



## VetCompass™ Newsletter December 2020

For so many reasons, 2020 has been an unforgettable year. The Pandemic has changed how we live and work, and even how we think. The live daily 5pm Coronavirus updates have brought epidemiology into the living rooms and kitchens of the nation, and turned the UK population into a nation of epidemiologists. We are now all sadly so comfortable with terms such as *incidence* and *prevalence*, and *daily mortality rates*. We all now understand the importance of understanding *risk factors* such as age and gender effects. And we have learned the importance of understanding comorbidity with conditions such as obesity and respiratory disease in terms of predisposing to worsened outcomes from a new infection such as Covid19.

The year 2020 was represented the 10<sup>th</sup> anniversary of VetCompass. What started as a PhD project in 2010 at the Royal Veterinary College has now expanded to become a worldwide programme of research with collaborators across Europe, Australia, New Zealand and the US. Previously, epidemiology was a largely neglected discipline in companion animal science, often seen as those ‘boring statistics lectures’ that undergraduates were forced to endure. Now, with access to vibrant and dynamic VetCompass resources, companion animal epidemiology has been reborn and is a leading discipline in our battle to improve animal welfare.

VetCompass shares data with 1800 UK vet practices (over 30% of all UK practices) and includes anonymised health information on over 19 million companion animals with half a billion treatment items sold. These data support studies by undergraduate, Masters, PhD and Post-Doctoral and clinical researchers. VetCompass research has supported 81 peer-reviewed publications and have influenced the policy and decision-making of welfare groups, universities, major charities, research bodies and even government. Over the past decade, VetCompass research has contributed to our knowledge from the primary-care practice perspective on breed health, specific disorders, therapeutics, longevity, demography and machine learning.

A key ingredient to this success is collaboration. VetCompass is an ‘alliance of the willing’ between a broad range of partners who all play a crucial role. We are especially indebted to our growing family of collaborating practice groups that share data with VetCompass. This list includes the Medivet Veterinary Partnership, Vets4Pets/Companion Care, Goddard Veterinary Group, CVS Group, IVC Evidensia, Linnaeus Group, Beaumont Sainsbury Animal Hospital, Blue Cross, PDSA, Dogs Trust, Vets Now as well as many other independent practices. It is the veterinary professionals working at these practices who are the true heroes of animal welfare.

Looking forward, VetCompass will continue lead the way in generating evidence to support companion animal welfare improvement. And the VetCompass concept will extend to also include horses, cattle and sheep. We will support increasing numbers of partners across the world who aim to apply the VetCompass concept in their own countries. We will extend the range of topics that VetCompass explores to include novel domains that are not on the radar of current research.

Yes indeed, 2020 has been a memorable year with remarkable highs and remarkable lows. But the veterinary profession has stepped up and worked tirelessly to maintain the health of the nation’s companion animals in so many ways. We thank you all for your contributions to animal welfare by both your direct work in practice and also by sharing your wisdom with VetCompass.

**We wish you all a very safe and happy Christmas. And may 2021 be a better year for everybody in so many different ways.**

**Merry Christmas and a Happy New Year!**

*The VetCompass Team*



## Ongoing projects:

### Leptospirosis in Dogs in the UK

**Collette Taylor** is a 3<sup>rd</sup> year LIDo iCASE PhD student working on canine leptospirosis in the UK. This year she has been exploring spatial variation and environmental risk factors associated with leptospirosis cases. To complement this risk factor work, she has also been exploring leptospirosis vaccine usage in VetCompass dogs.

- **Using a laboratory submissions database of leptospirosis tests from 2009-18 (IDEXX laboratories) the following spatial variation and environmental risk factors were identified:**
  - A cluster of cases was found on the Welsh/English border near Shropshire.
  - There was an increased risk of leptospirosis cases in October – January.
  - Areas with warmer annual average temperatures, urban/suburban land and areas with higher density of horses had increased probability of leptospirosis.
  - There was variable association between different leptospira serogroups (strains) and the environment – suggesting that different serogroups occupy different niches in the environment.
- **Factors associated with leptospirosis vaccination in all VetCompass dogs under primary veterinary care in 2016 have been explored:**
  - Approximately half of the dogs are up to date with leptospirosis vaccination (49%).
  - Adult dogs (> 1 year) had reduced likelihood of receiving a leptospirosis vaccine compared with dogs < 1 year old.
  - Most breeds had increased likelihood of receiving a vaccination compared to crossbreeds, however certain breeds (French bulldogs, Staffordshire Bull Terriers and Pugs) had reduced likelihood of receiving a vaccination.



This approach will then be used to explore changes in factors associated with leptospirosis vaccination across other years.

The work on demographic and environmental risk factors was presented at The European Veterinary Internal Medicine - Companion Animals Conference 2020. Collette's talk on environmental risk factors was awarded Best Oral Abstract in the Infectious Diseases Stream!



## Re-Inventing Diagnosis of Canine Hyperadrenocorticism

**Imogen Schofield** is a third year PhD student and is investigating Cushing's syndrome in dogs, funded by Dechra Veterinary Products.

This year, Imogen has explored VetCompass data from 886 practices to develop **a new tool for vets** to assess the likelihood of Cushing's syndrome in their canine patients.



- The tool was **specifically designed for use within primary-care practice**, using real cases from within practice, to directly support vets when diagnosing Cushing's syndrome.
- The tool is made up of 10 'predictive' factors for Cushing's syndrome. If you suspect Cushing's in your patient, the tool will tell you the probability of that dog having Cushing's. This **can help you decide whether further testing is needed**.
- It is **freely accessible** here:
  - o <https://www.rvc.ac.uk/Media/Default/VetCompass/Documents/cushings-prediction-tool.pdf>

The full paper, along with details of how to use the tool, has been published in the Journal of Veterinary Internal Medicine and is freely available open access: [onlinelibrary.wiley.com/doi/full/10.1111/jvim.15851](https://onlinelibrary.wiley.com/doi/full/10.1111/jvim.15851)



### Have you recently diagnosed Cushing's in a dog?

Imogen would love to hear from you!

Imogen is currently talking with vets about their experiences with diagnosing Cushing's, as well as thoughts for how the diagnostic process could be better supported for you within practice. If you would like to contribute to science and share your experiences, good or bad, of diagnosing Cushing's case, please email Imogen at:

[ischofield6@rvc.ac.uk](mailto:ischofield6@rvc.ac.uk)

Imogen Schofield, David Church,  
Dave Brodbelt, Stijn Niessen and Dan O'Neill



## The Kennel Club Charitable Trust – VetCompass Collaboration

The Kennel Club Charitable Trust (KCCT) project within VetCompass is continuing to improve dog welfare in a real and tangible way. The KCCT initially awarded 12-month funding during 2018 (which was extended and has been running ever since) for a VetCompass project with the natty name of ‘Evidence-based prioritisation of disorders using epidemiological data on dog breeds from VetCompass primary-care veterinary clinical records’.



The project aimed to support the Kennel Club’s (KC) ‘Breed Health and Conservation Plan (BHCP)’ project (The Kennel Club, 2019) which initially focussed on some specific high priority breeds with substantial welfare issues. It was recognised at that time that laudable efforts to improve breed health such as the Kennel Club’s BHCP were heavily constrained by a paucity of relevant health and demographic data. The project set a challenging target to deliver four peer-reviewed papers in its first year, which it succeeded and surpassed, delivering papers on the health of West Highland White Terriers, Bulldogs, Greyhounds and Miniature Schnauzers to name a few. The second year of funding has now come to an end, delivering 4 peer-reviewed papers (highlighted in green in the publication list below). These papers are now supporting the Kennel Club to develop evidence-based breed-specific strategic health plans for key breeds in need of health assistance.

This story shows the power of charity funding to make a real difference to dog welfare when the focus of the work is firmly linked to methods of translating academic research into welfare action.

## Antimicrobial use in Companion Animals



**Alice Tompson** has just completed her PhD based at London School of Tropical Medicine & Hygiene and RVC. Her study involved analysing VetCompass data and undertaking ethnographic fieldwork at three first opinion clinics to better understand the context surrounding antimicrobial use in companion animals.

Alice is looking forward to sharing her thesis findings and contributing to the design of sustainable antibiotic stewardship interventions. A snippet of her thesis findings is presented in the following publication: “What drives antimicrobial prescribing for companion animals? A mixed-methods study of UK veterinary clinics” (<https://doi.org/10.1016/j.prevetmed.2020.105117>). Please contact Alice ([alice.tompson@lshtm.ac.uk](mailto:alice.tompson@lshtm.ac.uk)) if you are unable to access the full article and/or are interested in finding out more.



## Heat-related illness in Dogs

**Emily Hall** and **Anne Carter** at Nottingham Trent University are working with the RVC's Dan O'Neill on the "Hot Dogs – investigating the epidemiology of canine heatstroke presenting to UK primary care veterinary practices" VetCompass™ project funded by a Dog's Trust Canine Welfare Grant.



Two oral presentations on initial findings from the project were presented at BSAVA Congress 2020 and have now been shared globally in two publications this summer. The project has so far:

- Identified 1222 confirmed heat-related illness cases from dogs in the VetCompass database:
  - Heat-related illness includes all forms of heat induced disease from mild heat stress, to the severe life-threatening form heat stroke.
  - There were around 44 heat-related illness cases identified per 100,000 dogs in 2016.
  - The fatality rate for heat-related illness in 2016 was 14% - meaning 1 in every 7 dogs affected by the condition died as a result.
  - Brachycephalic (flat-faced) dogs had twice the risk of heat-related illness compared to dogs with a mesocephalic (medium proportioned, like a Labrador) skull shape.
  - The Chow Chow, Bulldog and French Bulldog had the highest risk of heat-related illness among common UK breeds.
- Generated an updated international strapline: "Dogs die in hot cars – and on hot walks!" (link to [BVA blog](#))
  - Exercise is the most common trigger of heat-related illness in dogs, accounting for almost three quarters of all cases presenting to primary-care UK veterinary practices.
  - Like humans, the dogs most likely to develop exertional (exercised induced) heat-related illness are young and male, whilst older dogs and dogs with respiratory disease are more likely to develop environmental heat-related illness (due to hot weather).
  - Heat-related illness can affect dogs all year round but, as the UK's hottest month, July is the month to be most careful with a third of all cases occur then.



But the work never stops. The "Hot Dogs" team have been joined by **Jude Bradbury** from Nottingham Trent University, and the RVC's **Dominic Barfield** to start exploring the clinical diagnosis and management of heat-related illness in primary-care veterinary practice, with extension funding from Dogs Trust. The team hope to share more findings from this project in the new year.

Open Access Publications:

Incidence and risk factors for heat-related illness (heatstroke) in UK dogs under primary veterinary care in 2016 (<https://www.nature.com/articles/s41598-020-66015-8>)

Dogs Don't Die Just in Hot Cars—Exertional Heat-Related Illness (Heatstroke) Is a Greater Threat to UK Dogs (<https://doi.org/10.3390/ani10081324>)



## Diabetes mellitus in Dogs

**Diabetes mellitus in dogs** is a condition frequently encountered in general practice. **Angela Heeley** is working on this VetCompass project, which has so far explored a number of **risk factors** involved in the development of the disease, and the **survival** of these dogs. A study comparing 409 dogs diagnosed with diabetes mellitus in 2016 with 818 dogs without the disease found that:



- Diabetes mellitus is more likely to be diagnosed in dogs older than 8 years, entire female dogs, neutered male dogs, Border Terriers, West Highland White Terriers and those with other health conditions such as obesity, pancreatitis and hyperadrenocorticism. Conversely Staffordshire Bull Terriers, Shih-tzus and German Shepherd Dogs were less likely to develop diabetes.
- Factors associated with decreased survival in dogs with diabetes mellitus included being >10 years old at diagnosis, having very high blood glucose readings at diagnosis, Cocker Spaniels, and recent glucocorticoid medication. Increased survival was seen in neutered dogs, Border Collies and dogs starting insulin treatment.

### Open Access Publications

Diabetes mellitus in dogs attending UK primary-care practices: frequency, risk factors and survival (<https://cgejournal.biomedcentral.com/articles/10.1186/s40575-020-00087-7>)

This project is now looking to explore the use of antibiotics and, through their impact on the microbiome, how these drugs may affect the development of diabetes mellitus.

## VetCompass farm animal health surveillance

**Doaa Elkholly** started her **Bloomsbury funded** PhD project in October 2019 working on antimicrobial use in farm animals using both quantitative and qualitative research approaches.

VetCompass has recruited thirty-nine farm animal practices to participate in VetCompass studies. This year, Doaa has been exploring the treatment and clinical records for these participating practices to estimate the antimicrobial usage, to describe the clinical indications and demographic characteristics of farm animals receiving antimicrobials and to evaluate risk factors associated with antimicrobial usage.

Doaa has been preparing to interview vets and support staff. She will also interview farmers and other stakeholders to investigate the barriers and facilitators behind prescribing antimicrobials in farm practices.



A better understanding of antimicrobial usage in farm animals and the influences behind prescribing will help to provide much needed baseline data from farm practices.



## New projects underway:



### Pandemic Puppies

There has been a seismic shift in the demand for puppies since the Covid19 pandemic hit the UK. Puppy prices have soared, and we now purchase puppies in very different ways. These, and other changes, are likely to lead to substantial welfare impacts for this current 'pandemic generation' of puppies. In an effort to understand the true depth of changes to UK puppy-buying habits, VetCompass is collaborating with the Pandemic Puppies project at the RVC to investigate this phenomenon by carrying out one of the biggest owner surveys ever conducted in the UK.

The study is funded by the Animal Welfare Foundation of BVA and is led by Rowena Packer along with Dan O'Neill, Claire Brand, Zoe Belshaw and Camilla Pegram. The study involves an online questionnaire of owners of any puppies bought during 2019 or 2020 to compare the 'how's and whys' of pandemic puppy purchase versus 'typical' dog purchasing in the UK. The Pandemic team are keen to recruit owners of any breed or crossbreed to allow comparison between groups.

The survey is available right now and will remain open until 31 December 2020. It takes just 20 minutes to complete, although there is an option to answer a shorter 15 minute version. The information collected will help us provide support to owners regarding their dogs' future welfare and will inform future educational messaging on how best to buy a puppy to promote dog welfare.

We would be very grateful if you could share this project with your clients via your social media or directly in your practices. We would like to hear from dog owners who meet ALL of the following four criteria:

- Are over 18 years of age.
- Resident in the United Kingdom.
- Brought a puppy of any breed or crossbreed home aged under 16 weeks during 2019 or 2020.
- Purchased a puppy from a private seller (i.e., did not breed them, and paid for the puppy AND did not obtain them from a formal rescue organisation, as we are interested in the process of buying a puppy).

An open access peer-reviewed paper from this study will be submitted in Summer 2021 and will be sent to all owners who indicate they would like this and provide an email address to contact them at the end of the survey.

To take the survey scan the QR code above or visit: <https://rvc.uk.com/pandemic-puppy-survey>

Please join us in gathering as much information as possible on the Pandemic Generation of puppies. Thank you for your support.



## Other activities:

### Widening dissemination using infographics

Research alone doesn't change animal welfare; a limiting factor is often effective dissemination strategies that share this information with relevant stakeholders and opinion-formers. VetCompass aims to summarise and present the key findings from research papers in digestible and eye-catching presentations and share these widely.

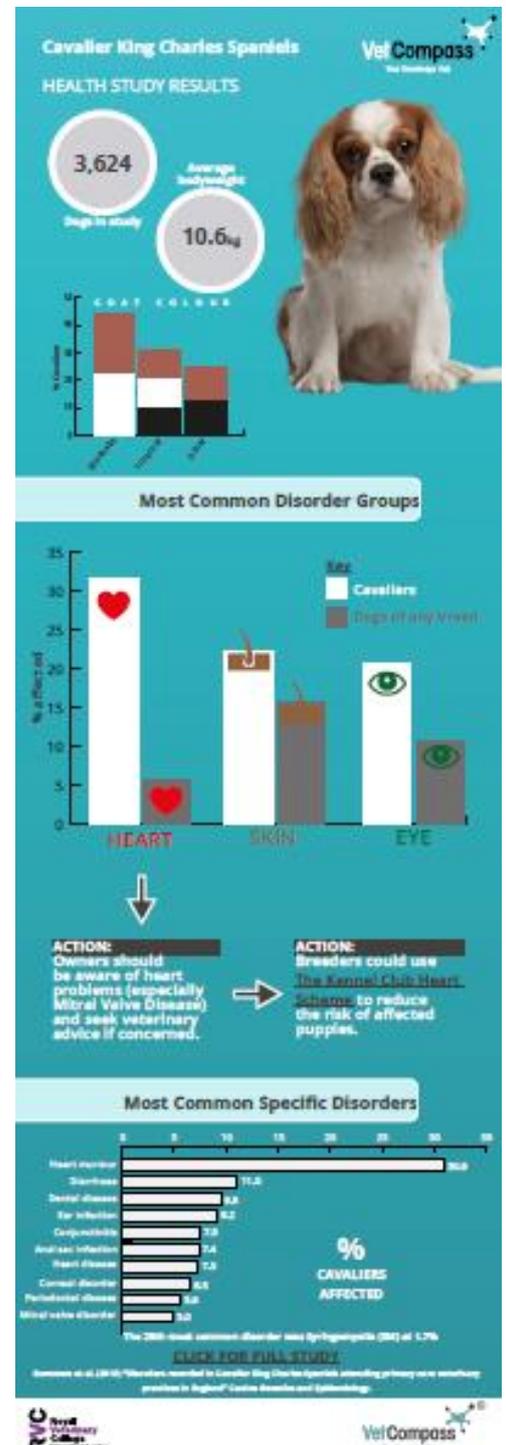
VetCompass has reframed the typical academic model whereby scientific research is mainly shared with just other scientific colleagues. Instead, by presenting cutting-edge science via infographics and by disseminating these widely, VetCompass is empowering owners, breeders and veterinary professionals to apply the latest evidence to improve their animal's health, and consequently human health.

Dissemination strategies used to date for these findings and recommendations have included:

1. General and veterinary-specific press releases
2. Radio and other media interviews
3. Social media posts including Twitter and Facebook
4. Sharing by organisational partners such as the Kennel Club or British Veterinary Association
5. Sharing by veterinary clinical practices

Each VetCompass infographic summarises the key study findings which are presented using images, graphical data and links to the full study, along with action points or take home messages for owners and breeders. The format over successive infographs is standardised, with the aim to become instantly recognisable as VetCompass research and easily read and interpreted. The infographics can be directly accessed by the general public, or can be used as a resource by veterinarians. For prospective pet owners considering a particular breed, or when a vet has just diagnosed an animal with a specific condition, we are now entering an era where veterinarians can direct owners to the relevant VetCompass infographic as an eye-catching, educational and evidence-based resource that will offer reliable information and advice.

The infographics are freely available to download from the RVC VetCompass website: <https://www.rvc.ac.uk/vetcompass/learn-zone/infographics>





## RVC Brachycephalic Research Team

The RVC is a world-leader among research centres that investigate brachycephalic health and welfare.

The RVC sees the brachycephalic issue as a highly complex system and therefore takes a holistic approach to brachycephalic research that covers basic and population science, human social factors as well as clinical and welfare work. RVC academics and researchers are recognised globally as international experts who work collaboratively within multi-disciplinary teams to generate new knowledge that ultimately improves animal welfare.

As part of these efforts, the RVC has now formed a dedicated Brachycephalic Research Team to maximise collaborative focus on the priority issues among the brachycephalic questions. Comprising many experts in their fields, this team will work towards providing an ever-stronger evidence-base on which positive reforms can be built.



VetCompass is leading the epidemiology discipline, bringing an evidence-based approach to the health and welfare issues of brachycephalic breeds. Experts in behavioural science, ophthalmology, neurology, anaesthesiology, ethics, dermatology, internal medicine, emergency and critical care, soft-tissue surgery, orthopaedics and genetics are also involved.

The RVC will never stop caring for existing flat-faced animals and their owners, as shown by our record of research, clinical and teaching activities. However, the RVC is also aware of the many problems that face flat-faced animals due to the recent large rises in their popularity combined with their intrinsic health issues. With this supportive and caring background in mind, the RVC Brachycephalic Research Team advises anyone thinking of purchasing a flat-faced animal to **'Stop and think before buying a flat-faced dog'**.

Read more at: <https://www.rvc.ac.uk/research/focus/brachycephaly>



## VetCompass Publications 2020

1. [Demography and commonly recorded clinical conditions of Chihuahuas under primary veterinary care in the UK in 2016](#)
2. [Staffordshire bull terriers in the UK: their disorder predispositions and protections](#)
3. [Unravelling the health status of brachycephalic dogs in the UK using multivariable analysis](#)
4. [Incidence and risk factors for heat-related illness \(heatstroke\) in UK dogs under primary veterinary care in 2016](#)
5. [Dogs Don't Die Just in Hot Cars - Exertional Heat-Related Illness \(Heatstroke\) Is a Greater Threat to UK Dogs](#)
6. [Development and internal validation of a prediction tool to aid the diagnosis of Cushing's syndrome in dogs attending primary-care practice](#)
7. [Diabetes mellitus in dogs attending UK primary-care practices: frequency, risk factors and survival](#)
8. [Seizures in dogs under primary veterinary care in the United Kingdom: Etiology, diagnostic testing, and clinical management](#)
9. [Vestibular disease in dogs under UK primary veterinary care: Epidemiology and clinical management](#)
10. [Epidemiology of recurrent seizure disorders and epilepsy in cats under primary veterinary care in the United Kingdom](#)
11. [Clinical management of lipomas in dogs under primary care in the UK](#)
12. [Epidemiology and clinical management of elbow joint disease in dogs under primary veterinary care in the UK](#)
13. [Side Effects to Systemic Glucocorticoid Therapy in Dogs Under Primary Veterinary Care in the UK](#)
14. [What drives antimicrobial prescribing for companion animals? A mixed-methods study of UK veterinary clinics](#)
15. [The use of hydrolysed diets for vomiting and/or diarrhoea in cats in primary veterinary practice](#)

## For further details:



More information on VetCompass projects can be found at  
[www.rvc.ac.uk/vetcompass](http://www.rvc.ac.uk/vetcompass)



Alternatively, please contact the VetCompass team (pictured left)  
by

**Email:** [vetcompass@rvc.ac.uk](mailto:vetcompass@rvc.ac.uk)

## References:

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