		10		1	
Natural/holistic measures	15		9		5		1	
Other/unspecified	15		9		6			
Parasite prevention	31		14		16		1	
Rehab and complementary therapies	3		2		1			
Seasonal or travel-based prevention	16		6		9		1	
Stopped or owner choice	10		6		4			
Travel/region/specialty prevention	2		2					
Vaccination/screening practices	6		2		4			
Vet-recommended/unspecified	1				1			

Table B-25: Dental Care

Q37 Does your dog receive regular dental care?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	1102	37%	527	34%	572	33%	3	5%
Brushing	1129	38%	557	36%	568	33%	4	7%
At-home scaling	303	10%	145	9%	152	9%	6	11%
Professional scaling	484	16%	219	14%	263	15%	2	4%
Other (please specify)	329	11%	152	10%	176	10%	1	2%
Brushing/home care	37		15		22			
Chew-based care	197		80		117			
Diet/additives	34		22		12			
No action/not needed	3		2		1			
Other/unspecified	5		3		2			
Professional care	36		21		15			
Supplements/other	11		6		4		1	
Treatment/extraction	6		3		3			

Table B-26: Diet

Q38 What is your dog's diet?	Responses	%	Male	%	Female	%	Other (Indeterminate)	%
None of the above	15	0.5%	9	0.6%	6	0.3%	0	0.0%
Kibble	2425	80.1%	1165	74.3%	1249	72.7%	11	19.3%
Homemade raw	293	9.7%	134	8.5%	156	9.1%	3	5.3%
Commercial raw	567	18.7%	254	16.2%	309	18.0%	4	7.0%
Other (please specify)	751	24.8%	355	22.6%	395	23.0%	3	5.3%
Commercial fresh	112		52		60			
Condition-specific/veterinary	18		4		14			
Fruits/vegetables	167		83		84		2	
Homemade/cooked	147		77		70			
Kibble mixed with fresh	25		10		15			
Other	45		20		25			
Other/brand-specific	11		5		6			
Prescription/brand diet	57		28		29			
Raw	50		21		28		1	
Special diet	12		5		7			
Table food	21		9		12			
Topper/add-ins	15		3		12			
Wet/canned	71		38		33			

Table B-27: Age Bins

Category	Has your PWD experienced the following?	0 to 12 Months	1 Year to 3 Years	3 Years to 6 Years	6 Years to 9 Years	9 Years to 13 Years	13 Years to 15 Years	15 Years and Older	Deceased
Autoimmune	Immune-mediated hemolytic anemia (IMHA)	0	0	0	1	2	1	0	5
Autoimmune	Lupus	0	0	0	0	2	0	0	2
Autoimmune	Immune-mediated thrombocytopenia	0	1	0	0	2	0	0	2
Behavioral	Aggression towards people	3	10	27	33	18	2	0	39
Behavioral	Reactivity towards people	8	57	144	64	63	2	2	54
Behavioral	Reactivity towards other dogs	12	83	219	165	132	9	5	148
Behavioral	Bitten a human	3	8	32	35	35	5	2	71
Behavioral	Bitten another dog	0	4	17	27	21	2	1	27
Behavioral	Dog-dog aggression	0	17	45	50	48	2	1	39
Behavioral	Noise phobias	6	46	99	95	90	18	1	66
Behavioral	Separation anxiety	23	114	200	131	92	17	4	92
Bone and skeletal	Arthritis	0	1	5	18	65	30	7	88
Bone and skeletal	Elbow dysplasia	0	1	7	4	4	1	0	3
Bone and skeletal	Hip dysplasia	0	4	23	15	19	6	1	35
Bone and skeletal	Osteochondritis dissecans	0	3	0	0	1	0	0	2
Bone and skeletal	Luxating patellae	0	0	1	0	1	0	0	2
Bone and skeletal	Cruciate ligament injury (ACL)	0	1	8	16	28	3	0	24
Bone and skeletal	Panosteitis	0	0	0	0	3	0	0	0
Cancers	Brain or central nervous system	0	0	1	1	3	0	0	13
Cancers	Hemangiosarcoma	0	1	2	5	10	1	0	181
Cancers	Lung cancer	0	0	1	2	2	1	0	23
Cancers	Lymphoma	0	0	6	9	3	0	0	60
Cancers	Mammary	0	0	0	5	4	4	0	4
Cancers	Mast cell tumors (skin)	0	0	5	8	16	3	0	35
Cancers	Melanoma	0	0	1	2	6	1	0	15
Cancers	Osteosarcoma	0	0	1	0	1	0	0	14
Cancers	Squamous cell	0	0	0	4	5	3	1	9
Cancers	Bladder or prostate cancer	0	0	0	0	0	2	0	12
Ears	Chronic ear infections	2	22	72	48	56	9	4	84
Ears	Deafness	0	0	0	0	13	18	3	34
Endocrine	Addison's disease	0	1	21	12	24	4	1	22
Endocrine	Cushing's disease	0	0	0	0	7	2	1	22

Category	Has your PWD experienced the following?	0 to 12 Months	1 Year to 3 Years	3 Years to 6 Years	6 Years to 9 Years	9 Years to 13 Years	13 Years to 15 Years	15 Years and Older	Deceased
Endocrine	Diabetes mellitus	0	0	0	0	2	0	0	4
Endocrine	Hypothyroidism	0	0	11	8	20	6	3	31
Endocrine	Hyperparathyroidism	0	0	0	0	1	1	0	2
Eyes	Cataracts	0	3	6	12	57	31	4	90
Eyes	Distichiasis (extra row of eyelashes)	0	3	9	3	3	4	0	6
Eyes	Ectropion	0	0	2	1	0	0	0	0
Eyes	Entropion	0	7	4	7	7	2	0	10
Eyes	Glaucoma	0	0	1	1	4	1	0	4
Eyes	Keratoconjunctivitis sicca	0	0	2	2	1	0	0	2
Eyes	Microphthalmia	0	0	1	1	1	0	0	0
Eyes	Persistent pupillary membrane	1	2	5	7	4	2	0	6
Eyes	Progressive retinal atrophy (PRA)	0	0	0	0	0	0	0	2
Eyes	Lens luxation	0	0	0	0	1	1	0	0
Gastrointestinal	Bloat	0	1	0	1	2	0	2	3
Gastrointestinal	Chronic colitis	0	0	1	4	6	3	0	7
Gastrointestinal	Chronic vomiting	0	3	7	2	6	1	0	12
Gastrointestinal	Hemorrhagic gastroenteritis	0	0	1	2	4	2	0	7
Gastrointestinal	Intestinal lymphangiectasia	0	0	0	3	2	0	0	3
Gastrointestinal	Inflammatory bowel disease	0	1	10	13	30	3	1	42
Gastrointestinal	Megaesophagus	0	1	0	0	1	0	0	5
Gastrointestinal	Pancreatic disease	0	3	2	5	6	1	0	21
Gastrointestinal	Protein losing enteropathy	0	0	0	5	2	0	0	11
Heart/circulatory	Atrial septal defect	0	0	0	0	0	0	0	0
Heart/circulatory	Cardiomyopathy	0	1	2	1	3	0	0	9
Heart/circulatory	Diet-mediated dilated cardiomyopathy	0	0	1	3	2	1	0	3
Heart/circulatory	Juvenile dilated cardiomyopathy	0	0	0	1	0	0	0	1
Heart/circulatory	Murmur	0	2	3	19	23	4	4	38
Heart/circulatory	Patent ductus arteriosus	0	0	0	1	0	0	0	0
Heart/circulatory	Pulmonic stenosis	0	0	1	0	0	0	0	0
Heart/circulatory	Tetralogy of Fallot	0	0	0	0	0	0	0	0
Heart/circulatory	Mitral valve disease	0	1	0	2	2	2	1	7

Category	Has your PWD experienced the following?	0 to 12 Months	1 Year to 3 Years	3 Years to 6 Years	6 Years to 9 Years	9 Years to 13 Years	13 Years to 15 Years	15 Years and Older	Deceased
Heart/circulatory	Arrhythmia	0	0	0	2	1	1	0	6
Hernias	Body wall	0	0	0	0	0	0	0	0
Hernias	Diaphragmatic	0	0	0	0	0	0	0	0
Hernias	Inguinal hernia	1	0	2	1	4	0	0	0
Hernias	Peritoneal-pericardial	0	0	0	1	0	0	0	0
Hernias	Umbilical hernia	0	15	15	8	5	2	0	11
Infectious disease	Brucellosis	0	0	1	0	0	0	0	1
Infectious disease	Canine influenza	0	4	5	5	10	0	0	7
Infectious disease	Canine parvovirus	0	3	2	4	1	0	0	6
Infectious disease	Chagas disease	0	0	0	0	0	0	0	0
Infectious disease	Coronavirus	0	0	1	1	0	0	0	1
Infectious disease	Leptospirosis	0	0	5	1	5	0	0	11
Infectious disease	Lyme disease	0	11	31	25	43	10	4	59
Infectious disease	Parainfluenza	0	0	0	0	0	0	0	1
Infectious disease	Fungal infection (blastomycosis, histoplasmosis, cryptococcosis, etc.)	0	0	5	0	2	2	0	4
Infectious disease	Bordetella (kennel cough)	4	32	76	59	46	8	1	86
Infectious disease	Vector-borne (or tick-borne) diseases other than Lyme (Anaplasma, Ehrlichia, Rocky Mountain spotted fever, Bartonella)	0	7	21	16	17	4	2	30
Liver/spleen	Hepatic shunt	0	2	0	0	1	0	0	1
Liver/spleen	Splenic hematoma (noncancerous)	0	0	1	2	1	2	1	10
Liver/spleen	Gallbladder mucocele	0	0	0	0	1	0	0	3
Mouth	Base narrow canines	5	11	12	5	3	0	1	2
Mouth	Cleft palate	0	0	1	1	0	0	0	1
Mouth	Missing teeth	0	4	11	4	9	3	0	11
Mouth	Overshot jaw (parrot mouth)	0	0	1	0	0	1	0	4
Mouth	Undershot jaw	1	8	18	12	9	6	0	12
Mouth	Wry mouth	0	0	1	1	0	0	0	2
Neurological	Epilepsy	0	0	8	3	3	1	1	13
Neurological	Seizures (nonspecific)	0	2	4	9	11	7	1	44

Category	Has your PWD experienced the following?	0 to 12 Months	1 Year to 3 Years	3 Years to 6 Years	6 Years to 9 Years	9 Years to 13 Years	13 Years to 15 Years	15 Years and Older	Deceased
Neurological	Degenerative myelopathy	0	0	0	0	1	0	0	1
Neurological	Intervertebral disc disease (spinal disease due to herniated discs, disc degeneration, etc.)	0	1	0	1	4	2	1	11
Neurological	Vestibular disease	0	1	0	1	0	6	2	25
Neurological	Stroke (infarct)	0	0	0	0	1	0	0	10
Neurological	Polyneuropathy	0	0	0	0	0	1	0	1
Neurological	Inflammation of the brain or spinal cord (encephalitis, meningitis, meningoencephalitis)	0	0	1	3	1	0	0	1
Respiratory	Elongated soft palate	0	0	0	0	0	0	0	0
Respiratory	Laryngeal paralysis (LARPAR)	0	0	0	0	1	5	0	11
Respiratory	Pneumonia	0	4	7	7	12	2	0	15
Skin and hair	Atopic allergies	1	52	131	95	74	12	0	81
Skin and hair	Follicular dysplasia	0	0	2	1	0	0	0	2
Skin and hair	Food allergies	4	45	126	74	74	14	1	82
Skin and hair	Hair loss	1	3	14	9	12	3	2	17
Skin and hair	Lipoma/fatty tumors	0	3	30	76	173	50	12	216
Skin and hair	Sebaceous cysts	0	16	88	97	111	22	4	109
Skin and hair	Viral papilloma (warts)	0	2	14	13	24	5	2	23
Urinary/kidney	Bladder/kidney stones	0	0	7	8	11	6	3	21
Urinary/kidney	Chronic renal failure	0	1	0	2	2	2	0	19
Urinary/kidney	Cystitis (bladder inflammation)	1	1	2	4	6	2	1	11
Urinary/kidney	Incontinence before a spay	0	1	1	1	3	0	0	2
Urinary/kidney	Incontinence after a spay	0	3	15	15	15	2	0	24
Urinary/kidney	Renal dysplasia	0	0	1	1	0	1	0	0
Urinary/kidney	Recurring urinary infections	1	4	13	16	26	10	0	35
Urinary/kidney	Prostatitis	0	0	1	4	5	0	2	6

Table C-1: Reproduction—Litters Bred

Q41 If this PWD is a female, how many litters has she had?	Responses	%	Total Litters
0	1165	81.35%	0
1	82	5.49%	82
2	84	5.56%	168
3	66	4.37%	198
4	27	1.85%	108
5	4	0.26%	20
6	2	0.13%	12
Other (please specify)	15	0.99%	

Table C-2: Reproduction—Male Reproductive Problems

Q40 If this PWD is a male, has he experienced any of the following reproductive issues?	Responses	%
None of the above	2012	94.1%
Abnormal semen	9	0.4%
Lack of libido	7	0.3%
Prostatic disease	24	1.1%
Subfertile/infertile	7	0.3%
Other (please specify)	91	4.3%
Collection pending	1	
Cryptorchidism	33	
Libido—high	3	
Monorchid/cryptorchidism	1	
Monorchid/other	2	
Other/not specified	4	

Table C-3: Reproduction—Female Reproductive Problems

Q39 If this PWD is female, has she experienced any of the following reproductive issues?	Responses	%
None of the above	1901	89.9%
Difficulty whelping	22	1.0%
Failure to conceive	22	1.0%
Irregular heat cycles	38	1.6%
Mastitis	25	1.2%
Primary uterine inertia	3	0.1%
Pyometra	23	1.1%
Resorption/abortion	10	0.5%

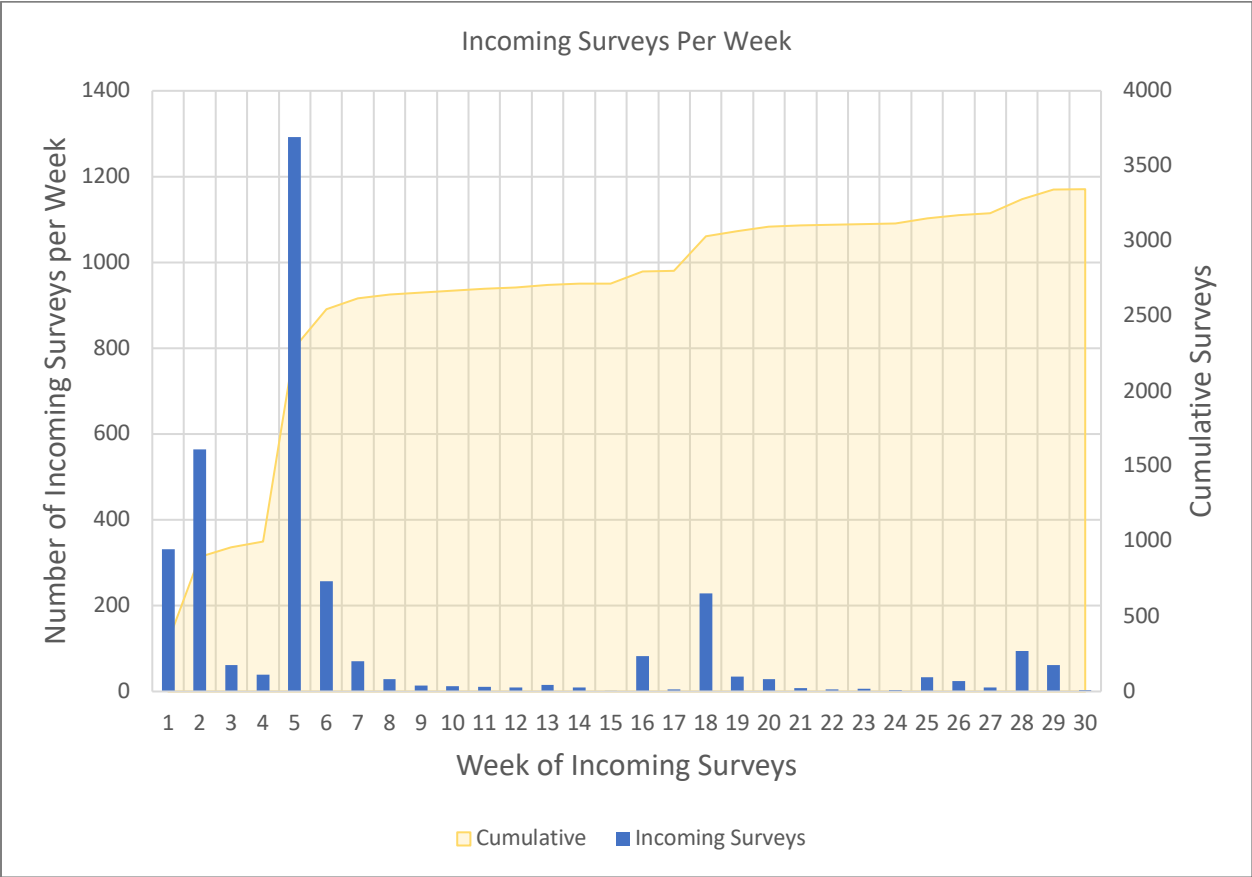
Q39 If this PWD is female, has she experienced any of the following reproductive issues?	Responses	%
Unplanned C-section	40	1.8%
Hypoluteoidism (insufficient progesterone to maintain pregnancy)	15	0.5%
Other (please specify)	65	4.4%
Spayed/fixed	10	
Too young to breed/no cycles yet	7	
Never bred/not bred yet	6	
Silent heat/no heat observed	4	
False pregnancy/phantom pregnancy	10	
Uterine or ovarian cysts	4	
Vaginal or conformational issues	6	
Small litters/singleton litters	3	
Dry birth	2	
Metritis/uterine infection	1	
Cycle frequency changes	3	
Mating failure (male factor)	1	
Unknown reproductive history	6	
Other/not specified	2	

Table C-4: Reproduction—Puppies Born in Litters

Q42 If this PWD is a female, what problems have you experienced in puppies born in her litters?	Responses	%
None of the above	1218	89.17%
Cleft palate	7	0.51%
Fading puppy	12	0.88%
Gangliosidosis	0	0.00%
Heart murmur	4	0.29%
Juvenile dilated cardiomyopathy	0	0.00%
Neurological disease	4	0.29%
Stillbirths	42	3.07%
Swimmer puppy	4	0.29%
Undescended testicles	26	1.90%
Unthrifty, small	14	1.02%
Liver shunt	6	0.44%
Walrus or water puppies	3	0.22%
Other (please specify)	55	4.03%
Spayed/fixed/not applicable	4	
Umbilical hernia	3	
Dental/jaw defects	6	

Q42 If this PWD is a female, what problems have you experienced in puppies born in her litters?	Responses	%
Conformational defects	5	
Abdominal wall defects	3	
Congenital kidney disease	1	
Imperforate anus	1	
Hydrocephalus	1	
Hernia (other)	1	
Cancer/tumor in pup	2	
Genetic conditions (CDDY)	2	
Addison's disease (later onset)	2	
Large litters	1	
Other congenital anomalies	1	
Unknown/N/A/don't know	22	

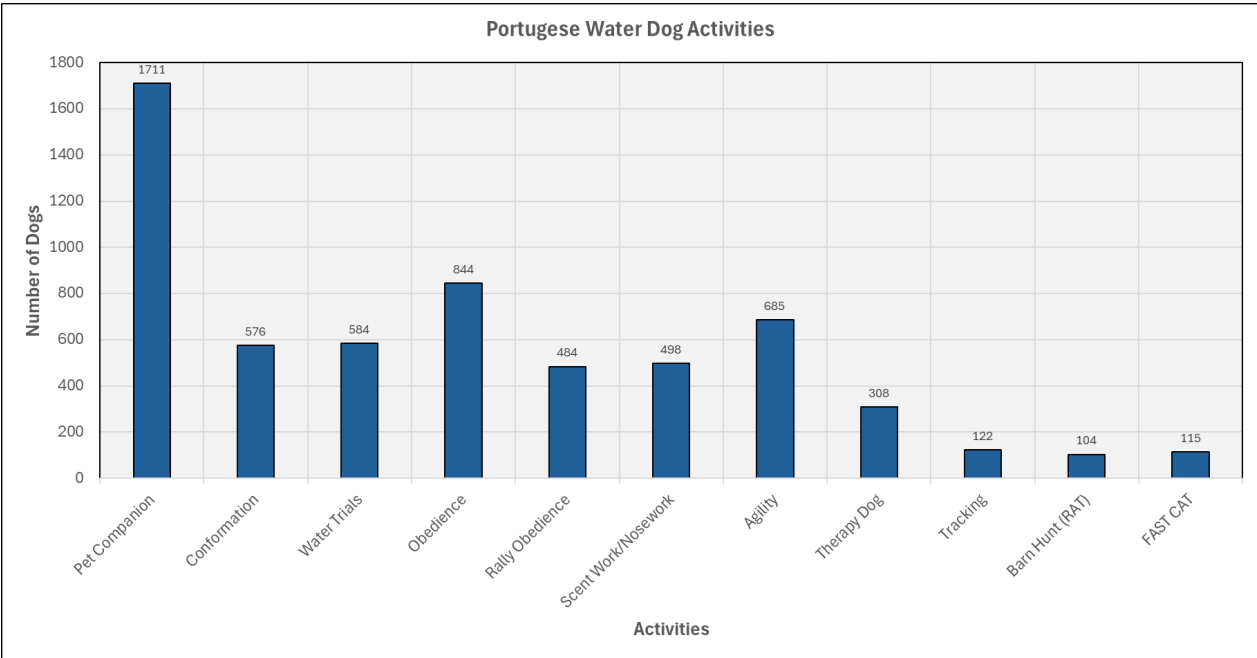
Appendix I: Incoming Survey Data



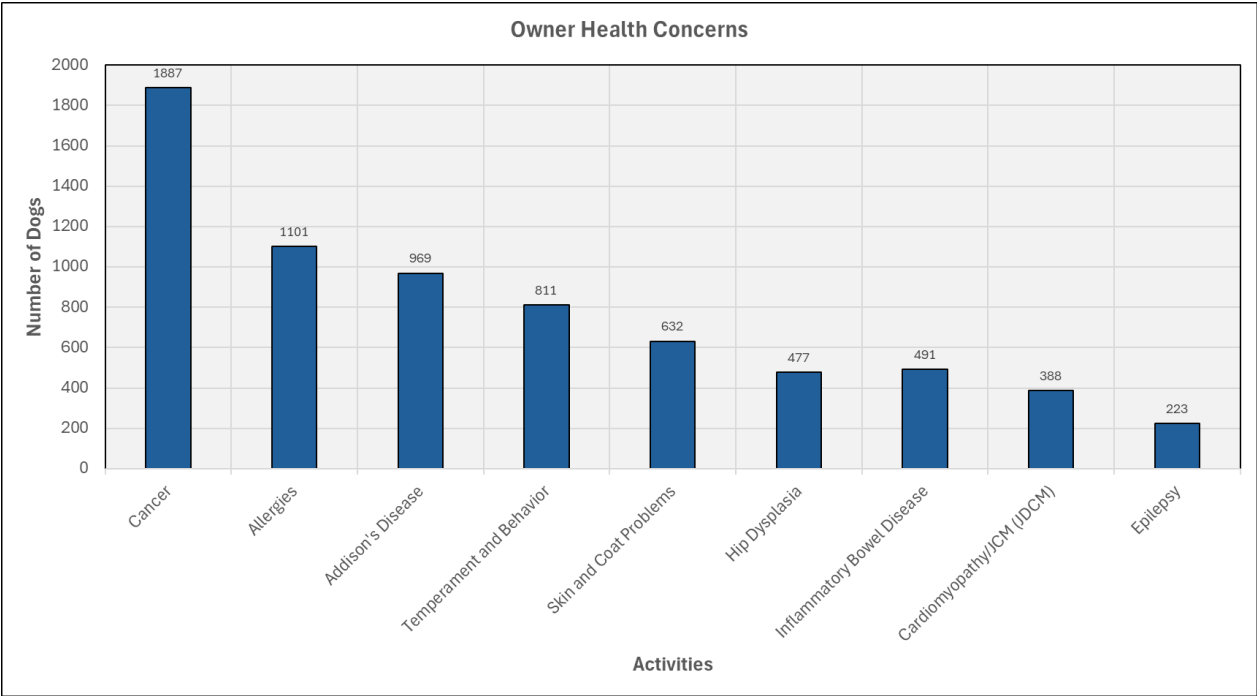
Date Created	CollectorID	Title	Notes
4/13/2025	435484210	Web Link - Testing	Testing web link
4/21/2025	435564802	Email Invitation 2	Survey invitation
4/24/2025	435609839	Web Link - Final	Web link shared
8/25/2025	436931080	Web Link 3	Web link shared again

Appendix II: Graphs

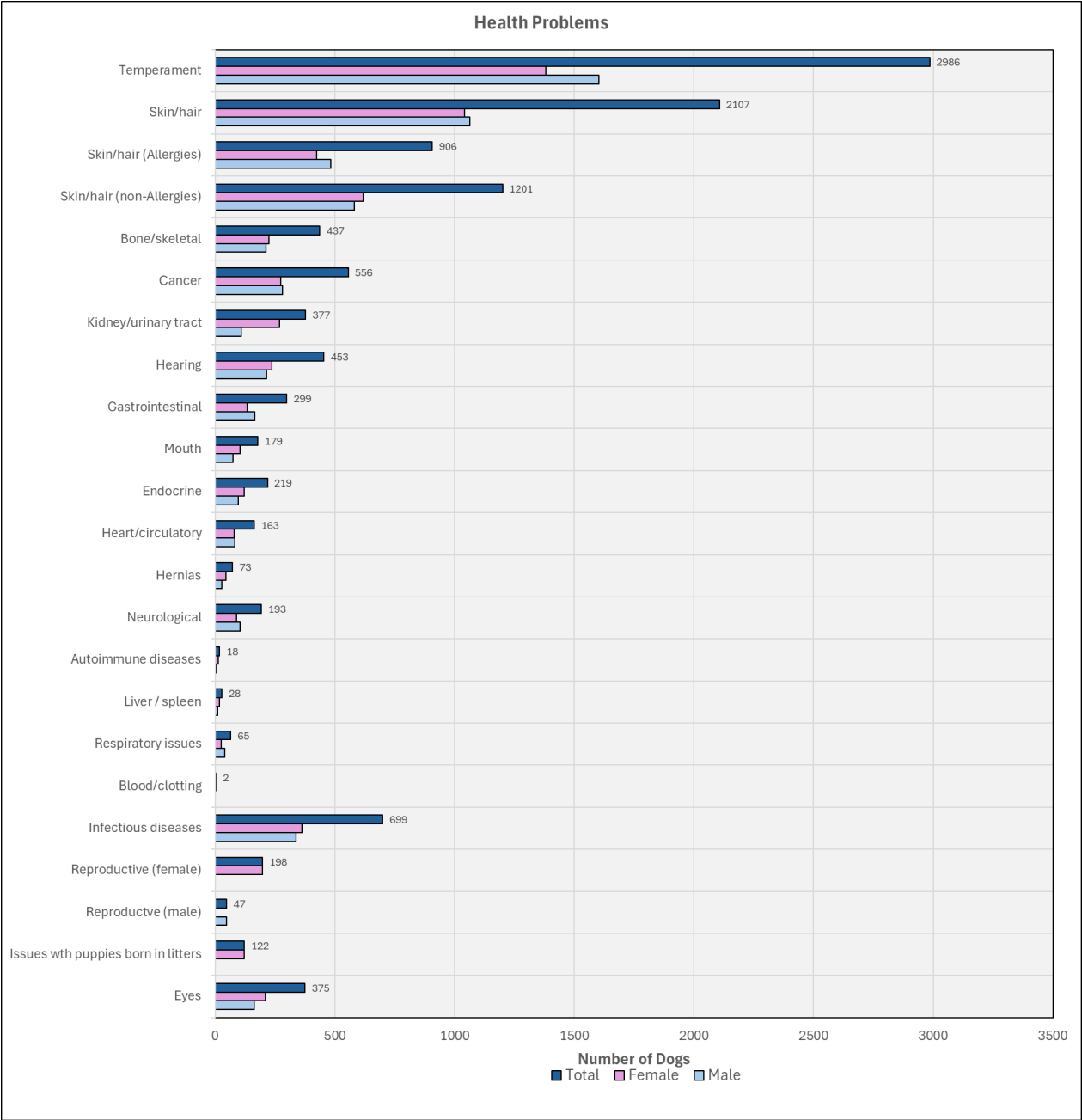
Graph A-1: Owner Activities



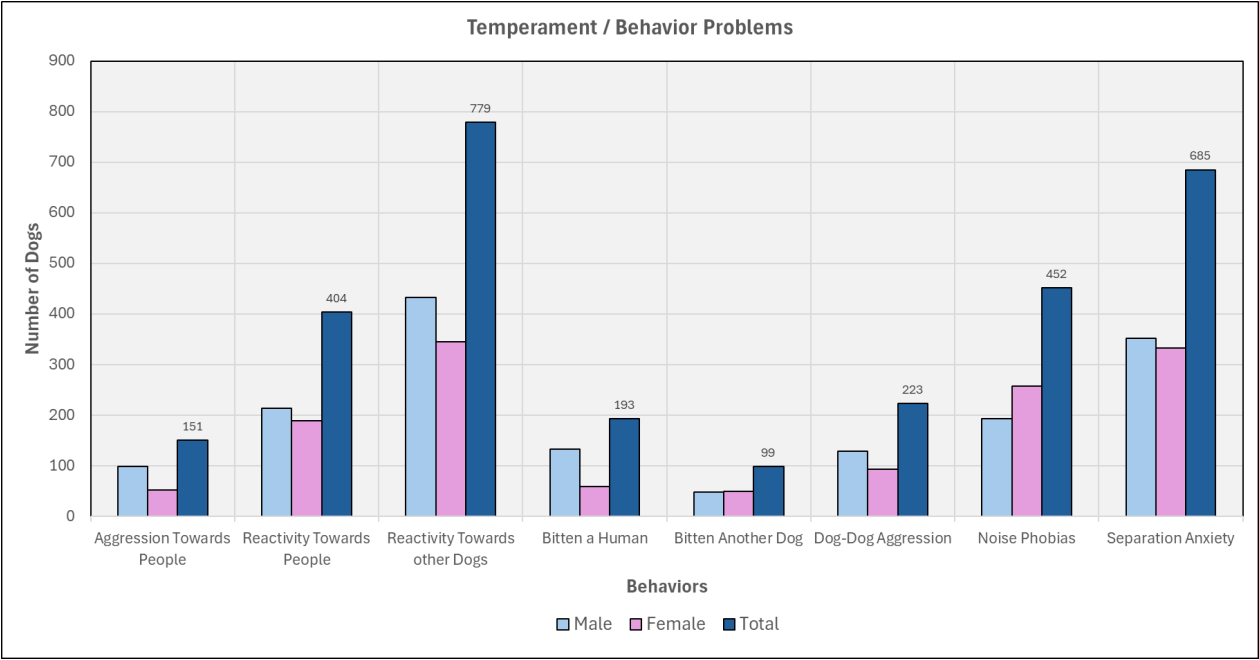
Graph A-2: Owner Concerns



Graph A-3: Health Problems



Graph A-4: Temperament/Behavioral Problems



Appendix III: Significance Testing

Category	Condition	Male (+)	Female (+)	Male %	Female %	Two Percent Rule?	OR	Lower 95% CI	Upper 95% CI	Chi-Square	p-Value	Interpretation
Behavioral	Bitten a human	134	59	8.5%	3.4%	Yes	2.63	1.88	3.67	38.7	<0.000001	Males have 163% higher odds; very strong
Behavioral	Aggression towards people	99	52	6.3%	3.0%	Yes	2.16	1.48	3.15	20.3	<0.00001	Males have 116% higher odds; strong
Behavioral	Dog-dog aggression	129	94	8.2%	5.5%	Yes	1.55	1.17	2.06	9.9	0.0017	Males have 55% higher odds; clear
Behavioral	Reactivity toward other dogs	433	346	27.6%	20.1%	Yes	1.51	1.29	1.77	25.3	<0.000001	Males have 51% higher odds; strong
Cancers	Hemangiosarcoma	124	98	7.9%	5.7%	Yes	1.43	1.96	7.45	7.9	0.0049	Males have 43% higher odds; statistically significant male excess
Skin and hair	General	1150	1135	73.3%	66.0%	Yes	1.43	1.25	1.63	29.27	<0.00001	Males have 43% higher odds; very strong
Skin and hair	Atopic allergies	252	220	16.1%	12.8%	Yes	1.31	1.12	1.54	11.7	0.0006	Males have 31% higher odds; statistically significant male excess
Skin and hair	Food allergies	230	204	14.7%	11.9%	Yes	1.28	1.09	1.51	8.9	0.0029	Males have 28% higher odds; statistically significant male excess
Behavioral	Reactivity toward people	214	190	13.6%	11.1%	Yes	1.27	1.03	1.56	5.1	0.024	Males have 27% higher odds; statistically significant but moderate male excess
Gastrointestinal	General	265	243	16.9%	14.1%	Yes	1.23	1.03	1.47	5.81	0.016	Males have 23% higher odds; statistically significant male excess
Behavioral	Separation anxiety	352	333	22.4%	19.4%	Yes	1.2	1.02	1.41	4.7	0.031	Males have 20% higher odds; statistically significant but modest male excess
Skin and hair	Lipoma/fatty tumors	289	281	18.4%	16.4%	Yes	1.16	1.01	1.34	4.2	0.04	Males have 16% higher odds; statistically significant but small male excess
Behavioral	Noise phobias	194	258	12.4%	15.0%	Yes	0.8	0.66	0.97	4.9	0.027	Females have ~20% higher odds; statistically significant female excess
Eyes	Cataracts	95	131	6.1%	7.6%	Yes	0.78	0.6	0.99	5.2	0.022	Females have ~22% higher odds; statistically significant female excess
Liver/spleen	General	51	96	3.3%	5.6%	Yes	0.57	0.4	0.8	13.64	0.0002	Females have 43% higher odds; strong
Urinary/kidney	General	143	349	9.1%	20.3%	Yes	0.39	0.32	0.48	114.1	<1e-25	Females have 61% higher odds; extremely strong
Urinary/kidney	Cystitis (bladder inflammation)	5	23	0.3%	1.3%	Yes	0.23	0.09	0.58	14.4	0.00015	Females have 77% higher odds; strong
Urinary/kidney	Recurring urinary infections	19	106	1.2%	6.2%	Yes	0.18	0.11	0.29	87.4	<0.00001	Females have 82% higher odds; extremely strong

Appendix IV: Overall Structured Question Responses by Condition

Category	Condition	Responses	% Total Responses
Autoimmune	Immune-mediated hemolytic anemia (IMHA)	9	0.3%
Autoimmune	Immune-mediated thrombocytopenia	5	0.2%
Autoimmune	Lupus	4	0.1%
Behavioral	Reactivity towards other dogs	783	24.51%
Behavioral	Separation anxiety	688	21.53%
Behavioral	Noise phobias	455	14.24%
Behavioral	Reactivity towards people	405	12.68%
Behavioral	Dog-dog aggression	225	7.04%
Behavioral	Bitten a human	193	6.04%
Behavioral	Aggression toward people	152	4.76%
Behavioral	Bitten another dog	100	3.13%
Bone and skeletal	Hip dysplasia	477	14.26%
Bone and skeletal	Arthritis	221	7.23%
Bone and skeletal	Cruciate ligament injury (ACL)	82	2.68%
Bone and skeletal	Elbow dysplasia	22	0.72%
Bone and skeletal	Osteochondritis dissecans	8	0.26%
Bone and skeletal	Luxating patellae	6	0.20%
Bone and skeletal	Panosteitis	4	0.13%
Cancers	Hemangiosarcoma	223	7.11%
Cancers	Lymphoma	91	2.90%
Cancers	Mast cell tumors (skin)	72	2.30%
Cancers	Lung	32	1.02%
Cancers	Melanoma	28	0.89%
Cancers	Squamous cell	26	0.83%
Cancers	Brain or central nervous system	25	0.80%
Cancers	Osteosarcoma	23	0.73%
Cancers	Mammary	20	0.64%
Cancers	Bladder or prostate cancer	18	0.57%
Ears	Chronic ear infections	348	11.18%
Ears	Deafness	110	3.53%
Endocrine	Hypothyroidism	82	2.66%
Endocrine	Addison's disease	10	1.24%
Endocrine	Cushing's disease	36	1.17%
Endocrine	Diabetes mellitus	6	0.19%
Endocrine	Hyperparathyroidism	6	0.19%
Eyes	Cataracts	233	7.43%
Eyes	Entropion	41	1.31%
Eyes	Distichiasis (extra row of eyelashes)	36	1.15%
Eyes	Persistent pupillary membrane	30	0.96%
Eyes	Keratoconjunctivitis sicca	23	0.73%
Eyes	Glaucoma	14	0.45%
Eyes	Ectropion	5	0.16%
Eyes	Progressive retinal atrophy (PRA)	5	0.16%
Eyes	Microphthalmia	4	0.13%
Eyes	Lens luxation	2	0.06%
Gastrointestinal	Inflammatory bowel disease	491	14.68%
Gastrointestinal	Pancreatic disease	57	1.86%
Gastrointestinal	Chronic vomiting	39	1.27%
Gastrointestinal	Chronic colitis	25	0.82%
Gastrointestinal	Protein losing enteropathy	20	0.65%
Gastrointestinal	Hemorrhagic gastroenteritis	17	0.55%
Gastrointestinal	Bloat	12	0.39%
Gastrointestinal	Intestinal lymphangiectasia	9	0.29%
Gastrointestinal	Megaesophagus	9	0.29%
Heart/circulatory	Murmur	100	3.25%
Heart/circulatory	Cardiomyopathy	21	0.68%
Heart/circulatory	Mitral valve disease	16	0.52%
Heart/circulatory	Arrhythmia	12	0.39%
Heart/circulatory	Diet-mediated dilated cardiomyopathy	10	0.33%
Heart/circulatory	Juvenile dilated cardiomyopathy	2	0.07%
Heart/circulatory	Patent ductus arteriosus	1	0.03%
Heart/circulatory	Pulmonic stenosis	1	0.03%

Heart/circulatory	Atrial septal defect	0	0.00%
Heart/circulatory	Tetralogy of Fallot	0	0.00%
Hernias	Umbilical hernia	64	2.08%
Hernias	Inguinal hernia	8	0.26%
Hernias	Peritoneal-pericardial	1	0.03%
Hernias	Body wall	0	0.00%
Hernias	Diaphragmatic	0	0.00%
Infectious disease	Bordetella (kennel cough)	317	10.35%
Infectious disease	Lyme disease	187	6.11%
Infectious disease	Vector-borne (or tick-borne) diseases other than Lyme (Anaplasma, Ehrlichia, Rocky Mountain spotted fever, Bartonella)	106	3.46%
Infectious disease	Canine influenza	32	1.05%
Infectious disease	Leptospirosis	22	0.72%
Infectious disease	Canine parvovirus	17	0.56%
Infectious disease	Fungal infection (blastomycosis, histoplasmosis, cryptococcosis, etc.)	16	0.52%
Infectious disease	Coronavirus	3	0.10%
Infectious disease	Brucellosis	2	0.07%
Infectious disease	Parainfluenza	1	0.03%
Infectious disease	Chagas disease	0	0.00%
Liver/spleen	Splenic hematoma (noncancerous)	20	0.65%
Liver/spleen	Gallbladder mucocele	4	0.13%
Liver/spleen	Hepatic shunt	4	0.13%
Mouth	Undershot jaw	73	2.37%
Mouth	Base narrow canines	58	1.88%
Mouth	Missing teeth	52	1.69%
Mouth	Overshot jaw (parrot mouth)	6	0.19%
Mouth	Wry mouth	5	0.16%
Mouth	Cleft palate	3	0.10%
Neurological	Epilepsy	223	6.67%
Neurological	Seizures (nonspecific)	83	2.70%
Neurological	Vestibular disease	36	1.17%
Neurological	Intervertebral disc disease (spinal disease due to herniated discs, disc degeneration, etc.)	21	0.68%
Neurological	Stroke (infarct)	12	0.39%
Neurological	Inflammation of the brain or spinal cord (encephalitis, meningitis, meningoencephalitis)	7	0.23%
Neurological	Degenerative myelopathy	2	0.06%
Neurological	Polyneuropathy	2	0.06%
Respiratory	Pneumonia	47	1.53%
Respiratory	Laryngeal paralysis (LARPAR)	18	0.55%
Respiratory	Elongated soft palate	0	0.00%
Skin and hair	Lipoma/fatty tumors	570	18.23%
Skin and hair	Atopic allergies	472	15.10%
Skin and hair	Sebaceous cysts	456	14.59%
Skin and hair	Food allergies	442	14.14%
Skin and hair	Hair loss	96	3.07%
Skin and hair	Viral papilloma (warts)	83	2.66%
Skin and hair	Follicular dysplasia	5	0.16%
Skin and hair (allergies)	Skin/hair (allergies)	906	7.7%
Skin and hair (non-allergies)	Skin/hair (non-allergies)	1201	10.3%
Urinary/kidney	Recurring urinary infections	125	4.06%
Urinary/kidney	Incontinence after a spay	75	2.44%
Urinary/kidney	Chronic renal failure	44	1.43%
Urinary/kidney	Cystitis (bladder inflammation)	28	0.91%
Urinary/kidney	Prostatitis	21	0.68%
Urinary/kidney	Incontinence before a spay	8	0.26%
Urinary/kidney	Renal dysplasia	6	0.19%



*Thank you to our generous donors
and dedicated research partners
for your support through the years.*

TOGETHER, WE'RE IMPROVING HEALTH AND
BUILDING A STRONGER FUTURE FOR OUR BREED.



www.pwdfoundation.org