Royal Veterinary College
University of London

VetCompass
Your Knowledge Hub

Petplan CHARITABLE TRUST

Degenerative mitral valve disease study

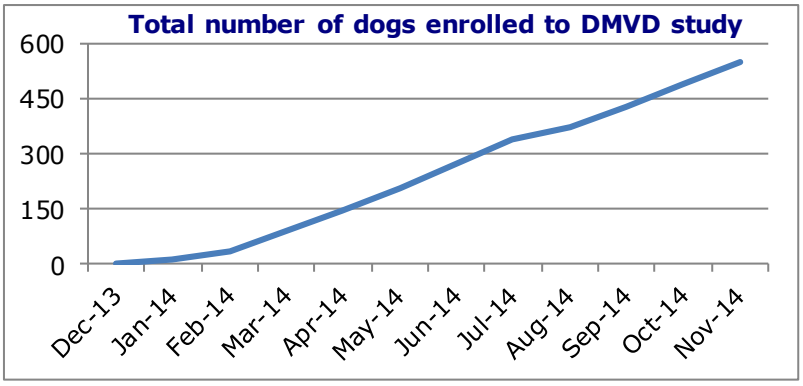
Project progress

Our study aims to evaluate whether cardiac biomarker blood tests (NT-proBNP and troponin I) and clinical measurements are predictive of survival in dogs with degenerative mitral valve disease (DMVD).

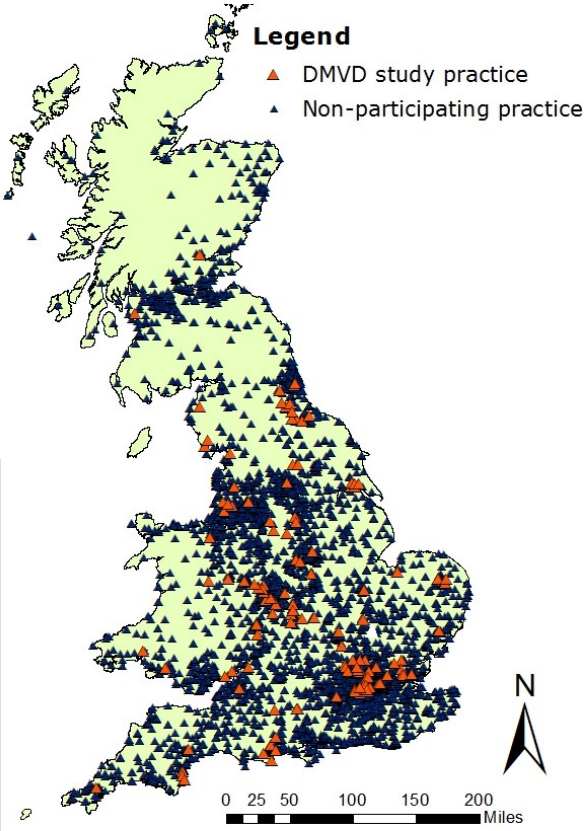
Vets at 75 practices have now enrolled **550 dogs** to the study (Dec 2014), which is great progress!

Thank you to all collaborating practices, dog owners and their pets who have taken part.

We are still keen for more DMVD cases, which benefit from **free cardiac biomarker tests**, so please continue to enrol dogs into the study. Please see page 4 for our **study protocol**.



Distribution of DMVD study participating and non-participating vet practices



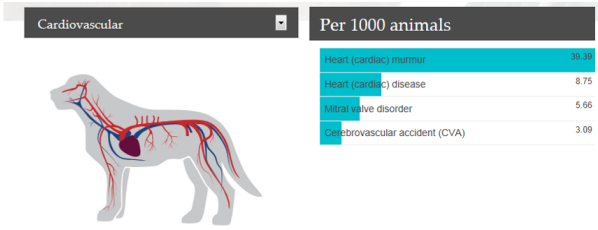
New look VetCompass website!

The VetCompass website has recently been re-vamped and contains useful information on all our projects.

Our **DMVD project webpage** contains regular updates on how the study is progressing and includes links to posters and previous newsletters.

You may also find our new **VetCompass infographics** of interest.

These interactive maps display demographic information and disease prevalence data for dogs attending UK practices. The infographics are accessible to both veterinary staff and pet owners.



RCVS KNOWLEDGE evidence made clear

For more information, please visit www.rvc.ac.uk/VetCompass

Respiratory rate monitoring in dogs

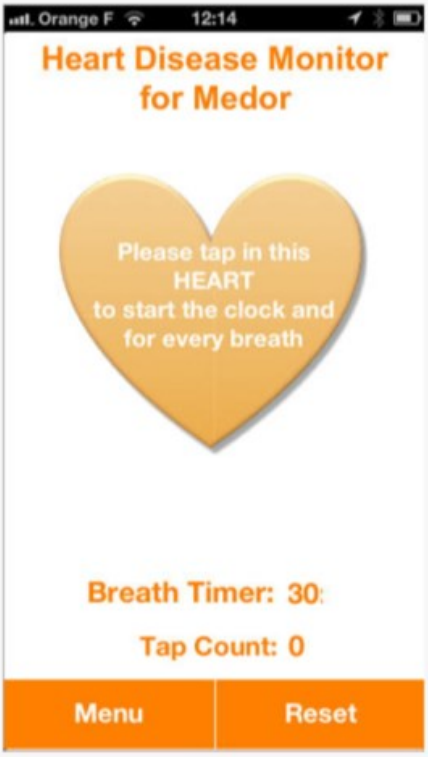
There has been increasing interest in using sleeping respiratory rates (SRR) as a tool to monitor dogs with degenerative mitral valve disease (DMVD).

Dogs with DMVD can remain asymptomatic for extended periods of time before developing congestive heart failure (CHF).[1] Once clinical signs of CHF develop treatment is indicated,[2] so timely detection of disease progression can improve management of DMVD cases.

Mean sleeping respiratory rate (SRR) in dogs with subclinical heart disease is generally <25 breaths per minute (bpm) and rarely exceeds 30 bpm.[3] These rates are similar to those observed in healthy dogs.[4]

Most dogs with CHF caused by DMVD have a mean SRR >40 bpm.[5] Further, resolution of CHF is associated with a decrease in respiratory rate.[5] Recording SRR over time could therefore help with early detection of CHF and monitor CHF patients on treatment.

Measuring SRR at home is relatively straightforward for most pet owners.[3,4,5]



Measurements should be taken when the dog is sleeping deeply in the home environment. Owners should avoid measuring SRR when the dog is in "active motor sleep" (paddling, twitching, vocalising) or in extremes of temperature.[3,4]

Smart phone apps are now available to help assist clients when monitoring their pet.[6,7] The apps can be used to establish a baseline SRR and store subsequent measurements over time.

Whenever possible, we would be grateful if you could ask owners of dogs enrolled to our study to record their pet's SRR at home to allow us to evaluate the prognostic value of this promising tool (see page 4).

References

1. Borgarelli M, et al. Survival characteristics and prognostic variables of dogs with preclinical chronic degenerative mitral valve disease attributable to myxomatous degeneration. Journal of Veterinary Internal Medicine 2012;26:69-75.

2. Atkins C, et al. Guidelines for the diagnosis and treatment of canine chronic valvular heart disease. Journal of Veterinary Internal Medicine 2009;23:1142-1150.

3. Ohad DG, et al. Sleeping and resting respiratory rates in dogs with subclinical heart disease. Journal of the American Veterinary Medical Association 2013;243:839-843.

4. Rishniw M, et al. Sleeping respiratory rates in apparently healthy adult dogs. Research in Veterinary Science 2012;93:965-969.

5. Schober KE et al. Effects of treatment on respiratory rate, serum natriuretic peptide concentration, and Doppler echocardiographic indices of left ventricular filling pressure in dogs with congestive heart failure secondary to degenerative mitral valve disease and dilated cardiomyopathy. Journal of the American Veterinary Medical Association 2011;239:468-479.

6. Google Play https://play.google.com/store

7. iTunes https://www.apple.com/itunes/

Home monitoring of sleeping respiratory rate (SRR)

- In subclinical DMVD cases, mean SRR rarely exceeds 30bpm
- Most dogs with CHF have a mean SRR >40bpm

Retrospective DMVD study results: Part 2

Our summer newsletter summarised the results of a VetCompass study on the prevalence of and risk factors for dogs with DMVD. This issue focusses on the survival characteristics of affected dogs.

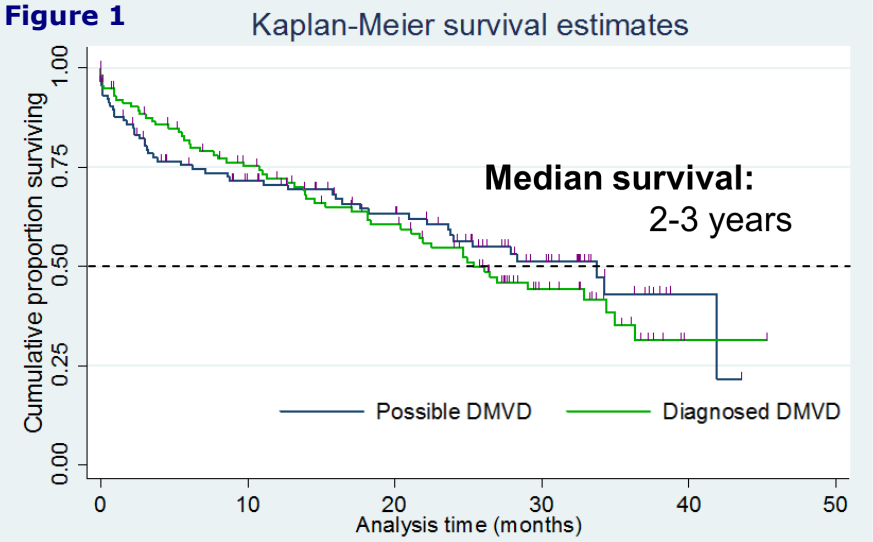
Methods

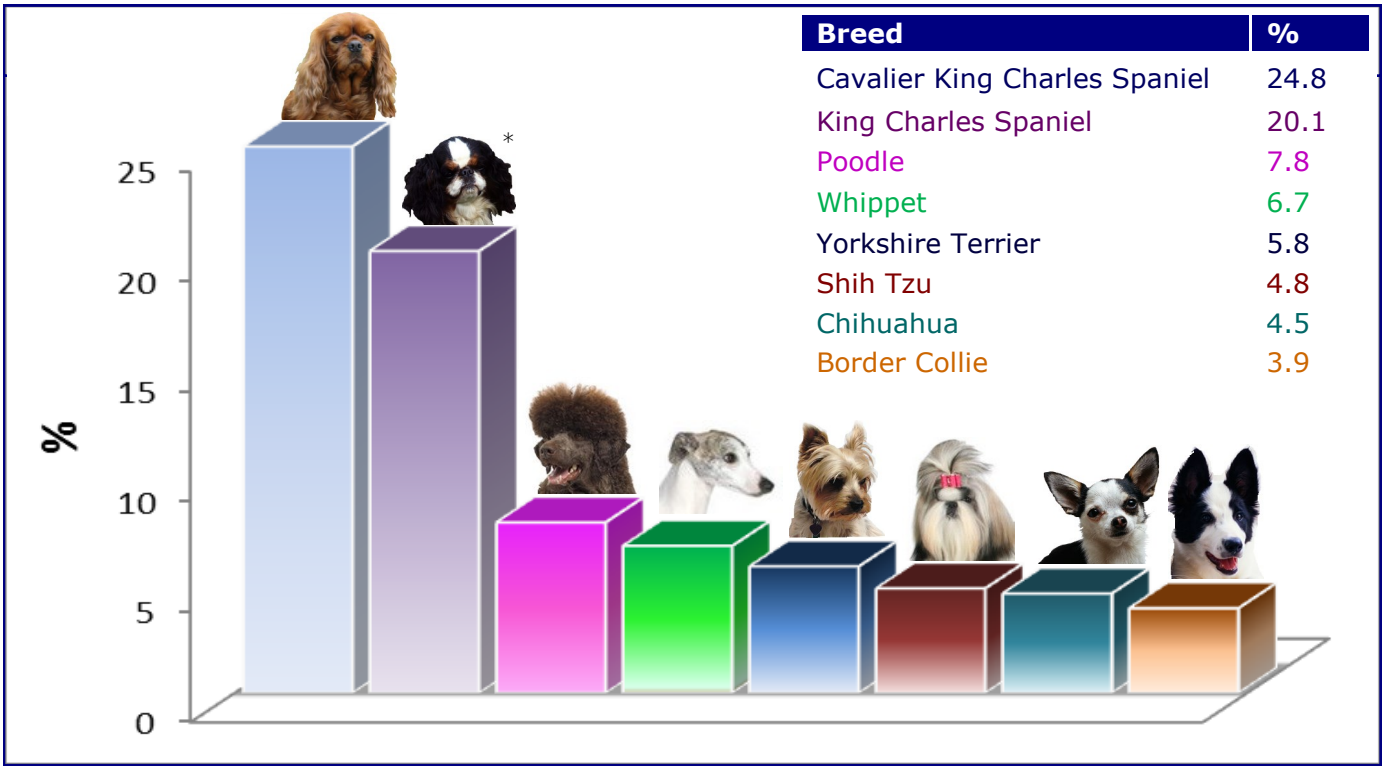
The de-identified clinical records of dogs attending veterinary practices were shared with the VetCompass database. *Diagnosed cases* were defined as dogs with a stated diagnosis of DMVD (or synonym) recorded in their records. Dogs with a documented heart murmur consistent with DMVD were classified as *possible cases*. The time from detection of the disease until the time of death or the last veterinary consultation was derived from the dogs' clinical records.

Results

- The mean age at which the disease was initially detected was 9.5 years (standard deviation 3.2 years).
- The median survival time was 2-3 years (time following disease detection when the cumulative proportion of dogs surviving fell to 50%).
- Purebred dogs, those weighing ≥ 20.0kg and older dogs had a worse prognosis.
- There was no difference in survival (all-cause mortality) between dogs with diagnosed and possible DMVD (Figure 1).

Figure 1





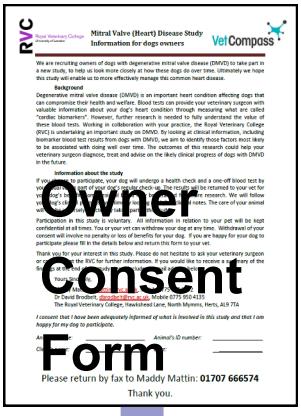
Breed	%
Cavalier King Charles Spaniel	24.8
King Charles Spaniel	20.1
Poodle	7.8
Whippet	6.7
Yorkshire Terrier	5.8
Shih Tzu	4.8
Chihuahua	4.5
Border Collie	3.9

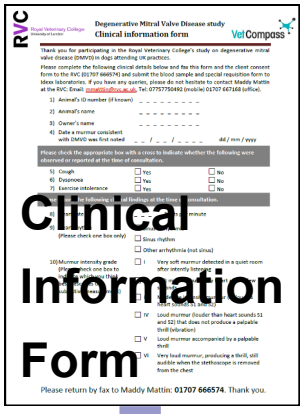
Figure 2: Prevalence of murmurs consistent with degenerative mitral valve disease recorded in the clinical records of high-risk dog breeds *Image courtesy of Diane Pearce Collection / The Kennel Club ©

How to enrol a dog into the prospective study

1. Please obtain **owner consent** using the form provided.
2. Take a 2ml **blood sample** and place it into an EDTA tube. Centrifuge the sample and place the separated plasma into a plain tube labelled with the patient's details & BNPE CANINE.
3. Please complete a **clinical information** form.
4. Fax the consent and clinical information forms to the RVC and submit the blood tube and submission form to IDEXX.
5. Ask the client to record their dog's **sleeping respiratory rate** and subsequently record this in your clinical notes.

Please ask the client to record their dog's respiratory rate when the dog appears to be sleeping deeply (no paddling or twitching) in the home environment, when it is not too hot or cold.





2ml whole blood
→ **EDTA tube**
→ **plasma**
→ **plain tube**

Please fax to the RVC (01707 666574)

Please send to IDEXX, Wetherby

Inclusion criteria

Any dog with DMVD attending primary-care veterinary practice is eligible for inclusion into the study. This includes:

- Both pre-existing and newly diagnosed DMVD cases.
- Dogs with any stage of the disease, from those with asymptomatic murmurs to dogs with CHF.
- Dogs diagnosed with DMVD based on strong clinical suspicion alone (left apical systolic heart murmur and signalment). Confirmation by echo is not required.

Contact us!

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