

Report from the Kennel Club/
British Small Animal Veterinary Association
Scientific Committee

Summary results of the
Purebred Dog Health Survey
for Pug Dogs

Warning: The results of this survey and particularly the breed-specific analyses should be interpreted with caution. The overall response rate was only 24% with breed-specific response rates from 4.5% to 64.7%.

Pug Dogs

A total of 1200 forms were sent out and 196 were returned, representing 461 live dogs. This breed had a 16.3% response rate (196/1200) and it represented 1.43% of all returns (196/13,741).

Mortality data

A total of 163 deaths were reported and this represents 1.03% of all deaths reported in the survey (163/15,881). The median age at death for Pug Dogs was 11 years (min = 2 months, max = 17 years) and this was lower than the overall median of 11 years and 3 months (Figure 1). Table 1 shows the causes of death for Pug Dogs. Age at death is presented for the most common causes of death (Figure 2).

Table 1. Causes of death by organ system/category for Pug Dogs.

Cause of death	N	%	Most common specific causes in descending order
1 Old age	41	25.2	Old age
2 Cardiac	20	12.3	Failure; attack; disease (unspecified); cardiomegaly
3 Cancer	18	11.0	Leukaemia; type unspecified (mouth); lymphoma
4 Neurologic	14	8.6	Seizures; spinal disease unspecified; IVDD; spondylitis
5 Perioperative	11	6.7	
6 Urologic	10	6.1	Kidney failure; urethral obstruction; incontinence
7 Other	8	4.9	Uncodeable
8 Cerebral vascular	7	4.3	Stroke or cerebral vascular accident
9 Musculoskeletal	7	4.3	Hemivertebra; OCD (bilateral); muscle dysfunction
10 Combinations	6	3.7	
11 Respiratory	4	2.5	Pneumonia; bronchitis
12 Reproductive	3	1.8	Pyometra
13 Unknown	3	1.8	
14 Collapse	2	1.2	
15 Hepatic	2	1.2	Liver disease; liver failure
16 Internal bleeding	2	1.2	
17 Trauma	2	1.2	Road traffic accident
18 Endocrine	1	0.6	Cushings disease
19 Gastrointestinal	1	0.6	Haematochezia (blood in stool)
20 Poisoning	1	0.6	
Total	163	100.0	

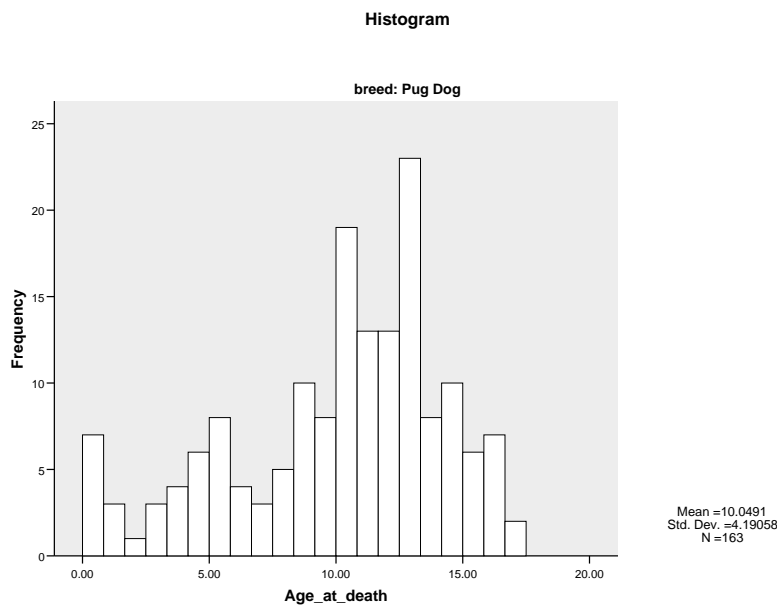


Figure 1. Histogram showing the frequency (as number of dogs) of age at death (in years) for the 163 Pug Dog deaths with age at death reported.

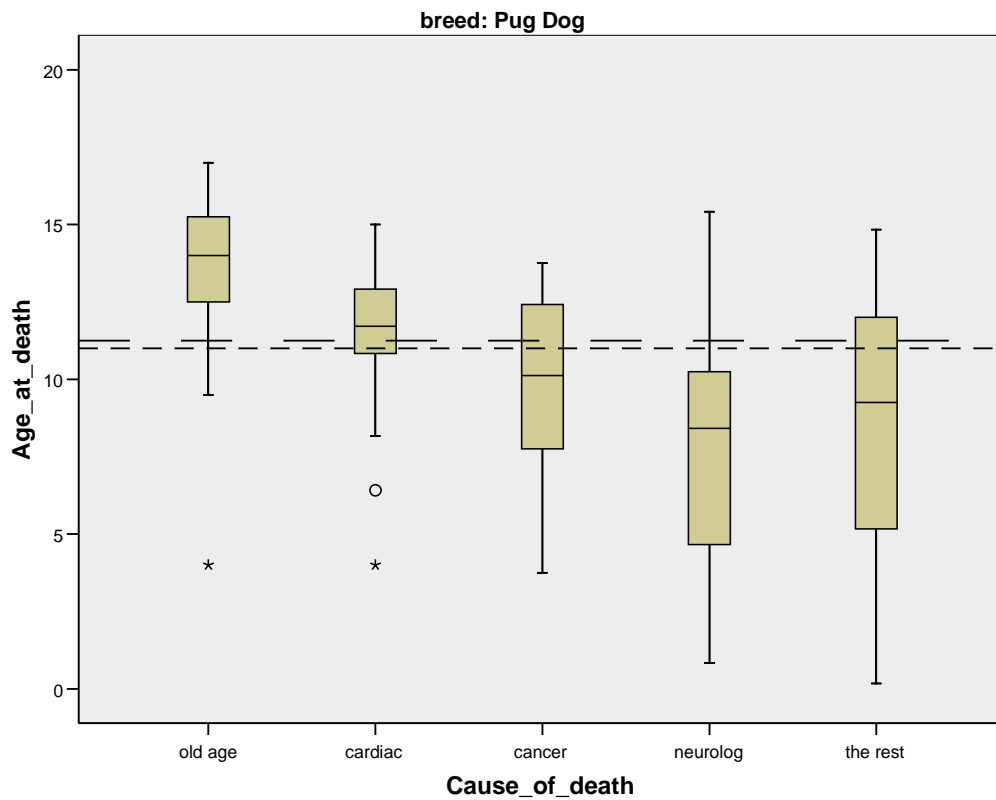


Figure 2. Box and whisker plot of age at death in years for the most common causes of death in Pug Dogs (N=163). The dashed line (---) is the overall median age at death for all dogs in the survey and the dotted line (----) is the overall median age of death for Pug Dogs. The solid line within each grey box represents the median age at death from the condition.

Morbidity data

The median current age of the 461 live dogs with a reported age was 4 years and 11 months (min=1 month, max=16 years and 10 months, Figure 3). Health information was reported for 461 live dogs of which 248 (54%) were healthy and 213 (46%) had at least one reported health condition, resulting in a total of 367 reported conditions with a median of 1 condition/dog (min=1, max=7).

The median current age of all healthy dogs with a reported age (N=248) was 3 years and 7 months (min=1 month, max=16 years and 8 months). The distribution of gender and neuter status is shown in Table 2.

The median current age of all dogs with one or more disease conditions and a reported age (N=206) was 6 years and 7 months (min=4 months, max=16 years and 10 months). The median age at diagnosis for all disease occurrences with a reported age at diagnosis (N=355) was 3 years (min= 3 months, max= 13 years and 4 months, Figure 4). Table 3 shows the disease conditions for Pug Dogs. Age at diagnosis is presented for the most common disease conditions (Figure 5).

Table 2. Distribution of gender and neuter status for 455 Pug Dogs with reported gender and neuter status.

Gender	Neuter status		Totals
	Intact	Neutered	
Female	142	121	263 (58%)
Male	144	48	192 (42%)
Totals	286 (63%)	169 (37%)	455 (100%)

Significantly more females were neutered (P=<0.0001).

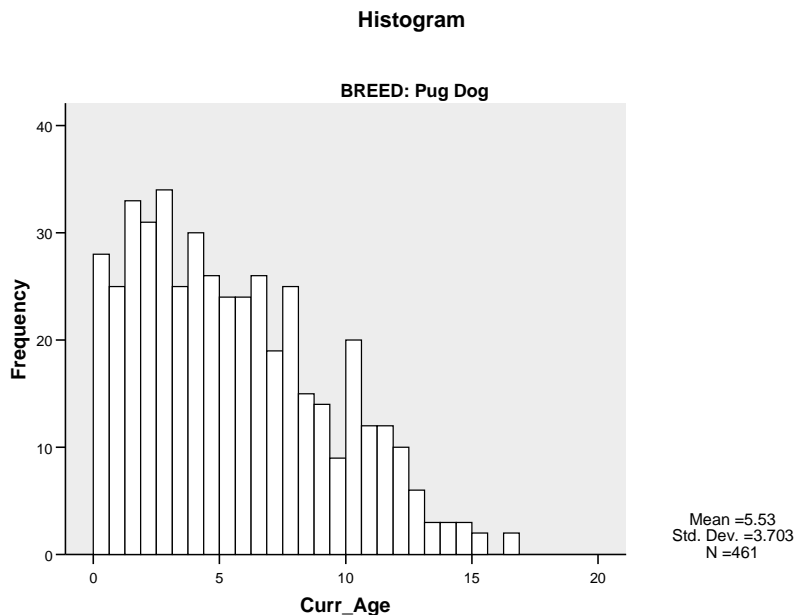


Figure 3. Histogram showing frequency of current age in years for the 461 live Pug Dogs with age reported.

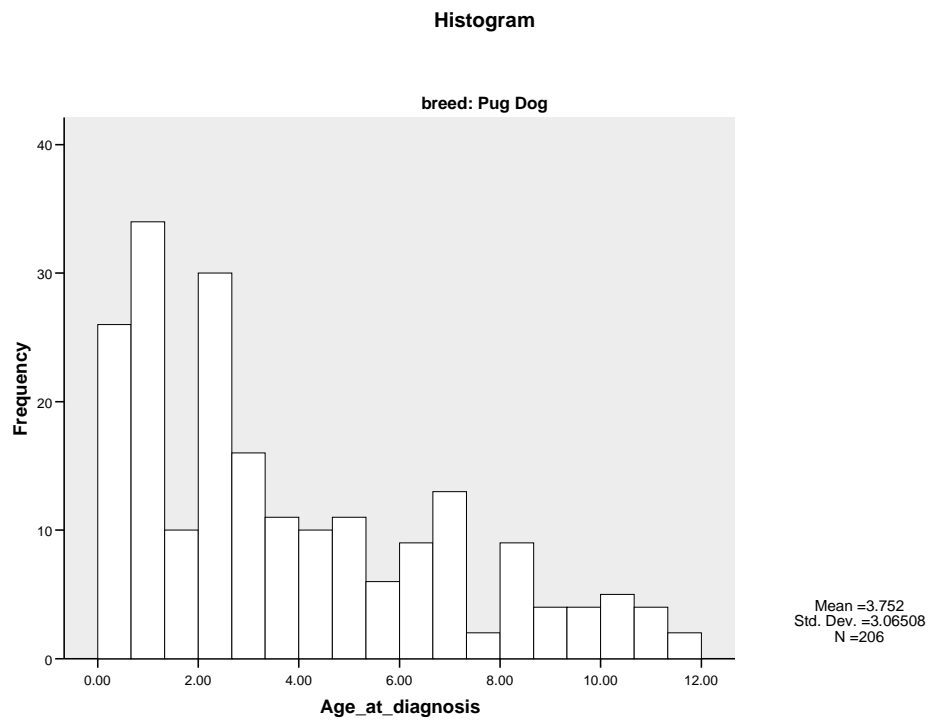


Figure 4. Histogram showing frequency of age at diagnosis for the 206 Pug Dogs with one or more disease conditions, using the youngest age at which a disease condition was first reported for those dogs with more than one disease condition or episode.

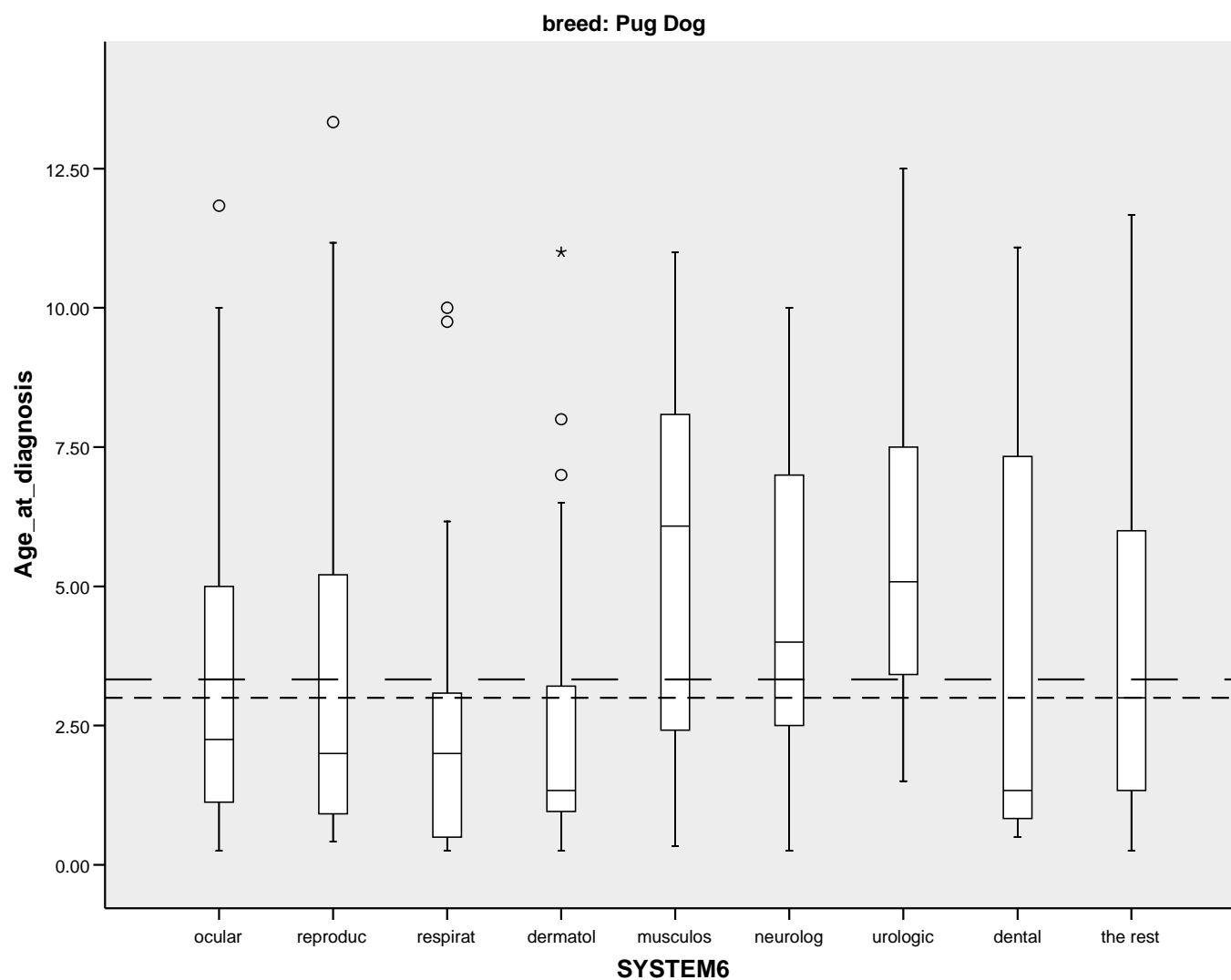


Figure 5. Box and whisker plot of age at diagnosis in years for the most common disease conditions in descending order for Pug Dogs (N=206 dogs with 355 conditions with age reported). The dashed line (---) is the overall median age at diagnosis for all dogs in the survey and the dotted line (----) is the overall median age at diagnosis for Pug Dogs. The solid line within each grey box represents the median age at diagnosis from the condition.

Table 3. Disease conditions by organ system/category for Pug Dogs.

Disease condition	All conditions		Most common specific conditions in descending order
	N	%	
1 Ocular	81	22.1	Corneal ulcer; KCS; entropion; blindness; enucleation; pigmentary keratitis; unspecified
2 Reproductive	33	9.0	Pyometra; vaginitis; infertility; cryptorchid; prostatomegaly
3 Respiratory	33	9.0	Noisy breathing; kennel cough; long soft palate; BOAS; tracheal collapse
4 Dermatologic	32	8.7	Dermatitis; mites (demodex>cheyletiella=sarcoptes); ringworm; pyotraumatic dermatitis
5 Musculoskeletal	31	8.4	Patellar luxation; arthritis; hip dysplasia (CHD); stiff joints
6 Neurologic	29	7.9	Seizures; IVDD (thoracic>unspecified); other (unspecified); CDRM; deafness
7 Urologic	26	7.1	Cystitis; incontinence (unspecified>after spay); cystouroliths (unspecified); cystitis
8 Dental	17	4.6	Retained puppy teeth; dental disease
9 Unknown	13	3.5	Undiagnosed illness
10 Aural	12	3.3	Otitis externa; ear mites
11 Immune mediated	12	3.3	Food allergy; atopy; other allergy (unspecified); gluten-sensitive enteropathy; flea allergy
12 Cardiac	9	2.5	Coughing; cardiomegaly; heart murmur; congestive heart failure (CHF); dilated cardiomyopathy
13 Gastrointestinal	7	1.9	Colitis; vomiting; campylobacter; constipation; diarrhoea
14 Cancer	6	1.6	Unspecified; MCT (leg; perianal); haemangiosarcoma (toe)
15 Trauma	6	1.6	Cornea; eyeball; unspecified; forelimb
16 Anal gland	5	1.4	Anal sacculitis
17 Benign neoplasia	4	1.1	Lipoma; unspecified
18 Other	3	0.8	Uncodeable
19 Cerebrovascular	2	0.5	Stroke or cerebral vascular accident
20 Endocrine	2	0.5	Diabetes mellitus; weight gain (undiagnosed)
21 Haematopoietic	2	0.5	Anaemia (unspecified)
22 Cardiopulmonary	1	0.3	Coughing
23 Hepatic	1	0.3	Acute liver failure
Total	367	100.0	

BOAS=brachycephalic obstructive airway diseases

CDRM=chronic degenerative radiculomyelopathy