PWDCA Health Survey – 2014 – Quick Summary

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Survey Information

The PWDCA developed a dog based general health survey last year; owners of PWDs worldwide were invited to participate. The purpose of the survey was to determine frequency of health problems from the perspective of individual dogs and also as owner concerns and their collective experience. The 2005 PWD health survey and the PWD Health and Litter Database (HLD) were used as comparison where applicable.

This is a brief summary of the results. See the full report for many more details on data management, views on the HLD, the dogs, owner concerns and prior experience, health issues, reproductive topics, and mortality.

Date Collection and Management.

The survey was designed and the data were collected in a SurveyMonkey account that was independent of the PWDCA account. SurveyMonkey is a web survey development cloud based company. All respondents did not provide all information so total numbers may differ, depending on the section and topic. Duplicate entries were deleted.

Owners

The survey represents 750 owners and 1388 dogs; 657 owners were from the USA, 93 from outside the USA. Of the 657 owners from the USA, 247 owners are PWDCA members which represents 12% of the overall membership. Of the 750 owners, 156 stated they are breeders.

Questions separate from the individual dog were about owner concerns and collective experience with their own dogs, which may or may not have been included in the survey itself. Concerns in descending order of frequency were cancer 44.6%, temperament 22.3%, allergies 20.9%, skin and coat 18.5%, PRA 9%. Problems experienced in descending order of frequency were temperament or behavioral 16.4%, food intolerance/allergy 13.2%, hemangiosarcoma 12.5%, hip dysplasia 12% and hypothyroidism 7.7%. An interesting inquiry is whether the concerns and experiences were similar to the survey findings.

Only 424 owners (57%) answered that they participated in the HLD and just 334 of those (79%) said they listed health problems.

Dogs

Average age of living dogs was calculated from date of birth to August 11, 2014. The average was 6.3 years (n=1073; minimum 0.25 yr; max 16.7 yr). As expected, health problems increased with the age of the dog. Sixty-six percent of dogs were spayed/neutered.

There were 357 (25.7%) deceased dogs; 64(4.6%) were natural deaths, 272 (19.5%) were with euthanasia, and 12 (.8%) accidental. Necropsy was done in 108 (38%) and 57% of those were conducted by the Georgie project.

Titers were used by 413 (29.9%) to determine the need to vaccinate. This is in contrast to 10% in 2005. Rabies vaccination was not given to 28 dogs of which 12 were from the USA.

About 69% of dogs received heartworm prevention as prescribed by their veterinarian; 63% of dogs received some sort of flea prevention with 48% of those being a monthly skin application.

In the area of puppy socialization, 972 (70%) dogs received training in general manners in obedience school, 69 at Petsmart or similar program, 627 (45%) in companion dog obedience class. In home, 188 with trainer, 872 (62.8%) with owner. Frequency of training was reported as daily by 697 (50%), almost daily by 419, 2-3 times a week by 173, and one time by 54. Of 1252 dogs, the average daily exercise was 2 hours with a range of 0-8 hours.

With regard to health problems or tick disease, there were 865 (62%) with no issue and 531 dogs with at least one health issue or tick disease.

Most Frequent Categories of Health Problems

Category	**% of All Dogs (n=1388)**	**Most Common Problem (% of all dogs)**
Temperament and behavior	17.4	Aggression (8.9%)
Orthopedic	8.8	Hip dysplasia (4.4%)
Skin and coat	8.2	Sebaceous cysts (4.3%)

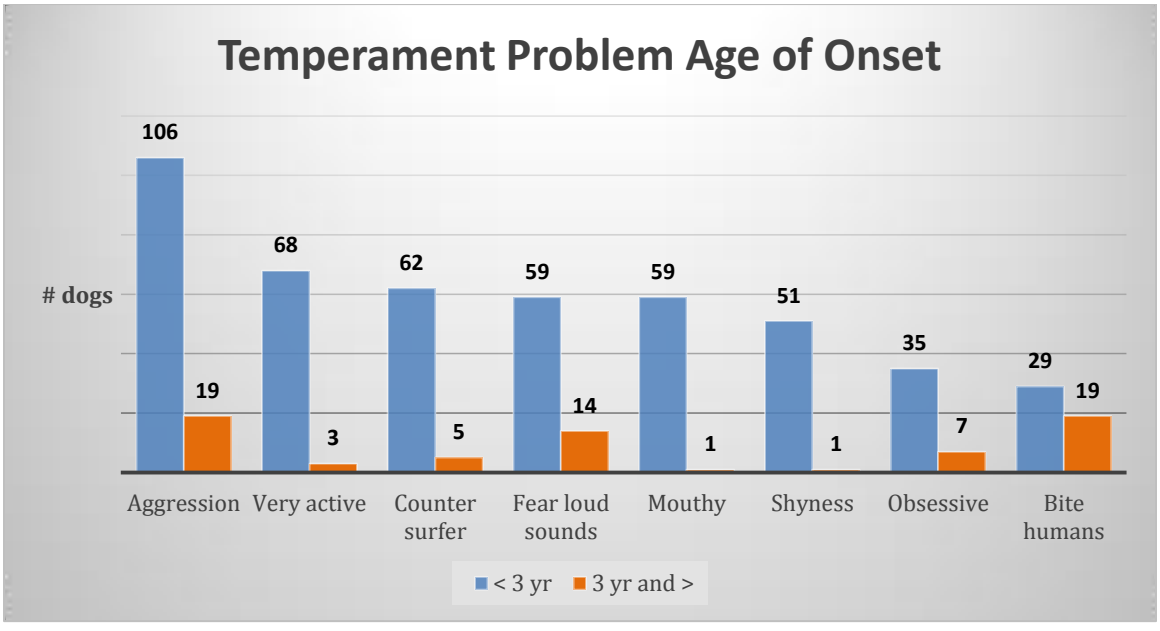
Allergy	7.9	Dietary (3.8%)*
Tick-borne diseases	7.3	Lyme's disease (5.5%)
Gastrointestinal & liver	7.1	Food intolerance (3.9%)*
Cancer	6.2	Hemangiosarcoma (3.7%)
Ear	5.2	Chronic ear infection (2.3%)
Renal	5	Recurrent UTI (1.8%)

*Over half the dogs that listed as food intolerant/allergy in GI and Liver Section also listed food allergy in the Allergy section

The most frequent cardiac problem was heart murmur (2.8%) which is non diagnostic. The most frequent endocrine problem was hypothyroidism (4.5%) and the most frequent autoimmune problem was Addison's disease (1.7%). The most frequent eye problem was punctate cataracts.

Temperament/Behavior Problems (620 problems in 242 dogs)

Diagnosis	#	% dogs with temperament problems	% all dogs
Aggression	124	51.2	8.9
Fear of loud sounds	76	31.4	5.5
Very active	71	29.3	5.1
Habitual counter surfer	67	27.7	4.8
Mouthy	60	25	4.3
Shyness	51	21.1	3.7
Bite humans	48	19.8	3.5
Obsessive behavior	42	17.4	3
Other phobias	32	13.2	2.3
Moderate activity	21	8.7	1.5
Touch sensitivity	11	4.6	0.8

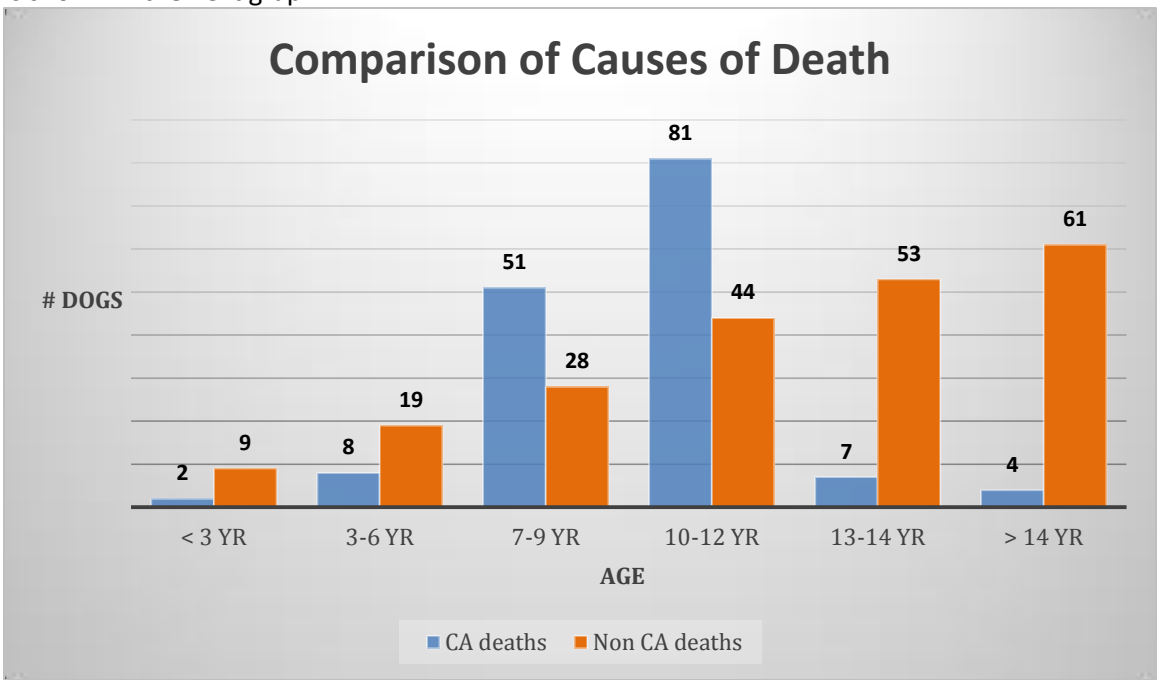


Temperament problems were rarely isolated. See the full report for more information.

Mortality (#=357)

The necropsy rate of 32% is excellent in comparison with other breeds whose health surveys I have worked on. The Georgie project performed 57% of the necropsies. Without Georgie and its uniform and detailed approach to PWD necropsies, the necropsy rate would have been 13% and we would know much less about clinical and subclinical findings at the time of death. If more owners had contacted Georgia, then the necropsy rate would be even higher. This is a valuable resource and one that can benefit from improved education and logistics coordination with the PWDCA.

See the full report for details about all causes of death in each age group. Of 154 cancer deaths, 79 were from hemangiosarcoma and 16 were either lymphoma or lymposarcoma. Given concerns about cancer and the survey findings, data comparing cancer deaths to all other causes is shown in the next graph.



Reproduction

Female. Reproduction information was given on 297 bitches, the most frequent reported heat cycle was every 6 months. The most commonly used prebreeding assessment was brucellosis screening followed by progesterone testing, vaginal exams, thyroid, and bacterial culture. Of breeding methods, natural breedings were the most frequently reported.

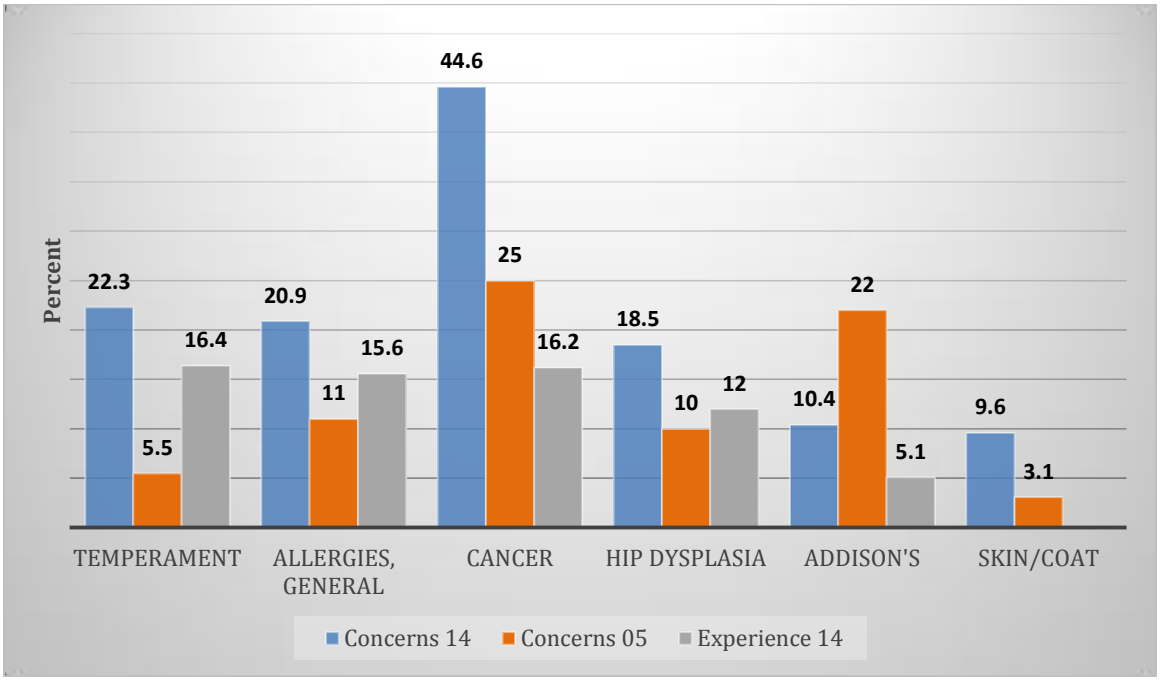
The total number of breedings was 710, the total number of litters produced was 614, and the total number of puppies was 4373. The most common female reproductive complications were unplanned C-section, failure to conceive, planned C-section, difficult whelp, and resorption after 30 days. Dam progeny problems in decreasing order of frequency were undershot jaw, base narrow mouth, hip dysplasia, monorchid, umbilical hernia, cryptorchid, Addison's disease, heart defects, skeletal defects, lymphedema, missing teeth, cleft palate, overshot jaw, small eyes, juvenile renal dysplasia, puppy eye syndrome and others.

Male. The most common male prebreeding assessments in descending order of frequency were brucellosis screening, sperm count, sperm motility, sperm morphology, sperm color, and exam of external organs. Compared to bitches, reproductive problems were infrequent. Of 140 breeding males, problems include 2 cases of mycoplasma, 1 of herpes simplex and 1 not specified. There were no cases of aspermia or hypospermia. For comparison, the 2005 survey found these problems in 234 dogs: prostatic disease 6.4%, subfertile/infertile 6.4%, abnormal semen 3.9%, and lack of libido 1.7%.

There were 598 litters produced by 123 dogs bred to a total of 620 bitches with 598 litters produced. Sixteen dogs (11.4%) were responsible for 50% of the litters.

Problems in pups sired by dogs in order of decreasing frequency were undershot jaw, hip dysplasia, Addison's disease, cryptorhid, monorchid, base narrow, over shot jaw, umbilical hernia, cleft palate, heart defects, puppy eye syndrome, small eyes, too buds/supernumerary teeth, juvenile renal dysplasia, and "other".

Comparison of Owner Concerns, Experience, HLD, and Survey



The most frequent individual problems in the 2014 survey with data available from at least one other source are shown in the next table.

Problem	14 Survey	05 Survey	HLD	Experience	OFA
Aggression, dog-dog	7.4	7.4	0.4		
Noise phobias	5.5	7.1			
Hypothyroid	5.4	4.3	1.4		1.6*
Hip dysplasia	4.4	6.9	2.1	12	12.5**

Sebaceous cysts	4.3	10	0.1	
Food intolerance	3.9	6.2		
Hemangiosarcoma	3.7	3.1	1.3	
IBD	1.9	2.1	0.7	
Addison's	1.7	1.7	2.0	5.1

*Based on 64 exams, 3.1% had autoimmune thyroiditis, 1.6% had idiopathic hypothyroidism, and 14.1% had equivocal test results.
**Cumulative data for 1974-December 2013 based on 8187 exams. 14.3% are excellent.

Comparison of Disease Category Frequency

The most frequent problem categories with data available from at least one source other than the 2014 survey are shown in the next table.

	14 Survey	**05 Survey**	**HLD**	**Experience**
Temperament and behavior	17.2	47		22.3
Allergies*	11.8	19	18.3	20.9
Orthopedic	8.8	17		
Cancer	6.3	12	19.2	16.2
GI and Liver	7.1	7.8	1.5	
Ear	5.2	9.8		
Renal	5.0	12	1.5	

*for 14 survey this category allergies + food intolerance/allergy which might account for a lower frequency

Health Problems That Deserve Research Efforts

419 people answered this question, often listing more than one problem. The responses can be divided into non-specific and disease specific suggestions. A few mentioned the need to include environment, diet, and/or vaccinations in research on a disease.

Among the non-specific suggestions are:

- Most prevalent, top 5 identified by survey, top 10% identified by survey
- Potentially fatal
- Heritable
- Affect longevity
- Affect quality of life
- Those occurring more recently or are more common

The most frequently suggested diseases for research are listed below. See the full report for additional diseases.

Problem	**% of 419**
Cancer	42.5 cancer generally; an additional 11.7% mentioned hemangiosarcoma
Addison's disease	34
Allergies	17

Temperament	14.3
Cardiomyopathy	13.6
Hip dysplasia	13.6
PRA (some specified PRA2)	13.4
Autoimmune polyglandular syndrome, type II	10
Juvenile renal dysplasia	9.2

HLD

The data about HLD participation, while perhaps not representative of the membership or PWD owners in general, provide some areas that could be addressed and pose some questions for discussion.

1. How to counter the beliefs that the HLD is only for breeder data entry, or litters, or breeding dogs, or show dogs, or dogs with health problems, or PWDCA members. Non-breeder and non-member PWD owners have just as much vested interest in having a healthy PWD with good temperament and behavior as do breeders.
2. Developing a guide for people in finding the HLD and entering data would be useful.
3. Reworking the HLD software to allow for searches at by dog, disease, owner, or breeder would enhance usability.
4. Intertwined with the requirement of HLD participation for various PWDCA programs and volunteer work is that of enforcement of the policy. Is it vital that participation be required for these activities? If so, is there a solution to ensure that the policy be followed in a mature and responsible way? In the long term interest of the breed's wellbeing doesn't gathering data on health issues, wellness, longevity, or progeny on as many PWDs as possible far outweigh the short term benefits of required participation?

Comments

Research.

Research does not necessarily have to be lab bench research in search of a genetic marker for a likely heritable disease. It can also be the collection pedigrees of affected dogs and then developing family pedigrees (with software such as Progeny) as a first step to demonstrate interrelationships among the dogs and possible inheritance of the disorder. This is very tedious work as it requires gathering health information on littermates of affected dogs, which is sometimes not forthcoming. Even so, the effort is worthwhile because that kind of information is very useful for a research team responding to a request for proposals from an institution that awards grant funds. Those involved in the funding decisions to support research programs to benefit the PWD will hopefully find these survey data helpful.

Temperament and Behavior Problems.

What is to be made of the findings? Temperament and behavior problems were the most frequent category of problems in this survey, were the problem most experienced by owners, the fourth most common problem thought in need of research, and were the second highest concern in this survey. It was also the most frequent problem reported in the 2005 health survey. Consequently, temperament and behavioral issues should have everyone's attention.

Most temperament problems started before three years of age and most do not occur as an isolated problem. Over half the dogs with a temperament problem received one or more

interventions yet just 53% of those showed improvement. This either means the intervention was appropriate yet ineffective or that the interventionist had insufficient experience to help. Sixty-one dogs (24%) with a temperament problem were bred although there was no mention of a similar problem in progeny. While it is conceivable that some behaviors are inherent in the PWD and are exacerbated by environmental and/or owner circumstances, owners still have to grapple with how to management them. In other words, those problems are real life experiences that upset the family equilibrium.

The leading problems identified in the 05 survey (albeit owner based) were also temperament and behavioral. Then followed a two year series of educational articles in the Courier about the topics. While the current survey identified temperament and behavioral problems as the top set of problems the percentage was lower than in 2005 (17% vs 47%). It is not known if the lower frequency can be attributed to the survey methodology or to a real decline.

Rabies Vaccination Issues.

Waivers for Rabies Vaccination. The American Veterinary Medical Association (AVMA) policy of rabies vaccination (https://www.avma.org/KB/Policies/Pages/Annual-Rabies-Vaccination-Waiver.aspx) recognizes the need for a waiver from rabies for vaccination for some animals in whom vaccination poses an unacceptably high risk. Both the licensed veterinarian who has a client-patient relationship and the appropriate public health authorities need to concur that the waiver should be issued.

THE CLIENT MUST BE INFORMED THAT THE WAIVER ONLY SERVES TO LET THE ANIMAL BE LICENSED IN COMPLIANCE WITH ANIMAL CONTROL REGULATIONS. Thus, if the animal is involved in a potential rabies exposure event, the animal is considered unvaccinated against rabies for the purpose of public health regulation. The policy states that rabies waivers should be reconsidered yearly.

Definition of Health Problem

One individual commented they did not consider bad temperament, allergies, and some other issues to be health problems. Used in the context of this survey, health problem was intended to mean a state in which the dog is unable to function normally. Allergies are a health problem and bad temperament is also a health problem. A dog with those "issues" does not function normally and his family knows it and has to find interventions at cost in time, money, and emotional energy to resolve or at least control the problem.

APS2. Sixty dogs with the health problems reported by Maclaren in the index case (Addison's, cirrhosis, liver cancer, interstitial nephritis, and IBD) along with autoimmune thyroiditis and diabetes mellitus were reviewed. None had a diagnosis of nephritis or diabetes mellitus. Twenty-six dogs had IBD but none of the other diseases. Two dogs had cirrhosis but none of the other diseases. There were five with liver cancer and one of those had Addison's disease but no other problem. There were five with autoimmune thyroiditis but no other problem. Twenty-three dogs had Addison's disease; one of those has discoid lupus erythematosus and one was hypothyroid (unknown if this was autoimmune thyroiditis).

In this limited survey population pf PWDs there is no evidence for APS2 as defined by clinically symptomatic and diagnosed diseases that were described in the original report. APS2 by this

definition is either quite uncommon in the PWD population, a dog may have had subclinical conditions, or owners with dogs who have experienced the combination of disorders did not enter their dogs in the survey.

Beyond the survey, Dr. Lark of the Georgie Project responded to a direct question about APS2 from the endocrine committee chair with this answer: "To answer your main question, the idea of heritable APS in the breed cannot be supported by our large number of autopsies #300 at this time. Addisonians seem to have more concurrent Hemangiosarcomas than the rest of the population and possibly more atherosclerosis and osteoporosis. They seem to have less lymphosarcomas. Certainly there is no evidence for APS as an associated syndrome. Changes in the thyroid, pancreas and salivary glands as well as the liver and spleen are about the same frequency as in the population as a whole." (Courier July/Aug 2013 and email communication where number of necropsies was updated to 388). (*Note: The higher number with hemangiosarcoma and fewer with lymphoma among the necropsies in Addisonian dogs may be a reflection of these cancer rates in the PWD rather than unique to the Addisonian dog – see the cancer category).*

Recommendations

The most common set of issues was temperament and behavior. The PWDCA should establish a committee to assist owners in obtaining competent professional help early on and to work with the HLD committee as it restructures to assure that a complete list of temperament and behavioral diagnoses are available for check off in the HLD. Additionally, breeders may want to consider history of these problems in progeny when planning a breeding.

Utilize the data on disease frequency and cause of mortality in considerations of funding for research programs administered by granting agencies and for educational efforts.

Health committees should determine if the confidentially reported data they have matches the survey data and work to understand any differences.

Conduct another dog based survey in five years with very similar content to allow for comparison unless the HLD restructuring would provide collection of the same data points and there is improved participation in the HLD. With a next survey, dogs should have been born within 15 years to allow comparison with findings in the 2014 survey for change over time. Survey methodology should be changed to use a server based database. That would let owners log in, enter as many dogs as desired without having different survey structures, and make changes until the survey closes. Data analysis would be far easier with this approach. Finally, it is crucial that innovative approaches be devised to engage much wider participation by both PWDCA members and the many non-member puppy buyers.